AN ABSTRACT OF THE THESIS OF

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Purpose

The purpose of this study was to identify the major contributive factors affecting enrollment trends in secondary level agricultural programs in Oregon and California, as perceived by Oregon and California agricultural instructors and their respective principals.

Methods and Procedures

A review of the literature revealed three areas that were viewed to contribute to enrollment fluctuations in secondary agricultural programs: 1. agricultural economic cycles; 2. an increasing number of academic requirements for graduation from secondary schools; and 3. overall quality of agricultural programs.

The instrumentation was a mailed questionnaire, developed using a panel of experts, which addressed demographic data and program quality factors. Subjects were randomly selected and the questionnaire was mailed to teachers and principals from 50 schools in Oregon and 100 schools in California in Fall 1989. In Fall 1994, the study was replicated and included those schools where both teacher and principal responded to the 1989 survey. Pearson Correlations, Wilcoxon Matched Pairs Signed-Ranks Test, Mann-Whitney U Test, One Way Analysis of Variance, Fishers z-Transformation statistical tests were used to analyze the data for interpretation.

Findings and Conclusions

There was a high degree of agreement in 1989 and 1994 between teachers and principals from both Oregon and California concerning those factors which consistently ranked highly as positive factors affecting an increase in agricultural enrollment. These were: 1) Competent and qualified agricultural instructor; 2) Positive image of the FFA; 3) Quality agricultural curriculum and course offerings; and 4) A class schedule that limited conflicts. The 1994 data revealed an additional factor, parents positive image of agriculture as a good career, as contributing to enrollment increases.

During times of declining agricultural enrollment, enrollment increases were slow to respond to program improvement efforts. Inversely, during times of increasing school enrollment, agricultural enrollment more readily respond to program improvement.

In general, California teachers and principals tended to agree more on factors that contribute to quality programs than did Oregon teachers and principals.

Oregon and California teachers agreed on the factors that affect increases and decreases in agricultural enrollment, and while not as consistent, Oregon and California principals agreed also.

Factors Affecting Enrollment Trends In Secondary Agricultural Programs As Perceived by Oregon and California Secondary Agricultural Instructors and Their Respective Principals.

by

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Mark Edwin Bender, Author

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Factors Affecting Enrollment Trends In Secondary Agricultural Programs As Perceived by Oregon and California Secondary Agricultural Instructors and Their Respective Principals.

CHAPTER 1

INTRODUCTION AND RELATED LITERATURE

California and Oregon secondary schools have traditionally had strong secondary programs in agriculture. Historically, agricultural program enrollments in both states had been on a steady incline with California peaking in 1977-78 and Oregon peaking in 1976-77 (California Department of Education R-2 and Oregon Department of Education, SERVE, Vocational Agriculture Enrollment Reports 1978, 1985). In 1977, Oregon reported over 7500 students enrolled in agricultural programs. In 1978, California reported over 51,800 students enrolled in agricultural programs. This increasing enrollment trend changed dramatically in the succeeding years.

In the years between 1977-78 and 1985-86, California agricultural program enrollment dropped to 34,484 students, a decline of 33.43 per cent. The 1985-86 Oregon enrollment was 5307 students, a decline of 29.24 per cent (California Department of Education R-2, and Oregon Department of Education SERVE, Vocational Agriculture Enrollment

Reports 1978, 1985). Why this decline occurred caused a great deal of speculation by school administrators, agricultural instructors, agricultural educators and concerned agriculturalists who were involved in various agricultural industries (Scott, 1987).

The primary reasons most often cited for the enrollment decline at that time included:

1. Past and present agricultural economic cycles and their attendant crises had a negative impact on career decisions concerning agricultural occupations (Bowen, 1986). These may have resulted in a reduction in the number of individuals who sought educational training in agriculture.

2. There had been an increasing emphasis on academic rigor which continues to be translated into additional academic requirements for graduation from secondary schools (National Commission on Excellence on Education, 1983; Pipho & Flakus-Mosqueda, 1984). A study conducted by the State of California concluded: "...the increased graduation requirements have precluded the students' opportunity to avail themselves of the programs which they may decide they want and need to succeed to graduation and after" (Price, 1985, p. 84).

3. Program quality has always been a major issue in determining why certain programs thrive where others diminish. Program quality standards, with appropriate measurement criteria, based on principles of vocational education, have been developed by both Oregon and California and are used as a basis in evaluating and assessing agricultural programs (Oades & Deeds, 1978; SB 187 Committee Report, 1982). Evaluation was perceived as an important aspect of program improvement. Other states have developed evaluation criteria and instruments. For example, the process followed in Colorado is called "An Instrument for Evaluating Departments of Vocational Education." McCracken explained that "Most states should have an evaluation procedure available to agricultural departments in that state" (McCracken, 1972, p. 29)

A secondary reason, school budgetary constraints, may have caused some administrators to look more closely at the relatively high cost of vocational programs as compared to academic programs. A 1985 study by the State of California said that "...a shortage of funds being spent on vocational education programs has reduced a district's ability to offer viable programs..." (Price 1985, p. 84). Adequate facilities and accompanying budgets help ensure that quality programs are maintained.

Declining enrollments continued in California until 1987-88 at which time 30,109 students were enrolled in agriculture. This was 41.87 per cent less than the peak in 1977. In Oregon program numbers reached a low in 1984-85 with 4899 students enrolled in agricultural courses. This was 34.68 per cent less than the peak in 1978. With few exceptions, agricultural enrollments have been on the incline since these low enrollment points. In the most recent enrollment reports, 1993-94, California had 42,667 students enrolled in agriculture, an increase of 23.73 per cent. Oregon reports show 6617 students enrolled in agriculture and forestry programs, an increase of 35.07 per cent, (California Department of Education R-2 and Oregon Department of Education SERVE, Vocational Agriculture Enrollment Reports, 1978, 1985, 1994).

1.1 Statement of the Problem

Without knowing why enrollments fluctuate, agricultural programs and their instructors may face uncertain futures with little evidence that will assist them in turning low enrollment problems around or dealing with increasing numbers of students with limited resources. Therefore, this study was designed to provide preliminary data with which agricultural instructors could work to increase enrollment, or, at the very least, minimize potential problems associated with enrollment declines.

1.2 Population Trends

As a result of a low birth rate in the early 1970s (National Center for Health Statistics, 1975; United States Department of Commerce, Bureau of the Census, 1975), the declining population of high school age children exacerbated the problem of declining enrollments in secondary agricultural programs through the 1980s. From the high point of 3.8 children/woman in 1957 to the low of 1.8 children/woman in 1977, declining birth rate affected the potential pool of entering students and explains the secondary enrollment trends for the past 25 years. As predicted in 1975/76, secondary enrollments were expected to decline until 1990 and then increase by approximately six per cent between 1990 and the year 2000 (Frankel & Simpson, 1976; United States Department of Commerce, Bureau of the Census, 1975).

This population trend proved conservative as the succeeding years' enrollment figures revealed. Since 1988-89, Oregon secondary enrollments have increased from 135,945 to 146,321 (Oregon Department of Education, 1988-89, 1994-95). This increase amounts to 7.63 per cent. During the same period, California secondary enrollments went from 1,622,275 to 1,758,600, an 8.4 percent increase(California Department of Finance, 1995). This study asked: Did agricultural

enrollment change differently from the general population's change and if so, what were the contributing factors associated with this change?

1.3 Rationale and Related Literature

If Agricultural Education at the secondary school level is to survive, program decisions by administrators and agricultural instructors must be based on quantitative information. Decisions, which affect programs and ultimately affect students, should be based on fact not speculation. The literature suggests that the vast majority of people need vocational education. *The Unfinished Agenda* verifies that eighty percent of the jobs in America do not require a baccalaureate degree (National Commission on Secondary Vocational Education, 1984). We have seen the basis for the importance of vocational education and the need to maintain access for all individuals who desire or need the training.

In the early 1980's, enrollment decline was attributed to three major factors: the agricultural economic crisis, the "Excellence in Education" movement's effect on increased graduation requirements, and lack of quality programs (National Commission on Excellence in Education, 1983; American Vocational Association, 1984). Although these areas of speculation had not been totally documented, considerable

discussion had occurred among agricultural teachers, state agricultural education staff, and agricultural teacher educators as to what may have caused the enrollment decline in agricultural programs. Discussions occurred at national conferences, district and regional meetings, and through agricultural journals (Glover, 1986). Increased graduation requirements, poor agricultural economic situations, problems with budgets, and concern for quality agricultural programs repeatedly surfaced as prime concerns (Price, 1985; Ginder, Stone, & Otto, 1985). As student numbers in programs declined, causing some program closures and/or agricultural staff reductions, the pressure increased to solve this complex problem. However, even as enrollments began to increase in the later half of the 1980's and into the 1990's, there was a need to identify the extent to which the above factors may have contributed to enrollment trends.

1.4 The Agricultural Economy and Enrollment

The plight of American agriculture has been "sensationalized" in the news media. Newspapers, magazines, farm publications, and television have frequently reminded us of the various crises in American agriculture. Farm Debt increased from $81.8 billion in 1974 to $210 billion in 1985, a 157 per cent increase in 11 years. Land values declined nationally, 19 per cent from 1981 to 1985 (Glover, 1986) with

Oregon's farm land decreasing 21 per cent and California's farm land maintaining static values (United States Department of Commerce, Bureau of the Census, 1994). During the same period, farm exports declined from $43.78 billion to $32 billion, a 27 per cent decrease (Glover, 1986). The decade of the 1980's suffered the worst economic conditions since the Great Depression. States relying heavily on an agricultural economic base felt a significant negative impact on consumer and retail services, social institutions such as schools and churches, and the financial health of the state in general (Ginder et al., 1985). The nation started the 1990's in better economic shape than it had been in for 15 years and began a trend of moderate recovery (Mitchell, Therrien, & Cahan, 1990).

In 1987, farms faced a bleak economic picture with declining income, increasing debt, decreasing land values and declining agricultural exports. Parents might have been reluctant to encourage their children to consider agriculture as an occupational option. Hamachak (1971) found that parents and peers had a significant influence on an individual's decision making process. Further, Daniels, Karmos, & Presley (1983), found that this influence extended to an individual's career decision and concluded that parents were in the best position to influence their children's career decision. This parental

influence was viewed as significant especially when considering Byler's finding that fathers had the greatest influence on their children's career choices (Byler, 1975). Further, in the same study, it appeared that the father had a definite influence on their children's decision to attend college. A 1967 study found that mothers had the greatest influence on their children's educational decisions. In this same study, respected teachers had the second most important influence on educational decisions. Fathers ranked third in influence (Drabick, 1967). Interestingly, a study conducted in the Federal Republic of Germany found that parents had the greatest influence on student's choice of profession, but found that peers ranked second in influence, with agricultural enterprises, other institutions, vocational guidance centers, teachers, and mass communication following in rank order of importance (Sube, 1981). This being the case, if students were frequently told by parents, news media and peers that agriculture was a poor career choice, the pressure may have been too great to make agriculture their professional choice and to enroll in secondary level agricultural courses.

By the 1990s, the financial balance sheet had not fully recovered from agriculture's mid-1980s financial crisis (Greising, 1992). While costs have remained relatively steady (Erickson, 1992; Looker, 1993), income has been unreliable and inconsistent. Farm debt, while

decreasing, has remained an issue closely tied to profit. As net income increased, the ability to decrease debt increased (Mitchell, Therrien, & Cahan, 1990; Greising, 1991). Land values have shown very moderate increases (Greising, 1992). It appears that agriculture has not made the stunning recovery predicted at the turn of the century in the January issue of *Business Week* (Greising 1991). What effect this moderate improvement in the agricultural economy had on secondary level agricultural enrollments is unclear. While enrollments have increased, how much influence has the agricultural economy had on students enrolling in secondary level agricultural courses? The 1994 portion of this study was conducted, in part, to attempt to answer this question and to determine if there had been a change of attitude by students, teachers, and/or parents.

1.5 "Excellence in Education" and Increased Graduation Requirements

The "Excellence in Education" movement proposed in *A Nation at Risk* (1983) has been translated in our public schools to an increased number of academic course requirements. This emphasis on increasing the number of required courses has had a negative impact on agricultural students' enrollment options.

Most states, including California and Oregon, have increased the high school graduation requirements in the academic areas (Strickland & Elson, 1987). In fact, Frantz (1986) found that 45 states had increased high school graduation requirements. This could negatively impact enrollment in vocational courses. In a 1984 study, 53 per cent of the vocational educators surveyed responded that the increased academic course graduation requirements had moderately or severely affected enrollment in vocational courses (Pipho & Flakus-Mosqueda, 1984) in general, and agricultural enrollment specifically (Frantz, Strickland, & Elson, 1987, 1994). Accordingly, states vary as to the number of elective credits that can be used to satisfy graduation requirements from 1 to 11 over the three to four year high school period (Plinsko, 1984). With the decrease in elective credits satisfying graduation requirements and increased academic requirements, constraints were placed on students who wished access to vocational courses (National Commission on Secondary Vocational Education, 1984). Schools that had increased the number of daily class periods, increased opportunities for students to enroll in vocational and agricultural courses (Hoachlander, 1992). Additionally, Frantz, Strickland, & Elson (1994) found that increasing the number of instructional periods in a school day resulted in increased agricultural enrollment. On the other hand, many schools had not increased the number of class periods in the school day, resulting in

fewer class periods available for the individual student to enroll in elective/agricultural courses (Hoachlander & Tuma 1989). Further, the same study suggests that in schools where agricultural courses did not fulfill general education graduation requirements, some of the reduction in agricultural enrollment may be explained by reduced access. Hoachlander and Tuma also suggest that other factors may have contributed to declining enrollments including a general decrease in secondary school enrollments, higher rates of students failing required courses, and inadequate attention to extracurricular activities. Another study, however, discounts the theory that increased graduation requirements are responsible for declining vocational enrollments. Instead, declining vocational enrollments are proposed to be a function of declining secondary enrollments (Strickland & Elson, 1987).

In an effort to combat the effects of increased graduation requirements, leaving fewer periods for electives, agricultural instructors have attempted to obtain general education credit for various agricultural courses. This practice is not new. Historically, students taking agricultural courses in some schools have received science and math credit toward graduation (Roegge, 1987). A 1984 study by the National Commission on Secondary Vocational Education recommended that "Students should be allowed to satisfy some requirements for high school

graduation, e.g. math, science, English or social studies, with selected courses in areas of vocational education that are comparable in content coverage and rigor" (National Commission on Excellence in Education, p 26). Further, in 1984, *A Vocational Education Trends and Priorities Study* commissioned by the Missouri General Assembly stated, "Many vocational classes contain substantial levels of communications, computational, or scientific knowledge. These are identifiable and should be recognized for equivalent language arts, mathematics, or science credit" (Hamby & Rohrbach, 1987, page 13; Missouri Division of Career and Adult Education, 1984). The same study, reported in *The Agricultural Education Magazine* (1987), concluded that an attempt was being made to identify which essential core competencies, listed in The National Academy of Science report entitled "High Schools and the Changing Workplace" (1981), were being satisfied in various agricultural courses in Missouri (Hamby & Rohrbach, 1987). Of the 10 essential core competencies listed, those found to be an inherent part of the agricultural curricula were "computation; a knowledge of the basic principles of the physical and biological sciences; possession of attitudes and personal habits that make for a dependable, responsible, adaptable, and informed worker and citizen" (page 14). Another study conducted in 1986 concurs. Thirteen vocational courses were studied to determine which basic skills were being taught and suggested that vocational

courses satisfy graduation requirements where those essential competencies can be demonstrated (Sharpe & Sharpe, 1986). However, a 1992 study disagrees. When 1,924 vocational teachers responded to a questionnaire asking a variety of questions about curriculum, student success characteristics and program demographics, data suggested that the math and science content was limited in vocational courses. It is apparent that math and science content may not be consistent in all vocational areas (Heaviside, Carey, & Farris, 1994).

Equivalency is the key. Does one year of an agricultural course satisfy one year of math or science, or does it take two years of agriculture to satisfy one year of general education? Curriculum in agriculture should be based on community and student needs and vocational principles (Larson & Valentine, 1976; Prosser & Allen, 1950). Were schools changing what was being taught in agricultural courses to satisfy other requirements? Were these changes impacting the integrity of the agricultural education content, which could be compromised if it was based on unrelated external influences rather than community/program need and vocational education principles? If math and science concepts were already being taught, identifying the same concept in the agricultural course objectives would be satisfactory for granting academic credit. The agricultural core competencies integrity

would then be maintained and complemented. However, as enrollment is necessary for program survival, many schools felt that continuation of the agricultural program was more important than some minor adjustment to curricula. Many agricultural programs have responded by awarding general education credit for agricultural courses and justifying this action as a necessary improvement in agricultural course/program content. This has been an effective recruitment tool in itself. Recently, in a study conducted by California agricultural teachers, the most effective recruitment tool utilized by agricultural departments was agricultural courses receiving general education graduation credit (Central Valley Consortium Agricultural Education Tech Prep Recruitment Study, 1994).

Agricultural education has not ignored the need to increase academic rigor in agricultural classes. The "Back to Basics" movement in agricultural education has had a great deal of discussion in the literature (Briers, Norris, & Dayberry, 1987; Heiman, 1987; Jones, 1987). Articles entitled "Basics: The Key to the Future", "Do You Teach the Basics?", "Beating the Basics Blues", and "Getting the Basics Through Vocational Agriculture", among others, were included in the May 1987 issue of *The Agricultural Education Magazine*. The theme for this issue was "Teaching the Basics". Each article emphasized the need for

agricultural course content to require and emphasize basic skills development and to give more attention to increased expectations (Case, 1987). Vocational education has traditionally maintained that it gave "intelligibility" to general education, which has been recognized as central to the individual's ability to function in our society (Evans & Herr, 1978).

1.6 Agricultural Program Quality and Its Impact on Enrollment

Quality within the agricultural program continues to be a major issue. There has been and continues to be a great deal of time spent by state staff, teacher educators, and evaluation teams, in evaluating programs by quality standards.

Both Oregon (1978) and California (1982) have adopted standards for secondary agricultural education which are indicators of "competent and successful programs" (SB 187 Committee, 1982). These standards, developed by Oades and Deeds (1978) and the SB 187 Committee (1982), were based on principles of vocational education promoted by Prosser and Allen (1950); Roberts (1957); Barlow (1975); Larson and Valentine (1976); and other theorists of vocational education. These principles were suggested guidelines and not mandated evaluation criteria. It was not until 1983-84, and the passage of Senate bill 187, that California based additional funding for secondary level agricultural programs on

compliance with the stated standards. Attaching funding to standards made enforcement of the standards possible. This additional funding was significant for California Agricultural Programs. Each school was eligible for funding according to how many of the standards they met, up to $12,500 per full time equivalent instructor per year. State Agricultural Education staff evaluated a yearly application completed by school representatives to determine how closely each school was meeting all the standards. Each school was then funded accordingly; reduced funding for those schools not completely meeting all of the standards and increased funds for those which did. Although the evaluation instrument has been recently modified, the biggest change to the California Model was in name and procedure for evaluation. The new evaluation process was renamed "Program Certification in Agricultural Education" and included a three phase process, each to be approved by a regional supervisor. The first year evaluation was done by the agricultural instructor. The second year, the evaluation encompassed the local advisory committee and school administration, as well as the agricultural instructor. The third and final year was carried out by a third party evaluation team consisting of state staff, agricultural instructors, and industry representatives (California Department of Education, 1994). The process then starts over. Byram (1971) disagreed with this third year procedure and felt that evaluation should be performed on criteria

developed by local and area administrators, teachers, and representatives from the public, not state level representatives. To date, Oregon's standards continue to be advisory rather than mandated, and evaluations made by outside individuals must be requested by the secondary school wishing to be evaluated.

Oklahoma started extra funding for agricultural programs in 1980. Each school with an approved full time (12 month) agricultural program was eligible for $1,500 in vocational reimbursement from the state per 12 month agricultural instructor. These funds were used to support FFA activities, Supervised Occupational Experience (SOEP/SAE) activities, administrative coordination, adult and young farmer activities, visibility of the agricultural program in the community, and professional improvement through in-service and conferences. In addition, each school could receive a flat grant of $4,000 for each agricultural teacher and 1/10 of the base state salary for each additional month each teacher was employed over the standard 10 month contract. Again, this funding was dependent on the program meeting Oklahoma's quantitative and qualitative criteria (Dreessen, 1980).

1.7 Principles of Vocational Education

If program quality contributes to enrollment changes, what are the standards and criteria for measuring program quality? The following review of standards and subsequent discussion was utilized to develop the program quality criteria questions in the survey instrument. One of the goals of the study sought to identify what program quality criteria were the best predictors of agricultural program enrollment changes. Discussion of the principles of vocational education and justification for utilizing these important quality criteria standards for secondary level agricultural programs follows.

As mentioned previously, program evaluation standards were based on work that started with principles of vocational education originally set down in *Vocational Education in a Democracy* by Prosser and Allen in 1925 and again in 1950. These principles have been the basis for much discussion by theorists who followed. There were many different ways to look at principles of vocational education. The following overview clarifies the various principles and then groups them into 4 basic categories under which all principles fall.

Webster's Third New International Dictionary (1986) defines principle as "...a comprehensive and fundamental law, doctrine, or

assumption on which others are based or from which others are derived." Other definitions, as applied to Vocational Education, included the provision of elements that can be used as guidelines for evaluating present practices and planning future direction of vocational programs. The direction taken must be based on experiences and judgments which have proven successful in the past and those progressive in nature that fulfill future goals and expectations of contemporary problems in vocational education. These principles, when established and accepted, constitute areas of general agreement among individuals qualified in the field.

Evans and Herr (1978) listed three basic objectives for vocational education; (1) meeting society's needs for workers, (2) increasing the options available to each student, and (3) serving as a motivating force to enhance all types of learning. To meet these objectives, principles were identified which became fundamental laws. Prosser and Allen (1950), Roberts (1957), Barlow (1975), and Larson and Valentine (1976), proposed extensive lists of principles having a great deal of commonality. These principles, measurable by specific criteria, are essential to quality vocational education programs. For ease of discussion, these principles are categorized into four major areas. These four categories will be the basis of discussion in the following section. They are also the source of

evaluative criteria which have been utilized for program review (Larson & Valentine, 1976; SB 187 Committee, 1982).

Four Categories of Principles of Vocational Education:

1. Vocational education must be conducted by a competent instructor.
2. Vocational education must be relevant to the labor market.
3. Vocational education must be of benefit to students.
4. Vocational education must have the ability to improve itself.

All vocational education principles fall into one of these broad categories (Larson & Valentine, 1976; Oades & Deeds, 1978; SB 187 Committee, 1982).

1.7.1 Competent Instructor

The relationship between the instructor and student is the central point of any educational system. Because vocational education is a specialized field, there have historically been shortages of qualified vocational teachers. In some cases, this has led to the recruitment of incompetent individuals who don't have the ability to effectively teach vocational education because of the lack of technical or educational foundations (Miller, 1984).

There are three major criteria for evaluating vocational instructors:

1. Completion of a comprehensive program of vocational teacher education and preparation (Evans & Herr, 1978).

2. Instructors must be technically competent with sufficient scientific knowledge and practical hands-on training in the vocational area in which they teach (Prosser & Allen, 1950).

3. Instructors must have industry experience in their specific area and must continually update their technical skills by additional industry involvement (Larson & Valentine, 1976).

In order for teachers to be professionally competent, they must have been prepared by a teacher education institution where educational and pedagogical foundations were melded with technical skill development (Evans & Herr, 1978). "Teacher education ... must capture and kindle the vision, the spirit and the commitment in the preparation of vocational agriculture teachers" (Dougan, 1979, p. 183). The teacher education program must give attention to: standards of excellence, code of ethics, redesigning direction, unity in teaching methods, and research to study and improve instruction and teaching expertise (Dougan, 1979).

Agricultural instructors must be dedicated to quality teaching, which must be their foremost objective. Teacher education programs must support this by excellent preservice and inservice opportunities which must continue throughout a teacher's career (Schumann, 1979). Inservice education was found to be a better predictor of teacher effectiveness than age, experience, or agreement with other specific concepts adopted by the teaching profession. Teachers also need to believe that they are the key to effective and successful agricultural programs (Rush, 1985). Instructors who have been recruited from industry need similar foundations. This provides teachers who know how to teach as well as having the technical expertise necessary.

Larson and Valentine contend (1976) that industry experience is necessary for instructors' competence since it adds credibility to the program and relevance to instruction. Not only will the individual instructor have worked with industry-standard facilities, equipment, and economic principles, but he/she would have been able to interact in the employee-employee and the employee-employer settings. This provides valuable insight into the world of work and what it takes to be successful (National Academy of Engineering and Institute of Medicines, 1984). Instructor competence also helps create respect for the instructor and students tend to emulate the attitudes and work habits of the instructor

(Larson & Valentine, 1976). Because educators were interested in the total success of the student, these experiences augment technical skill training, making for a more well rounded and better prepared individual entering the industry (Miller, 1984). Students respect competent instructors who continually update themselves as improvements in technology are developed. Flint (1979) maintains that staying current with new technologies is the teacher's responsibility. Many states require as much as 3,000 hours of agriculture related industry experience (Oregon 2000, California 3000) in order to be certified to teach vocational education. (Oregon Teachers Standards and Practices Commission, 1996; Commission on Teacher Credentialing, State of California, 1995)

Other measurable subcriteria relating to instructor competence include: involvement in professional teacher organizations (Nowadnick, 1979), and attending professional and trade workshops and conferences for technical skill updating and professional improvement (Larson & Valentine, 1976; Oades & Deeds, 1978; SB 187 Committee, 1982).

1.7.2 Relevance to the Labor Market

To be successful, vocational education programs must provide individuals who are knowledgeable about the world of work and have

skills which are required in their occupational specialty. Individuals must be adequately trained in the attitudes and manipulative skills that are required in the occupation itself (Prosser & Allen, 1950). Curriculum should be developed, validated, and continually updated to meet established objectives reflecting community and industry needs (Larson & Valentine 1976). There should be minimum levels of competencies that allow for entry into the specific occupation as well as provide knowledge and skills that allow for later advancement (Miller, 1984). These standards should meet or exceed those required by the industry (Roberts, 1957). Vocational training in an occupation should simulate the competencies, materials, processes, attitudes, and equipment found in the trade (Prosser & Allen, 1950; Larson & Valentine, 1976). Scope of facilities, equipment, tools and materials is often limited at the school site so the aid of established industry work settings can be utilized to meet the standards.

Advisory committees offer guidance to the program in areas of program improvement and help communicate major industry trends to the instructor (Barlow, 1975; Larson & Valentine, 1976). There is overlap here with vocational education's ability to improve itself. Advisory committees should consist of progressive industry and business leaders who are aware of new technology and can validate its importance

to the industry. They should have basic knowledge of the specific school and education in general. It is often most helpful to have a current and a past student on the advisory committee. These students provide different insight and new perspectives. The committee needs to meet at least four times a year and should function under a constitution and by-laws. Records should be kept of meetings and correspondence (Larson & Valentine, 1976). Length of term for members should be no longer than four years to allow the cycling of new individuals and different ideas.

Advisory committee members can also function as resource people for a variety of activities including instruction, demonstrations, field trip sites, etc. Even though advisory committees serve in an evaluative capacity, it should be clearly understood that they are, by definition, advisory and that not all recommendations may be implemented (Central Valley Consortium Agricultural Education Tech Prep, 1994).

Evaluating program relevance to industry can take many forms. Advisory committees fulfill a major role. Also, Instructors should continually evaluate the program and determine if relevant objectives are being met. Finally, by working with industry, the instructor can stay well informed and develop skills that reflect current trends. Such

contacts may evolve into future student work experience sites (Flint, 1979).

Follow-up studies of students add valuable insight into student skill preparedness for occupations and for the work world in general and they are a valuable measure of program relevancy to industry needs (Larson & Valentine, 1976). Employment needs assessments can also be utilized to identify major employment trends and changes in the community work force (National Advisory Council on Vocational Education, 1975).

1.7.3 Vocational Education Benefits Students

Vocational education is concerned with the total growth and well being of the individual. Vocational education benefits individuals through economic return, job competence, and personal satisfaction (Barlow, 1975). Vocational education should be available to all regardless of sex, race, religion, creed, geographical location or physical or mental handicaps (Roberts 1957). Establishing good attitudes about work and self-improvement are major emphases of vocational education; they benefit the individual and will eventually benefit the entire community (Barlow 1975). Vocational education provides the student the opportunity to design his/her own destiny and increases his/her

options (Miller 1984). Because occupational health is closely tied to overall mental and family health and happiness (Evans & Herr, 1978; Hamachek, 1971), it is important that adequate instruction in career education be provided. Self-awareness, as it relates to career guidance, should also be part of vocational programs. Vocational guidance, counseling, testing, placement, and follow-up services provide a measure of security that choices have been well thought out and that mistakes will be held to a minimum in preparing individuals for work. Even though specific occupational choices can change during or after completing the program, students should still have many related options by being trained in a cluster of occupations, and they should have basic work ethics and positive attitudinal skills.

California's advanced (grades 11 and 12) agricultural curriculum is divided into six agricultural cluster areas or pathways (California Department of Education, 1991) which include:

- Agricultural Business
- Animal Science
- Agricultural Mechanics
- Forestry and Natural Resources
- Ornamental Horticulture
- Plant Science

Oregon has adopted Certificate of Advanced Mastery (CAM) categories which assure breadth in preparation at the high school level. There are six broad endorsement areas for CAM study in Oregon (Oregon Department of Education, 1993) which include:

- Natural Resource Systems
- Human Resources
- Health Services
- Industrial and Engineering Systems
- Arts and Communications
- Business and Management

In Oregon, the Agricultural Science and Technology program falls under the Natural Resource Systems Endorsement area.

A study conducted by the University of Oregon, Eugene, encouraged high school business programs to adopt the cluster concept, with broad training and flexible occupational competencies in a related instructional area rather than specific job skills training (Rawers, 1983). Many states have adopted the agricultural cluster concept and have developed curricula to support each occupational area in agriculture (Oregon Board of Education, 1970; Texas Education Agency, 1988; California State Department of Education, 1990).

Some states divide the clusters somewhat differently. Delaware has two basic clusters, Agribusiness and Agricultural Production, which are divided into several sub-clusters, Agriculture Business Management, Farm and Ranch Management, Agriculture Power and Machinery, Animal Production, Agricultural Production, etc. (Delaware Department of Public Instruction, 1985).

Youth organizations provide the setting for leadership skill development, giving the student self confidence and the ability to cooperate and work effectively with people (Larson & Valentine, 1976). Program emphasis on student leadership varies by vocational area. The FFA has had a long history of providing the essentials for leadership development in agriculture. The literature strongly suggests that FFA and all the pertinent leadership activities, justify year-round programs through summer FFA activities (Cepica, 1979; Dreessen, 1980; Horner, 1979).

1.7.4 Vocational Education's Ability to Improve Itself

If vocational education is to continue to survive and thrive, there needs to be continual assessment of program goals and means of accomplishing stated objectives (McCracken, 1972). Program

assessment was as important for agricultural teacher education programs as it was for secondary agricultural programs (Cole & Oades, 1980). Agricultural education research was essential and not only a function of the university. Verbal and written communication between educators must be an ongoing process. Professional organizations provide the forum for educationists to debate the relevance of new developments and to disseminate information in a timely manner. Organizations sharing common educational foundations and purposes must work together (Larson & Valentine, 1976; Dougan, 1979).

This study sought to determine if adherence to these principles,

1. Vocational education must be conducted by a competent instructor,
2. Vocational education must be relevant to the labor market,
3. Vocational education must be of benefit to students,
4. Vocational education must have the ability to improve itself,

impacted enrollment decisions by potential students. The principles discussed here are viewed as essential to the continued health of vocational education. Only by knowing and understanding the relationship of these principles to one another and their application to programs can vocational education maintain quality programs. Implementation of these principles must be of the highest priority, because only then will vocational education maintain credibility with the

general public and therefore attract students who are interested in the careers for which preparation was offered.

1.8 Key Standards for Agricultural Programs

Oades and Deeds (1978) developed an assessment instrument to gauge the quality of agricultural programs in Oregon. This instrument was based on a study of principles of vocational education by Larson and Valentine (1976). In the process of validating the assessment instrument, Oades and Deeds identified six standards as "key elements" of quality agricultural programs including:

Key Standards for Agricultural Programs

1. Certified Vocational Agriculture Teacher
2. Active Advisory Committee
3. Supervised Occupational Experience Programs
4. Active FFA Chapter
5. A planned four year curriculum
6. Adequate facilities

The SB 187 Report for California Vocational Agriculture Programs does not identify specific "key elements". However, the report includes and emphasizes the above six key elements in the introductory remarks

and in the evaluative criteria. These elements are used by California instructors, state staff, and teacher educators to determine the quality of agricultural education programs. This was further validated by personal interviews (California Agriculture Teacher Conference, Cal Poly-San Luis Obispo, 1987) with the above groups of individuals by the author. Because of the work done by Oades and Deeds, The SB 187 Committee, and the acceptance by Oregon and California instructors, teacher educators and state staff, these "key elements" were used to develop the survey instrument (Oades and Deeds, 1978; SB 187 Committee, 1982).

Although not widely discussed in the literature, one of the standards, FFA involvement, was addressed by Cooper and Nelson (1981). Their study showed that FFA membership changes were more favorable than secondary agricultural enrollment changes during reductions in enrollment. Indications were that when enrollment in agricultural courses declined, the number of students joining FFA declined at a lower rate. Additionally, FFA membership increased at a greater rate than course enrollment overall increased. Factors, such as teachers without full certification or length of teacher contracts, generally thought to have negative impact on FFA membership, did not prove to do so (Cooper & Nelson, 1981). However, a 1989 study suggests that factors such as contract length and teachers not fully certified had a significant

impact on the quality of students' Supervised Occupational Experience Programs (SOEP). A significant relationship existed between the quality of students' SOEP and the number of SOEP visits, number of days extended service contract for the teacher, supervision at fairs and amount of class time spent on SOEP activities (Anyadoh, 1990). Similar opinions existed regarding the importance of conducting agricultural programs over a 12 month period, especially when it came to integrating the SOEP experience into classroom instruction.

A University of Missouri study, sent to state supervisors of agricultural education, revealed that 77 percent of the states required written summer plans and that 60 percent of states required that the summer plan be submitted at the state level (Stewart, 1979). The study emphasized that:

- there was a need for extended contracts for agricultural teachers
- there was a need to plan summer activities emphasizing the SOEP aspect of the agricultural program
- there was a belief that a relationship existed between the effectiveness of agricultural programs and the extent that they were conducted over a 12 month period

- effectiveness of the summer activity might be determined through an evaluation process done by supervisors in the state offices and other teachers.

These conclusions tie closely with three areas in the Oregon and California Standards: qualified teachers, FFA involvement, and year-round program.

Adequate facilities and accompanying budgets assist in maintaining quality programs. Because of diminishing enrollment in agricultural programs, administrators of schools with continuing budgetary constraints were forced to take a hard-line attitude on the cost of vocational programs and reduce budgets or eliminate programs. In the 1984 Gallup Poll of the "Public's Attitude Toward The Public Schools," 83 percent of those polled felt that vocational courses should be required of all students who do not plan to go to college. In addition, 37 percent said that vocational education should be required of those students planning to go to college. Further emphasizing the need for strong vocational education programs was the fact that in the 1980 census, 17 percent of the American population, 25 years and older, held a baccalaureate degree (Parnell, 1985). Parnell stated in *The Neglected Majority*, "Even given a dramatic growth of baccalaureate-degree holders during this decade, at least three out of four of our students in the public

schools are unlikely to achieve a baccalaureate degree" (Parnell, 1985, page 4). What are these individuals going to do for occupations? With this evidence, how can administrators continue to overly emphasize additional academic graduation requirements, at the same time de-emphasizing vocational education programs?

1.9 Relationships Between Agricultural Instructors and Their Principals

Agricultural instructors do not always agree with their principals (Zubrick & Cox 1986). Since administrators are in the best position to influence the purposes of instruction and thus, program direction, their perceptions are extremely important (Jewell, 1980). The teacher-principal relationship, not normally discussed in terms of its effect on enrollment, is important since it can affect the administrative and budgetary support for the agricultural program. How well informed was the principal about the agricultural program? Was the principal involved in department activities on a regular basis? How did administrative support affect agricultural program enrollment? A 1983 study showed that local school administrators were generally positive about agricultural programs and teachers. There were no significant differences in the perceptions of superintendents, principals, or vocational supervisors on any criteria used in the study. Additionally, all

three groups moderately agreed (rating of 3.5 on a 5 point Likert-type scale) with the following statements which ranked high among 24 attitude items: "The cost of most vocational facilities is justifiable", "Vocational training is usually beneficial regardless of the occupation entered after graduation", and "Vocational teachers are generally well prepared to perform their jobs" (Burnett & Miller 1983). However, Zurbrick & Cox (1986), showed that principals disagreed with agricultural instructors as to the importance of various activities, especially those relating to Supervised Occupational Experience Program (SOEP) activities and the time allocated to this area. In the same study, principals agreed with agricultural instructors on the importance of the majority of the teacher activities studied. It appeared that understanding principals' perceptions, which have proven not to differ from the perceptions of superintendents (Rush & Foster, 1984), would be of value to agricultural teachers. Whether principals agree or disagree with agricultural instructors, their attitudes give an additional perspective to possible reasons for changes in agricultural programs and in their enrollment. When misunderstandings between principals and instructors occur, difficulties may arise regarding budget allocations and instructor activities that were deemed appropriate and within scope by the principal. Because of the dependence of agricultural programs on decisions made by administrators, communication between the principal

and instructor must continue at a high level if enrollment declines put additional pressure on programs. *The Unfinished Agenda* stated, "Generally, where principals view vocational education positively and as equal in importance with academic education, more up-to-date and better quality programs exist" (National Commission on Secondary Vocational Education, 1984, p. 19).

In an age of increasing accountability, as evidenced by the Agriculture Program Certification process in California (California Department of Education, 1994), it is important that accountability systems (evaluations) be consistent with statewide goals. In a 1992 study, five states were surveyed (California included) on accountability systems. There was widespread evidence that accountability systems were in place and being used. These systems were defined in terms of measures, goals, feedback, change mechanisms, and the relationship between these components. It was found that the quality of these components, which accounted for local variability, interfered with the overall effectiveness of the process. Practical constraints, such as goals too broad or vague, measures not consistent with goals, and feedback deficiencies, reduced the effectiveness of the accountability components (Stecher & Hanser, 1992).

1.10 Dealing With Declining Enrollment

During the years of declining enrollment, there were abundant suggestions for dealing with declining enrollment from a management perspective. Articles entitled "Preserving Quality of Education During Enrollment Declines"(Gay, 1981), "Declining Enrollments and Instructional Improvement" (Lamberti, Winter, & Stefanich, 1980), and "Maintaining Educational Quality During Enrollment Declines" (Relic, 1980), attempted to deal with the instructional aspects of quality and improving educational programs during times of declining enrollment. These articles dealt with trying to maintain and improve instructional quality and lessen the negative impacts on students, school personnel, and the community when enrollments were declining and funds diminishing as a result.

However, there was a lack of empirical information which identified factors that contributed to enrollment declines in specific subject-matter areas, especially in vocational education in agriculture. Although there has been work done in related areas, the literature did not specifically deal with factors contributing to enrollment declines in this area. Dembowski (1980), showed the effects on programs as a result of enrollment increases or decreases but did not address whether those effects were exacerbated by changes in total school enrollment.

Dembowski's study did, however, identify many characteristics of declining and increasing enrollment districts. These findings included:

> "1) a higher percentage of declining enrollment districts had an increased median age of teaching staff and had instituted an early retirement policy, 2) a larger percentage of declining enrollment districts required teachers to be certified in more than one subject area, 3) a larger percentage of declining enrollment districts had reallocated staff, 4) that districts with increasing enrollments had enjoyed a greater degree of stability in the quality of educational programs than districts with declining enrollments" (Dembowski, 1980 page 58).

It was not clear whether these factors were the cause or effect of increasing or decreasing enrollments. Were enrollments decreasing because of these factors or were these factors a result of decreasing enrollments? Dembowski also showed a national decline in enrollments in agricultural programs from 1976 to 1979 consistent with what had been seen in Oregon and California. This was not the case in the other vocational program areas. During the years covered in the study, other vocational course areas showed increases in enrollment. Interestingly, staff reductions within high decline districts were greatest in the areas of foreign languages and agriculture (Dembowski, 1980).

1.11 Justification for the Study

When this study began in 1989, there was a crisis facing agriculture programs: seriously reduced enrollment compared to peak enrollment years. Little had been done on a research basis to identify

the factors that were affecting this reduced enrollment problem. Identification of those factors affecting reductions in enrollment for agricultural programs became the focus of this study because of their importance to agricultural programs' long range survival. The 1994 study was conducted to determine whether perceptions had changed and add validity to the outcomes of the data analyses of the 1989 study.

Many individuals who are currently employed in agricultural occupations received their initial exposure and foundations in secondary level agricultural programs. In California, agriculture is the state's number one industry. Whether in production, processing, marketing, or serving this essential industry, training continues to be needed. This need for a trained agricultural workforce justifies the study which was designed to identify which factors, standards, criteria, and demographic data affect enrollment trends in California and Oregon secondary level agricultural programs. California and Oregon were selected for the study because California has funded program quality standards while Oregon has voluntary standards.

1.12 The Goal of the Study

The principle goal of this study was to identify the major contributive factors affecting enrollment trends in secondary level

agricultural programs in Oregon and California, as perceived by Oregon and California agricultural instructors and their respective principals.

1.13 Objectives of the Study

The following objectives were derived from the study goal statement:

1. Identify and study the factors which were the best predictors of enrollment change in secondary level agricultural programs as perceived by secondary level agricultural instructors and their respective principals.

2. Determine if there were differences in the perceptions of agricultural teachers and their respective principals concerning the major contributing factors affecting enrollment trends in secondary agricultural programs.

3. Determine if there were differences in the perceptions of California and Oregon secondary agricultural instructors concerning the major contributing factors affecting enrollment trends in agricultural programs.

4. Determine if there were differences in the perceptions of California and Oregon secondary school principals concerning the major

contributing factors affecting enrollment trends in secondary agricultural programs.

5. Determine if there were differences in the perceptions of agricultural instructors and their respective principals on various demographic data that affect enrollment trends in secondary level agricultural programs.

Methodology and instrumentation were developed to address these objectives and are included in Chapter 2.

CHAPTER 2

DESIGN AND METHODOLOGY

2.1. The Goal of the Study

The goal of this study was to identify the major contributive factors affecting enrollment trends in secondary level agricultural programs in Oregon and California, as perceived by Oregon and California agricultural instructors and their respective principals. These perceptions were analyzed to identify if agreement between Oregon and California teachers and principals existed.

2.2. Objectives of the Study

The following objectives were derived out of the study goal statement:

1. Identify the factors which were the best predictors of enrollment change in secondary level agricultural programs as perceived by secondary level agricultural instructors and their respective principals.

2. Determine if there were differences in the perceptions of agricultural teachers and their respective principals concerning the major

contributing factors affecting enrollment trends in secondary agricultural programs.

3. Determine if there were differences in the perceptions of California and Oregon secondary agricultural instructors concerning the major contributing factors affecting enrollment trends in agricultural programs.

4. Determine if there were differences in the perceptions of California and Oregon secondary school principals concerning the major contributing factors affecting enrollment trends in secondary agricultural programs.

5. Determine if there were differences in the perceptions of agricultural instructors and their respective principals on various demographic data that affect enrollment trends in secondary level agricultural programs.

2.3. Instrumentation

To measure the study objectives, an instrument was developed using a panel of experts (Courtney, 1982). The panel consisted of:

Mr. Anthony Silva, California agricultural instructor, Turlock High School, Turlock, California.

Mr. John Dimick, Oregon agricultural instructor, Crater High School, Central Point, Oregon.

Dr. Warren Reed, California State Director of Agricultural Education, California State Department of Education, Sacramento, California.

Mr. Gordon Galbraith, Oregon State Specialist in Agricultural Education, Oregon State Department of Education, Salem, Oregon.

Dr. James Leising, Professor and Department Head Agricultural Education, University of California, Davis, California.

The panel was asked to respond to a series of questions that encompassed criteria that were perceived as important indicators of quality programs in agriculture. These criteria parallel the state standards for Oregon and California developed by Oades and Deeds (1978) and "The SB 187 Committee" (1982) respectively (Appendix C). Six standards were selected that were common to both states and contribute most to enrollment trends as indicators of quality programs according to practitioners in the field (Oades and Deeds, 1978; SB 187 Committee, 1982; personal interviews with the panel of experts and high

school agricultural instructors, 1989). As a starting point, an initial questionnaire was developed and provided to the panel. The panel determined what pertinent demographic data were needed for contrasting purposes and identified which questions were redundant or not relevant to the study. Once completed, questions were finalized that addressed each of the criteria and demographic areas. The questionnaire was validated by review by the panel of experts and a small sample of high school agricultural teachers in California. Coding was done by taking composite and category totals using graduated and Likert-type scaling systems. The instrumentation can be viewed in Appendix B.

The instrumentation was a mailed questionnaire which addressed not only demographic data, but also the most contributive factors, standards, and criteria that had been identified by the literature and were validated for content by the above panel of experts (Courtney, 1982). The questionnaire was mailed and data collected in the Fall 1989 and Spring 1990. A subsequent mailing in Fall 1994 and data collected through Spring 1995 replicated this study. The study could not be longitudinal in the strict sense, while data were obtained from the same schools in both time periods, the teachers and principals were not all the same. The enrollment data provided by the teachers and principals in the 1989 study was unreliable as a result of principals and teachers

having little agreement as to general demographic enrollment numbers. Because of this problem, the teacher and principal provided figures were replaced with the actual enrollment figures obtained for both States from their respective state Departments of Education. The 1994 questionnaire was modified in the enrollment areas to reflect this change. The balance of the survey instrument was identical. Both instruments are included in Appendix B.

Statistical analyses were accomplished using, "Systat for the Macintosh" with the assistance of Dr. Curt Acredolo, Adjunct Professor Social Sciences, University of California, Davis.

2.4. Sampling

A 50 percent simple random sample was taken within each state for the initial 1989 survey. Because of the great diversity and the relatively small number of agricultural programs in the two states, a large sample was drawn. This assured the inclusion of as many different types of programs as possible and reduced the potential for bias. The total sample size for the 1989 study was 100 schools in California and 50 schools in Oregon. The population included all secondary schools with agricultural programs in California and Oregon. Elements consisted of the agricultural instructor in single person agricultural departments or

the department head / FFA advisor in multi-person departments and their respective principals. Each was asked to respond to the questionnaire independently. A complete listing of the secondary schools surveyed is included in Appendix C. In the 1994 study, the population for California included those 48 schools where both the principal and teacher responded to the 1989 survey. In Oregon, because the sample size was small and only 30 schools had both teacher and principal respond, the schools where either the principal or teacher responded were included. This increased the number of schools surveyed in Oregon to 44. The elements stayed consistent with the 1989 survey, which also included the agricultural teacher and principal from the secondary school offering agricultural education.

It should be noted that one school in Oregon and six schools in California no longer had an agricultural department in 1994. Given this fact, the response rate was very close to 100 percent for both states for schools surveyed that have currently ongoing programs in agricultural education.

2.5. Survey response

Table 2.1. Survey Responses

1989 Study(a)				
	Oregon		California	
	Response	%	Response	%
Schools	44	88	86	86
Teachers	42	84	73	73
Principals	32	64	61	61
Both	30	60	48	48
1994 Study(b)				
	Oregon		California	
	Response	%	Response	%
Schools	43	98	43	90
Teachers	43	98	42	88
Principals	39	89	40	83
Both	39	89	39	81

(a) 50 Oregon and 100 California schools targeted

(b) 44 Oregon and 48 California schools targeted

2.6. Statistical Analyses

Because of the nature of the objectives of the study, a number of statistical procedures were applied to test significance of the findings.

2.6.1. Objective One

Identification of the factors which were the best predictors of enrollment trends. Two procedures were necessary:

- Ranking the variables which were perceived to be the best predictors of enrollment trends. Wilcoxon Matched Pairs Signed-Ranks Test (Siegel, 1956). For large samples, the test statistic is:

$$z = \frac{T - \frac{N(N+1)}{4}}{\sqrt{\frac{N(N=1)(2N+1)}{24}}}$$

Where T = the smaller of the like signed ranks, (where the absolute values of the difference scores of the matched pairs are rank ordered and the sum of the ranks are calculated separately for positive and negative difference scores, T is the smaller of these two sums). N = the total number of matched pairs.

- Determine which independent demographic and program quality variables were highly correlated with increases or decreases in enrollment and determine if those correlations for teachers and principals were also correlated.

Pearson Product-Moment Correlation (Dixon and Massey, 1983; Neter and Kutner, 1983)

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2 \sum_{i=1}^{n}(Y_i - \bar{Y})^2}}$$

where X_i = *ith observation of variable X*

Y_i = *ith observation of variable Y*

N = *number of observations*

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{N} = \textit{mean of variable X}$$

$$\bar{Y} = \frac{\sum_{i=1}^{n} Y_i}{N} = \textit{mean of variable Y}$$

- And determine if the teachers and principals correlations were correlated with one another. Comparing independent correlations (from different samples) requires the use of Fisher's z-transformation of the observed correlations (Guilford, 1965).

Fisher's z Transformation Test

$$z = \frac{\Gamma_1(z\ transform) - \Gamma_2(z\ transform)}{\sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}}$$

Where Γ_1 (z transform) and Γ_2 (z transform) are table values which yield corresponding z-values for the observed correlations and where N_1 and N_2 are the sample sizes used in comparing those correlations.

2.6.2. Objective 2

Determine if there were differences between agricultural teachers and their respective principals:

Wilcoxon Matched Pairs Signed-Ranks Test (Siegel, 1956). For large samples, the test statistic is:

$$z = \frac{T - \frac{N(N+1)}{4}}{\sqrt{\frac{N(N=1)(2N+1)}{24}}}$$

Where T = the smaller of the like signed ranks, (where the absolute values of the difference scores of the matched pairs are rank ordered and

the sum of the ranks are calculated separately for positive and negative difference scores, T is the smaller of these two sums). N = the total number of matched pairs.

2.6.3. Objectives Three and Four

Determine if there were differences between California and Oregon instructors' perceptions (3) and contrast the differences between California and Oregon Principals' perceptions (4).

Mann-Whitney U Test, One Way Analysis of Variance (Siegel, 1956)

$$z = \frac{U - \frac{n_1 n_2}{2}}{\sqrt{\frac{(n_1)(n_2)(n_1 + n_2 + 1)}{12}}}$$

Where U is the smaller of:

$$n_1 n_2 + \frac{n_1(n_1 + 1)}{2} - R_1$$

$$n_1 n_2 + \frac{n_2(n_2 + 1)}{2} - R_2$$

and R_1 = sum of the ranks assigned to group whose sample size is n_1

R_2 = sum of the ranks assigned to group whose sample size is n_2

and where n_1 = the size of the smaller sample and

n_2 = the size of the larger sample

2.6.4. Objective Five

Determine if there were differences of instructors and principals perceptions on various demographic data and program evaluations.

Wilcoxon Matched Pairs Signed-Ranks Test (Siegel, 1956)

$$z = \frac{T - \frac{N(N + 1)}{4}}{\sqrt{\frac{N(N = 1)(2N + 1)}{24}}}$$

Where T = the smaller of the like signed ranks, (where the absolute values of the difference scores of the matched pairs are rank ordered and the sum of the ranks are calculated separately for positive and negative difference scores, T is the smaller of these two sums). N = the total number of matched pairs.

These statistical tests were utilized to analyze the data. The findings and discussions are included in Chapter Three.

CHAPTER 3

FINDINGS AND DISCUSSION

Introduction

This chapter includes the statistical analyses of the findings and subsequent discussion of statistically significant findings. Associated tables include statistically significant variables at the $p < .05$ level. All the statistics and findings are included in Appendix A.

3.1. Objective One

The first objective was to identify and study the factors which were the best predictors of enrollment change in secondary agricultural programs as perceived by secondary agricultural instructors and their respective principals. This objective was evaluated from two perspectives: one, by examination of the relative importance of ranked positive and negative factors that were perceived by teachers and principals to contribute most to fluctuations in agricultural enrollment, and two, by examination of the correlation between actual agricultural enrollment and principal/teacher evaluations of departmental and school characteristics.

3.1.1. Ranking Factors That Were Perceived to Contribute to Increases and Decreases in Agricultural Enrollment

In analyzing objective one, the first perspective was the relative importance of factors that contribute to fluctuations in agricultural enrollment as perceived by teachers and principals. The differences in the degree to which positive factors were viewed as contributing to increased agricultural enrollment and negative factors to decreasing agricultural enrollment are shown in Tables 3.1 through 3.6 for the 1989 data and Tables 3.7 through 3.12 for the 1994 data. The factors were ranked from the most to least influential. Statistical comparisons of degree of influence assigned to each factor were accomplished using the Wilcoxon test. Factors which do not differ significantly in rank were considered essentially tied in importance. When these tied factors all differ significantly from those lower in mean, a distinct cluster was identified.

3.1.1.1. 1989 Combined States Ranking of Perceived Factors That Contribute to Fluctuations in Agricultural Enrollment

3.1.1.1.1. All Teachers' 1989 Perceptions

The data in Table 3.1 revealed three clusters among the positive factors and two clusters among the negative factors for the teachers perceptions. Teachers view a positive image of FFA, competent and

qualified instructors, a class schedule that limits conflicts with agricultural courses, and quality agricultural curriculum and courses as most conducive to increasing agricultural enrollment. They view an active and effective advisory committee as least influential on increases in enrollment. In ranking the negative factors, teachers view an incompetent agricultural instructor, a negative image of the FFA, increased graduation requirements, a class schedule that disregards conflicts between agricultural courses and general education courses, a poor quality agricultural curriculum, a decreasing number of periods in the school day, a negative image of agriculture as a career option, inadequate facilities, equipment, materials, and an inadequate agricultural budget as contributing to the greatest declines in agricultural enrollment. Those factors teachers felt to contribute least to enrollment decreases were: poor quality SOEP/SAE, poor relationship between the agricultural teacher and local 4-H leaders, a decline in the agricultural economy, a decrease in the total school enrollment, and an inactive and ineffective advisory committee. Teachers do not feel as strongly about the link between an active and effective advisory committee and increased agricultural enrollment as they do about the other factors listed.

Table 3.1 All Teachers' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment	Teachers	
Variable	Mean	SD
Positive Image of FFA	1.43	0.61
Competent and Qualified Instructor	1.46	0.73
Class Schedule limits conflicts	1.47	0.83
Quality Ag curriculum and course offerings	1.58	0.62
$p < 0.01$		
Adequate facilities, equipment, etc.	1.73	0.66
Adequate Ag Budget	1.78	0.66
Increase in number of periods in school day	1.79	0.88
Positive Image of Ag as Career Option	1.88	0.99
Good Quality SAE	1.92	0.75
Decrease in H.S. Graduation Req.	2.06	0.87
Increase in Total School Enrollment	2.12	0.80
Improvement in Ag Economy	2.17	0.67
Good Relationship between Ag Teacher and 4-H Leader	2.18	0.86
$p < 0.05$		
Active and effective Advisory Committee	2.41	0.68

Negative Factors Decreasing Enrollment	Teachers	
Variable	Mean	SD
Incompetent Ag Instructor	4.55	0.80
Negative FFA Image	4.54	0.58
Increased Graduation Requirements	4.45	0.81
Class Schedule Disregards conflicts	4.43	0.88
Poor quality curriculum	4.40	0.61
Decreasing number periods per day	4.30	0.85
Negative image of Ag as Career Option	4.28	0.79
Inadequate facilities, equip, matls.	4.25	0.61
Inadequate Ag Budget	4.16	0.69
$p < 0.05$		
Poor SAE	3.94	0.84
Poor Relationship Ag Teacher/4-H Leader	3.86	0.85
Decline in Ag Economy	3.82	0.85
Decrease in Total School Enrollment	3.76	0.77
Inactive/Ineffective Advisory Comm.	3.73	0.66
n=115		

3.1.1.1.2. All Principals' 1989 Perceptions

In Table 3.2, principals' perceptions revealed just two clusters of positive factors and two clusters of negative factors. Principals view competent and qualified agricultural instructors as being most influential in contributing to increases in agricultural enrollment, and they perceived an incompetent agricultural instructor as contributing the most to decreases in agricultural enrollment. Thus, teachers and principals were in agreement in 1989 in perceiving the competence of agricultural instructors as very influential to enrollment.

3.1.1.2. 1989 Oregon and California Teachers' and Principals' Rankings of Perceived Factors That Contribute to Fluctuations in Agricultural Enrollment

3.1.1.2.1. Oregon and California Teachers' 1989 Perceptions

Although there was a trend for the factors to rank similarly for Oregon and California teachers, significant differences in the ranking order did not appear for either state (Tables 3.3, 3.4). This indicates that while individual factors showed a trend toward the most or the least influential to enrollment increases or decreases, the sample size was not sufficiently large to show those differences in ranked factors as significant. This was evident considering the significant clustering that occurred when both Oregon and California were combined.

Table 3.2 All Principals' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Principals Mean	SD
Competent and Qualified Instructor	1.26	0.57
$p < 0.01$		
Quality Ag curriculum and course offerings	1.57	0.62
Positive Image of FFA	1.65	0.68
Class Schedule limits conflicts	1.74	0.64
Adequate facilities, equipment, etc.	1.92	0.67
Increase in number of periods in school day	2.01	0.74
Adequate Ag Budget	2.03	0.60
Good Quality SAE	2.10	0.74
Positive Image of Ag as Career Option	2.13	0.92
Active and effective Advisory Committee	2.26	0.67
Good Relationship between Ag Teacher and 4-H Leader	2.27	0.81
Increase in Total School Enrollment	2.31	0.81
Decrease in H.S. Graduation Req.	2.33	0.79
Improvement in Ag Economy	2.43	0.72

Negative Factors Decreasing Enrollment

Variable	Principals Mean	SD
Incompetent Ag Instructor	4.73	0.56
$p < 0.01$		
Poor quality curriculum	4.42	0.69
Negative FFA Image	4.30	0.65
Class Schedule Disregards conflicts	4.20	0.71
Inadequate facilities, equip, matls.	4.15	0.63
Decreasing number periods per day	4.12	0.79
Negative image of Ag as Career Option	4.05	0.86
Inadequate Ag Budget	4.00	0.69
Poor SAE	3.94	0.67
Poor Relationship Ag Teacher/4-H Leader	3.91	0.82
Increased Graduation Requirements	3.88	0.87
Decrease in Total School Enrollment	3.74	0.77
Inactive/Ineffective Advisory Comm.	3.72	0.67
Decline in Ag Economy	3.47	0.87

n=93

Table 3.3 Oregon Teachers' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Teachers Mean	SD
Positive Image of FFA	1.48	0.62
Class Schedule limits conflicts	1.48	0.96
Competent and Qualified Instructor	1.59	0.83
Quality Ag curriculum and course offerings	1.63	0.68
Increase in number of periods in school day	1.78	0.95
Adequate facilities, equipment, etc.	1.83	0.74
Good Quality SAE	1.85	0.73
Positive Image of Ag as Career Option	1.87	1.05
Adequate Ag Budget	1.89	0.74
Decrease in H.S. Graduation Req.	1.96	0.85
Improvement in Ag Economy	2.04	0.64
Good Relationship between Ag Teacher and 4-H Leader	2.07	0.80
Increase in Total School Enrollment	2.29	0.82
Active and effective Advisory Committee	2.37	0.68

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Teachers Mean	SD
Incompetent Ag Instructor	4.50	0.89
Increased Graduation Requirements	4.46	1.00
Negative FFA Image	4.44	0.84
Class Schedule Disregards conflicts	4.39	1.13
Poor quality curriculum	4.27	0.86
Decreasing number periods per day	4.22	1.11
Negative image of Ag as Career Option	4.20	1.02
Inadequate facilities, equip, matls.	4.13	0.84
Inadequate Ag Budget	4.04	0.85
Decline in Ag Economy	3.80	1.00
Poor Relationship Ag Teacher/4-H Leader	3.78	0.97
Poor SAE	3.78	0.95
Inactive/Ineffective Advisory Comm.	3.67	0.74
Decrease in Total School Enrollment	3.59	0.93

There were no ranked differences between each factor.

n=42

Table 3.4 California Teachers' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Teachers Mean	SD
Competent and Qualified Instructor	1.36	0.67
Positive Image of FFA	1.39	0.62
Class Schedule limits conflicts	1.44	0.75
Quality Ag curriculum and course offerings	1.53	0.61
Adequate facilities, equipment, etc.	1.64	0.62
Adequate Ag Budget	1.69	0.63
Increase in number of periods in school day	1.77	0.85
Positive Image of Ag as Career Option	1.87	0.98
Good Quality SAE	1.94	0.80
Increase in Total School Enrollment	1.97	0.80
Decrease in H.S. Graduation Req.	2.10	0.90
Good Relationship between Ag Teacher and 4-H Leader	2.22	0.93
Improvement in Ag Economy	2.22	0.72
Active and effective Advisory Committee	2.41	0.73

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Teachers Mean	SD
Negative FFA Image	4.53	0.63
Incompetent Ag Instructor	4.51	0.92
Poor quality curriculum	4.43	0.63
Class Schedule Disregards conflicts	4.40	0.86
Increased Graduation Requirements	4.39	0.84
Decreasing number periods per day	4.29	0.82
Negative image of Ag as Career Option	4.28	0.78
Inadequate facilities, equip, matls.	4.27	0.64
Inadequate Ag Budget	4.17	0.75
Poor SAE	3.99	0.88
Poor Relationship Ag Teacher/4-H Leader	3.85	0.89
Decrease in Total School Enrollment	3.82	0.77
Decline in Ag Economy	3.78	0.86
Inactive/Ineffective Advisory Comm.	3.72	0.75

There were no ranked differences between each factor.

n=73

3.1.1.2.2. Oregon and California Principals' 1989 Perceptions

The data in Tables 3.5 and 3.6 revealed four clusters among the positive factors that were perceived to influence agricultural enrollment. The order of the ranked factors for the top three clusters was identical for Oregon and California.

Among the positive factors, Oregon and California principals view competent and qualified agricultural instructors as being most influential in contributing to increases in agricultural enrollment (Oregon $p < .05$, California $p < .01$). The second cluster revealed that both Oregon and California principals perceived that a quality agricultural curriculum and course offerings and a positive image of the FFA were more influential in contributing to increases in agricultural enrollment than the remaining factors ($p < .01$). The third cluster showed both Oregon and California principals agreed that a class schedule designed to limit conflicts between agricultural and general education courses was next in influencing increases in agricultural enrollment. The remaining positive factors failed to break into additional clusters and can be viewed as a descending order of how important each was perceived to contribute to increases in enrollment. Therefore, the remaining ranking failed to show significant differences as the rank progressed through the factors (all $p > .05$). Note that one factor, worded in both positive and negative terms,

competent/incompetent agricultural instructor, broke itself out in the combined data as well as each states' data.

Among the negative factors, Table 3.5 shows that Oregon principals perceived an incompetent agricultural instructor as contributing the most to decreases in agricultural enrollment ($p < .01$). This was consistent with Oregon and California principals' findings, Table 3.2. As with the combined states ranking, the remaining negative factors failed to break into additional clusters that would indicate an order of importance showing how each was perceived to contribute to decreases in enrollment.

Although there was a trend for the negative factors to rank similarly for California principals, significant differences in the ranking order did not appear (Table 3.6). This indicates that while individual factors showed a trend toward being the most or the least influential on fluctuating enrollment, the difference in the mean between the first and second ranked factor was insufficient to show those differences in ranked factors as significant for California principals (all $p > .05$).

Table 3.5 Oregon Principals' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable		Principals Mean	SD
Competent and Qualified Instructor		1.36	0.82
	p < 0.05		
Quality Ag curriculum and course offerings		1.59	0.70
Positive Image of FFA		1.67	0.74
	p < 0.01		
Class Schedule limits conflicts		1.79	0.59
	p < 0.01		
Positive Image of Ag as Career Option		1.97	1.02
Adequate facilities, equipment, etc.		1.97	0.58
Increase in number of periods in school day		2.00	0.77
Adequate Ag Budget		2.03	0.65
Improvement in Ag Economy		2.19	0.69
Active and effective Advisory Committee		2.19	0.78
Good Quality SAE		2.30	0.85
Increase in Total School Enrollment		2.31	0.90
Good Relationship between Ag Teacher and 4-H Leader		2.32	0.91
Decrease in H.S. Graduation Req.		2.34	0.87

Negative Factors Decreasing Enrollment

Variable		Principals Mean	SD
Incompetent Ag Instructor		4.53	1.01
	p < 0.01		
Poor quality curriculum		4.16	1.11
Negative FFA Image		4.09	0.96
Negative image of Ag as Career Option		4.06	1.08
Class Schedule Disregards conflicts		3.97	1.06
Inadequate facilities, equip, matls.		3.91	0.86
Decreasing number periods per day		3.87	1.04
Inadequate Ag Budget		3.82	1.01
Poor Relationship Ag Teacher/4-H Leader		3.78	1.07
Poor SAE		3.75	0.92
Increased Graduation Requirements		3.65	1.10
Decrease in Total School Enrollment		3.64	0.93
Decline in Ag Economy		3.58	1.00
Inactive/Ineffective Advisory Comm.		3.58	0.87

n=32

Table 3.6 California Principals' Ranking 1989

Factors Affecting Enrollment
Questions 47-74 Means and Standard Deviations

Positive Factors Increasing Enrollment		Principals	
Variable		Mean	SD
Competent and Qualified Instructor		1.18	0.38
	p < 0.01		
Quality Ag curriculum and course offerings		1.53	0.60
Positive Image of FFA		1.61	0.67
	p < 0.01		
Class Schedule limits conflicts		1.70	0.67
	p < 0.01		
Adequate facilities, equipment, etc.		1.86	0.77
Good Quality SAE		1.95	0.70
Increase in number of periods in school day		1.98	0.77
Adequate Ag Budget		2.00	0.63
Positive Image of Ag as Career Option		2.19	0.90
Good Relationship between Ag Teacher and 4-H Leader		2.20	0.80
Active and effective Advisory Committee		2.26	0.67
Increase in Total School Enrollment		2.27	0.82
Decrease in H.S. Graduation Req.		2.29	0.80
Improvement in Ag Economy		2.53	0.78

Negative Factors Decreasing Enrollment	Principals	
Variable	Mean	SD
Incompetent Ag Instructor	4.75	0.58
Poor quality curriculum	4.49	0.60
Negative FFA Image	4.33	0.66
Class Schedule Disregards conflicts	4.26	0.67
Inadequate facilities, equip, matls.	4.21	0.70
Decreasing number periods per day	4.18	0.80
Inadequate Ag Budget	4.04	0.65
Poor SAE	3.98	0.70
Negative image of Ag as Career Option	3.96	0.89
Increased Graduation Requirements	3.95	0.85
Poor Relationship Ag Teacher/4-H Leader	3.91	0.82
Inactive/Ineffective Advisory Comm.	3.74	0.72
Decrease in Total School Enrollment	3.73	0.82
Decline in Ag Economy	3.35	0.90

There were no ranked differences between each factor.

n=61

3.1.1.3. 1994 Combined States Ranking of Perceived Factors That Contribute to Fluctuations in Agricultural Enrollment

3.1.1.3.1. All Teachers' 1994 Perceptions

The teachers' evaluation of factors in 1994, summarized in Table 3.7, failed to reveal any significant clusters among the positive factors, but two clusters appeared among the negative factors. Incompetent agricultural instructors and a negative image of the FFA were perceived as having a greater influence on enrollment than the other factors.

3.1.1.3.2. All Principals' 1994 Perceptions

Principals' perceptions in 1994 (Table 3.8), revealed three clusters among the positive factors and two clusters among the negative factors.

Among the positive factors, principals view competent and qualified agricultural instructors, quality agricultural curriculum and course offerings, a positive image of FFA, and parents positive image of agriculture as a good career, as being most influential in contributing to increases in agricultural enrollment. In the principals' view, a decrease in high school graduation requirements was least influential.

Table 3.7 All Teachers' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Teachers Mean	SD
Positive Image of FFA	1.34	0.59
Competent and Qualified Instructor	1.45	0.61
Class Schedule limits conflicts	1.47	0.52
Quality Ag curriculum and course offerings	1.54	0.57
Parents positive image of ag as good career	1.63	0.68
Adequate facilities, equipment, etc.	1.73	0.57
Good Quality SAE	1.84	0.74
Adequate Ag Budget	1.84	0.69
Increase in number of periods in school day	1.98	0.86
Positive Image of Ag as Career Option	1.99	0.92
Increase in Total School Enrollment	2.11	0.68
Good Relationship between Ag Teacher and 4-H Leader	2.12	0.83
Decrease in H.S. Graduation Req.	2.26	0.81
Active and effective Advisory Committee	2.36	0.73
Improvement in Ag Economy	2.48	0.71

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Teachers Mean	SD
Incompetent Ag Instructor	4.56	0.79
Negative FFA Image	4.52	0.71
$p < 0.05$		
Parents negative image of ag as a good career	4.38	0.81
Class Schedule Disregards conflicts	4.37	0.76
Poor quality curriculum	4.33	0.74
Negative image of Ag as Career Option	4.15	0.85
Decreasing number periods per day	4.11	0.93
Inadequate Ag Budget	4.07	0.82
Increased Graduation Requirements	4.05	1.09
Poor SAE	4.02	0.74
Inadequate facilities, equip, matls.	3.98	0.81
Poor Relationship Ag Teacher/4-H Leader	3.80	0.86
Decrease in Total School Enrollment	3.61	0.73
Inactive/Ineffective Advisory Comm.	3.50	0.65
Decline in Ag Economy	3.43	0.71

n=85

Among the negative factors ranked from the most influential to least influential to decreases in agricultural enrollment were: incompetent agricultural instructors, parents' negative image of agriculture as a good career, a negative image of FFA, and poor quality agricultural curriculum. Thus, in the 1994 data, teachers and principals were again in agreement in viewing instructors' competence as highly influential. However, FFA image (positive and negative) was seen as very influential in 1994, and examination of the 1989 data suggests that it was regarded as equally important in 1989, even though it was not consistently singled out from other factors. Curriculum quality also appears highly influential in the 1994 survey data, and examination of the 1989 data suggests that it was regarded as an important influence by both teachers and principals.

Examination of the data provided by all teachers and all principals in 1989 and 1994 thus suggests that in their view three factors contribute most to influencing agricultural enrollment: the competence of the agricultural instructors, FFA image, and the quality of the curriculum.

Table 3.8 All Principals' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment		Principals	
Variable		Mean	SD
Competent and Qualified Instructor		1.51	0.83
Quality Ag curriculum and course offerings		1.55	0.69
Positive Image of FFA		1.55	0.64
Parents positive image of ag as good career		1.63	0.69
	p < .05		
Class Schedule limits conflicts		1.85	0.75
Good Quality SAE		1.87	0.76
Positive Image of Ag as Career Option		1.90	0.90
Adequate facilities, equipment, etc.		1.93	0.75
Adequate Ag Budget		1.97	0.68
	p < .05		
Increase in number of periods in school day		2.19	0.87
Good Relationship between Ag Teacher and 4-H Leader		2.21	0.76
Increase in Total School Enrollment		2.26	0.82
Active and effective Advisory Committee		2.30	0.65
Improvement in Ag Economy		2.33	0.74
	p < .01		
Decrease in H.S. Graduation Req.		2.63	0.94

Negative Factors Decreasing Enrollment		Principals	
Variable		Mean	SD
Incompetent Ag Instructor		4.51	0.91
Parents negative image of ag as a good career		4.30	0.86
Negative FFA Image		4.27	0.76
Poor quality curriculum		4.26	0.85
	p < .05		
Inadequate facilities, equip, matls.		4.12	0.68
Class Schedule Disregards conflicts		4.07	0.77
Poor SAE		4.04	0.80
Inadequate Ag Budget		4.01	0.66
Decreasing number periods per day		3.90	0.90
Negative image of Ag as Career Option		3.86	0.96
Inactive/Ineffective Advisory Comm.		3.80	0.65
Poor Relationship Ag Teacher/4-H Leader		3.75	0.82
Decrease in Total School Enrollment		3.61	0.87
Increased Graduation Requirements		3.61	0.99
Decline in Ag Economy		3.35	0.80

n=79

3.1.1.4. 1994 Oregon and California Teachers' and Principals' Rankings

Tables 3.9 through 3.12 summarize these same comparisons within Oregon and within California. The positive and negative factors relating to instructor competence, FFA image, and curriculum quality have been italicized to demonstrate how consistently they rank among the top factors in both the 1989 and 1994 surveys, in both Oregon and California, and in both teacher and principal data.

3.1.1.5. Further Discussion on Objective 3.1

Several factors were consistently perceived by teachers and principals as affecting agricultural enrollment in the 1989 and 1994 studies in Oregon and California. Teachers' and principals' ranking of factors were more consistent for positive factors that affect increases in enrollment. A similar ranking of negative factors which affect a decrease in agricultural enrollment was not as consistent for the variables ranked most important.

Those factors that consistently ranked in the top four positive factors affecting an increase in agricultural enrollment in the 1989 and 1994 study were:

1. Competent and qualified agricultural instructor
2. Positive image of the FFA

3. Quality agricultural curriculum and course offerings
4. A class schedule that limits conflicts

In addition, one positive factor surfaced repeatedly in the 1994 data for teacher and principals in both Oregon and California; parents' positive image of agriculture as a good career.

Among the negative factors that were perceived to affect a decrease in enrollment, an incompetent agricultural instructor consistently surfaced as the most influential. Even though this factor did not always cluster out from a statistically significance standpoint, it was the opposite statement to the positive factor that did consistently cluster out.

This concludes the findings and discussion for the first part of objective one, which is further analyzed in the next section where factors are correlated with actual agricultural enrollment.

Table 3.9 Oregon Teachers' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Teachers Mean	SD
Positive Image of FFA	1.41	0.67
Competent and Qualified Instructor	1.42	0.59
Class Schedule limits conflicts	1.46	0.55
Quality Ag curriculum and course offerings	1.50	0.60
Parents positive image of ag as good career	1.69	0.75
Adequate facilities, equipment, etc.	1.81	0.59
Good Quality SAE	1.86	0.72
Positive Image of Ag as Career Option	1.95	0.88
Adequate Ag Budget	2.00	0.78
Good Relationship between Ag Teacher and 4-H Leader	2.14	0.84
Increase in Total School Enrollment	2.21	0.68
Increase in number of periods in school day	2.21	0.93
Decrease in H.S. Graduation Req.	2.38	0.76
Improvement in Ag Economy	2.39	0.67
Active and effective Advisory Committee	2.39	0.67

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Teachers Mean	SD
Incompetent Ag Instructor	4.54	0.93
Negative FFA Image	4.44	0.81
Poor quality curriculum	4.30	0.85
Class Schedule Disregards conflicts	4.27	0.90
Parents negative image of ag as a good career	4.27	0.90
Negative image of Ag as Career Option	4.10	0.93
Poor SAE	4.02	0.79
Inadequate facilities, equip, matls.	3.98	0.78
Increased Graduation Requirements	3.95	1.02
Inadequate Ag Budget	3.88	0.97
Decreasing number periods per day	3.86	1.03
Poor Relationship Ag Teacher/4-H Leader	3.76	0.92
Decrease in Total School Enrollment	3.60	0.63
Inactive/Ineffective Advisory Comm.	3.45	0.59
Decline in Ag Economy	3.37	0.70

There were no ranked differences between each factor.

n=43

Table 3.10 California Teachers' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Teachers Mean	SD
Positive Image of FFA	1.27	0.50
Competent and Qualified Instructor	1.46	0.64
Class Schedule limits conflicts	1.48	0.50
Parents positive image of ag as good career	1.56	0.59
Quality Ag curriculum and course offerings	1.57	0.54
Adequate facilities, equipment, etc.	1.65	0.53
Adequate Ag Budget	1.67	0.57
Increase in number of periods in school day	1.74	0.72
Good Quality SAE	1.82	0.77
Increase in Total School Enrollment	2.01	0.68
Positive Image of Ag as Career Option	2.04	0.96
Decrease in H.S. Graduation Req.	2.13	0.84
Good Relationship between Ag Teacher and 4-H Leader	2.26	0.83
Active and effective Advisory Committee	2.33	0.80
Improvement in Ag Economy	2.57	0.74

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Teachers Mean	SD
Negative FFA Image	4.61	0.59
Incompetent Ag Instructor	4.59	0.63
Parents negative image of ag as a good career	4.49	0.71
Class Schedule Disregards conflicts	4.46	0.60
Decreasing number periods per day	4.38	0.73
Poor quality curriculum	4.37	0.62
Inadequate Ag Budget	4.26	0.59
Negative image of Ag as Career Option	4.21	0.78
Increased Graduation Requirements	4.15	1.15
Poor SAE	4.02	0.70
Inadequate facilities, equip, matls.	3.98	0.85
Poor Relationship Ag Teacher/4-H Leader	3.84	0.81
Decrease in Total School Enrollment	3.61	0.82
Inactive/Ineffective Advisory Comm.	3.55	0.71
Decline in Ag Economy	3.49	0.73

There were no ranked differences between each factor.

n=42

Table 3.11 Oregon Principals' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Principals Mean	SD
Competent and Qualified Instructor	1.50	0.83
Positive Image of FFA	1.68	0.66
Parents positive image of ag as good career	1.68	0.78
Quality Ag curriculum and course offerings	1.74	0.80
Adequate facilities, equipment, etc.	1.92	0.78
Class Schedule limits conflicts	1.92	0.67
Adequate Ag Budget	1.95	0.70
Positive Image of Ag as Career Option	1.97	0.82
Good Quality SAE	1.97	0.71
Good Relationship between Ag Teacher and 4-H Leader	2.13	0.70
Improvement in Ag Economy	2.24	0.71
Increase in Total School Enrollment	2.34	0.88
Active and effective Advisory Committee	2.39	0.73
Increase in number of periods in school day	2.42	0.72
Decrease in H.S. Graduation Req.	2.71	0.73

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Principals Mean	SD
Incompetent Ag Instructor	4.52	0.92
Parents negative image of ag as a good career	4.37	0.71
Inadequate facilities, equip, matls.	4.16	0.68
Negative FFA Image	4.11	0.76
Poor quality curriculum	4.07	1.00
Inadequate Ag Budget	4.05	0.77
Class Schedule Disregards conflicts	3.95	0.77
Poor SAE	3.94	0.75
Negative image of Ag as Career Option	3.79	0.91
Poor Relationship Ag Teacher/4-H Leader	3.74	0.80
Inactive/Ineffective Advisory Comm.	3.73	0.56
Decreasing number periods per day	3.63	0.91
Decrease in Total School Enrollment	3.58	0.77
Increased Graduation Requirements	3.53	0.83
Decline in Ag Economy	3.45	0.80

There were no ranked differences between each factor.

n=39

Table 3.12 California Principals' Ranking 1994

Factors Affecting Enrollment
Questions 38-67 Means and Standard Deviations

Positive Factors Increasing Enrollment

Variable	Principals Mean	SD
Quality Ag curriculum and course offerings	1.36	0.49
Positive Image of FFA	1.42	0.60
Competent and Qualified Instructor	1.51	0.84
Parents positive image of ag as good career	1.58	0.60
Good Quality SAE	1.78	0.80
Class Schedule limits conflicts	1.78	0.82
Positive Image of Ag as Career Option	1.82	0.97
Increase in number of periods in school day	1.94	0.96
Adequate facilities, equipment, etc.	1.95	0.73
Adequate Ag Budget	1.99	0.66
Increase in Total School Enrollment	2.18	0.77
Active and effective Advisory Committee	2.21	0.55
Good Relationship between Ag Teacher and 4-H Leader	2.30	0.81
Improvement in Ag Economy	2.43	0.77
Decrease in H.S. Graduation Req.	2.55	1.12

There were no ranked differences between each factor.

Negative Factors Decreasing Enrollment

Variable	Principals Mean	SD
Incompetent Ag Instructor	4.49	0.90
Poor quality curriculum	4.45	0.65
Negative FFA Image	4.43	0.73
Parents negative image of ag as a good career	4.24	1.00
Class Schedule Disregards conflicts	4.18	0.77
Decreasing number periods per day	4.18	0.80
Poor SAE	4.14	0.83
Inadequate facilities, equip, matls.	4.08	0.68
Inadequate Ag Budget	3.97	0.55
Negative image of Ag as Career Option	3.93	1.02
Inactive/Ineffective Advisory Comm.	3.86	0.72
Poor Relationship Ag Teacher/4-H Leader	3.76	0.86
Increased Graduation Requirements	3.68	1.14
Decrease in Total School Enrollment	3.64	0.96
$p < .05$		
Decline in Ag Economy	3.26	0.81

n=40

3.1.2. Demographic Data and Quality Evaluations Correlated to Increases or Decreases in Agricultural Enrollment

Explanation of Abbreviated Enrollment Codes Used

INCAMT89 = (Increased Amount 1989) Difference in the percentage between 1985 and 1989 of students taking agriculture as compared to the total school population.

PERAG85 = (Percent Agriculture 1985) 1989 agricultural enrollment related as a percentage of the 1985 student enrollment in agricultural courses.

INCAMT94 = (Increased Amount 1994) Difference in the percentage between 1989 and 1994 of students taking agriculture as compared to the total school population.

PERAG89 = (Percentage Agriculture 1989) 1994 agricultural enrollment related as a percentage of the 1989 student enrollment in agricultural courses.

The raw enrollment data were transformed into two enrollment variables to more accurately illustrate the changes that occurred in agricultural enrollment from 1985 to 1989. To negate the effect of fluctuating total school population and its effect on agricultural enrollment, the first transformation created a percentage change value

that represented the difference between the 1985 to 1989 percentages of students taking agricultural as compared to the total school population (INCAMT89).

The second transformation represented the total agricultural enrollment without considering changes in overall school population from 1985 to 1989. This second transformed variable related the 1989 agricultural enrollment as a percentage of the 1985 student enrollment in agricultural courses(PERAG85). Similar transformations were accomplished for the 1994 data with the transformed variables being INCAMT94 and PERAG89, respectively, with substitutions of the 1989 and 1994 enrollment variables. Further discussion is included later in this chapter.

Table 3.13 through 3.15 present the correlations between the two transformed enrollment variables, INCAMT89 and PERAG85, against various demographic characteristics as well as quality evaluations of individual agricultural programs as rated by teachers and principals in the 1989 study for both Oregon and California combined, Table 3.13, and each state, respectively (Tables 3.14, 3.15).

The first enrollment variable, INCAMT89, is the difference between the percentage of the total number of students enrolled in the school in 1985, who were enrolled in agriculture, and the percentage of the total number of students enrolled in the school in 1989 who were enrolled in agriculture. It therefore represents the change in the percentage of agricultural enrollment relative to total school enrollment from 1985 to 1989. The INCAMT89 formula is (100 X A89/S89)-(100 X A85/S85), where A89 was the enrollment in agriculture in 1989, S89 is the total school enrollment in 1989, A85 is the enrollment in agriculture in 1985, and S85 is the total school enrollment in 1985.

The second 1989 variable, PERAG85, is the agricultural enrollment in 1989 expressed as a percent of the agricultural enrollment in 1985. The PERAG85 formula is (100 X A89/A85), where A89 is the enrollment in agriculture in 1989 and A85 is the enrollment in agriculture in 1985. If agricultural enrollment doubled from 1985 to 1989, then PERAG85 would be 200; if it stayed the same, the PERAG85 would be 100; if it declined by half, PERAG85 would be 50. It should be remembered that PERAG85 and PERAG89 were raw agricultural enrollment scores and do not take into account differences in total school enrollment changes.

Tables 3.16 through 3.18 present the correlations between the two transformed enrollment variables, INCAMT94 and PERAG89, against various demographic characteristics and quality evaluations of individual agricultural programs as rated by teachers and principals in the 1994 study for Oregon and California combined (Table 3.16) and each state, respectively (Tables 3.17, 1,18). The INCAMT94 formula read (100 X A94/S94) - (100 X A89/S89), where A94 is the enrollment in agriculture in 1994, S94 is the total school enrollment in 1994, A89 is the enrollment in agriculture in 1989, and S89 is the total school enrollment in 1989.

The second 1994 variable, PERAG89 represents the agricultural enrollment in 1994 expressed as a percentage of the agricultural enrollment in 1989. The PERAG89 formula is (100 X A94/A89), where A94 was the enrollment in agriculture in 1994, and A89 was the enrollment in agriculture in 1989. Therefore, if agricultural enrollment doubled from 1989 to 1994, then PERAG89 would be 200; if it stayed the same, PERAG89 would be 100; if it declined by half, PERAG89 would be 50. Again, it should be noted that PERAG89 was a raw agricultural enrollment score and does not account for differences in total school enrollment.

Pearson Product-Moment Correlations were used to evaluate the relationship between the studies' variables and teacher/principal evaluations of their school's agricultural programs and demographic and program quality characteristics. Unfortunately, teachers and principals had such different perceptions of their schools, different results were obtained when using the teachers' and principals' data. This was the rationale for using actual state enrollment figures for total school and agricultural programs when correlating enrollment to demographic and quality variables.

3.1.2.1. 1989 Study, Combined States' Findings and Discussion

In the combined states' teachers' data, there were five significant correlations between various demographic evaluations and INCAMT89, and only one with PERAG85 (Table 3.13). For the combined states principals' data, there were six significant correlations between various demographic evaluations and INCAMT89, and three with PERAG85 (Table 3.13).

3.1.2.1.1. All Teachers and INCAMT89

The teacher data indicated a negative correlation between INCAMT89 and minimum class size: the larger the minimum class size, the larger the decrease in agricultural enrollment between 1985 and

1989. Inversely, the smaller the minimum class size, the greater the increase in agricultural enrollment, between 1985 and 1989 ($r = -.32$, $p < .05$). Though not significant, the parallel correlation in the principal data was in the same direction, -.22, and these correlations were not significantly different from each other. Discussion relevant to this variable would indicate that as agricultural course enrollment did not meet minimums, possibly resulting in the agricultural classes being canceled, students may have been unable to schedule a different agricultural course. Subsequently, these students may have simply dropped agriculture altogether.

The teacher data indicated a negative correlation between INCAMT89 and the agricultural department receiving additional funds. Those programs that had a decline in the percentage of students taking agriculture were receiving more additional funds than were those schools that experienced an increase in the percentage of students taking agriculture ($r = -.41$, $p < .01$). The parallel correlation in the principals' data was in the same direction, -.10, but not significantly different from zero. However, the principals' correlation was significantly different from the teachers' correlation for this variable ($z = -2.28$, $p < .05$). Discussion relevant to this variable suggests that teachers should have a better

grasp on this aspect of their program than do their principals. Therefore, the tendency was to believe that the teachers' correlation, being

Table 3.13 Oregon and California Combined 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

VARIABLE	TEACHERS		PRINCIPALS		Significant
	NCAMT89	PERAG85	NCAMT89	PERAG85	ZSCORES
Total periods of Ag 85-89 (T14, P14)	-0.07	-0.05	-0.17	-.30*	1.71a*
Full Time Teaching Assignment	0.24	0.19	.37**	0.15	
Non-Ag courses Ag Teachers teach	0.08	0.12	0.14	.29*	
Minimum Class Size	-.32*	-0.28	-0.22	-0.09	
Visits by Ag Ed Staff increased?	0.01	-.33*	-0.09	-0.20	
Agriculture Department receives additional funds	-.41**	-0.12	-0.10	0.14	-2.28i*
Placement of program completers in post-sec.inst.	-0.10	-0.01	.28*	.30*	2.48i**/-2.04a
Students receive credit for SOEP/SAE	-.28*	0.06	-0.22	0.12	
Largest number of students in classroom	-.27*	-0.04	-.36**	-0.01	
Largest number of students in ag shop	-0.14	0.07	-.36*	-0.01	
Largest number of students in Lab Facility	-.32*	-0.13	-0.16	-0.01	2.76i**
Instructor updated technical and professional skills	0.03	0.04	-.49**	-0.13	3.98i**
Quality rating SOEP/SAE	-0.18	-0.18	.28*	0.01	-3.18i**

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.
T14 is the difference T14(89)-T14(85). Same with P14.
Teachers n=115, Principals n=93

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

significant, was more reliable than the principals' non-significant correlation. Several explanations could account for this negative correlation: 1) With enrollment declining, any additional funds would result in a negative correlation simply because of the coding (yes = 2,

no = 1); 2) The additional funds that were available for program improvement did not translate to additional benefits and therefore increased enrollment at the student level; 3) The additional funds were insufficient to significantly improve program quality and therefore increase enrollment; 4) It may take more time to see the effect on program improvement as a result of any additional funds being expended on behalf of agricultural programs and students.

The teacher data indicated a negative correlation between INCAMT89 and students receiving credit for SOEP/SAE. Those schools not awarding credit for SOEP/SAE had an increase in the percentage of students taking agriculture. Inversely, those schools awarding credit for SOEP/SAE had a decrease in the percentage of students taking agriculture ($r = -.28$, $p < .05$). Though not significantly different from zero, the parallel correlation found for the principals' data, -.22, was in the same direction and not significantly different than the -.28 found for the teachers. Discussion relevant to this variable suggests confusion on the part of the respondents. If the response was relative to receiving graduation credits for SOEP/SAE activities, it could be suggested that when graduation credits were not awarded, students were forced to enroll in regular agricultural courses. On the other hand, if the response was relative to achieving credit for SOEP/SAE activities as part of the

regular agricultural curriculum, it could simply be a function of declining enrollment and most agricultural courses awarding credit for SOEP/SAE activities. Considering this correlation was significant for teachers and not principals, the later would seem a more accurate explanation.

The teacher data indicated a negative correlation between INCAMT89 and the number of students placed in the classroom at one time. The larger the number of students placed in a classroom at one time, the larger the decrease in agricultural enrollment percentage. Inversely, the smaller the number of students placed in a classroom at one time, the larger the increase ($r = -.27$, $p < .05$). This finding was duplicated in the principals' data where the correlation was -.36, $p < .01$.

The teacher data indicated a similar negative correlation between INCAMT89 and the number of students placed in the lab facility at one time. The larger the number of students placed in a lab facility at one time, the larger the decrease in agricultural enrollment percentage. Inversely, the smaller the number of students placed in a lab facility at one time, the larger the increase ($r = -.32$, $p < .05$). The principals' data reveal a similar negative correlation, -.16, not significantly different from zero, but also not significantly different from the -.32 found for the teachers.

Discussion relevant to these last two findings suggests that large student numbers placed in the classroom and laboratory at one time translates to less individualized teacher/student interaction and decreasing enrollment.

3.1.2.1.2. All Teachers and PERAG85

Using Pearson Correlation to determine an association between specific program demographics and program quality characteristics and the 1989 percentage of 1985 agricultural enrollment (PERAG85), only one variable correlated significantly for teachers.

The teachers' evaluation of the number of visits by agricultural education staff members indicated a negative correlation with PERAG85. Schools with decreases in agricultural enrollment correlated with increased visits from agricultural education staff. Inversely, schools experiencing an increase in enrollment correlated with a decline in visits from agricultural education staff ($r = -.33$, $p < .05$). The parallel correlation for the principals, -.20, was not statistically significant from zero, and was also not a statistically significant deviation from the -.33 correlation found in the teachers' data. Discussion relevant to this

variable suggests that agricultural education staff attempt to respond to agricultural programs experiencing difficulties in enrollment.

3.1.2.1.3. All Principals and INCAMT89

There were six significant correlations between data provided by the principals and fluctuations in the change from 1985 to 1989 in percentage of agricultural enrollment relative to school size (INCAMT89). It was interesting that only one significant correlation was shared by both teachers and principals, the largest number of students placed in the classroom at one time.

The principals' data indicated a positive correlation between INCAMT89 and the number of periods for a full time teaching assignment. The greater the number of periods in a full time teaching assignment the greater the increase in agricultural enrollment percentage. Inversely, the smaller the number of periods for a full time teaching assignment the greater the decrease in the percentage of students taking agriculture ($r = .37$, $p < .01$). The parallel correlation for the teachers, .24, was not a statistically significant deviation from zero, but it was also not a statistically significant deviation from the .37 correlation found in the principals' data. Discussion relevant to this variable would suggest that principals view increasing the number of

periods that teachers were expected to teach as one answer to combating declining program enrollment. If the additional periods translated to increased agricultural offerings, this may be beneficial to agricultural enrollment. Additionally, agricultural teachers teaching non-agricultural courses may serve as a potential source of new students and an effective recruitment tool.

The principals' data indicated a positive correlation between INCAMT89 and placement of agricultural program completers in post-secondary institutions. The greater the placement of agricultural program completers in post-secondary institutions - the greater the increase in agricultural enrollment percentage. Inversely, the smaller the placement of agricultural program completers in post-secondary institutions, the greater the decrease in the percentage of students taking agriculture ($r = .28$, $p < .05$). Surprisingly, this correlation was not duplicated in the teachers' data. In fact, the teachers' data yield a non-significant negative correlation, -.10, significantly different from the principals' positive correlation ($z = -2.48$, $p < .05$). Teachers may perceive a larger number of students being placed in post-secondary institutions than their respective principals and their negative correlation is simply a function of declining enrollment in general. That principals place importance on this item should be capitalized upon by teachers in

program improvement efforts and emphasized through on-going communication between teachers and principals.

The principals' data duplicated that of the teachers in indicating a negative correlation between INCAMT89 and the number of students placed in a classroom at one time. The larger the number of students placed in a classroom at one time, the greater the decline in percentage of agricultural enrollment. Inversely, the smaller the number of students placed in a classroom, the greater the increase in the percentage of students taking agriculture ($r = -.36$, $p < .01$). Discussion is included in the teacher analysis for this variable (Teachers and INCAMT89).

The principals' data indicated a similar negative correlation between INCAMT89 and the largest number of students placed in the agricultural shop at one time. The larger the number of students placed in the agricultural shop at one time, the greater the decline in percentage of agricultural enrollment. Inversely, the smaller the number of students placed in the agricultural shop at one time, the greater the increase in the percentage of students taking agriculture ($r = -.36$, $p < .05$). The teachers' data also yielded a negative correlation, -.14, and although it was not statistically significant, it does not differ significantly from the principals' -.36. Discussion of this variable would have to include the

teacher/student individualized interaction related in the teacher discussion of the variables associated with classroom and laboratory student numbers (Teachers and INCAMT89) and that teachers and principals are in accord with this perception.

The principals' data indicated a negative correlation between INCAMT89 and whether the instructor updated his/her technical and professional skills. In the schools where the instructor updated his/her skills, there was a decline in the percentage of agricultural enrollment. Inversely, in schools where the instructor did not update their skills, there was an increase in the percentage of students taking agriculture ($r = -.49$, $p < .01$). This odd correlation was in the opposite direction from the teachers' data, .03, and the two correlations differ significantly ($z = 3.98$, $p < .01$). Discussion would suggest that in schools where enrollment were declining, the teachers were encouraged either internally or externally to update their technical and pedagogical skills. On the other hand, with agricultural enrollment declining, if teachers simply maintained their level of updating activities this would yield a statistically negative correlation.

The principals' data indicated a significant correlation between INCAMT89 and supervised occupational experience program (SOEP/SAE)

quality rating (1 = meets all the criteria for an excellent SOEP/SAE, 5 = meets none of the criteria for an excellent SOEP/SAE). In the schools where the principals rated their agricultural program's SOEP/SAE of high quality, there was a decline in the percentage of agricultural enrollment. Inversely, in schools where the principals rated their agricultural program's SOEP/SAE of low quality, there was an increase in the percentage of students taking agriculture, from 1985 to 1989 ($r = .28$, $p < .01$, positive value means negative correlation). This odd correlation was not duplicated in the evaluation of the teacher data where a positive correlation, -.18, was found (negative value indicates positive correlation). The two correlations differ significantly ($z = -3.18$, $p < .01$). While not statistically significant for the combined teachers' analysis, a positive correlation for this variable was significant for California teachers ($r = -.39$, $p < .05$, table 3.15). This contrary evaluation between teachers' and principals' perception of the SOEP/SAE quality component of their agricultural program suggests that several factors may be at work. Because teachers were the front line of involvement with students, they may have a better understanding of what a quality SOEP/SAE program entails and thus their rating could be viewed as more valid. Principals usually do not visit student projects and were only aware of the very visible awards that FFA students receive. This may not give the principal a true sense of the overall quality of the

agricultural program for this area of evaluation. Alternatively, this finding may simply be the result of declining enrollment in general and a good principals' evaluation rating of this variable.

3.1.2.1.4. All Principals and PERAG85

Using Pearson correlation, three significant correlations were found between principals' perceptions of their own program evaluation and agricultural enrollment change between 1985 and 1989 as indicated by PERAG85.

Principals' evaluations of their programs indicated a negative correlation between the difference in the periods of agriculture from 1985 and 1989 and the percentage of 1985 agricultural enrollment as indicated by PERAG85. This indicated that there was a tendency for movement of these two factors to be in the opposite direction. A decrease in the percentage of 1989 agricultural enrollment as related to 1985 correlated with an increase in the number of periods of agriculture from 1985 to 1989. Inversely, an increase in the percentage of 1989 agricultural enrollment as related to 1985 correlated with a decrease in the number of periods of agriculture from 1985 to 1989 (r -.30, $p < .05$). The parallel correlation in the teachers' data was in the same direction,

-.05, but not significantly different from zero. However, the teachers' correlation was significantly different from the principals' correlation for this variable ($z = 1.71$, $p < .05$). Principals may have a better grasp on enrollment figures than do their teachers. Therefore, the tendency was to believe that the principals' correlation, being significant, was more reliable than the teachers' non-significant correlation. Further, an increase in the periods of agriculture may have been a response to declining enrollment and was designed to remedy this situation. In programs that were not experiencing enrollment declines, the need to increase agriculture periods may not have been viewed as necessary. It could also be a function of the statistical analyses where declining enrollment would yield a negative correlation even though there might not have been any change in the number of agriculture periods.

Principals' evaluations of their programs indicated a positive correlation between the number of non-agricultural courses that agricultural teachers teach and PERAG85. An increase in the number of non-agricultural courses taught by agricultural teachers correlated with an increase in agricultural enrollment. Inversely, a decrease in the number of non-agricultural courses taught by agricultural teachers correlated with decreases in agricultural enrollment ($r = .29$, $p < .05$). The parallel correlation for the teachers, .12, was not statistically

significant, but it was also not a statistically significant deviation from the .29 correlation found in the principals' data. Discussion relevant to this variable suggests that there may be a recruitment advantage for agricultural teachers teaching non-agricultural courses and gaining access to a new and diverse student population with little or no prior exposure to individuals engaged in agricultural education.

Principals' evaluation of their program indicated a positive correlation between placement of agricultural program completers in post-secondary institutions and the percentage of 1985 agricultural enrollment as indicated by PERAG85. An increase in the placement of agricultural program completers in post-secondary institutions correlated with an increase in agricultural enrollment. Inversely, a decrease in the placement of agricultural program completers in post-secondary institutions correlated with decreases in agricultural enrollment ($r = .30$, $p < .05$). Surprisingly, this correlation was not duplicated in the teachers' data. In fact, the teachers' data yield a non-significant negative correlation, -.01, significantly different from the principals' positive correlation of .30 ($z = -2.04$, $p < .05$). Comparative discussion of this variable and its correlation to INCAMT89 was discussed previously.

3.1.2.2. 1989 Oregon Teachers and Principals

Table 3.14 summarizes the correlations between INCAMT89 and PERAG85 and various 1989 demographic and program quality characteristics of individual Oregon agricultural programs as rated by individual teachers and principals. Pearson Correlation was used to test significance. The reduction in sample size markedly lessened the statistical power accordingly; fewer correlations surfaced.

Table 3.14 Oregon 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

	TEACHERS		PRINCIPALS		Significant
VARIABLE	NCAMT89	PERAG85	NCAMT89	PERAG85	ZSCORES
Full Time Teaching Assignment	0.21	.39*	0.34	0.19	
Visits by Ag Ed Staff increased?	0.10	-.44*	-0.19	-0.16	
Agriculture Department receives additional funds	-.38*	-0.08	-0.03	0.22	
Placement of program completers in post-sec.inst.	-0.06	0.01	.49**	.41*	2.48i**/-1.78a
Percent students with SOEP/SAE	.46*	.43*	-0.02	-0.03	2.20i*/1.98a*
Percent ag students maintain SOEP/SAE Record Book	0.34	.42*	0.17	0.01	1.75a*
Largest number of students in classroom	-0.08	-0.01	-.41*	-0.01	
Instructor updated technical and professional skills	0.01	0.04	-.66**	-0.16	3.36i**

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.
T14 is the difference T14(89)-T14(85). Same with P14.
Teachers n=42, Principals n=32

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

3.1.2.2.1. Oregon Teachers and INCAMT89

In the teachers' data, two aspects of their school or agricultural program correlated with INCAMT89. One, the agricultural department receiving additional funds, is discussed in the combined states' data under Teachers and INCAMT89.

The Oregon teachers' data indicated a positive correlation between INCAMT89 and the percent of agricultural students who had a Supervised Occupational Experience Program (SOEP/SAE). Those programs with an increase in the percentage of students with a SOEP/SAE program correlated with increased agricultural enrollment. Inversely, those schools that showed a decrease in the percentage of students with SOEP/SAE programs tended toward a decline in the percentage of students taking agriculture ($r = .46$, $p < .05$). The parallel correlation in the principals' data was in the opposite direction, -.02, not significantly different from zero, and was significantly different from the teachers' correlation, .46 ($z = 2.2$, $p < .05$). Teachers may have a better grasp on this aspect of their program than do their principals. Therefore, the tendency was to believe that the teachers' correlation, being significant, was more reliable than the principals' non-significant and opposite correlation. In the combined data, the principals and teachers disagreed on another aspect of the SOEP/SAE component of their

programs, that of SOEP/SAE quality evaluation. Therefore, this variable area surfaces as a significant consideration in its effect on agricultural enrollment fluctuations.

3.1.2.2.2. Oregon Teachers and PERAG85

There were four significant correlations between various demographic evaluations and fluctuations in PERAG85 as perceived by teachers. It was interesting that not one significant correlation was shared by both Oregon teachers and principals. Two variables, number of class periods considered a full-time teaching assignment and visits by agricultural education staff, are discussed in the combined states findings under Principals and INCAMT89, and Teachers and PERAG85, respectively.

The Oregon teachers' evaluation of the percent of the agricultural students who had a supervised occupational experience program (SOEP/SAE) had a positive correlation with PERAG85. Schools that had a high percentage of students with SOEP correlated with an increase in agricultural enrollment. Inversely, schools with a lower percentage of students with SOEP correlated with decreased agricultural enrollment ($r = .43$, $p < .05$). The parallel correlation in the principals' data was in the opposite direction,-.03, not significantly different from zero, and was

significantly different from the teachers' correlation, .43, for this variable ($z = 1.98$, $p < .05$). Again, it would be expected that teachers would have a better grasp of this aspect of their program than do their principals. The teachers' correlation, being significant, $p < .05$, may be more reliable than the principals' non-significant and opposite correlation. Relevant discussion suggests that this area continues to be a source of disagreement between teachers and principals. Since the SOEP/SAE component has surfaced repeatedly in the literature as an integral component in agricultural education, it seems logical that this component would lead to program quality, thus stable and increasing enrollment. Previous discussion relevant to the value of student involvement in SOEP/SAE experiences is included in the combined states' data (Teachers and INCAMT89, Principals and INCAMT89).

The Oregon teachers' evaluation of the percent of the agricultural students who had a supervised occupational experience program (SOEP/SAE) record book indicated a positive correlation with PERAG85. Schools that had a high percentage of students with an SOEP record book correlated with an increase in agricultural enrollment. Inversely, schools with a lower percentage of students with an SOEP record book correlated with decreased agricultural enrollment ($r = .42$, $p < .05$). The parallel correlation in the principals' data was in the same direction, .01,

but not significantly different from zero. However, the principals' correlation was significantly different from the teachers' correlation for this variable ($z = 1.75$, $p < .05$). As discussed previously, the tendency is to give validity to the teachers' correlation, being significant and more reliable than the principals' non-significant correlation.

3.1.2.2.3. Oregon Principals and INCAMT89

There were three variables in the principals' data which correlated with INCAMT89: 1) placement of program completers in post-secondary institutions, 2) number of students placed in a classroom at one time, and 3) instructors updating technical and professional skills (see Table 3.14). These correlations also surfaced in the combined states' data and are discussed under Principals and INCAMT89, Teachers and INCAMT89, and Principals and INCAMT89, respectively.

3.1.2.2.4. Oregon Principals and PERAG85

Using Pearson correlation test, one significant correlation was found between Oregon principals' perceptions of their agricultural program evaluations and agricultural enrollment changes between 1985 and 1989. This was placement of agricultural program completers in post-secondary institutions and is discussed in the combined states' data (Principals and INCAMT89).

3.1.2.3. 1989 California Teachers and Principals

Table 3.15 illustrates the correlations between INCAMT89 and PERAG85 and various 1989 demographic and program quality characteristics of individual California agricultural programs as rated by the respective teachers and principals. Pearson correlation was used to test significance.

3.1.2.3.1. California Teachers and INCAMT89

There were four variables that California teachers evaluated which correlated with INCAMT89. One is the difference in the percentage of high school students enrolled in agriculture from 1985 to 1989. Three are discussed here as they surfaced only in this correlation. The fourth, supervised occupational experience (SOEP/SAE) quality rating, is discussed in the combined states' findings (Principals and INCAMT89).

The California teachers' data indicated a positive correlation between INCAMT89 and the total number of agricultural teachers in the program. The greater the number of agricultural teachers in the program, the greater the increase in agricultural enrollment percentage. Inversely, fewer agricultural teachers in the program correlated with a

Table 3.15 California 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

VARIABLE	TEACHERS		PRINCIPALS		Significant
	NCAMT89	PERAG85	NCAMT89	PERAG85	ZSCORES
Class periods per day 85-89 (T13, P13)	0.18	0.21	0.27	.39*	
Total number of Ag Teachers	.37*	-0.04	.34*	0.00	
Ag Courses that meet Graduation Requirements	-0.11	-0.16	-0.30	-.38*	
Minimum Class Size	-0.30	-.41*	-0.07	-0.19	
Supervision of SOEP/SAE by whom	-0.18	-.51**	-0.01	-0.33	
Percent ag students maintain SOEP/SAE Record Book	.44*	0.11	0.27	0.24	
Total number of occupational experience hours	.47*	0.10	0.15	-0.21	*1.65i
Quality rating SOEP/SAE	-.39*	-0.15	-0.17	0.15	

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.
T14 is the difference T14(89)-T14(85). Same with P14.
Teachers n=73, Principals n=61

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

decrease in the percentage of students taking agriculture (r = .37, p < .05). This logical finding was duplicated in the principals' data where the correlation was .34, p < .05. This suggests that more instructors in the agricultural program would be an advantage for students. Each instructor may have a different area of expertise which could relate to students with parallel interests. In addition, more instructors may translate to more course offerings at all times during the school day, making agricultural education more accessible for all students. Finally, with more instructors available for activities, students

may be exposed to more leadership activities and opportunities for personal and team achievements. These were some of the advantages that multiple instructor departments enjoyed.

California Teachers' evaluation of their program indicated a positive correlation between INCAMT89 and the percent of agricultural students who maintained an SOEP/SAE record book. The larger the percentage of agricultural students maintaining an SOEP/SAE record book, the greater the increase in agricultural enrollment percentage. Inversely, a smaller percentage of agricultural students maintaining an SOEP/SAE record book correlated with a decrease in the percentage of students taking agriculture ($r = .44$, $p < .05$). Though not significantly different from zero, the parallel correlation found for the principals' data, .27, was in the same direction and not significantly different than the .44 found for the teachers. This variable surfaced in the Oregon data and is discussed in Oregon Teachers and PERAG85.

California Teachers' evaluation of their program indicated a positive correlation between INCAMT89 and the occupational experience of the agricultural teachers in the program. The more hours of occupational experience the agricultural teachers in the program had, the greater the increase in agricultural enrollment percentage. Inversely,

fewer hours of occupational experience correlated with a decrease in the percentage of students taking agriculture ($r = .47$, $p < .05$). The principals' data paralleled these findings, .15, not significantly different from zero, but was significantly different from the teachers' correlation, .47, for this variable ($z = 1.65$, $p < .05$). California teachers could view credibility based on experience as an important factor for enrollment in their classrooms. Industry experience and expertise may also translate to currency in subject matter and therefore program quality, making it important to agricultural enrollment.

3.1.2.3.2. California Teachers and PERAG85

There were two significant correlations between various demographic evaluations and fluctuations in agricultural enrollment from 1985 to 1989 (PERAG85) as perceived by California teachers. The first, minimum class size, is discussed in the combined states' findings (Teachers and INCAMT89). The other correlation, supervision of the SOEP/SAE project, is discussed here. It was interesting that not one significant correlation was shared by both California teachers and principals for this enrollment variable.

California teachers' data indicated a negative correlation between PERAG85 and the supervisor(s) of the SOEP/SAE project (instructor = 1,

others = 2). Teachers supervising the SOEP/SAE project correlated with an increase in agricultural enrollment. Inversely, when someone else supervised the project, this correlated with a decrease in agricultural enrollment ($r = -.51$, $p < .01$). Though not significantly different from zero, the parallel correlation found for the California principals' data, -.33, was in the same direction and not significantly different than the -.51 found for California teachers. California teachers and principals tended to agree on this variable and its importance to agricultural enrollment. The importance of the SOEP/SAE program continues to surface in these discussions. The agricultural instructor(s) was considered best prepared and available to supervise this component of the program because of the extended summer contract. The importance of the SOEP/SAE project as a motivator for students and as an excellent teaching tool to emphasize classroom instruction cannot be overemphasized. Many students find success in these kinds of activities where hard work and initiative is rewarded. Oregon teachers and principals may not have identified this important variable because Oregon schools have not generally assigned supervision of SOEP/SAE student activities to persons other than the agricultural teachers.

3.1.2.3.3. California Principals and INCAMT89

California principals evaluated only one variable, the total number of agricultural teachers in the program, which correlated with INCAMT89, or the difference in the percentage of high school students enrolled in agriculture from 1985 to 1989. Interestingly, the same correlation existed as evaluated by California teachers and is discussed under California Teachers and INCAMT89.

3.1.2.3.4. California Principals and PERAG85

There were two significant correlations found between various demographic evaluations and fluctuations in agricultural enrollment from 1985 to 1989 (PERAG85) as perceived by California principals. It was interesting that not one significant correlation was shared by both California teachers and principals for this enrollment variable.

In comparing 1989 daily class periods available to the student each day with those available in 1985, the California principals' data indicated a positive correlation between the difference in the number of periods in the school day from 1985 and 1989 and PERAG85. An increase in the number of periods in the school day from 1985 to 1989 correlated with an increase in the percentage of agricultural enrollment, PERAG85. Inversely, a decrease in the number of periods available to

the student each day from 1985 to 1989 correlated with a decrease in agricultural enrollment ($r = .39$, $p < .05$). The parallel correlation for California teachers, .21, was not a statistically significant deviation from zero and was not a statistically significant deviation from the .39 found in the principals' data. Relevant discussion suggests that a larger number of periods in the school day provides students with more opportunity for elective courses. In addition, when students find themselves having to repeat required courses, the greater number of periods in the school day may still allow at least one elective.

The California principals' data indicated a negative correlation between the number of agricultural courses that met high school graduation requirements and agricultural enrollment. Schools where larger numbers of agricultural courses met graduation requirements correlated with a decrease in agricultural enrollment. Inversely, schools allowing fewer agricultural courses that met graduation requirements experienced an increase in the 1989 percentage of agricultural enrollment as related to 1985 ($r = -.38$, $p < .05$). Though not significantly different form zero, the parallel correlation found for the California teachers' data, -.16, was in the same direction and not significantly different from the -.38 found for the principals. Relative discussion indicates that schools, with declining enrollment in agricultural

programs, were attempting to partially solve the problem by increasing the number of agricultural courses that met graduation requirements. The negative correlation could be a statistical function of overall declining enrollment and increased number of agricultural courses meeting graduation requirements.

3.1.2.4. 1994 Study, Combined States' Findings and Discussion

What follows are the findings and discussion for the significant correlations in the 1994 study. The transformed variables INCAMT94 and PERAG89 were explained at the beginning of this chapter. They are further reviewed in Table 3.16. In the combined teachers' data, there were two significant correlations between various demographic evaluations and INCAMT94, and six with PERAG89, for the combined teacher data, (see Table 3.16). In the combined principals' data, there was one significant correlation between various demographic evaluations and INCAMT94, and four with PERAG89, for the combined teacher data (see Table 3.16).

3.1.2.4.1. All Teachers and INCAMT94

The teachers' data indicated a negative correlation between agricultural enrollment percentage change and average number of on-site student supervision visits. The greater the number of on-site supervision

visits the larger the decrease in agricultural enrollment percentage. Inversely, the fewer the number of on-site supervision visits, the greater the increase in agricultural enrollment percentage ($R = -.32$, $p < .05$). The parallel correlation in the principals' data was in the opposite direction, .21, not significantly different from zero, and was significantly different from the teachers' correlation, -.32, for this variable ($z = -2.83$, $p < .01$).

Table 3.16 Oregon and California Combined 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 7-40)

	TEACHERS		PRINCIPALS		SIGNIFICANT
VARIABLE	INCAMT94	PERAG89	INCAMT94	PERAG89	ZSCORES
Total periods of Ag 89-94 (T8, P8)	0.24	.33**	0.18	.27*	
Minimum Class Size	-0.06	-0.04	0.16	.28*	-1.82a*
Minimum Class Size resulted in fewer Ag Courses	-0.26	-0.24	-0.36	-.37*	
Students feel agriculture a viable career option	0.16	.27*	-0.05	0.07	
Average on-site student supervision visits each year	-.32*	-0.16	0.21	0.18	-2.83i**
Adequacy of Agriculture Budget	-0.17	-.24*	-.24*	-.33**	
Quality rating Agriculture Advisory Committee	-0.20	-.25*	-0.22	-0.09	
Quality rating Agriculture Curriculum	-0.22	-.27*	0.11	0.01	-1.77a*
Quality rating facilities and equipment	-.28*	-.24*	-0.03	-0.18	

INCAMT94 was created with the following formula: (100*A94/S94)-(100*A89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A94/A89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.
T8 is the difference T8(94)-T8(89). Same with P8.
Teachers n=85, Principals n=79

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

This somewhat unexpected correlation may have occurred because teachers have a better grasp on this aspect of their program than do their principals. Therefore, the tendency is to believe that the teachers' correlation, being significant, was more reliable than the principals' non-significant and opposite correlation. As enrollment increased in agricultural programs, the increased student load per instructor may have resulted in fewer on-site supervision visits per student even though the total supervision visits to all students may have increased. Additionally, if the increasing agricultural enrollment occurred without increasing teachers, this may have exacerbated the problem. Alternatively, principals may also have assumed that a greater number of visitations were occurring at their schools because of reporting procedures by the teacher; thus the positive correlation. As the 1989 data suggests, SOEP/SAE programs were of significant concern to both teachers and principals (Teachers and INCAMT89, Principals and INCAMT89).

The teachers' data indicated a positive correlation between agricultural enrollment percentage change and quality rating of the agricultural department's facilities and equipment. The higher the quality rating of the agricultural department's facilities and equipment the larger the increase in agricultural enrollment percentage. Inversely,

the lower the quality rating of the agricultural department's facilities and equipment, the greater the decrease in agricultural enrollment percentage ($r = -.28$, $p < .05$, 1 = meets all the quality criteria, 5 = meets none of the quality criteria, negative value indicates positive correlation). The principals' data reveals a similar negative correlation, -.03, not significantly different from zero, but also not significantly different from the -.28 found for the teachers. This obvious and expected correlation centers around the obvious advantage for students in schools with adequate facilities and equipment. Also, given the increasing number of students who reside in urban areas, a school lab facility may become increasingly important as a teaching tool and an attractant to agricultural program enrollment.

3.1.2.4.2. All Teachers and PERAG89

Using Pearson correlation to determine an association between specific program demographics and program quality characteristics and the 1994 percentage of 1989 agricultural enrollment, six variables showed correlational significance for teachers. In addition, two factors, change from 1989 to 1994 in total periods of agriculture and the adequacy of the agricultural budget were significantly correlated with PERAG89 for both teachers and principals.

The teachers' evaluation of the number of total periods of agriculture change from 1989 to 1994 indicated a positive correlation with agricultural enrollment. Schools where the number of total periods of agriculture increased from 1989 to 1994 were correlated with schools that showed an increase in agricultural enrollment. Inversely, a decline in the number of total periods of agriculture from 1989 to 1994 correlated with decreased agricultural enrollment ($r = .33$, $p < .01$). This finding was duplicated in the principals' data where the correlation was .27, $p < .05$. Discussion relevant to this variable indicates that under increasing student populations, agricultural programs can capitalize on the increased student numbers by adding periods of agricultural instruction. This differs from the 1989 findings where the data yielded a negative correlation, indicating student numbers have to be available if increasing the periods of agricultural instruction is utilized to increase agricultural enrollment.

The teachers' perceptions of whether students felt that agriculture was a viable career option correlated positively with agricultural enrollment. Where teachers felt that students viewed agriculture as a viable career option, there was a positive correlation with an increase in agricultural enrollment. Inversely, where teachers felt that students did not view agriculture as a viable career option, there was a correlation

with decreased agricultural enrollment ($r = .27$, $p < .05$). The parallel correlation in the principals' data was in the same direction, .07, but was not significantly different from zero. This solidifies the concept cited in the literature that agricultural teachers have a significant impact on students' career choices. Second only to parents' influence, agricultural teachers continue to surface as greatly influential on students. Additionally, as agricultural economies have become more stable and healthy, there appears to be more opportunity for agricultural employment and students appear to be aware of these changes.

Teachers' evaluation of their program indicated a positive correlation between agricultural enrollment and the adequacy of the agricultural budget. A more adequate agricultural budget correlated with an increase in agricultural enrollment. Inversely, a less adequate agricultural budget correlated with decreases in agricultural enrollment (1 = excellent adequacy, 5 = inadequate budget , $r = -.24$, $p < .05$, negative value indicates positive correlation). This finding was duplicated in the principals' data where the correlation was -.33, $p < .01$. Discussion associated with this variable indicates that under increased enrollment trends, the adequacy of the agricultural budget does impact enrollment. Whether the budget is used for classroom equipment, field

trips, facilities and lab equipment, or to augment FFA activities, it appeared that financial resources were extremely important.

Teachers' evaluations of their programs indicated a positive correlation between the quality of the agricultural advisory committee and agricultural enrollment as indicated by PERAG89. A high quality rating of the agricultural advisory committee correlated with an increase in agricultural enrollment. Inversely, a low quality rating of the agricultural advisory committee correlated with decreases in agricultural enrollment (1 = program meets all the quality criteria, 5 = meets none of the quality criteria, $r = -.25$, $p < .05$, negative value indicates positive correlation). Though not significantly different from zero, the parallel correlation found for the principals' data, -.09, was in the same direction and not significantly different than the -.25 found for the teachers. Discussion relevant to this variable indicates that the agricultural advisory committee is still an important component of quality agricultural programs. Whether as a resource for expertise, materials and equipment, work experience sites, or assistance in program evaluation and improvement, the value of the agricultural advisory committee cannot be denied.

Teachers' evaluations of their programs indicated a positive correlation between the quality of the agricultural curriculum and agricultural enrollment as indicated by PERAG89. A high quality rating of the agricultural curriculum correlated with an increase in agricultural enrollment. Inversely, a low quality rating of the agricultural curriculum correlated with decreases in agricultural enrollment (1 = program meets all the quality criteria, 5 = meets none of the quality criteria, $r = -.27$, $p < .05$, negative value indicates positive correlation). The parallel correlation in the principals' data was in the opposite direction, .01, not significantly different from zero, and was significantly different from the teachers' correlation, -.27, for this variable ($z = -1.77$, $p < .05$). Teachers may have a better grasp on this aspect of their program than do their principals. Therefore, the tendency is to give credibility to the teachers' correlation, being significant and more reliable than the principals' non-significant and opposite correlation. This obvious correlation, which failed to surface in the 1989 data, may indicate that as enrollment increased in the years between 1989 and 1994, teachers found that they could no longer rely on outdated curriculum to attract new students, their curriculum had to align with what was happening in the real world of agriculture/agribusiness. New directions in curricula, consistent with occupational opportunities in agriculture, are a reflection of sound principles of vocational education.

Teachers' evaluations of their programs indicated a negative correlation between the quality of the agricultural facilities and equipment and the percentage of agricultural enrollment as indicated by PERAG89. A high quality rating of the agricultural facilities and equipment correlated with an increase in agricultural enrollment. Inversely, a low quality rating of the agricultural facilities and equipment correlated with decreases in agricultural enrollment (1 = program meets all the quality criteria, 5 = meets none of the quality criteria, $r = -.24$, $p < .05$). Though not significantly different from zero, the parallel correlation found for the principals' data, -.18, was in the same direction and not significantly different from the -.24 found for the teachers. Discussion associated with this variable was included previously with this variable's correlation with INCAMT94 (Teachers and INCAMT94).

3.1.2.4.3. All Principals and INCAMT94

There was only one significant correlation between various demographic evaluations and fluctuations in the change from 1989 to 1994 in percentage of agricultural enrollment relative to school size (INCAMT94) as perceived by principals (see Table 3.16).

The principals' data indicated a positive correlation between percentage change in agricultural enrollment and the adequacy of the agricultural budget. The more adequate the agricultural budget, the greater the increase in the percentage of agricultural enrollment. Inversely, the less adequate the agricultural budget, the greater the decrease in the percentage of students taking agriculture ($r = -.24$, $p < .05$, 1 = excellent adequacy, 5 = inadequate, negative value indicates positive correlation). The parallel correlation for the teachers, -.17, was not a statistically significant deviation from zero, and it was also not a statistically significant deviation from the -.24 correlation found in the principals' data. Discussion is included in the teacher correlation with this variable (Teachers and PERAG89).

3.1.2.4.4. All Principals and PERAG89

Using Pearson correlation, four significant correlations were found between principals' perceptions of their own program evaluation and agricultural enrollment change between 1989 and 1994 (PERAG89).

In comparing 1994 agricultural enrollment to 1989, the principals' data indicated a positive correlation between the difference in the number of periods of agriculture from 1989 to 1994 and agricultural enrollment. An increase in the number of periods of agriculture from

1989 to 1994 correlated with an increase in the percentage of agricultural enrollment in 1994 as related to 1989 (PERAG89). Inversely, a decrease in the number of periods of agriculture from 1989 to 1994 correlated with a decrease in PERAG89 ($r = .27$, $p < .05$). This finding was duplicated in the teachers' data where the correlation was .33, $p < .01$. Discussion for this correlation was included with the teacher correlation (Teachers and PERAG89).

The principals' evaluation of their programs indicated a positive correlation between minimum class size and agricultural enrollment. An increase in the minimum class size correlated with an increase in agricultural enrollment. Inversely, a decrease in the minimum class size correlated with a decrease in agricultural enrollment ($r = .28$, $p < .05$). Surprisingly, this correlation was not duplicated in the teachers' data. In fact, the teachers' data yield a non-significant negative correlation, -.04, significantly different from the principals' positive correlation of .28 ($z = -1.82$, $p < .05$). In addition, the parallel correlation in the 1989 data was more in line with the teacher data and opposite that reported here for the 1994 principal correlation. The principals' significant correlation may indicate that during periods of increased enrollment, increasing the minimum class size may capitalize on the increased overall student numbers. This may hold true when considering that this variable

(PERAG89) was the general change in agricultural enrollment without considering the effect of an increased student population in the school.

The principals' data indicated a negative correlation between minimum class size resulting in fewer agricultural courses and agricultural enrollment. Minimum class size resulting in fewer agricultural courses correlated with a decrease in agricultural enrollment (PERAG89). Inversely, minimum class size not resulting in fewer agricultural courses correlated with an increase in agricultural enrollment (minimum class size resulted in fewer agricultural courses, 1 = no, 2 = yes, $r = -.37$, $p < .05$). The parallel correlation for the teachers, -.24, was not a statistically significant deviation from zero, and it was also not a statistically significant deviation from the -.37 correlation found in the principals' data. Discussion relevant to this variable indicates that when minimum class size restrictions do not affect access to agricultural courses, enrollment are positively affected. However, if a minimum class size was imposed, it is viewed as negatively affecting agricultural enrollment by restricting access to students if enrollment in agricultural courses is below the minimum, thus causing cancellation of agricultural courses. Alternatively, minimum class size restrictions may not be applied to certain programs such as agriculture; thus the restriction might not adversely affect agricultural enrollment.

Principals' evaluation of their programs indicated a positive correlation between agricultural enrollment and the adequacy of the agricultural budget. A more adequate agricultural budget correlated with an increase in agricultural enrollment. Inversely, a less adequate agricultural budget correlated with decreases in agricultural enrollment ($r = -.33$, $p < .01$, 1 = excellent adequacy, 5 = inadequate budget, negative value indicates positive correlation). This finding was duplicated in the teachers' data where the correlation was -.24, $p < .05$, and is discussed in Teachers and PERAG89.

3.1.2.5. 1994 Oregon Teachers and Principals

Data in Table 3.17 illustrates the correlations between two enrollment variables and various 1994 demographic and program quality characteristics of individual Oregon agricultural programs as rated by teachers and principals. Pearson correlation was used to test significance.

3.1.2.5.1. Oregon Teachers and INCAMT94

There were two variables, quality rating agricultural facilities and equipment, and increase in visits by agricultural education staff that Oregon teachers evaluated, which correlated to INCAMT94, or the difference in the percentage of the students in the high school who were

enrolled in agriculture from 1989 to 1994. Both are discussed in the 1994 combined states' findings (Teachers and INCAMT94, Teachers and PERAG85, respectively).

Table 3.17 Oregon 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

	TEACHERS		PRINCIPALS		SIGNIFICANT
VARIABLE	INCAMT94	PERAG89	INCAMT94	PERAG89	ZSCORES
Visits by Ag Ed Staff increased?	-.40*	-0.29	0.10	-0.23	-2.01i*
Students feel agriculture a viable career option	0.27	.41*	-0.04	-0.02	1.92a*
SOEP/SAE supervision period assigned to ag teacher	-0.10	-0.16	.38*	0.35	-2.03i*
Quality rating Agriculture Advisory Committee	-0.26	-.36*	-0.18	0.02	-1.65a*
Quality rating facilities and equipment	-.33*	-0.31	0.13	-0.08	-2.00i*

INCAMT94 was created with the following formula: (100*A94/S94)-(100*A89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A94/A89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.
T8 is the difference T8(94)-T8(89). Same with P8.
Teachers n=43, Principals n=42

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

3.1.2.5.2. Oregon Teachers and PERAG89

There were two significant correlations between various demographic evaluations and fluctuations in the change from 1989 to 1994 in agricultural enrollment (PERAG89) as perceived by teachers. Both of these variables, students viewed agriculture as a viable career option and quality rating of the agricultural advisory committee surfaced

in the combined states' 1994 data and are discussed in Teachers and PERAG89. It was interesting that not one significant correlation was shared by both Oregon teachers and principals for this variable.

3.1.2.5.3. Oregon Principals and INCAMT94

There was only one variable that principals evaluated which correlated to INCAMT94, or the difference in the percentage of high school students enrolled in agriculture from 1989 to 1994.

The Oregon principals' data indicated a positive correlation between the percentage change in agricultural enrollment and a supervised occupational experience program (SOEP/SAE) supervision period being assigned to the agricultural instructor. Instructors being assigned a SOEP/SAE supervision period correlated with an increase in the percentage change in agricultural enrollment. Inversely, instructors not being assigned a SOEP/SAE supervision period was correlated with decreases in the percentage of students taking agriculture ($r = .38$, $p < .05$). The parallel correlation in the teachers' data was in the opposite direction, -.10, not significantly different from zero, and was significantly different from the principals' correlation, .38, for this variable ($z = -2.03$, $p < .05$). Apparently, there was a difference of opinion between teachers and principals as to whether a supervision period was assigned. It is

difficult to determine which finding was more accurate. The tendency is to believe that the principals' logical correlation, being significant, was more reliable than the teachers' non-significant and opposite correlation. However, further discussion suggests that the teachers would know whether they had been assigned a supervision period as part of their teaching load. Confusion with the question may explain this conflicting finding.

3.1.2.5.4. Oregon Principals and PERAG89

Using Pearson correlation, no significant correlation was found between Oregon principals' perceptions of their own program evaluation and agricultural enrollment change between 1985 and 1989. It is possible that the sample size was so small that the correlations were not of sufficient significance.

3.1.2.6. 1994 California Teachers and Principals

Data in Table 3.18 illustrates the correlations between two enrollment variables and various 1994 demographic and program quality characteristics of individual California agricultural programs as rated by teachers and principals. Pearson correlation was used to test significance.

3.1.2.6.1. California Teachers and INCAMT94

There were four variables that California teachers evaluated which correlated with the percentage change in agricultural enrollment, or the difference in the percentage of the high school students enrolled in agriculture from 1989 to 1994. Two factors, total periods of agriculture change from 1989 to 1994, and the total number of agricultural teachers, were significantly correlated with enrollment percentage changes for both California teachers and principals. These are discussed in the 1994 findings under Teachers and PERAG89, and in the California 1989 findings under California Teachers and INCAMT89, respectively. The only variable that was unique to California teachers and INCAMT94, agricultural department receiving additional funds, is discussed here.

California teachers' data indicated a negative correlation between whether the agricultural department received additional funds and the percentage change in agricultural enrollment. Schools that received additional funds correlated with schools that had decreases in agricultural enrollment percentage. Inversely, schools not receiving additional funds correlated with schools showing increased agricultural enrollment percentage between 1989 and 1994 ($r = .37$, $p < .05$). This unusual finding was not duplicated in the principals' data. The parallel correlation for the principals was zero and was not significantly different

from the teachers .37. One explanation for this finding could be that in some locations, reduced enrollment may have been the reason for increased funds being spent to increase facility quality in an attempt to reverse a program's declining enrollment.

Table 3.18 California 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

	TEACHERS		PRINCIPALS		SIGNIFICANT
VARIABLE	INCAMT94	PERAG89	INCAMT94	PERAG89	ZSCORES
Class periods per day 89-94 (T7, P7)	0.09	0.11	0.26	.39*	
Total periods of Ag 89-94 (T8, P8)	.55**	.65**	.51**	.65**	
Total number of Ag Teachers	.45**	.46**	.44**	.49**	
Ag Courses that meet Graduation Requirements	0.32	.40*	0.16	0.09	
Ag Courses that meet College Entrance Requirements	.29	0.32	.36*	0.33	
Minimum Class Size resulted in fewer Ag Courses	-0.24	-0.32	-.51*	-.61*	
Agriculture Department receives additional funds	-.37*	-.53*	0.00	-0.08	-2.11a*
Amount of funds increased ?	0.35	.42*	-0.30	-0.31	3.07a**
Placement of program completers in agriculture occupa	-0.04	-0.20	-0.15	-.37*	
Average on-site student supervision visits each year	-.58*	-0.24	0.40	0.32	-3.98i**
Adequacy of Agriculture Budget	-0.29	-0.32	-0.26	-.39*	
Instructor active in professional teacher organizations	0.03	0.21	0.26	.36*	
Quality rating Agriculture Advisory Committee	-0.07	-0.12	-.34*	-.33*	
Quality rating facilities and equipment	-0.16	-0.14	-0.32	-.36*	

INCAMT94 was created with the following formula: (100*A94/S94)-(100*A89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A94/A89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.
T8 is the difference T8(94)-T8(89). Same with P8.
Teachers n=42, Principals n=40

* p < .05
** p < .01

a = significant for PERAG89
i = significant for INCAMT94

3.1.2.6.2. California Teachers and PERAG89

Using Pearson correlation to determine an association between specific program demographics and quality characteristics and the 1994 percentage of 1989 agricultural enrollment, five variables showed correlational significance for California teachers. In addition, two factors, total periods of agriculture change from 1989 to 1994 and the total number of agricultural teachers were significantly correlated for both teachers and principals, and discussed in the 1994 findings under Teachers and PERAG89, and in the 1989 California findings under California Teachers and INCAMT89.

The California teachers' data indicated a positive correlation between the number of agricultural courses that met high school graduation requirements and agricultural enrollment. Schools where many agricultural courses met graduation requirements correlated with an increase in agricultural enrollment. Inversely, schools where few agricultural courses met graduation requirements correlated with schools experiencing a decrease in the 1994 percentage of agricultural enrollment as related to 1989 ($r = .40$, $p < .05$). Though not significantly different form zero, the parallel correlation found for the California principals' data, .09, was in the same direction and not significantly different from the .40 found for the teachers. Relevant discussion

indicates that when agricultural courses can be taken to fulfill graduation requirements, there is a tendency for more students to enroll in agricultural courses. This could be the result of effective advising on the part of the agricultural teacher, students recognizing that they can fulfill graduation requirements in an applied and more understandable manner, or creating more scheduling flexibility because of combining elective and graduation requirement courses.

California teachers' evaluation of their program indicated a negative correlation between whether the agricultural department received additional funds and agricultural enrollment. Agricultural programs receiving additional funds correlated with a decrease in agricultural enrollment. Inversely, agricultural programs that did not receive additional funds correlated with an increase in the 1994 percentage of agricultural enrollment as related to 1989 (receives additional funds yes = 2, no = 1, $r = -.53$, $p < .05$). Though not significantly different from zero, this surprising finding was in the same direction as the principals' data, -.08, and these were not significantly different from one another. There appears to be confusion regarding regular non-district funding (state funds) and new additional funding (grants, incentive grant funding, special vocational funds). However, in researching the means for INCAMT94 and PERAG89, it appears that the

schools that were surveyed exhibited moderate percentage and overall increases in agricultural enrollment. This being the case, the above correlation may be more significant than it appears on the surface. The next teachers' finding should help clear the confusion.

The California teachers' data indicated a positive correlation between whether the amount of additional funds had increased and agricultural enrollment. Agricultural programs whose additional funds had increased correlated with an increase in agricultural enrollment. Inversely, agricultural programs whose additional funds had decreased correlated with a decrease in the 1994 percentage of agricultural enrollment as related to 1989 (additional funds increased yes = 2, no = 1, $r = .42$, $p < .05$). The parallel correlation in the principals' data was in the opposite direction, -.31, not significantly different from zero, and was significantly different from the teachers' correlation, .42, for this variable ($z = 3.07$, $p < .01$). Teachers may have a better grasp of this aspect of their program than do their principals, or principals consider funding differently from teachers. However, the tendency is to believe that the teachers' correlation, being significant and more logical, was more reliable than the principals' non-significant and opposite correlation. Further discussion relevant to this variable may indicate that funds have generally increased in California as well as for agricultural programs.

The principals' opposite perception and negative correlation is unexplained at this point.

3.1.2.6.3. California Principals and INCAMT94

There were five variables California principals evaluated which correlated with INCAMT94, or the difference in the percentage of the students in the high school who were enrolled in agriculture from 1989 to 1994 (see Table 3.18). Two factors, total periods of agriculture change from 1989 to 1994 and the total number of agricultural teachers, were significantly correlated with enrollment percentage change for both teachers and principals, and are discussed in the 1994 findings under Teachers and PERAG89, and in the 1989 California findings under California Teachers and INCAMT89, respectively.

California principals' evaluation of the number of agricultural courses meeting college entrance requirements indicated a positive correlation with and the percentage change in agricultural enrollment. More agricultural courses meeting college entrance requirements correlated with an increase in agricultural enrollment percentage. Inversely, a decline in the number of agricultural courses meeting college entrance requirements correlated with decreased agricultural enrollment ($r = .36$, $p < .05$). Though not significantly different from zero, the

parallel correlation found for the teachers' data, .29, was in the same direction and not significantly different from the .36 found for the principals. Relevant discussion to this variable indicates that students recognize the advantage of receiving more than graduation elective credit when agricultural courses meet other requirements for college entrance, and as seen previously in the 1989 data for California, general education graduation credit. This translates to increased enrollment in agricultural courses. California principals may be paying much closer attention to college attendance and qualifications than are California teachers because of school district expectations and continued counselor support for college preparatory goals for all students.

In comparing 1994 agricultural enrollment to 1989, California principals' evaluations of their programs indicated a positive correlation between the quality of their agricultural advisory committee and the percentage change in agricultural enrollment. A high quality rating of the agricultural advisory committee correlated with an increase in agricultural enrollment percentage. Inversely, a low quality rating of the agricultural advisory committee correlated with a decrease in agricultural enrollment percentage between 1989 and 1994 (negative value indicates positive correlation, 1 = program meets all the quality criteria, 5 = meets none of the quality criteria, $r = -.34$, $p < .05$). The parallel correlation for

the teachers, -.07, was not a statistical deviation from zero, and was also not a statistically significant deviation from the -.34 correlation found in the principals' data. This correlation also surfaced for the combined states' teachers' data.

3.1.2.6.4. California Principals and PERAG89

There were nine significant correlations between various demographic evaluations and fluctuations in agricultural enrollment from 1989 to 1994 (PERAG89) as perceived by California principals. Seven of these correlations surfaced in either the 1989 or 1994 studies and are discussed where they are first mentioned: class periods available to the student each day under 1989 California Principals and PERAG85; total periods of agriculture , 1989 Principals and PERAG85; total number of agricultural teachers, 1989 California Teachers and INCAMT89; minimum class size resulting in fewer agricultural courses (Principles/PERAG89), adequacy of the agriculture budget (Teachers/PERAG89), quality rating of the agricultural advisory committee, (Teachers/ PERAG89), and quality of agricultural facilities and equipment (Teachers/INCAMT94), all discussed under the 1994 combined states' data. It was interesting that not one significant correlation was shared by both California principals and Oregon principals.

The California Principals' data indicated a negative correlation between increased/decreased placement of agricultural program completers in agricultural occupations and agricultural enrollment. An increase in the placement of agricultural program completers in agricultural occupations correlated with a decrease in agricultural enrollment. Inversely, a decrease in the placement of agricultural program completers in agricultural occupations correlated with increases in 1994 agricultural enrollment as related to 1989 ($r = -.37$, $p < .05$). Here again, though not significantly different from zero, the parallel correlation found for California teachers, -.20, was in the same direction and not significantly different from the -.37 found for the principals. There are several possible explanations for this unusual finding. If the school is located in a high employment area, indicated by increases in placement of program completers, students may be taking advantage of these employment opportunities prior to graduation. This could result in students working afternoons the last year of high school instead of enrolling in elective courses such as agriculture. In those areas where high employment rates were found, students may drop out of high school altogether in favor of working. This would decrease the number of students available to enroll in agricultural courses.

The California principals' evaluation of their program indicated a positive correlation between the agricultural teachers active involvement in professional teacher organizations and agricultural enrollment. Agricultural teachers involved in professional teacher organizations correlated with an increase in agricultural enrollment. Inversely, agricultural instructors not involved in professional teacher organizations correlated with a decrease in the 1994 percentage of agricultural enrollment as related to 1989 (teacher involved yes = 2, no = 1, $r = .36$, $p < .05$). As with the previous three findings, though not significantly different from zero, the parallel correlation found for California teachers, .21, was in the same direction and not significantly different from the .36 found for the principals. There were many opportunities for instructors to become involved in their professional organizations. Many of these organizations serve as networks for professional assistance and offer technical inservice workshops and other leadership activities. The state agricultural education associations in Oregon (OVATA) and California (CATA) have close ties to the teacher training institutions in their states which offer additional opportunities for updating skills and teaching methodology, and provide opportunities for interaction with other agricultural instructors.

3.1.2.7. Similarities and differences between 1989 and 1994

There was one variable that surfaced in both studies for the combined states' principals' analysis, total periods of agriculture from 1985 to 1989 and total periods of agriculture from 1989 to 1994. However, the correlation for this variable was in the opposite direction for the 1989 and 1994 studies. This may be due to decreasing agricultural enrollment from 1985 to 1989 and increasing enrollment from 1989 to 1994. Any increase in a variable would yield an opposite correlation under these circumstances.

The Oregon analyses yielded one similarity for teachers between the two studies. There was a negative correlation in both 1989 and 1994 with visits by Agricultural Education staff increasing and enrollment decreasing. There were no similarities in the Oregon principal data.

The California data revealed that principals viewed a consistent positive correlation between class periods per day and agricultural enrollment. California agricultural teachers and principals both consistently viewed a positive correlation between the total number of agricultural teachers in the program and agricultural enrollment.

Major differences in the combined states' data for the 1989 and 1994 studies were that agricultural program ratings and their perceived influence on enrollment appear to be more important in 1994. Quality ratings for the agricultural advisory committee, the agricultural curriculum, and facilities and equipment, were all correlated significantly with increases in agricultural enrollment in the 1994 study. This held true for both Oregon and California in their separate analyses. In addition, the variable dealing with students feeling that agriculture was a viable career option was correlated to enrollment in the 1994 study and did not surface in 1989. However, in the 1989 study, quality rating of the SOEP/SAE project was positively correlated for principals and negatively correlated for California teachers. One factor, significant in both years analyses, was actually viewed differently by teachers and principals; the correlation between agricultural enrollment and minimum class size. Even though this factor surfaced in both 1989 and 1994, the negative 1989 correlation for the teachers was opposite the 1994 positive correlation seen by principals. Again, this may be due to decreasing agricultural enrollment from 1985 to 1989 and increasing enrollment from 1989 to 1994. Any increase in a variable would yield an opposite correlation under these circumstances.

This concludes the findings and discussion for the second part of objective one. The first part of objective one was to statistically rank the positive and negative factors as they were perceived, by agricultural teachers and their respective principals, to contribute to fluctuations in agricultural enrollment. The second perspective was a correlational analysis of what variables could be correlated with increases and decreases in agricultural enrollment as perceived by Oregon and California agricultural teachers and their respective principals. The findings and discussions were included for both the 1989 and 1994 studies.

3.2. Objective Two

Objective 2 determined if there were differences in the perceptions of agricultural teachers and their respective principals concerning the major contributing factors affecting enrollment trends in secondary agricultural programs.

A non-parametric Wilcoxon paired comparison was used to contrast the differences in the perceptions of principals and teachers, from the same school, about factors that increased or decreased enrollment. Since data were not always obtained from both a teacher and his/her principal, these comparisons use a somewhat smaller

sample. Principals and teachers did not always agree on the degree to which each factor affected agricultural enrollment. Many of these differences in teachers' and principals' perceptions were significant. Principals and teachers, from Oregon and California, were asked to respond to 28 questions in 1989 and 30 questions in 1994 pertaining to positive and negative factors that they perceived increased or decreased agricultural enrollment. How each factor affected agricultural enrollment was ranked on a 1 to 5 scale; 1 = contributes significantly to an increase in enrollment; 5 = contributes significantly to a decrease in agricultural enrollment. What follows is an analysis of the data collected in 1989 and 1994.

3.2.1. All Teachers' vs. All Principals' 1989 Perceptions on Factors That Affected Agricultural Enrollment

Table 3.19 contrasts the 1989 responses from all teachers and all principals (Oregon and California teachers combined, Oregon and California principals combined) when data were obtained from both. The means in these tables should differ from those in the earlier tables since data has been lost as only pairs were considered.

3.2.1.1. Positive Factors That Affected Enrollment in 1989

Teachers and principals were asked to respond to 14 positive factors perceived to affect agricultural enrollment. When teacher and principal ratings differed significantly, it was always the case that teachers saw the factor as more influential than did principals. Principals may view agricultural enrollment as less open to modification.

Table 3.19 displays data which illustrates that in comparison to principals, teachers perceived that an improvement in the agricultural economy ($p < .01$), good quality supervised agricultural experience programs ($p < .01$), a decrease in high school graduation requirements ($p < .01$), adequate facilities, equipment, and materials ($p < .01$), an adequate agricultural budget ($p < .01$), a positive image of the FFA in the community ($p < .01$), a class schedule that was designed to eliminate conflicts between agricultural courses and graduation requirements ($p < .01$), and an increase in the number of periods in the school day ($p < .01$), all had a positive impact on agricultural enrollment.

3.2.1.2. Negative Factors That Affected Enrollment in 1989

Among the negative factors, identified in Table 3.19 which impact enrollment, teachers again assigned greater influence than principals whenever there was disagreement. In comparison to principals, teachers

Table 3.19 All Teachers vs. All Principals 1989
Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Improvement in Agriculture Economy	2.17	0.67	2.43	0.72	0.01
Good Quality SOEP/SAE Program	1.92	0.75	2.10	0.74	0.01
Decrease in High School Grad. Requirements	2.06	0.87	2.33	0.79	0.01
Adequate facilities, equipment, etc.	1.73	0.66	1.92	0.67	0.01
Adequate Agriculture Budget	1.78	0.66	2.03	0.60	0.01
Positive Image of FFA	1.43	0.61	1.65	0.68	0.01
Schedule limits conflicts between ag and gen. ed.	1.47	0.83	1.74	0.64	0.01
Increase in number of periods in school day	1.79	0.88	2.01	0.74	0.01
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Negative image of Agriculture as Career Option	4.28	0.79	4.05	0.86	0.01
Decline in Agriculture Economy	3.82	0.85	3.47	0.87	0.01
Increased Graduation Requirements	4.45	0.81	3.88	0.87	0.01
Inadequate Agriculture Budget	4.16	0.69	4.00	0.69	0.05
Negative FFA Image	4.54	0.58	4.30	0.65	0.01
Schedule Disregards conflicts between ag and gen. ed	4.43	0.88	4.20	0.71	0.05
Decreasing Number Periods per day	4.30	0.85	4.12	0.79	0.05
Teachers n=115, Principals n=93					

perceived that a negative image of agriculture as a viable career option ($p < .01$), a decline in the agricultural economy ($p < .01$), increased high school graduation requirements ($p < .01$), an inadequate agricultural budget ($p<.02$), a negative image of FFA in the community ($p < .01$), a class schedule that disregards possible conflicts between agriculture and graduation requirement courses ($p<.04$), and a decreasing number of periods in the school day ($p< .02$), all had a negative impact on agricultural enrollment. Discussion which might arise out of the data

presented for objective two would include that teachers should discuss with their administrators how they view the impacts of these factors on enrollment in their programs. At times, compromises can be reached and other times a synergy could be developed which could positively impact agricultural enrollment.

3.2.2. All Teachers' vs. All Principals' 1994 Perceptions on Factors That Affected Agricultural Enrollment

In all but one case, the pattern developed in the 1989 data was repeated in the 1994 data. teachers assigned greater influence to the listed factors than did principals (Table 3.20).

Table 3.20 Oregon Teachers vs. Oregon Principals 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Good Quality SOEP/SAE Program	1.85	0.73	2.30	0.85	0.05
Decrease in High School Graduation Requirements	1.96	0.85	2.34	0.87	0.05
Increase in number of periods in school day	1.78	0.95	2.00	0.77	0.01
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Increased Graduation Requirements	4.46	1.00	3.65	1.10	0.01
Negative FFA Image	4.44	0.84	4.09	0.96	0.05
Schedule Disregards conflicts between ag and gen. ed	4.39	1.13	3.97	1.06	0.01
Decreasing Number Periods per day	4.22	1.11	3.87	1.04	0.01
Teachers n=42, Principals n=32					

3.2.2.1. Positive Factors That Affected Enrollment in 1994

Table 3.20 contrasts the 1994 responses from all teachers and all principals (Oregon and California teachers combined, Oregon and California principals combined) .

There were only three positive factors on which teachers and principals differed significantly. In comparison to principals, teachers perceived that a decrease in high school graduation requirements ($p < .01$), a positive image of the FFA ($p < .05$), and a class schedule designed to limit conflicts between agriculture and general education courses ($p < .01$), all had a positive impact on agricultural program enrollment.

3.2.2.2. Negative Factors That Affected Enrollment in 1994

The ratings assigned by teachers and principals differed significantly on only five negative factors. In comparison to principals, teachers perceived that a negative image of agriculture as a viable career option ($p < .05$), increased high school graduation requirements ($p < .01$), a negative image of FFA ($p < .01$), and a class schedule that disregards conflicts between agricultural courses and general education courses ($p< .01$), all had a negative impact on agricultural enrollment. Alternatively, in comparison to teachers, principals perceived that an inactive and

ineffective agricultural advisory committee had a greater negative impact on agricultural enrollment ($p < .01$). Note however, that both teachers and principals regard this factor as comparatively non-influential, so the difference here signifies that teachers perceive it as even less influential than principals.

Discussion appropriate to this section would include that since many of the same factors tended to be viewed differently in 1989 and 1994, these issues should receive attention from both teachers and principals. Class conflict limitations appear to be a major concern which could be addressed by improved communication. Positive or negative image of FFA can be addressed as a school-wide effort with the agricultural teacher playing the key role to ensure consistency with agricultural program goals. The Advisory Committees' activities in a community can have a very positive impact on FFA image and student understanding of agricultural career options. Teachers should be open to Advisory Committee use and input for overall program improvement, and not just because of state law mandates. It is disturbing that teachers and principals viewed this component of a quality agricultural program of lesser importance than other factors.

3.2.3. Oregon Teachers' vs. Oregon Principals' Perceptions on Factors That Affect Agricultural Enrollment in 1989 and in 1994

The degree to which positive and negative factors impacted enrollment set by the overall comparisons of teachers and principals, held for Oregon in 1989 (Table 3.21) and 1994 (Table 3.23). However, a smaller number of significant differences occurred in both years perhaps due to the loss of statistical power that resulted from the smaller sample size.

Table 3.21 California Teachers vs. California Principals 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Positive Image of Agriculture as Career Option	1.87	0.98	2.19	0.90	0.05
Increase in Total School Enrollment	1.97	0.80	2.27	0.82	0.05
Improvement in Agriculture Economy	2.22	0.72	2.53	0.78	0.01
Adequate facilities, equipment, etc.	1.64	0.62	1.86	0.77	0.01
Adequate Agriculture Budget	1.69	0.63	2.00	0.63	0.01
Positive Image of FFA	1.39	0.62	1.61	0.67	0.01
Class Sch. limits conflicts between ag and gen. ed.	1.44	0.75	1.70	0.67	0.01
Increase in number of periods in school day	1.77	0.85	1.98	0.77	0.05
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Negative image of Agriculture as Career Option	4.28	0.78	3.96	0.89	0.01
Decline in Agriculture Economy	3.78	0.86	3.35	0.90	0.01
Increased Graduation Requirements	4.39	0.84	3.95	0.85	0.01
Inadequate Agriculture Budget	4.17	0.75	4.04	0.65	0.03
Negative FFA Image	4.53	0.63	4.33	0.66	0.05
Teachers n=73, Principals n=61					

Table 3.22 All Teachers vs. All Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Decrease in High School Graduation Requirements	2.26	0.81	2.63	0.94	0.01
Positive Image of FFA	1.34	0.59	1.55	0.64	0.05
Class Sch. limits conflicts between ag and gen. ed.	1.47	0.52	1.85	0.75	0.01
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Negative image of Agriculture as Career Option	4.15	0.85	3.86	0.96	0.02
Inactive/Ineffective Advisory Committee	3.50	0.65	3.80	0.65	0.01
Increased Graduation Requirements	4.05	1.09	3.61	0.99	0.01
Negative FFA Image	4.52	0.71	4.27	0.76	0.01
Schedule Disregards conflicts between ag and gen. ed	4.37	0.76	4.07	0.77	0.01

Teachers n=85, Principals n=79

Table 3.23 Oregon Teachers vs. Oregon Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Decrease in High School Graduation Requirements	2.38	0.76	2.71	0.73	0.01
Class Schedule limits conflicts between ag and gen. e	1.46	0.55	1.92	0.67	0.01
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Negative image of Agriculture as Career Option	4.10	0.93	3.79	0.91	0.05
Inactive/Ineffective Advisory Committee	3.45	0.59	3.73	0.56	0.05
Increased Graduation Requirements	3.95	1.02	3.53	0.83	0.05
Negative FFA Image	4.44	0.81	4.11	0.76	0.05

Teachers n=43, Principals n=39

3.2.4. California Teachers' vs. California Principals' Perceptions on Factors That Affected Agricultural Enrollment in 1989 and in 1994

In general, the California data followed the trend set in the combined states' data as to which factors surfaced as impacting agricultural enrollment the most. However, when looking over the 1989 California data (Table 3.22), several significant differences surfaced in the California teachers' vs. California principals' perceptions that failed to do so in the combined states' data. In comparison to California principals, California teachers perceived, in 1989, that a positive image of agriculture as a viable career option ($p < .05$) and an increase in total school enrollment ($p < .05$), both had a greater positive impact on agricultural enrollment.

In 1994 there were two positive factors and one negative factor that were perceived differently in affecting enrollment (Table 3.24). In comparison to California principals, California teachers perceived that adequate agricultural facilities and equipment ($p < .05$) and an adequate agricultural budget ($p < .05$), both had a greater positive impact on agricultural enrollment. Additionally, in comparison to California principals, California teachers perceived that an inadequate agricultural budget had a greater negative impact on agricultural enrollment ($p < .05$).

Table 3.24 California Teachers vs. California Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Decrease in High School Graduation Requirements	2.13	0.84	2.55	1.12	0.05
Adequate facilities, equipment, etc.	1.65	0.53	1.95	0.73	0.05
Adequate Agriculture Budget	1.67	0.57	1.99	0.66	0.05
Class Schedule limits conflicts between ag and gen. e	1.48	0.50	1.78	0.82	0.05
Negative Factors Decreasing Enrollment					
	Teachers		Principals		P
Variable	Mean	SD	Mean	SD	Value
Increased Graduation Requirements	4.15	1.15	3.68	1.14	0.05
Inadequate Agriculture Budget	4.26	0.59	3.97	0.55	0.05

Teachers n=42, Principals n=40

Additional factors, derived from the data presented, which were important discussion items for principals and teachers from both states, include the focus on budget, increases or decreases in the number of instructional periods per day and quality SOEP/SAE's. Many items listed eventually impact budgets; therefore, discussions of program budget and what can and should be done with various resources becomes critical to program success/enrollment increases.

3.3. Objective Three

Objective three determined if there were differences in the perceptions of California and Oregon agricultural instructors concerning

the major contributing factors affecting enrollment trends in secondary agricultural programs.

3.3.1. 1989 Comparisons Between Oregon and California Teachers

In comparing Oregon and California teachers (Table 3.25), relatively low statistical power made it impossible to detect all but the most significant differences. Unlike the comparisons of teachers and principals, no consistent trends could be discerned in the ratings obtained from Oregon and California. In the 1989 teacher data, a statistically

Table 3.25. Oregon Teachers vs. California Teachers 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Oregon Teachers		California Teachers		P
Variable	Mean	SD	Mean	SD	Value
Increase in Total School Enrollment	2.29	0.82	1.97	0.80	0.05
Oregon Teacher n=42, California Teacher n=73					

significant difference in rating was obtained for one positive factor. California teachers thought that an increase in total school enrollment would improve agricultural enrollment more than did Oregon teachers, (Mann-Whitney U=1907.0, n=114, $p < .05$). Since there were more than 20 comparisons made in the data reviewed in Table 3.25, at least one

statistically significant difference could be expected by chance alone. Therefore, this one statistically significant difference should be viewed with skepticism. Since this was not a factor viewed as having great importance by either group, the difference in rating assigned by Oregon and California teachers has limited practical value.

3.3.2. 1994 Comparisons Between Oregon and California Teachers

A comparison of Oregon and California teacher data in 1994 (Table 3.26) revealed only two significant differences. However, these represented the positive and negative wording of the same factor, number of periods in a school day.

Table 3.26 Oregon Teachers vs. California Teachers 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Oregon Teachers		California Teachers		P
Variable	Mean	SD	Mean	SD	Value
Increase in number of periods in school day	2.21	0.93	1.74	0.72	0.05
Negative Factors Decreasing Enrollment	**Oregon Teachers**		**California Teachers**		**P**
Variable	Mean	SD	Mean	SD	Value
Decreasing Number Periods per day	3.86	1.03	4.38	0.73	0.01

Oregon Teachers n=43, California Teachers n=42

California teachers thought that an increase in the number of periods in a school day would improve agricultural enrollment more than

did Oregon teachers (Mann-Whitney U = 1103.5, n = 83, $p < .05$). Similarly, California teachers felt that a decrease in the number of periods in a school day would cause a decline in agricultural enrollment more than did Oregon teachers (Mann-Whitney U = 608.5, n = 83, $p < .01$). Since this factor was not among those considered most influential by either group, the differences in ratings across states has limited practical importance. The difference may reflect California teachers' greater experience with variations in this factor.

3.4. Objective Four

Objective four determined if there were differences in the perceptions of California and Oregon secondary school principals concerning the major contributing factors affecting enrollment trends in agricultural programs.

3.4.1. 1989 Comparisons Between Oregon and California Principals

In comparing Oregon and California principals (Table 3.27), relatively low statistical power made it difficult to detect reliable differences for all but major effects. In the 1989 data, principals in the two states differed significantly on only two positive factors.

Oregon principals thought an improvement in the agricultural economy would improve agricultural enrollment more than did California principals (Mann-Whitney U=684.5, n = 89, $p < .05$), while California principals thought that a high quality supervised agricultural experience program would contribute to an increase in agricultural enrollment more than did Oregon principals (Mann-Whitney U = 1152.0, n = 89, $p < .05$). Again, since these factors were not among those regarded as most influential, the differences in ratings across Oregon and California principals were of limited practical value.

Table 3.27 Oregon Principals vs. California Principals 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Oregon Principals		California Principals		P
Variable	Mean	SD	Mean	SD	Value
Improvement in Agriculture Economy	2.19	0.69	2.53	0.78	0.05
Good Quality SOEP/SAE Program	2.30	0.85	1.95	0.70	0.05

Oregon Principals n=32, California Principals n=61

3.4.2. 1994 Comparisons Between Oregon and California Principals

The greatest number of significant differences across states were obtained in comparing principals in 1994. California principals and Oregon principals' perceptions revealed significantly different ratings for two positive and two negative factors (Table 3.28).

California principals thought that high quality agricultural curriculum and course offerings would improve agricultural enrollment more than did Oregon principals (Mann-Whitney U = 859.0, n = 74, p <.05). California principals thought an increase in the number of periods in the school day would improve agricultural enrollment more than did Oregon principals (Mann-Whitney U = 926.0, n = 74, p < .05).

Table 3.28 Oregon Principals vs. California Principals 1994 Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment	Oregon Principals		California Principals		P
Variable	Mean	SD	Mean	SD	Value
Quality Agriculture curriculum and course offerings	1.74	0.80	1.36	0.49	0.05
Increase in number of periods in school day	2.42	0.72	1.94	0.96	0.01
Negative Factors Decreasing Enrollment	**Oregon Principals**		**California Principals**		**P**
Variable	Mean	SD	Mean	SD	Value
Negative FFA Image	4.11	0.76	4.43	0.73	0.05
Decreasing Number Periods per day	3.63	0.91	4.18	0.80	0.01

Oregon Principals n=39, California Principals n=40

California principals thought that a negative image of the FFA contributed to a decline in agricultural enrollment more than did Oregon principals (Mann-Whitney U = 535.0, n = 75, p < .05). Finally, as was found among the 1994 teachers, California principals thought that a decrease in the number of periods in a school day would cause a decline

in agricultural enrollment more than did Oregon principals (Mann-Whitney U = 465.0, n = 75, $p < .01$).

Two of these factors were among those detected to carry the largest influence on agricultural enrollment, at least, in the view of teachers and principals, curriculum quality and FFA image. That these were regarded as somewhat more influential by California principals than by Oregon principals may carry some importance. Thus, these differences may signify a somewhat greater "involvement" in agricultural enrollment concerns among California principals than among Oregon principals, or perhaps, these differences signify that curriculum quality and FFA image were simply more influential in California than in Oregon. It may be that California agricultural teachers have spent more time communicating program needs and concerns to their principals than their Oregon counterparts. This may also be an added benefit to program certification, associated with additional funding, that are conducted in California agricultural programs and require the principal to be part of that review process.

It should be emphasized here that the failure to detect additional significant differences between the two states did not mean that differences did not exist. If differences did exist, they were simply

smaller than could be detected with the limited samples used in this study.

3.5. Objective Five

Objective five determined if there were differences in the perceptions of agricultural instructors and their respective principals on various demographic and program evaluation data that affect enrollment trends in agricultural programs.

The purpose of this objective was to determine if the perceptions of teachers and principals were significantly different as to the demographic and program quality characteristics of their own agricultural programs. A non-parametric Wilcoxon test was used to contrast the differences in this evaluation. The findings for 1989 are contained in Tables 3.29, 3.30, 3.31, and for 1994 in Tables 3.32, 3.33, and 3.34.

3.5.1. 1989 Oregon and California Combined Teachers' and Principals' Evaluation of Their Own Programs

Using Wilcoxon paired comparisons, there were nine responses that teachers and principals rated significantly differently in the evaluations of their own agricultural programs in 1989 (Table 3.29). Many of the differences, while being statistically significant, were very

close in overall mean, while others were very different statistically and the means were very dissimilar. These are evident in the tables and in the discussion of the findings.

Table 3.29 Oregon and California Combined 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 13 Through 46

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Minimum Class Size resulted in fewer Ag Courses	1.25	0.44	1.20	0.41	0.05
Parents direct children away from agriculture	1.48	0.50	1.25	0.44	0.01
Placement of program completers in post-sec. inst.	2.37	0.71	2.00	0.70	0.01
Students receive credit for SOEP/SAE	1.69	0.47	1.49	0.50	0.01
Adequacy of Ag Budget	2.77	1.24	2.57	0.98	0.02
Instructor active in professional teacher organizations	1.85	0.32	1.93	0.23	0.03
Number instructor updating activities in past 5 years	12.83	9.32	9.53	7.63	0.03
Total number of occupational experience hours	2458	5878	1187	4151	0.04
Quality rating SOEP/SAE	2.60	0.92	2.34	1.08	0.05
Teachers n=115, Principals n=93					

Table 3.30 Oregon 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 13 Through 46

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Class periods per day 85-89	-0.02	0.36	-0.13	0.34	0.05
Parents direct children away from agriculture	1.56	0.55	1.29	0.52	0.05
Adequacy of Ag Budget	3.02	1.34	2.62	1.04	0.03
Teachers n=42, Principals n=32					

Neither teachers nor principals felt that minimum class size resulted in fewer agricultural courses being offered at their school. Nevertheless, principals viewed the cause effect as being less important than did teachers (yes = 2, no = 1, $p < .05$). In comparison to principals, teachers more strongly felt that parents were directing their children away from agricultural careers (yes = 2, no = 1, $p < .01$). Teachers perceived that placement of agricultural program completers in post-secondary institutions had increased more than did principals (increased = 3, stayed the same = 2, decreased = 1, $p < .01$). In contrast to teachers feeling strongly about the various factors, principals rated the quality of their school's supervised occupational experience program (SOEP/SAE) significantly higher than did teachers (1 meets all the criteria of an excellent SOEP/SAE program, 5 meets none of the criteria, $p < .05$).

Table 3.31 California 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 13 Through 46

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Full Time Teaching Assignment	5.46	0.57	5.29	0.82	0.01
Placement of program completers in post-sec. inst.	2.49	0.67	2.09	0.70	0.01
Students receive credit for SOEP/SAE	1.91	0.29	1.66	0.48	0.01
Total number of occupational experience hours	1353	3228	210	668	0.01
Quality rating SOEP/SAE	2.65	0.96	2.20	1.00	0.01
Teachers n=73, Principals n=61					

Teachers and principals differed significantly in their perceptions of: whether or not credit was awarded to students for SOEP/SAE projects at their school (yes = 2, no = 1, $p < .01$), whether or not the agricultural budget was adequate at their school (excellent = 1, adequate = 3, inadequate = 5, $p < .05$), whether the instructor at their school was actively involved in professional teacher organizations (yes = 2, no = 1, $p < .05$), the number of updating activities the instructor at their school had been involved in over the past five years ($p < .05$), and, the number of hours of occupational experience, other than teaching, acquired by the agricultural teacher ($p < .05$).

Note that teachers and principals differ significantly on nine of the forty variables (22.5 %). Given the low statistical power of these comparisons, the frequency of significant disagreement made correlations very difficult. Clearly, teachers and principals have very dissimilar views, and the degree of disagreement suggests very little communication between the two groups.

3.5.2. 1994 Oregon and California Combined Teachers' and Principals' Evaluations of Their Own Programs

There were again nine variables that teachers and principals rated significantly differently in the evaluations of their own agricultural

programs in 1994 (Table 3.32). Many of the differences, while being statistically significant, were very close in overall mean, while others differed significantly and the means were far apart in the evaluation. These are evident in the tables (Tables 3.32, 3.33, and 3.34) and in the discussion of the findings.

Table 3.32 Oregon and California Combined 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 7 Through 40

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Ag Courses that meet Graduation Requirements	1.84	1.55	1.60	1.49	0.05
Agriculture Department receives additional funds	1.79	0.41	1.82	0.39	0.04
Parents direct children away from agriculture	1.38	0.49	1.16	0.37	0.01
Placement of program completers in ag. occupations	2.00	0.65	2.34	0.83	0.03
Placement of program completers in post-sec. inst.	1.61	0.65	2.31	0.89	0.01
Percent students with SOEP/SAE	70.39	28.07	62.30	34.15	0.01
Adequacy of Ag Budget	3.01	1.10	2.75	1.03	0.02
Instructor updated technical and professional skills	1.99	0.07	1.92	0.26	0.02
Quality rating Agriculture Advisory Committee	2.79	1.09	2.34	1.07	0.02

Teachers n=85, Principals n=79

Teachers and principals differed significantly in their perception of how many agricultural courses met graduation requirements at their school ($p < .05$) and whether their agricultural department received additional funds ($p < .05$). Additionally, while most teachers and principals did not feel that parents were directing their children away from agricultural careers, teachers felt significantly stronger than

principals that parents were directing their children away from agricultural careers (yes = 2, no = 1, $p < .01$).

Principals perceived that placement of agricultural program completers in agricultural occupations had increased significantly more than did teachers (increased = 3, stayed the same = 2, decreased = 1, $p < .05$). Additionally, teachers perceived that placement of agricultural program completers in post-secondary institutions had decreased and principals perceived that placement in post-secondary institutions had increased (increased = 3, stayed the same = 2, decreased = 1, $p < .01$).

Teachers and principals differed significantly in their perception of the percent of their agricultural students that engaged in SOEP/SAE projects at their school ($p < .01$), whether or not the agricultural budget was adequate at their school (excellent = 1, adequate = 3, inadequate = 5, $p < .05$), and whether the instructor(s) at their school were actively involved in updating their technical and professional skills (yes = 2, no = 1, $p < .05$).

Principals rated the quality of their school's agricultural advisory committee significantly higher than did teachers (1 meets all the criteria of an excellent agricultural advisory committee, 5 meets none of the

criteria, $p < .05$). Thus, teachers and principals fare no better in 1994 than in 1989, since they display surprisingly little agreement in the evaluations of their own agricultural programs, and it still appears that communication between the two remained poor.

Table 3.33 Oregon 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 7 Through 40

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Placement of program completers in ag. occupations	1.95	0.66	2.62	0.65	0.01
Placement of program completers in post-sec. inst.	1.74	0.64	2.40	0.85	0.01
Percent students with SOEP/SAE	65.31	31.33	55.25	33.77	0.01
Largest number of students in classroom	26.74	17.36	26.64	7.54	0.04
Quality rating Agriculture Advisory Committee	3.13	1.13	2.60	1.17	0.03
Teachers n=43, Principals n=39					

Table 3.34 California 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 7 Through 40

	TEACHER		PRINCIPAL		P
VARIABLE	Mean	SD	Mean	SD	Value
Non-Ag courses Ag Teachers teach	0.67	1.03	0.86	1.01	0.04
Parents direct children away from agriculture	1.44	0.50	1.15	0.36	0.01
Placement of program completers in post-sec. inst.	1.49	0.64	2.21	0.93	0.01
Largest number of students in classroom	33.33	5.81	32.16	5.69	0.03
Adequacy of Ag Budget	2.94	1.09	2.61	1.04	0.03
Teachers n=42, Principals n=40					

3.5.3 Oregon Teachers' and Principals' Evaluations of Their Own Programs

In comparing Oregon teachers and principals, there was a further loss in statistical power; although one would expect that few differences would be found. But as shown in tables 3.30 (1989 data) and 3.33 (1994 data) , three significant differences were obtained in the 1989 data and five in the 1994 data.

The findings for Oregon parallel those found for the combined states with one exception in both 1989 and 1994. In 1989, Oregon teachers and principals differed significantly in their perception of the importance of change in the number of periods in the school day from 1985 to 1989 ($p < .05$). Although Oregon teachers and principals agreed on the largest number of students placed in the classroom at one time, in 1994, the small difference in means was statistically significant ($p < .05$). These did not surface in the combined states' analyses.

3.5.4. California Teachers' and Principals' Evaluations of Their Own Programs

In comparing California teachers and principals, there was a similar loss of statistical power. Nevertheless, as summarized in Tables 3.31 (1989 data) and 3.34 (1994 data), five statistical differences were found in both the 1989 and 1994 data. As with the Oregon data, this

suggests that poor communication between teachers and principals was a problem in both states. Here again, there was one variable in 1989 and two variables in 1994 that showed significant differences between California teachers and principals that did not surface in the combined states' data. In 1989, California teachers and principals differed significantly in their perception of what constituted a full time teaching assignment in terms of periods taught each day. Teachers perceived that a full time teaching assignment was more periods than did principals ($p < .01$). Additionally, in 1994 California teachers and principals differed significantly in their perception of the number of non-agricultural courses that were taught by agricultural teachers. Principals perceived that teachers were teaching more non-agricultural courses than did their respective teachers ($p < .05$). Also, while California teachers and principals basically agreed on the largest number of students placed in the classroom at one time, the difference in means was statistically significant ($p < .05$).

This concludes the analyses and discussions of the findings.

CHAPTER 4

SUMMARY, CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The purpose of this study was to identify factors that affected enrollment in high school agricultural programs. In order to accomplish this purpose, five objectives were developed:

1. Identify and study the factors which were the best predictors of enrollment change in secondary level agricultural programs as perceived by secondary level agricultural instructors and their respective principals.

2. Determine if there were differences in the perceptions of agricultural teachers and their respective principals concerning the major contributing factors affecting enrollment trends in secondary agricultural programs.

3. Determine if there were differences in the perceptions of California and Oregon secondary agricultural instructors concerning the major contributing factors affecting enrollment trends in agricultural programs.

4. Determine if there were differences in the perceptions of California and Oregon secondary school principals concerning the major contributing factors affecting enrollment trends in secondary agricultural programs.

5. Determine if there were differences in the perceptions of agricultural instructors and their respective principals on various demographic and program evaluation data and program evaluations that affect enrollment trends in secondary level agricultural programs.

4.1. Summary, Instrument Development

Methodology and instrumentation was developed to address the above objectives using a panel of experts to respond to survey questions and validate the instrument. A pilot test of agricultural teachers and principals further validated the content and structure. The instrumentation for both the 1989 and 1994 studies is included in the appendices (Appendix B).

4.2. Summary, Sampling and Response

A 50 percent simple random sample was taken within each state for the initial 1989 survey. The total sample size for the 1989 study was 100 schools in California and 50 schools in Oregon. The population was

all secondary schools with agricultural programs in California and Oregon. Elements consisted of the agricultural instructor in single person agricultural departments or the department head/FFA advisor in multi-person departments and their respective principals.

In 1989, 88 percent of Oregon schools responded to the survey, with 84 percent of the teachers and 64 percent of the principals responding. In California, 86 percent of California schools responded to the survey, with 73 percent of the teachers and 61 percent of the principals responding.

In the 1994 study, the population for California was those 48 schools where both the principal and teacher responded to the 1989 survey. In Oregon, because the sample size was small and only 30 schools had both teacher and principal respond, the schools where either the principal or teacher responded were included. This increased the number of schools surveyed in Oregon to 44. The elements stayed consistent with the 1989 survey, which included the agriculture teacher and the principal from the secondary school offering agricultural education.

In 1994, 98 percent of Oregon schools responded to the survey, with 98 percent of the teachers and 89 percent of the principals responding. In California, 90 percent of California schools responded to the survey, with 88 percent of the teachers and 83 percent of the principals responding.

4.3. Summary of Findings

A summary of findings by objective is provided below.

4.3.1. Objective One Summaries

Objective one had two parts. The first part was to rank program factors which influenced agricultural enrollment including data from Oregon teachers and principals as well as data from California teachers and principals over 1989 and 1994.

4.3.1.1. Objective 1.1 Summary

Several factors consistently surfaced as being perceived by both teachers and principals to affect agricultural enrollment in the 1989 and 1994 studies in Oregon and California.

Those factors which consistently ranked highly as positive factors affecting an increase in agricultural enrollment in the 1989 and 1994 study were:

1. Competent and qualified agricultural instructor
2. Positive image of the FFA
3. High quality agricultural curriculum and course offerings
4. A class schedule that limits conflicts

In addition, one positive factor surfaced repeatedly in the 1994 data for teachers and principals in both Oregon and California, parents positive image of agriculture as a good career.

The negative factor that was perceived to effect a decrease in enrollment most consistently was incompetent agricultural instructor.

4.3.1.2. Objective 1.2 Summaries

The second part of objective one dealt with correlations between fluctuations in enrollment in agricultural courses and various demographic or program quality variables. The results for the correlations follow by categories of combined 1989/1994 data, Oregon data, and California data.

4.3.1.2.1. Objective 1.2 Summary, Teachers in 1989

The teacher data indicated a negative correlation between the change in agricultural enrollment percentage relative to overall school enrollment (INCAMT89) and 1) minimum class size; 2) the agricultural department receiving additional funds; 3) whether students received credit for SOEP/SAE; 4) the number of students placed in the classroom at one time; and 5) the number of students placed in the lab facility at one time.

Similarly, the teacher data indicated a negative correlation with the overall change in agricultural enrollments between 1985 to 1989 (PERAG89) and the number of visits by agricultural education staff members.

4.3.1.2.2. Objective 1.2 Summary, Principals in 1989

The principals' data indicated a positive correlation between the change in agricultural enrollment percentage relative to overall school enrollment (INCAMT89) and 1) the number of periods for a full time teaching assignment; 2) the placement of agricultural program completers in post-secondary institutions; and 3) supervised occupational experience program (SOEP/SAE) quality rating.

Alternatively, the principals' data indicated a negative correlation between the change in agricultural enrollment percentage relative to overall school enrollment (INCAMT89) and 1) the number of students placed in a classroom at one time; 2) the largest number of students placed in the agricultural shop at one time; and 3) whether the instructor updated his/her technical and professional skills.

Similarly, the principals' data indicated a negative correlation with the overall change in agricultural enrollment between 1985 to 1989 (PERAG89) and the difference in the periods of agriculture from 1985 and 1989.

Alternatively, the principals' data indicated a positive correlation with the overall change in agricultural enrollments between 1985 and 1989 (PERAG89) and 1) the number of non-agricultural courses that agricultural teachers teach and 2) the placement of agricultural program completers in post-secondary institutions.

4.3.1.2.3. Objective 1.2 Summary, Teachers in 1994

The 1994 teacher data indicated a negative correlation between the change in agricultural enrollment percentage relative to overall school enrollment (INCAMT94) and the average number of on-site student

supervision visits. In addition, this enrollment variable was positively correlated with the quality rating of the agricultural department's facilities and equipment.

The teacher data also indicated a positive correlation with the overall change in agricultural enrollments between 1985 to 1989 (PERAG89) and 1) the total periods of agriculture change from 1989 to 1994; 2) whether students felt that agriculture was a viable career; 3) the adequacy of the agricultural budget; 4) the quality of the agricultural advisory committee; 5) the quality of the agricultural curriculum; and 6) the quality of the agricultural facilities and equipment.

4.3.1.2.4. Objective 1.2 Summary, Principals in 1994

The 1994 principal data indicated a negative correlation between the change in agricultural enrollment percentage relative to overall school enrollment (INCAMT94) and the adequacy of the agricultural budget.

Additionally, the principal data indicated a positive correlation with the overall change in agricultural enrollments between 1985 to 1989 (PERAG89) and 1) the difference in the number of periods of agriculture

from 1989 to 1994; 2) minimum class size restrictions; and 3) the adequacy of the agricultural budget.

Alternatively, the principal data indicated a negative correlation with the overall change in agricultural enrollment between 1985 to 1989 (PERAG89) and minimum class size resulting in fewer agricultural courses.

4.3.1.2.5. Objective 1.2 Similarities and Differences in the Combined States' 1989 and 1994 Analyses

Major differences in the combined states' data for the 1989 and 1994 studies were that agricultural program quality ratings and their perceived influence on enrollment appear to be more important in 1994. Quality ratings for the agricultural advisory committee, the agricultural curriculum and course offerings, and facilities and equipment all were correlated significantly with increases in agricultural enrollment in the 1994 study. This held true for both Oregon and California and for teachers and principals. In addition, the variable dealing with students' feeling that agriculture was a viable career option was correlated to enrollment in the 1994 study and did not surface in the 1989 study. However, in the 1989 study a quality rating of the SOEP/SAE project was positively correlated with agricultural enrollment for principals which

was not revealed in the 1994 study. One factor, significant in both years' analyses, was actually viewed differently by teachers and principals, the correlation between agricultural enrollment and minimum class size. Even though this factor surfaced in both 1989 and 1994, the negative 1989 correlation for the teachers was opposite to the 1994 positive correlation seen by principals. This may be due to decreasing agricultural enrollments from 1985 to 1989 and increasing enrollment from 1989 to 1994. Any increase in a variable would yield an opposite correlation under these circumstances.

The Oregon analyses yielded one additional similarity for teachers between the two studies. There was a negative correlation in both 1989 and 1994 with visits by agricultural education staff increasing and enrollment decreasing.

The California data revealed that principals viewed a consistent positive correlation between class periods per day and agricultural enrollment. California agricultural teachers and principals both saw a positive correlation between the total number of agricultural teachers in the program and agricultural enrollments.

4.3.2. Objective Two Summaries

Objective two sought to determine if differences existed in the perceptions of teachers and their principals regarding positive and negative factors that were perceived to affect agricultural enrollment. The summary below represents the differences of opinion between agricultural teachers and their respective principals.

4.3.2.1. Objective Two Summary, All Teachers' and All Principals' Perceptions on Positive Factors That Affected Agricultural Enrollment in 1989

In 1989, teachers perceived that among the positive factors; 1) an improvement in the agricultural economy ; 2) good quality supervised agricultural experience programs; 3) a decrease in high school graduation requirements; 4) adequate facilities, equipment, and materials; 5) an adequate agricultural budget; 6) a positive image of the FFA in the community; 7) a class schedule that was designed to eliminate conflicts between agricultural courses and graduation requirement courses; and 8) an increase in the number of periods in the school day, all had a greater positive impact on agricultural enrollments than did their respective principals.

4.3.2.2. Objective Two Summary, All Teachers' and All Principals' Perceptions on Negative Factors That Affected a Decrease in Agricultural Enrollment in 1989

Also in 1989, teachers perceived that among the negative factors; 1) a negative image of agriculture as a viable career option; 2) a decline in the agricultural economy; 3) increased high school graduation requirements; 4) an inadequate agricultural budget; 5) a negative image of FFA in the community; 6) a class schedule that disregards possible conflicts between agriculture and graduation requirement courses; and 7) a decreasing number of periods in the school day, all had a greater negative impact on agricultural enrollment than did their respective principals.

4.3.2.3. Objective Two Summary, All Teachers' and All Principals' Perceptions on Factors That Affected Agricultural Enrollment in 1994

In all but one case, the pattern developed in the 1989 data was repeated in the 1994 data: teachers assigned greater influence to the listed factors than did principals. The one exception was that principals perceived that an inactive and ineffective agricultural advisory committee had a greater negative impact on agricultural enrollment than did their respective teachers.

4.3.2.4. Objective Two Summary, Oregon Teachers' and Principals' Perceptions on Factors That Affected Agricultural Enrollment in 1989 and in 1994

The degree to which positive and negative factors impacted enrollment set by the overall comparisons of teachers and principals held for Oregon in 1989 and 1994.

4.3.2.5. Objective Two Summary, California Teachers and Principals Perceptions on Factors That Affected Agricultural Enrollments in 1989 and in 1994

In general, the California data followed the trend set in the combined states' data for which factors impacted agricultural enrollment the most. However, the 1989 California data revealed that California agricultural teachers perceived that among the positive factors, a positive image of agriculture as a viable career option and an increase in total school enrollment both had a greater positive impact on agricultural enrollment than did their respective principals. And in 1994, there were two positive factors and one negative factor that were perceived differently in affecting enrollment. California teachers perceived that among the positive factors, adequate agricultural facilities and equipment and an adequate agricultural budget, both had a greater positive impact on agricultural enrollment than did their respective principals. Additionally, California teachers perceived that among the

negative factors an inadequate agricultural budget had a greater negative impact on agricultural enrollment than did their respective principals.

4.3.3. Objective Three Summary

Objective three sought to determine if differences existed in the perceptions of California and Oregon agriculture teachers regarding agricultural enrollment. Only one factor arose in 1989 as a difference for teachers between the two states: California teachers thought that an increase in total school enrollment would improve agricultural enrollment more than did Oregon teachers. In 1994, again only one factor arose as different: California teachers felt that the number of periods in a school day would have more often an effect on agricultural enrollment than did Oregon teachers.

4.3.4. Objective Four Summary

Objective four sought to determine if differences existed in the perceptions of California and Oregon principals regarding factors contributing to agricultural enrollment. In 1989, Oregon principals thought an improvement in the agricultural economy would impact agricultural enrollment more than did California principals, while California principals thought a high quality supervised experience

program would contribute to an increase in agricultural enrollment more than did Oregon principals.

In 1994, California principals thought that a high quality agricultural curriculum and course offerings would improve agricultural enrollment more than did Oregon principals, and California principals thought an increase in the number of periods in the school day would improve agricultural enrollment more than did Oregon principals. California principals also thought a negative image of the FFA contributed to enrollment declines more than did Oregon principals, and California principals thought a decrease in the number of periods in a school day would cause a decline in agricultural enrollment more than did Oregon principals.

4.3.5. Objective Five Summaries

4.3.5.1. Objective 5, 1989 Summary of the Combined States Study

Objective five sought to determine if differences existed in the perceptions of teachers and principals on school demographic and agricultural program quality characteristics. In 1989, teachers believed that; 1) increased minimum class size requirements resulted in fewer agricultural courses being offered at their school; 2) that more parents

were directing their children away from agricultural careers; and 3) that placement of agricultural program completers in post-secondary institutions had increased, all more than their respective principals. In addition, teachers responded with higher positive values than their respective principals on; 1) whether or not credit was awarded to students for SOEP/SAE projects at their school; 2) the number of updating activities the instructor at their school had been involved in over the past 5 years; and 3) the number of hours of occupational experience, other than teaching, acquired by the agricultural teacher.

In contrast, principals responded with higher positive values and rated; 1) the adequacy of the agricultural budget; 2) whether the instructor at their school was actively involved in professional teacher organizations; and 3) the quality of their school's supervised occupational experience program (SOEP/SAE), all significantly higher than did their respective teachers.

4.3.5.2. Objective Five, 1994 Summary of the Combined States Study

In 1994 teachers perceived that; 1) more agricultural courses met graduation requirements at their school; 2) more parents were directing their children away from agricultural careers; 3) a higher percentage of their students received credit for SOEP/SAE projects; and 4) the

instructor(s), at their school, were more actively involved in updating their technical and professional skills, were all perceived significantly higher than their respective principals.

Alternatively, in 1994, principals perceived that; 1) their agricultural department received additional funds; 2) placement of agricultural program completers in agricultural occupations had increased; 3) placement in post-secondary institutions had increased; 4) the agricultural budget was more adequate at their school; and, 5) the quality of their school's agricultural advisory committee, were all perceived significantly higher than did their respective teachers.

4.3.5.3. Objective Five, Oregon Summary of the 1989 and 1994 Studies

The findings for Oregon parallel those found for the combined states with one exception each in both 1989 and 1994. In 1989, Oregon principals viewed a greater decrease in the number of periods in the school day from 1985 to 1989 than did their respective teachers. And in 1994, the Oregon teachers response indicated a larger number of students placed in the classroom at one time than did their principals.

4.3.5.4. Objective Five, California Summary of the 1989 and 1994 Studies

There was one variable in 1989 and two variables in 1994 that showed significant differences between California teachers and principals that did not surface in the combined states' data. In 1989, California teachers responded with a higher number than their respective principals regarding what constituted a full time teaching assignment in terms of periods taught each day. Additionally, in 1994 principals perceived that teachers were teaching more non-agricultural courses than did their respective teachers.

4.4. Conclusions

Given the summary of findings, the following conclusions can be derived.

4.4.1. Conclusions on Objective One

4.4.1.1. Objective 1.1 Conclusions

Teachers and principals consistently rank as having the most effect on agricultural enrollments: 1) competent and qualified agricultural instructor; 2) positive image of the FFA; 3) quality agricultural curriculum and course offerings; and 4) a class schedule

that limits conflicts between agriculture and required courses. Also, in 1994, parents' positive image of agriculture as a viable career was important to agricultural enrollments.

Teachers and principals consistently rank an incompetent agricultural instructor as contributing the most to decreasing agricultural enrollment.

4.4.1.2. Objective 1.2 Conclusions

During times of declining agricultural enrollment, program improvement tended to yield negative correlations with agricultural enrollment. Thus it can be concluded that enrollment increases are slow to respond to program improvement efforts. Inversely, during times of increasing school enrollments, agricultural enrollments more readily respond to program improvement and yield positive correlations.

4.4.2. Conclusions on Objective Two

Since many of the same factors tended to be viewed differently in 1989 and 1994, it can be concluded that some level of additional understanding was gained between the two study dates. This could be from a funding requirement in California which requires that principals sign-off on funding proposals. Limiting class conflicts between

agriculture and required courses should be discussed between the teacher and principal to prevent unnecessary agricultural enrollment decreases. The image of FFA could be addressed as a school-wide effort with the agricultural teacher playing the key role to ensure consistency with agricultural program goals. The advisory committee activities in a community should be identified and agreed upon with clear links to program quality and student enrollment. Teachers should be open to advisory committee use and input for overall program improvement, and not just because of state law mandates.

Additional conclusions, derived from the data presented, which were important discussion items for principals and teachers from both states, include the focus on budget, fluctuations in the number of instructional periods per day and high quality SOEP/SAE's. Many items listed eventually impact budgets; therefore, discussions of program budget and what can and should be done with various resources becomes critical to program success/enrollment increases. Similarly, quality SOEP/SAE and their impact on agricultural enrollments should be discussed between agricultural teachers and their principals as well as the number of periods taught per day. These discussions should be fruitful in reducing potential conflict between the two groups.

4.4.3. Conclusions on Objective Three

Oregon and California teachers soundly agree on the factors that affect fluctuations in agricultural enrollments. The only disagreement in 1989 is that California teachers place more emphasis on increased total school enrollment as a factor influencing increases in agricultural enrollment. In 1994, an increase in the number of periods in the school day increased California agricultural enrollment more than its Oregon counterparts.

Unlike the comparisons of teachers and principals, no consistent trends could be discerned in the ratings obtained from Oregon and California teachers. The only differences which occurred could be explained by larger school and agricultural program sizes in California. Oregon teachers should therefore note that increased school enrollment does impact agricultural enrollment and that the number of periods in the school day also impacts agricultural enrollment. As populations continue to increase in Oregon, these factors may become important.

4.4.4. Conclusions on Objective Four

Oregon and California principals basically agree on the positive and negative factors that affect fluctuations in agricultural enrollment.

4.4.5. Conclusions on Objective Five

Teachers and principals differ significantly on nine of the forty variables (22.5 %) in 1989 and 1994. Given the low statistical power of these comparisons, the frequency of significant disagreement made correlations very difficult. Clearly, teachers and principals have very dissimilar views on these factors, and the degree of disagreement suggests very little communication between the two groups.

4.5. Recommendations

1. Teachers and principals need to communicate more and work more closely to respond to difficulties arising from enrollment fluctuations.

2. Teachers need to involve principals as much as possible in all aspects of the agricultural program including FFA and SOEP/SAE activities.

3. Oregon needs to develop a consistent additional source of state funding, such as the California Incentive Grant, that involves program certification through quality review. The principal needs to be part of that certification process and should review and sign the program certification document.

4. Schools should emphasize the time tested principles of vocational education and those factors that were identified as contributing most to successful agricultural program enrollment.

5. During times of decreasing enrollment, it is even more critical to emphasize the importance of competent and qualified agriculture instructors, the positive image of the FFA, a high quality agricultural curriculum and course offerings, and a class schedule that limits conflict between agricultural courses and graduation requirement courses.

6. Study should continue in both states, possibly with the inclusion of student and counselor responses, so that further identification of these and other influential factors can be utilized to respond to enrollment trends in high school agricultural programs.

7. A study similar to this should be conducted for California and Oregon community colleges.

8. Communication should continue between Oregon and California agriculture instructors in an attempt to plan for new trends in agricultural education.

9. Teachers should become aware of the importance of advisory committees to program quality and corresponding program enrollment.

10. Teachers should gather and share information regarding how many of their students go on to post-secondary education and the workforce with their principals.

4.6. Implications

1. Principals involved in program evaluation are more aware of agricultural program characteristics, which encourages communication between them and their agricultural teachers.

2. During times of declining enrollment, instructors are reluctant to discuss program characteristics for fear of bringing attention to potential problems.

3. If Oregon instituted some form of special grant funding for agricultural programs(similar to California), which was based on program evaluation involving the principal, increased funding/evaluation may contribute to increased communication between the agricultural instructor and principal.

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APPENDICES

Appendix A

Data and Statistical Tables

Appendix A-1.1 1989 Oregon and California Combined Statistics (13-46)

Individual Program Demographic and Quality Evaluations
Questions 13 Through 46 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
13	Class periods per day 85-89 change	0.11	1.11	0.13	1.10
14	Total periods of Ag 85-89 change	0.04	4.07	-0.09	3.40
16	Full Time Teaching Assignment	5.66	0.64	5.60	0.82
17	Total number of Ag Teachers	1.63	1.20	1.68	1.14
18	Non-Ag courses Ag Teachers teach	0.82	1.11	0.84	1.10
19A	Ag Courses that meet Graduation Requirements	2.15	1.42	2.03	1.35
19B	Ag Courses that meet College Entrance Requirements	0.28	0.68	0.24	0.55
19C	Minimum Class Size	7.53	10.07	7.16	9.70
19D	Minimum Class Size resulted in fewer Ag Courses	1.25	0.44	1.20	0.41
20	Communitie's Economic Base Agriculture	1.50	0.50	1.60	0.49
21	Number Visits by Ag Ed Staff	1.40	1.60	1.38	1.45
22	Visits by Ag Ed Staff increased?	1.92	0.64	2.03	0.53
23A	Agriculture Department receives additional funds	1.87	0.34	1.86	0.35
23B	Amount of funds increased ?	1.90	0.86	2.12	0.70
23C	Additional funds % of Ag Budget	40.16	27.98	37.18	26.45
24	Parents direct children away from agriculture	1.48	0.50	1.25	0.44
25	Placement of program completers in ag. occupations	1.80	0.64	1.88	0.60
26	Placement of program completers in post-sec. inst.	2.37	0.71	2.00	0.70
27	Students feel agriculture a viable career option	1.39	0.49	1.36	0.48
28	Percent students with SOEP/SAE	70.41	29.54	60.07	37.08
29	Students receive credit for SOEP/SAE	1.69	0.47	1.49	0.50
30	Supervision of SOEP/SAE by whom	0.98	0.20	1.00	0.28
31	SOEP/SAE supervision period assigned to ag teacher	1.37	0.49	1.37	0.51
32	Plan./Prep.periods assigned to instructor (not SOEP)	1.26	0.89	1.15	0.69
33	Percent ag students maintain SOEP/SAE Record Book	73.49	31.39	74.91	32.07
34	Average on-site student supervision visits each year	2.99	3.59	5.00	18.96
35A	Largest number of students in classroom	26.87	9.21	27.15	7.72
35B	Largest number of students in ag shop	20.37	6.98	21.69	5.30
35C	Largest number of students in Lab Facility	23.39	7.99	23.89	6.29
36	Adequacy of Ag Budget	2.77	1.24	2.57	0.98
37	Instructor completed University Teacher Prep Program	1.94	0.23	1.97	0.16
38	Instructor active in professional teacher organizations	1.85	0.32	1.93	0.23
39	Instructor updated technical and professional skills	1.98	0.11	1.95	0.20
40	Number instructor updating activities in past 5 years	12.83	9.32	9.53	7.63
41	Total number of occupational experience hours	2458	5878	1187	4151
42	Quality rating Agriculture Advisory Committee	2.45	1.06	2.44	1.09
43	Quality rating SOEP/SAE	2.60	0.92	2.34	1.08
44	Quality rating Agriculture Curriculum	2.06	0.85	2.05	0.87
45	Quality rating facilities and equipment	2.15	0.98	2.02	0.90
46	Quality rating FFA Program	1.86	0.90	1.86	0.97
	Teachers n=115, Principals n=93				

Appendix A-1.2 1989 Oregon Statistics (13-46)

Individual Program Demographic and Quality Evaluations
Questions 13 Through 46 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
13	Class periods per day 85-89 change	-0.02	0.36	-0.13	0.34
14	Total periods of Ag 85-89 change	-1.21	2.18	-1.17	1.54
16	Full Time Teaching Assignment	5.81	1.11	5.91	1.16
17	Total number of Ag Teachers	1.24	0.98	1.26	0.67
18	Non-Ag courses Ag Teachers teach	0.91	1.11	1.04	1.29
19A	Ag Courses that meet Graduation Requirements	1.86	1.53	1.58	1.32
19B	Ag Courses that meet College Entrance Requirements	0.19	0.57	0.09	0.29
19C	Minimum Class Size	4.84	7.57	4.29	6.54
19D	Minimum Class Size resulted in fewer Ag Courses	1.20	0.50	1.10	0.44
20	Communitie's Economic Base Agriculture	1.49	0.55	1.61	0.55
21	Number Visits by Ag Ed Staff	0.70	1.17	0.57	0.82
22	Visits by Ag Ed Staff increased?	1.79	0.65	1.84	0.58
23A	Agriculture Department receives additional funds	1.68	0.52	1.67	0.53
23B	Amount of funds increased ?	1.81	0.91	1.93	0.64
23C	Additional funds % of Ag Budget	20.94	22.34	15.16	13.88
24	Parents direct children away from agriculture	1.56	0.55	1.29	0.52
25	Placement of program completers in ag. occupations	1.71	0.68	1.66	0.64
26	Placement of program completers in post-sec. inst.	2.17	0.80	1.82	0.76
27	Students feel agriculture a viable career option	1.23	0.48	1.20	0.47
28	Percent students with SOEP/SAE	63.32	32.38	45.90	39.81
29	Students receive credit for SOEP/SAE	1.35	0.53	1.23	0.49
30	Supervision of SOEP/SAE by whom	0.98	0.15	1.03	0.39
31	SOEP/SAE supervision period assigned to ag teacher	1.23	0.48	1.15	0.51
32	Plan./Prep.periods assigned to instructor (not SOEP)	1.25	1.06	1.06	0.55
33	Percent ag students maintain SOEP/SAE Record Book	64.35	33.09	58.00	38.31
34	Average on-site student supervision visits each year	3.49	5.11	7.96	28.45
35A	Largest number of students in classroom	22.52	10.98	20.91	6.85
35B	Largest number of students in ag shop	18.29	7.02	18.70	6.14
35C	Largest number of students in Lab Facility	20.69	8.21	19.12	7.28
36	Adequacy of Ag Budget	3.02	1.34	2.62	1.04
37	Instructor completed University Teacher Prep Program	1.90	0.36	1.91	0.38
38	Instructor active in professional teacher organizations	1.77	0.46	1.84	0.45
39	Instructor updated technical and professional skills	1.93	0.31	1.88	0.42
40	Number instructor updating activities in past 5 years	10.80	9.72	6.38	5.21
41	Total number of occupational experience hours	4110	8223	3727	7424
42	Quality rating Agriculture Advisory Committee	2.56	1.06	2.69	1.33
43	Quality rating SOEP/SAE	2.48	0.94	2.50	1.25
44	Quality rating Agriculture Curriculum	2.29	0.89	2.48	0.97
45	Quality rating facilities and equipment	2.39	1.04	2.06	1.06
46	Quality rating FFA Program	2.07	0.83	1.97	0.93
	Teachers n=42, Principals n=32				

Appendix A-1.3 1989 California Statistics (13-46)

Individual Program Demographic and Quality Evaluations
Questions 13 Through 46 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
13	Class periods per day 85-89 change	0.19	1.36	0.28	1.35
14	Total periods of Ag 85-89 change	0.76	4.71	0.55	4.00
16	Full Time Teaching Assignment	5.46	0.57	5.29	0.82
17	Total number of Ag Teachers	1.88	1.29	1.92	1.31
18	Non-Ag courses Ag Teachers teach	0.74	1.12	0.69	0.94
19A	Ag Courses that meet Graduation Requirements	2.26	1.36	2.20	1.35
19B	Ag Courses that meet College Entrance Requirements	0.31	0.72	0.31	0.62
19C	Minimum Class Size	9.28	11.18	8.69	10.83
19D	Minimum Class Size resulted in fewer Ag Courses	1.25	0.44	1.24	0.43
20	Communitie's Economic Base Agriculture	1.48	0.50	1.56	0.50
21	Number Visits by Ag Ed Staff	1.91	1.70	1.84	1.54
22	Visits by Ag Ed Staff increased?	2.00	0.67	2.10	0.56
23A	Agriculture Department receives additional funds	1.98	0.13	1.96	0.19
23B	Amount of funds increased ?	1.93	0.87	2.18	0.78
23C	Additional funds % of Ag Budget	51.43	25.01	49.12	24.25
24	Parents direct children away from agriculture	1.40	0.49	1.21	0.41
25	Placement of program completers in ag. occupations	1.83	0.64	2.00	0.60
26	Placement of program completers in post-sec. inst.	2.49	0.67	2.09	0.70
27	Students feel agriculture a viable career option	1.50	0.50	1.44	0.50
28	Percent students with SOEP/SAE	74.57	27.76	68.98	32.87
29	Students receive credit for SOEP/SAE	1.91	0.29	1.66	0.48
30	Supervision of SOEP/SAE by whom	0.96	0.27	0.96	0.21
31	SOEP/SAE supervision period assigned to ag teacher	1.46	0.50	1.49	0.51
32	Plan./Prep.periods assigned to instructor (not SOEP)	1.24	0.76	1.18	0.78
33	Percent ag students maintain SOEP/SAE Record Book	78.44	30.20	84.19	24.52
34	Average on-site student supervision visits each year	2.57	1.71	2.57	1.80
35A	Largest number of students in classroom	29.38	7.25	30.42	6.81
35B	Largest number of students in ag shop	21.87	7.16	23.44	4.78
35C	Largest number of students in Lab Facility	24.41	8.20	25.33	6.05
36	Adequacy of Ag Budget	2.56	1.19	2.50	0.99
37	Instructor completed University Teacher Prep Program	1.94	0.23	1.97	0.16
38	Instructor active in professional teacher organizations	1.88	0.27	1.95	0.17
39	Instructor updated technical and professional skills	1.97	0.11	1.96	0.16
40	Number instructor updating activities in past 5 years	13.97	8.97	10.48	8.17
41	Total number of occupational experience hours	1353	3228	210	668
42	Quality rating Agriculture Advisory Committee	2.35	1.09	2.24	0.93
43	Quality rating SOEP/SAE	2.65	0.96	2.20	1.00
44	Quality rating Agriculture Curriculum	1.89	0.83	1.75	0.72
45	Quality rating facilities and equipment	1.96	0.94	1.96	0.84
46	Quality rating FFA Program	1.70	0.94	1.77	1.01
	Teachers n=73, Principals n=61				

Appendix A-1.4 1989 Oregon and California Combined Statistics (47-74)

Factors Perceived to Affect Enrollment
Questions 47-74 Means and Standard Deviations

Question Number	Description	Teachers		Principals	
		Mean	SD	Mean	SD
47	Positive Image of Agriculture as Career Option	1.88	0.99	2.13	0.92
48	Negative image of Agriculture as Career Option	4.28	0.79	4.05	0.86
49	Good Relationship between Ag Teacher and 4-H Leader	2.18	0.86	2.27	0.81
50	Poor Relationship between Ag Teacher/4-H Leader	3.86	0.85	3.91	0.82
51	Increase in Total School Enrollment	2.12	0.80	2.31	0.81
52	Decrease in Total School Enrollment	3.76	0.77	3.74	0.77
53	Decline in Agriculture Economy	3.82	0.85	3.47	0.87
54	Improvement in Agriculture Economy	2.17	0.67	2.43	0.72
55	Competent and Qualified Instructor	1.46	0.73	1.26	0.57
56	Incompetent Agriculture Instructor	4.55	0.80	4.73	0.56
57	Active and Effective Advisory Committee	2.41	0.68	2.26	0.67
58	Inactive/Ineffective Advisory Committee	3.73	0.66	3.72	0.67
59	Good Quality SOEP/SAE Program	1.92	0.75	2.10	0.74
60	Poor Quality SOEP/SAE Program	3.94	0.84	3.94	0.67
61	Increased Graduation Requirements	4.45	0.81	3.88	0.87
62	Decrease in High School Graduation Requirements	2.06	0.87	2.33	0.79
63	Quality Agriculture curriculum and course offerings	1.58	0.62	1.57	0.62
64	Poor quality agriculture curriculum	4.40	0.61	4.42	0.69
65	Adequate facilities, equipment, etc.	1.73	0.66	1.92	0.67
66	Inadequate facilities, equipment, materials	4.25	0.61	4.15	0.63
67	Adequate Agriculture Budget	1.78	0.66	2.03	0.60
68	Inadequate Agriculture Budget	4.16	0.69	4.00	0.69
69	Positive Image of FFA	1.43	0.61	1.65	0.68
70	Negative FFA Image	4.54	0.58	4.30	0.65
71	Class Sch. limits conflicts between ag and gen. ed.	1.47	0.83	1.74	0.64
72	Class Sch. Disregards conflicts between ag and gen. ed.	4.43	0.88	4.20	0.71
73	Increase in number of periods in school day	1.79	0.88	2.01	0.74
74	Decreasing Number Periods per day	4.30	0.85	4.12	0.79

Teachers n=115, Principals n=93

Appendix A-1.5 1989 Oregon Statistics (47-74)

Factors Perceived to Affect Enrollment
Questions 47-74 Means and Standard Deviations

Question Number	Description	Teachers Mean	Teachers SD	Principals Mean	Principals SD
47	Positive Image of Agriculture as Career Option	1.87	1.05	1.97	1.02
48	Negative image of Agriculture as Career Option	4.20	1.02	4.06	1.08
49	Good Relationship between Ag Teacher and 4-H Leader	2.07	0.80	2.32	0.91
50	Poor Relationship between Ag Teacher/4-H Leader	3.78	0.97	3.78	1.07
51	Increase in Total School Enrollment	2.29	0.82	2.31	0.90
52	Decrease in Total School Enrollment	3.59	0.93	3.64	0.93
53	Decline in Agriculture Economy	3.80	1.00	3.58	1.00
54	Improvement in Agriculture Economy	2.04	0.64	2.19	0.69
55	Competent and Qualified Instructor	1.59	0.83	1.36	0.82
56	Incompetent Agriculture Instructor	4.50	0.89	4.53	1.01
57	Active and Effective Advisory Committee	2.37	0.68	2.19	0.78
58	Inactive/Ineffective Advisory Committee	3.67	0.74	3.58	0.87
59	Good Quality SOEP/SAE Program	1.85	0.73	2.30	0.85
60	Poor Quality SOEP/SAE Program	3.78	0.95	3.75	0.92
61	Increased Graduation Requirements	4.46	1.00	3.65	1.10
62	Decrease in High School Graduation Requirements	1.96	0.85	2.34	0.87
63	Quality Agriculture curriculum and course offerings	1.63	0.68	1.59	0.70
64	Poor quality agriculture curriculum	4.27	0.86	4.16	1.11
65	Adequate facilities, equipment, etc.	1.83	0.74	1.97	0.58
66	Inadequate facilities, equipment, materials	4.13	0.84	3.91	0.86
67	Adequate Agriculture Budget	1.89	0.74	2.03	0.65
68	Inadequate Agriculture Budget	4.04	0.85	3.82	1.01
69	Positive Image of FFA	1.48	0.62	1.67	0.74
70	Negative FFA Image	4.44	0.84	4.09	0.96
71	Class Sch. limits conflicts between ag and gen. ed.	1.48	0.96	1.79	0.59
72	Class Sch. Disregards conflicts between ag and gen. ed.	4.39	1.13	3.97	1.06
73	Increase in number of periods in school day	1.78	0.95	2.00	0.77
74	Decreasing Number Periods per day	4.22	1.11	3.87	1.04

Teachers n=42, Principals n=32

Appendix A-1.6 1989 California Statistics (47-74)

Factors Perceived to Affect Enrollment
Questions 47-74 Means and Standard Deviations

Question Number	Description	Teachers Mean	Teachers SD	Principals Mean	Principals SD
47	Positive Image of Agriculture as Career Option	1.87	0.98	2.19	0.90
48	Negative image of Agriculture as Career Option	4.28	0.78	3.96	0.89
49	Good Relationship between Ag Teacher and 4-H Leader	2.22	0.93	2.20	0.80
50	Poor Relationship between Ag Teacher/4-H Leader	3.85	0.89	3.91	0.82
51	Increase in Total School Enrollment	1.97	0.80	2.27	0.82
52	Decrease in Total School Enrollment	3.82	0.77	3.73	0.82
53	Decline in Agriculture Economy	3.78	0.86	3.35	0.90
54	Improvement in Agriculture Economy	2.22	0.72	2.53	0.78
55	Competent and Qualified Instructor	1.36	0.67	1.18	0.38
56	Incompetent Agriculture Instructor	4.51	0.92	4.75	0.58
57	Active and Effective Advisory Committee	2.41	0.73	2.26	0.67
58	Inactive/Ineffective Advisory Committee	3.72	0.75	3.74	0.72
59	Good Quality SOEP/SAE Program	1.94	0.80	1.95	0.70
60	Poor Quality SOEP/SAE Program	3.99	0.88	3.98	0.70
61	Increased Graduation Requirements	4.39	0.84	3.95	0.85
62	Decrease in High School Graduation Requirements	2.10	0.90	2.29	0.80
63	Quality Agriculture curriculum and course offerings	1.53	0.61	1.53	0.60
64	Poor quality agriculture curriculum	4.43	0.63	4.49	0.60
65	Adequate facilities, equipment, etc.	1.64	0.62	1.86	0.77
66	Inadequate facilities, equipment, materials	4.27	0.64	4.21	0.70
67	Adequate Agriculture Budget	1.69	0.63	2.00	0.63
68	Inadequate Agriculture Budget	4.17	0.75	4.04	0.65
69	Positive Image of FFA	1.39	0.62	1.61	0.67
70	Negative FFA Image	4.53	0.63	4.33	0.66
71	Class Sch. limits conflicts between ag and gen. ed.	1.44	0.75	1.70	0.67
72	Class Sch. Disregards conflicts between ag and gen. ed.	4.40	0.86	4.26	0.67
73	Increase in number of periods in school day	1.77	0.85	1.98	0.77
74	Decreasing Number Periods per day	4.29	0.82	4.18	0.80

Teachers n=73, Principals n=61

Appendix A-1.7 1994 Oregon and California Combined Statistics (7-40)

Individual Program Demographic and Quality Evaluations
Questions 7 Through 40 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
7	Class periods per day 89-94	-0.12	1.30	-0.03	0.92
8	Total periods of Ag 89-94	0.80	3.19	0.35	2.52
9	Full Time Teaching Assignment	5.65	1.03	5.52	1.06
10	Total number of Ag Teachers	1.63	1.12	1.62	0.99
11	Non-Ag courses Ag Teachers teach	0.79	1.06	0.91	1.11
12A	Ag Courses that meet Graduation Requirements	1.84	1.55	1.60	1.49
12B	Ag Courses that meet College Entrance Requirements	0.43	0.71	0.46	0.72
13A	Minimum Class Size	1.48	0.50	1.64	0.48
13B	Minimum Class Size resulted in fewer Ag Courses	1.31	0.47	1.26	0.45
14	Communitie's Economic Base Agriculture	1.55	0.50	1.47	0.50
15	Number Visits by Ag Ed Staff	1.76	1.90	1.77	1.88
16	Visits by Ag Ed Staff increased?	2.05	0.61	2.00	0.56
17A	Agriculture Department receives additional funds	1.79	0.41	1.82	0.39
17B	Amount of funds increased ?	1.96	0.77	2.23	0.78
17C	Additional funds % of Ag Budget	43.47	33.04	37.77	34.40
18	Perceive parents direct children away from agriculture	1.38	0.49	1.16	0.37
19	Placement of program completers in ag. occupations	2.00	0.65	2.34	0.83
20	Placement of program completers in post-sec. inst.	1.61	0.65	2.31	0.89
21	Students feel agriculture a viable career option	1.55	0.50	1.56	0.50
22	Percent students with SOEP/SAE	70.39	28.07	62.30	34.15
23	Students receive credit for SOEP/SAE	1.65	0.48	1.69	0.47
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00
25	SOEP/SAE supervision period assigned to ag teacher	1.32	0.47	1.27	0.45
26	Plan./Prep. periods assigned to instructor (not SOEP)	1.22	0.83	1.29	1.02
27	Percent ag students maintain SOEP/SAE Record Book	72.49	33.35	69.00	36.75
28	Average on-site student supervision visits each year	6.89	17.28	15.02	49.37
29A	Largest number of students in classroom	30.12	13.15	29.35	7.20
29B	Largest number of students in ag shop	23.72	6.95	23.35	6.43
29C	Largest number of students in Lab Facility	27.18	13.08	25.19	13.41
30	Adequacy of Ag Budget	3.01	1.10	2.75	1.03
31	Instructor completed University Teacher Prep Program	1.92	0.26	1.97	0.15
32	Instructor active in professional teacher organizations	1.92	0.24	1.97	0.24
33	Instructor updated technical and professional skills	1.99	0.07	1.92	0.26
34	Number of instructor updating activities in past 5 years	12.65	9.38	14.86	20.72
35	Total number of occupational experience hours	12949	11959	9979	11944
36	Quality rating Agriculture Advisory Committee	2.79	1.09	2.34	1.07
37	Quality rating SOEP/SAE	2.56	0.87	2.39	0.97
38	Quality rating Agriculture Curriculum	1.99	0.77	1.98	0.83
39	Quality rating facilities and equipment	2.31	0.85	2.22	0.80
40	Quality rating FFA Program	1.90	0.93	1.84	0.82
	Teachers n=85, Principals n=79				

Appendix A-1.8 1994 Oregon Statistics (7-40)

Individual Program Demographic and Quality Evaluations Questions 7 Through 40 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
7	Class periods per day 89-94	-0.44	1.27	-0.12	0.86
8	Total periods of Ag 89-94	0.15	2.05	-0.48	1.59
9	Full Time Teaching Assignment	5.90	0.98	5.84	1.10
10	Total number of Ag Teachers	1.19	0.46	1.13	0.34
11	Non-Ag courses Ag Teachers teach	0.91	1.08	0.96	1.20
12A	Ag Courses that meet Graduation Requirements	1.20	1.44	1.03	1.33
12B	Ag Courses that meet College Entrance Requirements	0.31	0.69	0.36	0.74
13A	Minimum Class Size	1.69	0.47	1.75	0.44
13B	Minimum Class Size resulted in fewer Ag Courses	1.30	0.47	1.17	0.38
14	Communitie's Economic Base Agriculture	1.68	0.47	1.58	0.50
15	Number Visits by Ag Ed Staff	1.64	2.30	1.70	2.50
16	Visits by Ag Ed Staff increased?	2.11	0.58	2.07	0.57
17A	Agriculture Department receives additional funds	1.69	0.47	1.73	0.45
17B	Amount of funds increased ?	2.12	0.69	2.29	0.78
17C	Additional funds % of Ag Budget	14.05	15.74	9.00	11.24
18	Perceive parents directing children away from agricultur	1.32	0.47	1.17	0.38
19	Placement of program completers in ag. occupations	1.95	0.66	2.62	0.65
20	Placement of program completers in post-sec. inst.	1.74	0.64	2.40	0.85
21	Students feel agriculture a viable career option	1.45	0.50	1.53	0.51
22	Percent students with SOEP/SAE	65.31	31.33	55.25	33.77
23	Students receive credit for SOEP/SAE	1.36	0.49	1.52	0.51
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00
25	SOEP/SAE supervision period assigned to ag teacher	1.08	0.27	1.06	0.24
26	Plan./Prep. periods assigned to instructor (not SOEP)	1.14	0.83	1.17	0.92
27	Percent ag students maintain SOEP/SAE Record Book	61.95	35.74	53.96	37.60
28	Average on-site student supervision visits each year	3.93	10.00	3.30	4.26
29A	Largest number of students in classroom	26.74	17.36	26.64	7.54
29B	Largest number of students in ag shop	21.86	7.70	21.07	6.72
29C	Largest number of students in Lab Facility	24.15	7.80	21.50	7.40
30	Adequacy of Ag Budget	3.07	1.12	2.91	1.01
31	Instructor completed University Teacher Prep Program	1.88	0.33	1.97	0.16
32	Instructor active in professional teacher organizations	1.93	0.26	2.01	0.30
33	Instructor updated technical and professional skills	2.00	0.00	1.92	0.28
34	Number of instructor updating activities in past 5 years	11.13	8.88	17.11	26.83
35	Total number of occupational experience hours	14189	13197	10753	14778
36	Quality rating Agriculture Advisory Committee	3.13	1.13	2.60	1.17
37	Quality rating SOEP/SAE	2.69	0.92	2.57	0.98
38	Quality rating Agriculture Curriculum	2.07	0.83	2.08	0.86
39	Quality rating facilities and equipment	2.51	0.92	2.32	0.71
40	Quality rating FFA Program	2.17	0.94	2.01	0.88
	Teachers n=43, Principals n=39				

Appendix A-1.9 1994 California Statistics (7-40)

Individual Program Demographic and Quality Evaluations
Questions 7 Through 40 Means and Standard Deviations

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD
7	Class periods per day 89-94	0.19	1.26	0.05	0.97
8	Total periods of Ag 89-94	1.43	3.93	1.09	2.95
9	Full Time Teaching Assignment	5.39	1.02	5.21	0.92
10	Total number of Ag Teachers	2.10	1.39	2.11	1.18
11	Non-Ag courses Ag Teachers teach	0.67	1.03	0.86	1.01
12A	Ag Courses that meet Graduation Requirements	2.44	1.43	2.14	1.44
12B	Ag Courses that meet College Entrance Requirements	0.54	0.71	0.54	0.70
13A	Minimum Class Size	1.27	0.45	1.53	0.51
13B	Minimum Class Size resulted in fewer Ag Courses	1.31	0.47	1.35	0.49
14	Communitie's Economic Base Agriculture	1.43	0.50	1.34	0.48
15	Number Visits by Ag Ed Staff	1.87	1.45	1.83	1.01
16	Visits by Ag Ed Staff increased?	2.00	0.64	1.94	0.55
17A	Agriculture Department receives additional funds	1.88	0.33	1.91	0.29
17B	Amount of funds increased ?	1.83	0.81	2.16	0.78
17C	Additional funds % of Ag Budget	61.13	27.65	59.64	29.52
18	Perceive parents directing children away from agricultur	1.44	0.50	1.15	0.36
19	Placement of program completers in ag. occupations	2.05	0.64	2.06	0.90
20	Placement of program completers in post-sec. inst.	1.49	0.64	2.21	0.93
21	Students feel agriculture a viable career option	1.64	0.49	1.59	0.50
22	Percent students with SOEP/SAE	75.46	23.70	69.36	33.64
23	Students receive credit for SOEP/SAE	1.93	0.27	1.86	0.35
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00
25	SOEP/SAE supervision period assigned to ag teacher	1.53	0.51	1.50	0.51
26	Plan./Prep. periods assigned to instructor (not SOEP)	1.31	0.82	1.42	1.12
27	Percent ag students maintain SOEP/SAE Record Book	82.77	27.59	81.89	31.21
28	Average on-site student supervision visits each year	9.93	22.20	24.94	65.91
29A	Largest number of students in classroom	33.33	5.81	32.16	5.69
29B	Largest number of students in ag shop	26.03	5.10	26.21	4.79
29C	Largest number of students in Lab Facility	29.90	16.12	28.89	16.84
30	Adequacy of Ag Budget	2.94	1.09	2.61	1.04
31	Instructor completed University Teacher Prep Program	1.95	0.15	2.00	0.14
32	Instructor active in professional teacher organizations	1.91	0.22	1.93	0.17
33	Instructor updated technical and professional skills	1.98	0.10	1.91	0.25
34	Number of instructor updating activities in past 5 years	14.28	9.74	13.02	14.16
35	Total number of occupational experience hours	11637	10526	9239	8701
36	Quality rating Agriculture Advisory Committee	2.43	0.94	2.11	0.93
37	Quality rating SOEP/SAE	2.43	0.80	2.24	0.95
38	Quality rating Agriculture Curriculum	1.92	0.70	1.88	0.79
39	Quality rating facilities and equipment	2.10	0.73	2.12	0.89
40	Quality rating FFA Program	1.62	0.84	1.67	0.74
	Teachers n=42, Principals n=40				

Appendix A-1.10 1994 Oregon and California Combined Statistics (38-67)

Factors Perceived to Affect Enrollment
Questions 38-67 Means and Standard Deviations

Question Number	Description	Teachers Mean	Teachers SD	Principals Mean	Principals SD
38	Positive Image of Agriculture as Career Option	1.99	0.92	1.90	0.90
39	Negative image of Agriculture as Career Option	4.15	0.85	3.86	0.96
40	Good Relationship between Ag Teacher and 4-H Leade	2.12	0.83	2.21	0.76
41	Poor Relationship between Ag Teacher/4-H Leader	3.80	0.86	3.75	0.82
42	Increase in Total School Enrollment	2.11	0.68	2.26	0.82
43	Decrease in Total School Enrollment	3.61	0.73	3.61	0.87
44	Decline in Agriculture Economy	3.43	0.71	3.35	0.80
45	Improvement in Agriculture Economy	2.48	0.71	2.33	0.74
46	Competent and Qualified Instructor	1.45	0.61	1.51	0.83
47	Incompetent Agriculture Instructor	4.56	0.79	4.51	0.91
48	Active and Effective Advisory Committee	2.36	0.73	2.30	0.65
49	Inactive/Ineffective Advisory Committee	3.50	0.65	3.80	0.65
50	Good Quality SOEP/SAE Program	1.84	0.74	1.87	0.76
51	Poor Quality SOEP/SAE Program	4.02	0.74	4.04	0.80
52	Increased Graduation Requirements	4.05	1.09	3.61	0.99
53	Decrease in High School Graduation Requirements	2.26	0.81	2.63	0.94
54	Quality Agriculture curriculum and course offerings	1.54	0.57	1.55	0.69
55	Poor quality agriculture curriculum	4.33	0.74	4.26	0.85
56	Adequate facilities, equipment, etc.	1.73	0.57	1.93	0.75
57	Inadequate facilities, equipment, materials	3.98	0.81	4.12	0.68
58	Adequate Agriculture Budget	1.84	0.69	1.97	0.68
59	Inadequate Agriculture Budget	4.07	0.82	4.01	0.66
60	Positive Image of FFA	1.34	0.59	1.55	0.64
61	Negative FFA Image	4.52	0.71	4.27	0.76
62	Class Sch. limits conflicts between ag and gen. ed.	1.47	0.52	1.85	0.75
63	Class Sch. Disregards conflicts between ag and gen. ed.	4.37	0.76	4.07	0.77
64	Increase in number of periods in school day	1.98	0.86	2.19	0.87
65	Decreasing Number Periods per day	4.11	0.93	3.90	0.90
66	Parents positive image of ag as good career	1.63	0.68	1.63	0.69
67	Parents negative image of ag as a good career	4.38	0.81	4.30	0.86

Teachers n=85, Principals n=79

Appendix A-1.11 1994 Oregon Statistics (38-67)

Factors Perceived to Affect Enrollment
Questions 38-67 Means and Standard Deviations

Question Number	Description	Teachers		Principals	
		Mean	SD	Mean	SD
38	Positive Image of Agriculture as Career Option	1.95	0.88	1.97	0.82
39	Negative image of Agriculture as Career Option	4.10	0.93	3.79	0.91
40	Good Relationship between Ag Teacher and 4-H Leade	2.14	0.84	2.13	0.70
41	Poor Relationship between Ag Teacher/4-H Leader	3.76	0.92	3.74	0.80
42	Increase in Total School Enrollment	2.21	0.68	2.34	0.88
43	Decrease in Total School Enrollment	3.60	0.63	3.58	0.77
44	Decline in Agriculture Economy	3.37	0.70	3.45	0.80
45	Improvement in Agriculture Economy	2.39	0.67	2.24	0.71
46	Competent and Qualified Instructor	1.42	0.59	1.50	0.83
47	Incompetent Agriculture Instructor	4.54	0.93	4.52	0.92
48	Active and Effective Advisory Committee	2.39	0.67	2.39	0.73
49	Inactive/Ineffective Advisory Committee	3.45	0.59	3.73	0.56
50	Good Quality SOEP/SAE Program	1.86	0.72	1.97	0.71
51	Poor Quality SOEP/SAE Program	4.02	0.79	3.94	0.75
52	Increased Graduation Requirements	3.95	1.02	3.53	0.83
53	Decrease in High School Graduation Requirements	2.38	0.76	2.71	0.73
54	Quality Agriculture curriculum and course offerings	1.50	0.60	1.74	0.80
55	Poor quality agriculture curriculum	4.30	0.85	4.07	1.00
56	Adequate facilities, equipment, etc.	1.81	0.59	1.92	0.78
57	Inadequate facilities, equipment, materials	3.98	0.78	4.16	0.68
58	Adequate Agriculture Budget	2.00	0.78	1.95	0.70
59	Inadequate Agriculture Budget	3.88	0.97	4.05	0.77
60	Positive Image of FFA	1.41	0.67	1.68	0.66
61	Negative FFA Image	4.44	0.81	4.11	0.76
62	Class Sch. limits conflicts between ag and gen. ed.	1.46	0.55	1.92	0.67
63	Class Sch. Disregards conflicts between ag and gen. ed.	4.27	0.90	3.95	0.77
64	Increase in number of periods in school day	2.21	0.93	2.42	0.72
65	Decreasing Number Periods per day	3.86	1.03	3.63	0.91
66	Parents positive image of ag as good career	1.69	0.75	1.68	0.78
67	Parents negative image of ag as a good career	4.27	0.90	4.37	0.71

Teachers n=43, Principals n=39

Appendix A-1.12 1994 California Statistics (38-67)

Factors Perceived to Affect Enrollment
Questions 38-67 Means and Standard Deviations

Question Number	Description	Teachers Mean	Teachers SD	Principals Mean	Principals SD
38	Positive Image of Agriculture as Career Option	2.04	0.96	1.82	0.97
39	Negative image of Agriculture as Career Option	4.21	0.78	3.93	1.02
40	Good Relationship between Ag Teacher and 4-H Leade	2.26	0.83	2.30	0.81
41	Poor Relationship between Ag Teacher/4-H Leader	3.84	0.81	3.76	0.86
42	Increase in Total School Enrollment	2.01	0.68	2.18	0.77
43	Decrease in Total School Enrollment	3.61	0.82	3.64	0.96
44	Decline in Agriculture Economy	3.49	0.73	3.26	0.81
45	Improvement in Agriculture Economy	2.57	0.74	2.43	0.77
46	Competent and Qualified Instructor	1.46	0.64	1.51	0.84
47	Incompetent Agriculture Instructor	4.59	0.63	4.49	0.90
48	Active and Effective Advisory Committee	2.33	0.80	2.21	0.55
49	Inactive/Ineffective Advisory Committee	3.55	0.71	3.86	0.72
50	Good Quality SOEP/SAE Program	1.82	0.77	1.78	0.80
51	Poor Quality SOEP/SAE Program	4.02	0.70	4.14	0.83
52	Increased Graduation Requirements	4.15	1.15	3.68	1.14
53	Decrease in High School Graduation Requirements	2.13	0.84	2.55	1.12
54	Quality Agriculture curriculum and course offerings	1.57	0.54	1.36	0.49
55	Poor quality agriculture curriculum	4.37	0.62	4.45	0.65
56	Adequate facilities, equipment, etc.	1.65	0.53	1.95	0.73
57	Inadequate facilities, equipment, materials	3.98	0.85	4.08	0.68
58	Adequate Agriculture Budget	1.67	0.57	1.99	0.66
59	Inadequate Agriculture Budget	4.26	0.59	3.97	0.55
60	Positive Image of FFA	1.27	0.50	1.42	0.60
61	Negative FFA Image	4.61	0.59	4.43	0.73
62	Class Sch. limits conflicts between ag and gen. ed.	1.48	0.50	1.78	0.82
63	Class Sch. Disregards conflicts between ag and gen. ed.	4.46	0.60	4.18	0.77
64	Increase in number of periods in school day	1.74	0.72	1.94	0.96
65	Decreasing Number Periods per day	4.38	0.73	4.18	0.80
66	Parents positive image of ag as good career	1.56	0.59	1.58	0.60
67	Parents negative image of ag as a good career	4.49	0.71	4.24	1.00

Teachers n=42, Principals n=40

Appendix A-1.13 Oregon and California Combined 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT89	PERAG85	INCAMT89	PERAG85
13	Class periods per day 85-89 (T13, P13)	-0.02	0.01	0.06	0.16
14	Total periods of Ag 85-89 (T14, P14)	-0.07	-0.05	-0.17	-.30*
16	Full Time Teaching Assignment	0.24	0.19	.37**	0.15
17	Total number of Ag Teachers	-0.07	-0.17	-0.06	-0.11
18	Non-Ag courses Ag Teachers teach	0.08	0.12	0.14	.29*
19A	Ag Courses that meet Graduation Requirements	-0.21	-0.03	-0.10	-0.20
19B	Ag Courses that meet College Entrance Requirements	-0.11	-0.01	-0.10	-0.08
19C	Minimum Class Size	-.32*	-0.28	-0.22	-0.09
19D	Minimum Class Size resulted in fewer Ag Courses	-0.28	-0.21	-0.40	0.03
20	Communitie's Economic Base Agriculture	0.01	-0.09	0.14	0.14
21	Number Visits by Ag Ed Staff	0.05	0.06	-0.11	0.00
22	Visits by Ag Ed Staff increased?	0.01	-.33*	-0.09	-0.20
23A	Agriculture Department receives additional funds	-.41**	-0.12	-0.10	0.14
23B	Amount of funds increased ?	-0.05	0.01	0.17	-0.10
23C	Additional funds % of Ag Budget	-0.12	-0.07	-0.38	-0.11
24	Parents direct children away from agriculture	-0.18	0.04	-0.01	-0.04
25	Placement of prog. completers in ag. occupations	0.02	-0.14	0.24	0.02
26	Placement of prog. completers in post-sec. inst.	-0.10	-0.01	.28*	.30*
27	Students feel agriculture a viable career option	0.14	0.02	0.05	0.07
28	Percent students with SOEP/SAE	0.15	0.12	-0.20	-0.13
29	Students receive credit for SOEP/SAE	-.28*	0.06	-0.22	0.12
30	Supervision of SOEP/SAE by whom	-0.02	-0.24	-0.04	-0.14
31	SOEP/SAE supv. period assigned to ag teacher	-0.13	-0.19	-0.12	-0.14
32	Plan./Prep. periods assigned to ag teacher	-0.08	-0.16	0.10	-0.04
33	Percent ag students w/SOEP/SAE Record Book	0.11	0.21	-0.05	-0.01
34	Average on-site student supervision visits each year	0.12	0.09	-0.05	0.10
35A	Largest number of students in classroom	-.27*	-0.04	-.36**	-0.01
35B	Largest number of students in ag shop	-0.14	0.07	-.36*	-0.01
35C	Largest number of students in Lab Facility	-.32*	-0.13	-0.16	-0.01
36	Adequacy of Agriculture Budget	0.05	0.07	0.01	0.14
37	Instructor completed Univ. Teacher Prep Program	0.01	0.09	0.04	0.07
38	Instructor active in prof. teacher organizations	-0.03	-0.05	0.04	0.09
39	Instructor updated tech. and prof. skills	0.03	0.04	-.49**	-0.13
40	Instructor updating activities in past 5 years	-0.05	0.03	-0.25	0.03
41	Total number of occupational experience hours	-0.04	-0.09	0.08	0.09
42	Quality rating Agriculture Advisory Committee	-0.06	-0.16	0.18	0.19
43	Quality rating SOEP/SAE	-0.18	-0.18	.28*	0.01
44	Quality rating Agriculture Curriculum	0.18	0.07	0.21	0.19
45	Quality rating facilities and equipment	0.16	0.09	0.11	-0.03
46	Quality rating FFA Program	0.01	0.13	0.18	0.14

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.

T14 is the difference T14(89)-T14(85). Same with P14.

* p < .05

** p < .01

Teachers n=115, Principals n=93

Appendix A-1.14 Oregon 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT89	PERAG85	INCAMT89	PERAG85
13	Class periods per day 85-89 (T13, P13)	-0.20	-0.33	-0.06	-0.20
14	Total periods of Ag 85-89 (T14, P14)	-0.07	0.28	0.01	0.00
16	Full Time Teaching Assignment	0.21	.39*	0.34	0.19
17	Total number of Ag Teachers	-0.18	-0.23	-0.15	-0.15
18	Non-Ag courses Ag Teachers teach	0.14	0.15	0.23	0.33
19A	Ag Courses that meet Graduation Requirements	-0.24	0.18	0.15	-0.01
19B	Ag Courses that meet College Entrance Requirements	-0.38	-0.06	-0.13	-0.24
19C	Minimum Class Size	-0.09	0.21	-0.41	0.20
19D	Minimum Class Size resulted in fewer Ag Courses	-0.45	-0.31	-0.25	0.11
20	Communitie's Economic Base Agriculture	-0.10	-0.14	0.20	0.15
21	Number Visits by Ag Ed Staff	0.28	0.19	0.37	0.35
22	Visits by Ag Ed Staff increased?	0.10	-.44*	-0.19	-0.16
23A	Agriculture Department receives additional funds	-.38*	-0.08	-0.03	0.22
23B	Amount of funds increased ?	-0.30	0.02	0.23	-0.06
23C	Additional funds % of Ag Budget	0.48	0.05	-0.11	0.10
24	Parents direct children away from agriculture	-0.32	0.12	-0.13	-0.03
25	Placement of prog. completers in ag. occupations	-0.14	-0.31	0.35	-0.08
26	Placement of prog. completers in post-sec. inst.	-0.06	0.01	.49**	.41*
27	Students feel agriculture a viable career option	0.25	0.14	0.14	0.11
28	Percent students with SOEP/SAE	.46*	.43*	-0.02	-0.03
29	Students receive credit for SOEP/SAE	-0.08	0.29	-0.12	0.24
30	Supervision of SOEP/SAE by whom	...	...	-0.14	-0.12
31	SOEP/SAE supv. period assigned to ag teacher	-0.02	0.00	-0.04	0.06
32	Plan./Prep. periods assigned to ag teacher	-0.08	-0.15	0.19	-0.05
33	Percent ag students w/SOEP/SAE Record Book	0.34	.42*	0.17	0.01
34	Average on-site student supervision visits each year	0.07	0.09	-0.03	0.10
35A	Largest number of students in classroom	-0.08	-0.01	-.41*	-0.01
35B	Largest number of students in ag shop	0.00	0.18	-0.22	0.18
35C	Largest number of students in Lab Facility	-0.43	-0.08	-0.05	0.32
36	Adequacy of Agriculture Budget	0.01	0.00	0.02	0.22
37	Instructor completed Univ. Teacher Prep Program	0.06	0.16	0.03	0.11
38	Instructor active in prof. teacher organizations	0.05	0.07	0.08	0.14
39	Instructor updated tech. and prof. skills	0.01	0.04	-.66**	-0.16
40	Instructor updating activities in past 5 years	-0.03	-0.23	-0.41	-0.10
41	Total number of occupational experience hours	-0.37	-0.31	-0.21	-0.10
42	Quality rating Agriculture Advisory Committee	-0.19	-0.38	0.17	0.18
43	Quality rating SOEP/SAE	-0.21	-0.26	0.34	-0.19
44	Quality rating Agriculture Curriculum	0.20	0.04	0.16	0.19
45	Quality rating facilities and equipment	0.09	-0.13	0.11	0.15
46	Quality rating FFA Program	-0.19	0.06	0.18	0.16

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.

T14 is the difference T14(89)-T14(85). Same with P14.

Teachers n=42, Principals n=32

* $p < .05$

** $p < .01$

Appendix A-1.15 California 1989 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 13-35)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT89	PERAG85	INCAMT89	PERAG85
13	Class periods per day 85-89 (T13, P13)	0.18	0.21	0.27	.39*
14	Total periods of Ag 85-89 (T14, P14)	0.05	-0.24	-0.10	-0.45
16	Full Time Teaching Assignment	0.08	-0.18	0.16	-0.05
17	Total number of Ag Teachers	.37*	-0.04	.34*	0.00
18	Non-Ag courses Ag Teachers teach	0.04	0.11	-0.11	0.22
19A	Ag Courses that meet Graduation Requirements	-0.11	-0.16	-0.30	-.38*
19B	Ag Courses that meet College Entrance Requirements	0.18	0.01	-0.08	0.09
19C	Minimum Class Size	-0.30	-.41*	-0.07	-0.19
19D	Minimum Class Size resulted in fewer Ag Courses	-0.16	-0.06	-0.47	0.00
20	Communitie's Economic Base Agriculture	0.21	-0.04	0.04	0.12
21	Number Visits by Ag Ed Staff	0.30	0.13	-0.04	-0.01
22	Visits by Ag Ed Staff increased?	0.22	-0.09	0.24	-0.22
23A	Agriculture Department receives additional funds	-0.03	0.05	0.06	0.13
23B	Amount of funds increased ?	0.21	0.04	0.32	0.01
23C	Additional funds % of Ag Budget	0.30	0.20	-0.14	0.03
24	Parents direct children away from agriculture	-0.22	0.12	-0.12	-0.20
25	Placement of prog. completers in ag. occupations	0.37	0.14	0.35	0.35
26	Placement of prog. completers in post-sec. inst.	0.08	0.11	0.24	0.33
27	Students feel agriculture a viable career option	0.29	-0.04	0.24	0.14
28	Percent students with SOEP/SAE	-0.02	-0.30	-0.02	-0.16
29	Students receive credit for SOEP/SAE	...	...	-0.09	0.21
30	Supervision of SOEP/SAE by whom	-0.18	-.51**	-0.01	-0.33
31	SOEP/SAE supv. period assigned to ag teacher	0.19	-0.24	0.19	-0.24
32	Plan./Prep. periods assigned to ag teacher	-0.10	-0.21	0.02	0.00
33	Percent ag students w/SOEP/SAE Record Book	.44*	0.11	0.27	0.24
34	Average on-site student supervision visits each year	0.03	-0.03	-0.05	0.15
35A	Largest number of students in classroom	-0.20	0.10	0.11	0.27
35B	Largest number of students in ag shop	-0.23	-0.01	-0.28	-0.08
35C	Largest number of students in Lab Facility	-0.05	-0.08	0.03	-0.12
36	Adequacy of Agriculture Budget	-0.17	0.06	-0.20	-0.02
37	Instructor completed Univ. Teacher Prep Program	0.06	0.03	0.05	0.02
38	Instructor active in prof. teacher organizations	-0.11	-0.18	-0.01	0.04
39	Instructor updated tech. and prof. skills	0.05	0.02	-0.22	0.09
40	Instructor updating activities in past 5 years	0.22	0.26	0.08	0.26
41	Total number of occupational experience hours	.47*	0.10	0.15	-0.21
42	Quality rating Agriculture Advisory Committee	-0.17	-0.02	-0.15	0.11
43	Quality rating SOEP/SAE	-.39*	-0.15	-0.17	0.15
44	Quality rating Agriculture Curriculum	-0.12	0.01	-0.19	0.08
45	Quality rating facilities and equipment	0.18	0.25	-0.12	0.06
46	Quality rating FFA Program	-0.14	0.26	-0.20	0.00

INCAMT was created with the following formula: (100*A89/S89)-(100*A85/S85), so that it is the percentage ag enrollment in 89 (relative to the school size in 89) minus the percentage ag enrollment in 85 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG85 was created with the following formula: 100 * A89/A85, so that it is the ag rnrollment in 89 expressed as a percentage of ag enrollment in 85. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 89, then the number is 50--50% the size it was in 85)

T13 is the difference T13(89)-T13(85). Same with P13.
T14 is the difference T14(89)-T14(85). Same with P14.
Teachers n=73, Principals n=61

* p < .05
** p < .01

Appendix A-1.16 Oregon and California Combined 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 7-40)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT94	PERAG89	INCAMT94	PERAG89
7	Class periods per day 89-94 (T7, P7)	0.09	0.15	0.12	0.17
8	Total periods of Ag 89-94 (T8, P8)	0.24	.33**	0.18	.27*
9	Full Time Teaching Assignment	0.08	0.09	0.17	0.14
10	Total number of Ag Teachers	0.16	0.16	0.14	0.17
11	Non-Ag courses Ag Teachers teach	0.08	0.03	-0.08	-0.16
12A	Ag Courses that meet Graduation Requirements	0.21	0.18	0.06	0.03
12B	Ag Courses that meet College Entrance Requirements	0.11	0.08	0.04	0.04
13A	Minimum Class Size	-0.06	-0.04	0.16	.28*
13B	Minimum Class Size resulted in fewer Ag Courses	-0.26	-0.24	-0.36	-.37*
14	Communitie's Economic Base Agriculture	-0.03	0.13	-0.04	-0.01
15	Number Visits by Ag Ed Staff	-0.14	0.03	-0.08	0.00
16	Visits by Ag Ed Staff increased?	-0.24	-0.15	-0.02	-0.17
17A	Agriculture Department receives additional funds	-0.07	-0.16	-0.09	-0.08
17B	Amount of funds increased ?	0.20	0.26	0.03	-0.09
17C	Additional funds % of Ag Budget	0.08	-0.02	0.16	-0.20
18	Parents direct children away from agriculture	0.00	-0.01	-0.05	-0.01
19	Placement of prog. completers in ag. occupations	-0.07	-0.17	-0.03	-0.16
20	Placement of prog. completers in post-sec. inst.	0.02	-0.01	0.02	0.14
21	Students feel agriculture a viable career option	0.16	.27*	-0.05	0.07
22	Percent students with SOEP/SAE	-0.04	0.06	-0.18	0.00
23	Students receive credit for SOEP/SAE	0.19	0.17	0.08	0.04
24	Supervision of SOEP/SAE by whom	..	..	..	..
25	SOEP/SAE supv. period assigned to ag teacher	0.00	-0.06	0.18	0.17
26	Plan./Prep. periods assigned to ag teacher	-0.09	-0.02	0.00	0.15
27	Percent ag students w/SOEP/SAE Record Book	0.10	0.24	-0.03	0.24
28	Average on-site student supervision visits each year	-.32*	-0.16	0.21	0.18
29A	Largest number of students in classroom	0.13	0.25	0.09	-0.11
29B	Largest number of students in ag shop	0.19	0.04	0.28	0.12
29C	Largest number of students in Lab Facility	0.02	-0.07	0.06	-0.01
30	Adequacy of Agriculture Budget	-0.17	-.24*	-.24*	-.33**
31	Instructor completed Univ. Teacher Prep Program	0.01	0.07	-0.03	0.08
32	Instructor active in prof. teacher organizations	0.21	0.21	-0.04	0.07
33	Instructor updated tech. and prof. skills	-0.06	-0.02	-0.13	-0.03
34	Instructor updating activities in past 5 years	0.11	-0.05	-0.15	-0.26
35	Total number of occupational experience hours	-0.19	-0.22	-0.16	0.00
36	Quality rating Agriculture Advisory Committee	-0.20	-.25*	-0.22	-0.09
37	Quality rating SOEP/SAE	0.04	-0.13	0.08	-0.07
38	Quality rating Agriculture Curriculum	-0.22	-.27*	0.11	0.01
39	Quality rating facilities and equipment	-.28*	-.24*	-0.03	-0.18
40	Quality rating FFA Program	-0.09	-0.10	0.01	0.00

INCAMT94 was created with the following formula: (100*A 94/S94)-(100*A 89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A 94/A 89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.

T8 is the difference T8(94)-T8(89). Same with P8.

Teachers n=85, Principals n=79

* p < .05

** p < .01

Appendix A-1.17 Oregon 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 7-40)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT94	PERAG89	INCAMT94	PERAG89
7	Class periods per day 89-94 (T7, P7)	0.12	0.26	0.08	0.05
8	Total periods of Ag 89-94 (T8, P8)	0.19	0.25	0.05	0.06
9	Full Time Teaching Assignment	0.11	0.13	0.25	0.12
10	Total number of Ag Teachers	-0.07	-0.14	-0.13	-0.16
11	Non-Ag courses Ag Teachers teach	0.14	0.13	-0.15	-0.23
12A	Ag Courses that meet Graduation Requirements	0.15	0.05	-0.05	-0.01
12B	Ag Courses that meet College Entrance Requirements	0.02	-0.08	-.21	-0.23
13A	Minimum Class Size	0.01	0.01	0.22	0.34
13B	Minimum Class Size resulted in fewer Ag Courses	-0.37	-0.13	-0.24	-0.07
14	Communitie's Economic Base Agriculture	0.01	0.20	-0.08	-0.04
15	Number Visits by Ag Ed Staff	-0.20	-0.02	-0.16	-0.06
16	Visits by Ag Ed Staff increased?	-.40*	-0.29	0.10	-0.23
17A	Agriculture Department receives additional funds	0.01	-0.02	-0.14	-0.07
17B	Amount of funds increased ?	0.17	0.14	0.20	0.02
17C	Additional funds % of Ag Budget	-0.53	-0.41	0.29	-0.27
18	Parents direct children away from agriculture	-0.11	0.04	0.01	0.15
19	Placement of prog. completers in ag. occupations	-0.14	-0.16	0.14	-0.01
20	Placement of prog. completers in post-sec. inst.	0.07	0.10	-0.05	0.20
21	Students feel agriculture a viable career option	0.27	.41*	-0.04	-0.02
22	Percent students with SOEP/SAE	0.07	0.15	-0.16	0.01
23	Students receive credit for SOEP/SAE	0.21	0.25	0.12	0.12
24	Supervision of SOEP/SAE by whom	..	..	..	..
25	SOEP/SAE supv. period assigned to ag teacher	-0.10	-0.16	.38*	0.35
26	Plan./Prep. periods assigned to ag teacher	-0.13	-0.05	-0.08	0.10
27	Percent ag students w/SOEP/SAE Record Book	0.03	0.19	-0.08	0.31
28	Average on-site student supervision visits each year	-0.35	-0.16	-0.31	-0.14
29A	Largest number of students in classroom	0.13	0.33	0.11	-0.13
29B	Largest number of students in ag shop	0.22	0.13	0.38	0.27
29C	Largest number of students in Lab Facility	-0.03	-0.21	0.21	0.14
30	Adequacy of Agriculture Budget	-0.14	-0.21	-0.26	-0.32
31	Instructor completed Univ. Teacher Prep Program	0.01	0.09	-0.12	-0.02
32	Instructor active in prof. teacher organizations	0.26	0.22	-0.12	-0.05
33	Instructor updated tech. and prof. skills	..	..	-0.21	-0.14
34	Instructor updating activities in past 5 years	0.29	0.10	-0.14	-0.28
35	Total number of occupational experience hours	-0.28	-0.31	-0.22	0.01
36	Quality rating Agriculture Advisory Committee	-0.26	-.36*	-0.18	0.02
37	Quality rating SOEP/SAE	0.08	-0.14	0.12	-0.04
38	Quality rating Agriculture Curriculum	-0.29	-0.31	0.18	0.07
39	Quality rating facilities and equipment	-.33*	-0.31	0.13	-0.08
40	Quality rating FFA Program	-0.13	-0.21	0.01	0.07

INCAMT94 was created with the following formula: (100*A 94/S94)-(100*A 89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A 94/A 89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.

T8 is the difference T8(94)-T8(89). Same with P8.

Teachers n=43, Principals n=39

* $p < .05$

** $p < .01$

Appendix A-1.18 California 1994 Correlations

Correlations Between Enrollment Changes and Various Demographic and Quality Factors (Questions 7-40)

Question Number	VARIABLE	TEACHERS		PRINCIPALS	
		INCAMT94	PERAG89	INCAMT94	PERAG89
7	Class periods per day 89-94 (T7, P7)	0.09	0.11	0.26	.39*
8	Total periods of Ag 89-94 (T8, P8)	.55**	.65**	.51**	.65**
9	Full Time Teaching Assignment	0.08	0.04	-0.06	-0.04
10	Total number of Ag Teachers	.45**	.46**	.44**	.49**
11	Non-Ag courses Ag Teachers teach	-0.02	-0.16	0.09	-0.03
12A	Ag Courses that meet Graduation Requirements	0.32	.40*	0.16	0.09
12B	Ag Courses that meet College Entrance Requirements	.29	0.32	.36*	0.33
13A	Minimum Class Size	-0.26	-0.23	0.17	0.21
13B	Minimum Class Size resulted in fewer Ag Courses	-0.24	-0.32	-.51*	-.61*
14	Communitie's Economic Base Agriculture	-0.09	0.02	0.06	0.02
15	Number Visits by Ag Ed Staff	0.07	0.17	0.18	0.22
16	Visits by Ag Ed Staff increased?	-0.05	-0.02	-0.22	-0.13
17A	Agriculture Department receives additional funds	-.37*	-.53*	0.00	-0.08
17B	Amount of funds increased ?	0.35	.42*	-0.30	-0.31
17C	Additional funds % of Ag Budget	0.10	0.16	-0.23	-0.30
18	Parents direct children away from agriculture	0.18	-0.10	-0.16	-0.35
19	Placement of prog. completers in ag. occupations	-0.04	-0.20	-0.15	-.37*
20	Placement of prog. completers in post-sec. inst.	-0.05	-0.14	0.19	0.07
21	Students feel agriculture a viable career option	-0.08	0.06	-0.10	0.27
22	Percent students with SOEP/SAE	-0.35	-0.12	-0.35	-0.02
23	Students receive credit for SOEP/SAE	0.05	0.11	-0.14	-0.09
24	Supervision of SOEP/SAE by whom	..	..	..	..
25	SOEP/SAE supv. period assigned to ag teacher	0.00	-0.02	0.05	0.15
26	Plan./Prep. periods assigned to ag teacher	0.00	0.07	0.20	0.29
27	Percent ag students w/SOEP/SAE Record Book	0.09	0.28	-0.17	0.09
28	Average on-site student supervision visits each year	-.58*	-0.24	0.40	0.32
29A	Largest number of students in classroom	0.08	-0.07	-0.02	-0.02
29B	Largest number of students in ag shop	-0.09	-0.05	-0.25	-0.18
29C	Largest number of students in Lab Facility	0.08	0.04	-0.33	-0.23
30	Adequacy of Agriculture Budget	-0.29	-0.32	-0.26	-.39*
31	Instructor completed Univ. Teacher Prep Program	0.00	0.00	0.22	0.30
32	Instructor active in prof. teacher organizations	0.03	0.21	0.26	.36*
33	Instructor updated tech. and prof. skills	-0.13	-0.05	0.05	0.18
34	Instructor updating activities in past 5 years	-0.27	-0.28	-0.16	-0.19
35	Total number of occupational experience hours	-0.03	-0.10	0.03	0.01
36	Quality rating Agriculture Advisory Committee	-0.07	-0.12	-.34*	-.33*
37	Quality rating SOEP/SAE	-0.02	-0.16	0.04	-0.16
38	Quality rating Agriculture Curriculum	-0.03	-0.23	-0.01	-0.11
39	Quality rating facilities and equipment	-0.16	-0.14	-0.32	-.36*
40	Quality rating FFA Program	0.08	0.10	0.09	-0.08

INCAMT94 was created with the following formula: (100*A 94/S94)-(100*A 89/S89), so that it is the percentage ag enrollment in 94 (relative to the school size in 94) minus the percentage ag enrollment in 89 (relative to school size). Basically this is the change in "percentage ag enrollment".

PERAG89 was created with the following formula: 100 * A 94/A 89, so that it is the ag rnrollment in 94 expressed as a percentage of ag enrollment in 89. (If ag enrollment doubled, then this comes out as 200. If it is half as large in 94, then the number is 50--50% the size it was in 89)

T7 is the difference T7(94)-T7(89). Same with P7.

T8 is the difference T8(94)-T8(89). Same with P8.

Teachers n=42, Principals n=40

* p < .05

** p < .01

Appendix A-2.1 All Teachers vs. All Principals 1989
Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
47	Positive Image of Agriculture as Career Option	1.88	0.99	2.13	0.92	
49	Good Relationship Ag Teacher/4-H Leader	2.18	0.86	2.27	0.81	
51	Increase in Total School Enrollment	2.12	0.80	2.31	0.81	
54	Improvement in Agriculture Economy	2.17	0.67	2.43	0.72	0.01
55	Competent and Qualified Instructor	1.46	0.73	1.26	0.57	
57	Active and Effective Advisory Committee	2.41	0.68	2.26	0.67	
59	Good Quality SOEP/SAE Program	1.92	0.75	2.10	0.74	0.01
62	Decrease in High School Grad. Requirements	2.06	0.87	2.33	0.79	0.01
63	Quality Ag. curriculum and course offerings	1.58	0.62	1.57	0.62	
65	Adequate facilities, equipment, etc.	1.73	0.66	1.92	0.67	0.01
67	Adequate Agriculture Budget	1.78	0.66	2.03	0.60	0.01
69	Positive Image of FFA	1.43	0.61	1.65	0.68	0.01
71	Class Sch. limits conflicts between ag and gen. ed.	1.47	0.83	1.74	0.64	0.01
73	Increase in number of periods in school day	1.79	0.88	2.01	0.74	0.01

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
48	Negative image of Agriculture as Career Option	4.28	0.79	4.05	0.86	0.01
50	Poor Relationship Ag Teacher/4-H Leader	3.86	0.85	3.91	0.82	
52	Decrease in Total School Enrollment	3.76	0.77	3.74	0.77	
53	Decline in Agriculture Economy	3.82	0.85	3.47	0.87	0.01
56	Incompetent Agriculture Instructor	4.55	0.80	4.73	0.56	
58	Inactive/Ineffective Advisory Committee	3.73	0.66	3.72	0.67	
60	Poor Quality SOEP/SAE Program	3.94	0.84	3.94	0.67	
61	Increased Graduation Requirements	4.45	0.81	3.88	0.87	0.01
64	Poor quality agriculture curriculum	4.40	0.61	4.42	0.69	
66	Inadequate facilities, equipment, materials	4.25	0.61	4.15	0.63	
68	Inadequate Agriculture Budget	4.16	0.69	4.00	0.69	0.05
70	Negative FFA Image	4.54	0.58	4.30	0.65	0.01
72	Schedule Disregards conflicts between ag and gen. ed	4.43	0.88	4.20	0.71	0.05
74	Decreasing Number Periods per day	4.30	0.85	4.12	0.79	0.05

Teachers n=115, Principals n=93

Appendix A-2.2 Oregon Teachers vs. Oregon Principals 1989
Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
47	Positive Image of Agriculture as Career Option	1.87	1.05	1.97	1.02	
49	Good Relationship Ag Teacher/4-H Leader	2.07	0.80	2.32	0.91	
51	Increase in Total School Enrollment	2.29	0.82	2.31	0.90	
54	Improvement in Agriculture Economy	2.04	0.64	2.19	0.69	
55	Competent and Qualified Instructor	1.59	0.83	1.36	0.82	
57	Active and Effective Advisory Committee	2.37	0.68	2.19	0.78	
59	Good Quality SOEP/SAE Program	1.85	0.73	2.30	0.85	0.05
62	Decrease in High School Grad. Requirements	1.96	0.85	2.34	0.87	0.05
63	Quality Ag. curriculum and course offerings	1.63	0.68	1.59	0.70	
65	Adequate facilities, equipment, etc.	1.83	0.74	1.97	0.58	
67	Adequate Agriculture Budget	1.89	0.74	2.03	0.65	
69	Positive Image of FFA	1.48	0.62	1.67	0.74	
71	Class Sch. limits conflicts between ag and gen. ed.	1.48	0.96	1.79	0.59	
73	Increase in number of periods in school day	1.78	0.95	2.00	0.77	0.01

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
48	Negative image of Agriculture as Career Option	4.20	1.02	4.06	1.08	
50	Poor Relationship Ag Teacher/4-H Leader	3.78	0.97	3.78	1.07	
52	Decrease in Total School Enrollment	3.59	0.93	3.64	0.93	
53	Decline in Agriculture Economy	3.80	1.00	3.58	1.00	
56	Incompetent Agriculture Instructor	4.50	0.89	4.53	1.01	
58	Inactive/Ineffective Advisory Committee	3.67	0.74	3.58	0.87	
60	Poor Quality SOEP/SAE Program	3.78	0.95	3.75	0.92	
61	Increased Graduation Requirements	4.46	1.00	3.65	1.10	0.01
64	Poor quality agriculture curriculum	4.27	0.86	4.16	1.11	
66	Inadequate facilities, equipment, materials	4.13	0.84	3.91	0.86	
68	Inadequate Agriculture Budget	4.04	0.85	3.82	1.01	
70	Negative FFA Image	4.44	0.84	4.09	0.96	0.05
72	Schedule Disregards conflicts between ag and gen. ed	4.39	1.13	3.97	1.06	0.01
74	Decreasing Number Periods per day	4.22	1.11	3.87	1.04	0.01

Teachers n=42, Principals n=32

Appendix A-2.3 California Teachers vs. California Principals 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
47	Positive Image of Agriculture as Career Option	1.87	0.98	2.19	0.90	0.05
49	Good Relationship Ag Teacher/4-H Leader	2.22	0.93	2.20	0.80	
51	Increase in Total School Enrollment	1.97	0.80	2.27	0.82	0.05
54	Improvement in Agriculture Economy	2.22	0.72	2.53	0.78	0.01
55	Competent and Qualified Instructor	1.36	0.67	1.18	0.38	
57	Active and Effective Advisory Committee	2.41	0.73	2.26	0.67	
59	Good Quality SOEP/SAE Program	1.94	0.80	1.95	0.70	
62	Decrease in High School Grad. Requirements	2.10	0.90	2.29	0.80	
63	Quality Ag. curriculum and course offerings	1.53	0.61	1.53	0.60	
65	Adequate facilities, equipment, etc.	1.64	0.62	1.86	0.77	0.01
67	Adequate Agriculture Budget	1.69	0.63	2.00	0.63	0.01
69	Positive Image of FFA	1.39	0.62	1.61	0.67	0.01
71	Class Sch. limits conflicts between ag and gen. ed.	1.44	0.75	1.70	0.67	0.01
73	Increase in number of periods in school day	1.77	0.85	1.98	0.77	0.05

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
48	Negative image of Agriculture as Career Option	4.28	0.78	3.96	0.89	0.01
50	Poor Relationship Ag Teacher/4-H Leader	3.85	0.89	3.91	0.82	
52	Decrease in Total School Enrollment	3.82	0.77	3.73	0.82	
53	Decline in Agriculture Economy	3.78	0.86	3.35	0.90	0.01
56	Incompetent Agriculture Instructor	4.51	0.92	4.75	0.58	
58	Inactive/Ineffective Advisory Committee	3.72	0.75	3.74	0.72	
60	Poor Quality SOEP/SAE Program	3.99	0.88	3.98	0.70	
61	Increased Graduation Requirements	4.39	0.84	3.95	0.85	0.01
64	Poor quality agriculture curriculum	4.43	0.63	4.49	0.60	
66	Inadequate facilities, equipment, materials	4.27	0.64	4.21	0.70	
68	Inadequate Agriculture Budget	4.17	0.75	4.04	0.65	0.03
70	Negative FFA Image	4.53	0.63	4.33	0.66	0.05
72	Schedule Disregards conflicts between ag and gen. ed	4.40	0.86	4.26	0.67	
74	Decreasing Number Periods per day	4.29	0.82	4.18	0.80	

Teachers n=73, Principals n=61

Appendix A-2.4 All Teachers vs. All Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
38	Positive Image of Agriculture as Career Option	1.99	0.92	1.90	0.90	
40	Good Relationship between Ag Teacher/4-H Leader	2.12	0.83	2.21	0.76	
42	Increase in Total School Enrollment	2.11	0.68	2.26	0.82	
45	Improvement in Agriculture Economy	2.48	0.71	2.33	0.74	
46	Competent and Qualified Instructor	1.45	0.61	1.51	0.83	
48	Active and Effective Advisory Committee	2.36	0.73	2.30	0.65	
50	Good Quality SOEP/SAE Program	1.84	0.74	1.87	0.76	
53	Decrease in High School Graduation Requirements	2.26	0.81	2.63	0.94	0.01
54	Quality Agriculture curriculum and course offerings	1.54	0.57	1.55	0.69	
56	Adequate facilities, equipment, etc.	1.73	0.57	1.93	0.75	
58	Adequate Agriculture Budget	1.84	0.69	1.97	0.68	
60	Positive Image of FFA	1.34	0.59	1.55	0.64	0.05
62	Class Sch. limits conflicts between ag and gen. ed.	1.47	0.52	1.85	0.75	0.01
64	Increase in number of periods in school day	1.98	0.86	2.19	0.87	
66	Parents positive image of ag as good career	1.63	0.68	1.63	0.69	

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
39	Negative image of Agriculture as Career Option	4.15	0.85	3.86	0.96	0.02
41	Poor Relationship between Ag Teacher/4-H Leader	3.80	0.86	3.75	0.82	
43	Decrease in Total School Enrollment	3.61	0.73	3.61	0.87	
44	Decline in Agriculture Economy	3.43	0.71	3.35	0.80	
47	Incompetent Agriculture Instructor	4.56	0.79	4.51	0.91	
49	Inactive/Ineffective Advisory Committee	3.50	0.65	3.80	0.65	0.01
51	Poor Quality SOEP/SAE Program	4.02	0.74	4.04	0.80	
52	Increased Graduation Requirements	4.05	1.09	3.61	0.99	0.01
55	Poor quality agriculture curriculum	4.33	0.74	4.26	0.85	
57	Inadequate facilities, equipment, materials	3.98	0.81	4.12	0.68	
59	Inadequate Agriculture Budget	4.07	0.82	4.01	0.66	
61	Negative FFA Image	4.52	0.71	4.27	0.76	0.01
63	Schedule Disregards conflicts between ag and gen. ed	4.37	0.76	4.07	0.77	0.01
65	Decreasing Number Periods per day	4.11	0.93	3.90	0.90	
67	Parents negative image of ag as a good career	4.38	0.81	4.30	0.86	

Teachers n=85, Principals n=79

Appendix A-2.5 Oregon Teachers vs. Oregon Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
38	Positive Image of Agriculture as Career Option	1.95	0.88	1.97	0.82	
40	Good Relationship between Ag Teacher/4-H Leader	2.14	0.84	2.13	0.70	
42	Increase in Total School Enrollment	2.21	0.68	2.34	0.88	
45	Improvement in Agriculture Economy	2.39	0.67	2.24	0.71	
46	Competent and Qualified Instructor	1.42	0.59	1.50	0.83	
48	Active and Effective Advisory Committee	2.39	0.67	2.39	0.73	
50	Good Quality SOEP/SAE Program	1.86	0.72	1.97	0.71	
53	Decrease in High School Graduation Requirements	2.38	0.76	2.71	0.73	0.01
54	Quality Agriculture curriculum and course offerings	1.50	0.60	1.74	0.80	
56	Adequate facilities, equipment, etc.	1.81	0.59	1.92	0.78	
58	Adequate Agriculture Budget	2.00	0.78	1.95	0.70	
60	Positive Image of FFA	1.41	0.67	1.68	0.66	
62	Class Sch. limits conflicts between ag and gen. ed.	1.46	0.55	1.92	0.67	0.01
64	Increase in number of periods in school day	2.21	0.93	2.42	0.72	
66	Parents positive image of ag as good career	1.69	0.75	1.68	0.78	

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
39	Negative image of Agriculture as Career Option	4.10	0.93	3.79	0.91	0.05
41	Poor Relationship between Ag Teacher/4-H Leader	3.76	0.92	3.74	0.80	
43	Decrease in Total School Enrollment	3.60	0.63	3.58	0.77	
44	Decline in Agriculture Economy	3.37	0.70	3.45	0.80	
47	Incompetent Agriculture Instructor	4.54	0.93	4.52	0.92	
49	Inactive/Ineffective Advisory Committee	3.45	0.59	3.73	0.56	0.05
51	Poor Quality SOEP/SAE Program	4.02	0.79	3.94	0.75	
52	Increased Graduation Requirements	3.95	1.02	3.53	0.83	0.05
55	Poor quality agriculture curriculum	4.30	0.85	4.07	1.00	
57	Inadequate facilities, equipment, materials	3.98	0.78	4.16	0.68	
59	Inadequate Agriculture Budget	3.88	0.97	4.05	0.77	
61	Negative FFA Image	4.44	0.81	4.11	0.76	0.05
63	Schedule Disregards conflicts between ag and gen. ed	4.27	0.90	3.95	0.77	
65	Decreasing Number Periods per day	3.86	1.03	3.63	0.91	
67	Parents negative image of ag as a good career	4.27	0.90	4.37	0.71	

Teachers n=43, Principals n=39

Appendix A-2.6 California Teachers vs. California Principals 1994
Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Positive Factors Increasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
38	Positive Image of Agriculture as Career Option	2.04	0.96	1.82	0.97	
40	Good Relationship between Ag Teacher/4-H Leader	2.26	0.83	2.30	0.81	
42	Increase in Total School Enrollment	2.01	0.68	2.18	0.77	
45	Improvement in Agriculture Economy	2.57	0.74	2.43	0.77	
46	Competent and Qualified Instructor	1.46	0.64	1.51	0.84	
48	Active and Effective Advisory Committee	2.33	0.80	2.21	0.55	
50	Good Quality SOEP/SAE Program	1.82	0.77	1.78	0.80	
53	Decrease in High School Graduation Requirements	2.13	0.84	2.55	1.12	0.05
54	Quality Agriculture curriculum and course offerings	1.57	0.54	1.36	0.49	
56	Adequate facilities, equipment, etc.	1.65	0.53	1.95	0.73	0.05
58	Adequate Agriculture Budget	1.67	0.57	1.99	0.66	0.05
60	Positive Image of FFA	1.27	0.50	1.42	0.60	
62	Class Sch. limits conflicts between ag and gen. ed.	1.48	0.50	1.78	0.82	0.05
64	Increase in number of periods in school day	1.74	0.72	1.94	0.96	
66	Parents positive image of ag as good career	1.56	0.59	1.58	0.60	

Negative Factors Decreasing Enrollment

Question Number	Variable	Teachers Mean	Teachers SD	Principals Mean	Principals SD	P Value
39	Negative image of Agriculture as Career Option	4.21	0.78	3.93	1.02	
41	Poor Relationship between Ag Teacher/4-H Leader	3.84	0.81	3.76	0.86	
43	Decrease in Total School Enrollment	3.61	0.82	3.64	0.96	
44	Decline in Agriculture Economy	3.49	0.73	3.26	0.81	
47	Incompetent Agriculture Instructor	4.59	0.63	4.49	0.90	
49	Inactive/Ineffective Advisory Committee	3.55	0.71	3.86	0.72	
51	Poor Quality SOEP/SAE Program	4.02	0.70	4.14	0.83	
52	Increased Graduation Requirements	4.15	1.15	3.68	1.14	0.05
55	Poor quality agriculture curriculum	4.37	0.62	4.45	0.65	
57	Inadequate facilities, equipment, materials	3.98	0.85	4.08	0.68	
59	Inadequate Agriculture Budget	4.26	0.59	3.97	0.55	0.05
61	Negative FFA Image	4.61	0.59	4.43	0.73	
63	Schedule Disregards conflicts between ag and gen. ed	4.46	0.60	4.18	0.77	
65	Decreasing Number Periods per day	4.38	0.73	4.18	0.80	
67	Parents negative image of ag as a good career	4.49	0.71	4.24	1.00	

Teachers n=42, Principals n=40

Appendix A-3.1 Oregon Teachers vs. California Teachers 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Question Number	Positive Factors Increasing Enrollment	Oregon Teachers Mean	Oregon Teachers SD	California Teachers Mean	California Teachers SD	P Value
47	Positive Image of Agriculture as Career Option	1.87	1.05	1.87	0.98	
49	Good Relationship Ag Teacher/4-H Leader	2.07	0.80	2.22	0.93	
51	Increase in Total School Enrollment	2.29	0.82	1.97	0.80	0.05
54	Improvement in Agriculture Economy	2.04	0.64	2.22	0.72	
55	Competent and Qualified Instructor	1.59	0.83	1.36	0.67	
57	Active and Effective Advisory Committee	2.37	0.68	2.41	0.73	
59	Good Quality SOEP/SAE Program	1.85	0.73	1.94	0.80	
62	Decrease in High School Grad. Requirements	1.96	0.85	2.10	0.90	
63	Quality Ag. curriculum and course offerings	1.63	0.68	1.53	0.61	
65	Adequate facilities, equipment, etc.	1.83	0.74	1.64	0.62	
67	Adequate Agriculture Budget	1.89	0.74	1.69	0.63	
69	Positive Image of FFA	1.48	0.62	1.39	0.62	
71	Class Sch. limits conflicts between ag and gen. ed.	1.48	0.96	1.44	0.75	
73	Increase in number of periods in school day	1.78	0.95	1.77	0.85	

Question Number	Negative Factors Decreasing Enrollment	Oregon Teachers Mean	Oregon Teachers SD	California Teachers Mean	California Teachers SD	P Value
48	Negative image of Agriculture as Career Option	4.20	1.02	4.28	0.78	
50	Poor Relationship Ag Teacher/4-H Leader	3.78	0.97	3.85	0.89	
52	Decrease in Total School Enrollment	3.59	0.93	3.82	0.77	
53	Decline in Agriculture Economy	3.80	1.00	3.78	0.86	
56	Incompetent Agriculture Instructor	4.50	0.89	4.51	0.92	
58	Inactive/Ineffective Advisory Committee	3.67	0.74	3.72	0.75	
60	Poor Quality SOEP/SAE Program	3.78	0.95	3.99	0.88	
61	Increased Graduation Requirements	4.46	1.00	4.39	0.84	
64	Poor quality agriculture curriculum	4.27	0.86	4.43	0.63	
66	Inadequate facilities, equipment, materials	4.13	0.84	4.27	0.64	
68	Inadequate Agriculture Budget	4.04	0.85	4.17	0.75	
70	Negative FFA Image	4.44	0.84	4.53	0.63	
72	Schedule Disregards conflicts between ag and gen. ed	4.39	1.13	4.40	0.86	
74	Decreasing Number Periods per day	4.22	1.11	4.29	0.82	

Oregon Teacher n=42, California Teacher n=73

Appendix A-3.2 Oregon Teachers vs. California Teachers 1994 Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Question Number	Positive Factors Increasing Enrollment Variable	Oregon Teachers Mean	Oregon Teachers SD	California Teachers Mean	California Teachers SD	P Value
38	Positive Image of Agriculture as Career Option	1.95	0.88	2.04	0.96	
40	Good Relationship between Ag Teacher/4-H Leader	2.14	0.84	2.26	0.83	
42	Increase in Total School Enrollment	2.21	0.68	2.01	0.68	
45	Improvement in Agriculture Economy	2.39	0.67	2.57	0.74	
46	Competent and Qualified Instructor	1.42	0.59	1.46	0.64	
48	Active and Effective Advisory Committee	2.39	0.67	2.33	0.80	
50	Good Quality SOEP/SAE Program	1.86	0.72	1.82	0.77	
53	Decrease in High School Graduation Requirements	2.38	0.76	2.13	0.84	
54	Quality Agriculture curriculum and course offerings	1.50	0.60	1.57	0.54	
56	Adequate facilities, equipment, etc.	1.81	0.59	1.65	0.53	
58	Adequate Agriculture Budget	2.00	0.78	1.67	0.57	
60	Positive Image of FFA	1.41	0.67	1.27	0.50	
62	Class Sch. limits conflicts between ag and gen. ed.	1.46	0.55	1.48	0.50	
64	Increase in number of periods in school day	2.21	0.93	1.74	0.72	0.05
66	Parents positive image of ag as good career	1.69	0.75	1.56	0.59	
	Negative Factors Decreasing Enrollment	**Oregon Teachers**		**California Teachers**		
Question Number	Variable	Mean	SD	Mean	SD	P Value
39	Negative image of Agriculture as Career Option	4.10	0.93	4.21	0.78	
41	Poor Relationship between Ag Teacher/4-H Leader	3.76	0.92	3.84	0.81	
43	Decrease in Total School Enrollment	3.60	0.63	3.61	0.82	
44	Decline in Agriculture Economy	3.37	0.70	3.49	0.73	
47	Incompetent Agriculture Instructor	4.54	0.93	4.59	0.63	
49	Inactive/Ineffective Advisory Committee	3.45	0.59	3.55	0.71	
51	Poor Quality SOEP/SAE Program	4.02	0.79	4.02	0.70	
52	Increased Graduation Requirements	3.95	1.02	4.15	1.15	
55	Poor quality agriculture curriculum	4.30	0.85	4.37	0.62	
57	Inadequate facilities, equipment, materials	3.98	0.78	3.98	0.85	
59	Inadequate Agriculture Budget	3.88	0.97	4.26	0.59	
61	Negative FFA Image	4.44	0.81	4.61	0.59	
63	Schedule Disregards conflicts between ag and gen. ed	4.27	0.90	4.46	0.60	
65	Decreasing Number Periods per day	3.86	1.03	4.38	0.73	0.01
67	Parents negative image of ag as a good career	4.27	0.90	4.49	0.71	

Oregon Teachers n=43, California Teachers n=42

Appendix A-4.1 Oregon Principals vs. California Principals 1989 Factors Affecting Enrollment

Questions 47-74 Means, Standard Deviations, and P values

Question Number	Positive Factors Increasing Enrollment Variable	Oregon Principals Mean	Oregon Principals SD	California Principals Mean	California Principals SD	P Value
47	Positive Image of Agriculture as Career Option	1.97	1.02	2.19	0.90	
49	Good Relationship Ag Teacher/4-H Leader	2.32	0.91	2.20	0.80	
51	Increase in Total School Enrollment	2.31	0.90	2.27	0.82	
54	Improvement in Agriculture Economy	2.19	0.69	2.53	0.78	0.05
55	Competent and Qualified Instructor	1.36	0.82	1.18	0.38	
57	Active and Effective Advisory Committee	2.19	0.78	2.26	0.67	
59	Good Quality SOEP/SAE Program	2.30	0.85	1.95	0.70	0.05
62	Decrease in High School Grad. Requirements	2.34	0.87	2.29	0.80	
63	Quality Ag. curriculum and course offerings	1.59	0.70	1.53	0.60	
65	Adequate facilities, equipment, etc.	1.97	0.58	1.86	0.77	
67	Adequate Agriculture Budget	2.03	0.65	2.00	0.63	
69	Positive Image of FFA	1.67	0.74	1.61	0.67	
71	Class Sch. limits conflicts between ag and gen. ed.	1.77	0.59	1.72	0.67	
73	Increase in number of periods in school day	2.00	0.77	1.98	0.77	

Question Number	Negative Factors Decreasing Enrollment Variable	Oregon Principals Mean	Oregon Principals SD	California Principals Mean	California Principals SD	P Value
48	Negative image of Agriculture as Career Option	4.06	1.08	3.96	0.89	
50	Poor Relationship Ag Teacher/4-H Leader	3.78	1.07	3.91	0.82	
52	Decrease in Total School Enrollment	3.64	0.93	3.73	0.82	
53	Decline in Agriculture Economy	3.58	1.00	3.35	0.90	
56	Incompetent Agriculture Instructor	4.53	1.01	4.75	0.58	
58	Inactive/Ineffective Advisory Committee	3.58	0.87	3.74	0.72	
60	Poor Quality SOEP/SAE Program	3.75	0.92	3.98	0.70	
61	Increased Graduation Requirements	3.65	1.10	3.95	0.85	
64	Poor quality agriculture curriculum	4.16	1.11	4.49	0.60	
66	Inadequate facilities, equipment, materials	3.91	0.86	4.21	0.70	
68	Inadequate Agriculture Budget	3.82	1.01	4.04	0.65	
70	Negative FFA Image	4.09	0.96	4.33	0.66	
72	Class Sch. Disregards conflicts between ag and gen. e	3.97	1.06	4.26	0.67	
74	Decreasing Number Periods per day	3.87	1.04	4.18	0.80	

Oregon Principals n=32, California Principals n=61

Appendix A-4.2 Oregon Principals vs. California Principals 1994 Factors Affecting Enrollment

Questions 38-67 Means, Standard Deviations, and P values

Question Number	Positive Factors Increasing Enrollment	Oregon Principals Mean	Oregon Principals SD	California Principals Mean	California Principals SD	P Value
38	Positive Image of Agriculture as Career Option	1.97	0.82	1.82	0.97	
40	Good Relationship between Ag Teacher/4-H Leader	2.13	0.70	2.30	0.81	
42	Increase in Total School Enrollment	2.34	0.88	2.18	0.77	
45	Improvement in Agriculture Economy	2.24	0.71	2.43	0.77	
46	Competent and Qualified Instructor	1.50	0.83	1.51	0.84	
48	Active and Effective Advisory Committee	2.39	0.73	2.21	0.55	
50	Good Quality SOEP/SAE Program	1.97	0.71	1.78	0.80	
53	Decrease in High School Graduation Requirements	2.71	0.73	2.55	1.12	
54	Quality Agriculture curriculum and course offerings	1.74	0.80	1.36	0.49	0.05
56	Adequate facilities, equipment, etc.	1.92	0.78	1.95	0.73	
58	Adequate Agriculture Budget	1.95	0.70	1.99	0.66	
60	Positive Image of FFA	1.68	0.66	1.42	0.60	
62	Class Sch. limits conflicts between ag and gen. ed.	1.92	0.67	1.78	0.82	
64	Increase in number of periods in school day	2.42	0.72	1.94	0.96	0.01
66	Parents positive image of ag as good career	1.68	0.78	1.58	0.60	

Question Number	Negative Factors Decreasing Enrollment	Oregon Principals Mean	Oregon Principals SD	California Principals Mean	California Principals SD	P Value
39	Negative image of Agriculture as Career Option	3.79	0.91	3.93	1.02	
41	Poor Relationship between Ag Teacher/4-H Leader	3.74	0.80	3.76	0.86	
43	Decrease in Total School Enrollment	3.58	0.77	3.64	0.96	
44	Decline in Agriculture Economy	3.45	0.80	3.26	0.81	
47	Incompetent Agriculture Instructor	4.52	0.92	4.49	0.90	
49	Inactive/Ineffective Advisory Committee	3.73	0.56	3.86	0.72	
51	Poor Quality SOEP/SAE Program	3.94	0.75	4.14	0.83	
52	Increased Graduation Requirements	3.53	0.83	3.68	1.14	
55	Poor quality agriculture curriculum	4.07	1.00	4.45	0.65	
57	Inadequate facilities, equipment, materials	4.16	0.68	4.08	0.68	
59	Inadequate Agriculture Budget	4.05	0.77	3.97	0.55	
61	Negative FFA Image	4.11	0.76	4.43	0.73	0.05
63	Schedule Disregards conflicts between ag and gen. ed	3.95	0.77	4.18	0.77	
65	Decreasing Number Periods per day	3.63	0.91	4.18	0.80	0.01
67	Parents negative image of ag as a good career	4.37	0.71	4.24	1.00	

Oregon Principals n=39, California Principals n=40

Appendix A-5.1 Oregon and California Combined 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 13 Through 46

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
13	Class periods per day 85-89	0.11	1.11	0.13	1.10	
14	Total periods of Ag 85-89	0.04	4.07	-0.09	3.40	
16	Full Time Teaching Assignment	5.66	0.64	5.60	0.82	
17	Total number of Ag Teachers	1.63	1.20	1.68	1.14	
18	Non-Ag courses Ag Teachers teach	0.82	1.11	0.84	1.10	
19A	Ag Courses that meet Graduation Requirements	2.15	1.42	2.03	1.35	
19B	Ag Courses that meet College Entrance Requirements	0.28	0.68	0.24	0.55	
19C	Minimum Class Size	7.53	10.07	7.16	9.70	
19D	Minimum Class Size resulted in fewer Ag Courses	1.25	0.44	1.20	0.41	0.05
20	Communitie's Economic Base Agriculture	1.50	0.50	1.60	0.49	
21	Number Visits by Ag Ed Staff	1.40	1.60	1.38	1.45	
22	Visits by Ag Ed Staff increased?	1.92	0.64	2.03	0.53	
23A	Agriculture Department receives additional funds	1.87	0.34	1.86	0.35	
23B	Amount of funds increased ?	1.90	0.86	2.12	0.70	
23C	Additional funds % of Ag Budget	40.16	27.98	37.18	26.45	
24	Parents directi children away from agriculture	1.48	0.50	1.25	0.44	0.01
25	Placement of program completers in ag. occupations	1.80	0.64	1.88	0.60	
26	Placement of program completers in post-sec. inst.	2.37	0.71	2.00	0.70	0.01
27	Students feel agriculture a viable career option	1.39	0.49	1.36	0.48	
28	Percent students with SOEP/SAE	70.41	29.54	60.07	37.08	
29	Students receive credit for SOEP/SAE	1.69	0.47	1.49	0.50	0.01
30	Supervision of SOEP/SAE by whom	0.98	0.20	1.00	0.28	
31	SOEP/SAE supervision period assigned to ag teacher	1.37	0.49	1.37	0.51	
32	Plan/Prep periods assigned to instructor (not SOEP)	1.26	0.89	1.15	0.69	
33	Percent ag students w/SOEP/SAE Record Book	73.49	31.39	74.91	32.07	
34	Average on-site student supervision visits each year	2.99	3.59	5.00	18.96	
35A	Largest number of students in classroom	26.87	9.21	27.15	7.72	
35B	Largest number of students in ag shop	20.37	6.98	21.69	5.30	
35C	Largest number of students in Lab Facility	23.39	7.99	23.89	6.29	
36	Adequacy of Ag Budget	2.77	1.24	2.57	0.98	0.02
37	Instructor completed University Teacher Prep Program	1.94	0.23	1.97	0.16	
38	Instructor active in professional teacher organizations	1.85	0.32	1.93	0.23	0.03
39	Instructor updated technical and professional skills	1.98	0.11	1.95	0.20	
40	Number instructor updating activities in past 5 years	12.83	9.32	9.53	7.63	0.03
41	Total number of occupational experience hours	2458	5878	1187	4151	0.04
42	Quality rating Agriculture Advisory Committee	2.45	1.06	2.44	1.09	
43	Quality rating SOEP/SAE	2.60	0.92	2.34	1.08	0.05
44	Quality rating Agriculture Curriculum	2.06	0.85	2.05	0.87	
45	Quality rating facilities and equipment	2.15	0.98	2.02	0.90	
46	Quality rating FFA Program	1.86	0.90	1.86	0.97	
	Teachers n=115, Principals n=93					

Appendix A-5.2 Oregon 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 13 Through 46

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
13	Class periods per day 85-89	-0.02	0.36	-0.13	0.34	0.05
14	Total periods of Ag 85-89	-1.21	2.18	-1.17	1.54	
16	Full Time Teaching Assignment	5.81	1.11	5.91	1.16	
17	Total number of Ag Teachers	1.24	0.98	1.26	0.67	
18	Non-Ag courses Ag Teachers teach	0.91	1.11	1.04	1.29	
19A	Ag Courses that meet Graduation Requirements	1.86	1.53	1.58	1.32	
19B	Ag Courses that meet College Entrance Requirements	0.19	0.57	0.09	0.29	
19C	Minimum Class Size	4.84	7.57	4.29	6.54	
19D	Minimum Class Size resulted in fewer Ag Courses	1.20	0.50	1.10	0.44	
20	Communitie's Economic Base Agriculture	1.49	0.55	1.61	0.55	
21	Number Visits by Ag Ed Staff	0.70	1.17	0.57	0.82	
22	Visits by Ag Ed Staff increased?	1.79	0.65	1.84	0.58	
23A	Agriculture Department receives additional funds	1.68	0.52	1.67	0.53	
23B	Amount of funds increased ?	1.81	0.91	1.93	0.64	
23C	Additional funds % of Ag Budget	20.94	22.34	15.16	13.88	
24	Parents directi children away from agriculture	1.56	0.55	1.29	0.52	0.05
25	Placement of program completers in ag. occupations	1.71	0.68	1.66	0.64	
26	Placement of program completers in post-sec. inst.	2.17	0.80	1.82	0.76	
27	Students feel agriculture a viable career option	1.23	0.48	1.20	0.47	
28	Percent students with SOEP/SAE	63.32	32.38	45.90	39.81	
29	Students receive credit for SOEP/SAE	1.35	0.53	1.23	0.49	
30	Supervision of SOEP/SAE by whom	0.98	0.15	1.03	0.39	
31	SOEP/SAE supervision period assigned to ag teacher	1.23	0.48	1.15	0.51	
32	Plan/Prep periods assigned to instructor (not SOEP)	1.25	1.06	1.06	0.55	
33	Percent ag students w/SOEP/SAE Record Book	64.35	33.09	58.00	38.31	
34	Average on-site student supervision visits each year	3.49	5.11	7.96	28.45	
35A	Largest number of students in classroom	22.52	10.98	20.91	6.85	
35B	Largest number of students in ag shop	18.29	7.02	18.70	6.14	
35C	Largest number of students in Lab Facility	20.69	8.21	19.12	7.28	
36	Adequacy of Ag Budget	3.02	1.34	2.62	1.04	0.03
37	Instructor completed University Teacher Prep Program	1.90	0.36	1.91	0.38	
38	Instructor active in professional teacher organizations	1.77	0.46	1.84	0.45	
39	Instructor updated technical and professional skills	1.93	0.31	1.88	0.42	
40	Number instructor updating activities in past 5 years	10.80	9.72	6.38	5.21	
41	Total number of occupational experience hours	4110	8223	3727	7424	
42	Quality rating Agriculture Advisory Committee	2.56	1.06	2.69	1.33	
43	Quality rating SOEP/SAE	2.48	0.94	2.50	1.25	
44	Quality rating Agriculture Curriculum	2.29	0.89	2.48	0.97	
45	Quality rating facilities and equipment	2.39	1.04	2.06	1.06	
46	Quality rating FFA Program	2.07	0.83	1.97	0.93	
	Teachers n=42, Principals n=32					

Appendix A-5.3 California 1989 Program Evaluations

Individual Program Evaluations by Teachers and Principals Questions 13 Through 46

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
13	Class periods per day 85-89	0.19	1.36	0.28	1.35	
14	Total periods of Ag 85-89	0.76	4.71	0.55	4.00	
16	Full Time Teaching Assignment	5.46	0.57	5.29	0.82	0.01
17	Total number of Ag Teachers	1.88	1.29	1.92	1.31	
18	Non-Ag courses Ag Teachers teach	0.74	1.12	0.69	0.94	
19A	Ag Courses that meet Graduation Requirements	2.26	1.36	2.20	1.35	
19B	Ag Courses that meet College Entrance Requirements	0.31	0.72	0.31	0.62	
19C	Minimum Class Size	9.28	11.18	8.69	10.83	
19D	Minimum Class Size resulted in fewer Ag Courses	1.25	0.44	1.24	0.43	
20	Communitie's Economic Base Agriculture	1.48	0.50	1.56	0.50	
21	Number Visits by Ag Ed Staff	1.91	1.70	1.84	1.54	
22	Visits by Ag Ed Staff increased?	2.00	0.67	2.10	0.56	
23A	Agriculture Department receives additional funds	1.98	0.13	1.96	0.19	
23B	Amount of funds increased ?	1.93	0.87	2.18	0.78	
23C	Additional funds % of Ag Budget	51.43	25.01	49.12	24.25	
24	Parents directi children away from agriculture	1.40	0.49	1.21	0.41	
25	Placement of program completers in ag. occupations	1.83	0.64	2.00	0.60	
26	Placement of program completers in post-sec. inst.	2.49	0.67	2.09	0.70	0.01
27	Students feel agriculture a viable career option	1.50	0.50	1.44	0.50	
28	Percent students with SOEP/SAE	74.57	27.76	68.98	32.87	
29	Students receive credit for SOEP/SAE	1.91	0.29	1.66	0.48	0.01
30	Supervision of SOEP/SAE by whom	0.96	0.27	0.96	0.21	
31	SOEP/SAE supervision period assigned to ag teacher	1.46	0.50	1.49	0.51	
32	Plan/Prep periods assigned to instructor (not SOEP)	1.24	0.76	1.18	0.78	
33	Percent ag students w/SOEP/SAE Record Book	78.44	30.20	84.19	24.52	
34	Average on-site student supervision visits each year	2.57	1.71	2.57	1.80	
35A	Largest number of students in classroom	29.38	7.25	30.42	6.81	
35B	Largest number of students in ag shop	21.87	7.16	23.44	4.78	
35C	Largest number of students in Lab Facility	24.41	8.20	25.33	6.05	
36	Adequacy of Ag Budget	2.56	1.19	2.50	0.99	
37	Instructor completed University Teacher Prep Program	1.94	0.23	1.97	0.16	
38	Instructor active in professional teacher organizations	1.88	0.27	1.95	0.17	
39	Instructor updated technical and professional skills	1.97	0.11	1.96	0.16	
40	Number instructor updating activities in past 5 years	13.97	8.97	10.48	8.17	
41	Total number of occupational experience hours	1353	3228	210	668	0.01
42	Quality rating Agriculture Advisory Committee	2.35	1.09	2.24	0.93	
43	Quality rating SOEP/SAE	2.65	0.96	2.20	1.00	0.01
44	Quality rating Agriculture Curriculum	1.89	0.83	1.75	0.72	
45	Quality rating facilities and equipment	1.96	0.94	1.96	0.84	
46	Quality rating FFA Program	1.70	0.94	1.77	1.01	
	Teachers n=73, Principals n=61					

Appendix A-5.4 Oregon and California Combined 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 7 Through 40

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
7	Class periods per day 89-94	-0.12	1.30	-0.03	0.92	
8	Total periods of Ag 89-94	0.80	3.19	0.35	2.52	
9	Full Time Teaching Assignment	5.65	1.03	5.52	1.06	
10	Total number of Ag Teachers	1.63	1.12	1.62	0.99	
11	Non-Ag courses Ag Teachers teach	0.79	1.06	0.91	1.11	
12A	Ag Courses that meet Graduation Requirements	1.84	1.55	1.60	1.49	0.05
12B	Ag Courses that meet College Entrance Requirements	0.43	0.71	0.46	0.72	
13A	Minimum Class Size	1.48	0.50	1.64	0.48	
13B	Minimum Class Size resulted in fewer Ag Courses	1.31	0.47	1.26	0.45	
14	Communitie's Economic Base Agriculture	1.55	0.50	1.47	0.50	
15	Number Visits by Ag Ed Staff	1.76	1.90	1.77	1.88	
16	Visits by Ag Ed Staff increased?	2.05	0.61	2.00	0.56	
17A	Agriculture Department receives additional funds	1.79	0.41	1.82	0.39	0.04
17B	Amount of funds increased ?	1.96	0.77	2.23	0.78	
17C	Additional funds % of Ag Budget	43.47	33.04	37.77	34.40	
18	Parents direct children away from agriculture	1.38	0.49	1.16	0.37	0.01
19	Placement of program completers in ag. occupations	2.00	0.65	2.34	0.83	0.03
20	Placement of program completers in post-sec. inst.	1.61	0.65	2.31	0.89	0.01
21	Students feel agriculture a viable career option	1.55	0.50	1.56	0.50	
22	Percent students with SOEP/SAE	70.39	28.07	62.30	34.15	0.01
23	Students receive credit for SOEP/SAE	1.65	0.48	1.69	0.47	
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00	
25	SOEP/SAE supervision period assigned to ag teacher	1.32	0.47	1.27	0.45	
26	Plan/Prep periods assigned to instructor (not SOEP)	1.22	0.83	1.29	1.02	
27	Percent ag students w/SOEP/SAE Record Book	72.49	33.35	69.00	36.75	
28	Average on-site student supervision visits each year	6.89	17.28	15.02	49.37	
29A	Largest number of students in classroom	30.12	13.15	29.35	7.20	
29B	Largest number of students in ag shop	23.72	6.95	23.35	6.43	
29C	Largest number of students in Lab Facility	27.18	13.08	25.19	13.41	
30	Adequacy of Ag Budget	3.01	1.10	2.75	1.03	0.02
31	Instructor completed University Teacher Prep Program	1.92	0.26	1.97	0.15	
32	Instructor active in professional teacher organizations	1.92	0.24	1.97	0.24	
33	Instructor updated technical and professional skills	1.99	0.07	1.92	0.26	0.02
34	Number instructor updating activities in past 5 years	12.65	9.38	14.86	20.72	
35	Total number of occupational experience hours	12949	11959	9979	11944	
36	Quality rating Agriculture Advisory Committee	2.79	1.09	2.34	1.07	0.02
37	Quality rating SOEP/SAE	2.56	0.87	2.39	0.97	
38	Quality rating Agriculture Curriculum	1.99	0.77	1.98	0.83	
39	Quality rating facilities and equipment	2.31	0.85	2.22	0.80	
40	Quality rating FFA Program	1.90	0.93	1.84	0.82	
	Teachers n=85, Principals n=79					

Appendix A-5.5 Oregon 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 7 Through 40

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
7	Class periods per day 89-94	-0.44	1.27	-0.12	0.86	
8	Total periods of Ag 89-94	0.15	2.05	-0.48	1.59	
9	Full Time Teaching Assignment	5.90	0.98	5.84	1.10	
10	Total number of Ag Teachers	1.19	0.46	1.13	0.34	
11	Non-Ag courses Ag Teachers teach	0.91	1.08	0.96	1.20	
12A	Ag Courses that meet Graduation Requirements	1.20	1.44	1.03	1.33	
12B	Ag Courses that meet College Entrance Requirements	0.31	0.69	0.36	0.74	
13A	Minimum Class Size	1.69	0.47	1.75	0.44	
13B	Minimum Class Size resulted in fewer Ag Courses	1.30	0.47	1.17	0.38	
14	Communitie's Economic Base Agriculture	1.68	0.47	1.58	0.50	
15	Number Visits by Ag Ed Staff	1.64	2.30	1.70	2.50	
16	Visits by Ag Ed Staff increased?	2.11	0.58	2.07	0.57	
17A	Agriculture Department receives additional funds	1.69	0.47	1.73	0.45	
17B	Amount of funds increased ?	2.12	0.69	2.29	0.78	
17C	Additional funds % of Ag Budget	14.05	15.74	9.00	11.24	
18	Parents direct children away from agriculture	1.32	0.47	1.17	0.38	
19	Placement of program completers in ag. occupations	1.95	0.66	2.62	0.65	0.01
20	Placement of program completers in post-sec. inst.	1.74	0.64	2.40	0.85	0.01
21	Students feel agriculture a viable career option	1.45	0.50	1.53	0.51	
22	Percent students with SOEP/SAE	65.31	31.33	55.25	33.77	0.01
23	Students receive credit for SOEP/SAE	1.36	0.49	1.52	0.51	
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00	
25	SOEP/SAE supervision period assigned to ag teacher	1.08	0.27	1.06	0.24	
26	Plan/Prep periods assigned to instructor (not SOEP)	1.14	0.83	1.17	0.92	
27	Percent ag students w/SOEP/SAE Record Book	61.95	35.74	53.96	37.60	
28	Average on-site student supervision visits each year	3.93	10.00	3.30	4.26	
29A	Largest number of students in classroom	26.74	17.36	26.64	7.54	0.04
29B	Largest number of students in ag shop	21.86	7.70	21.07	6.72	
29C	Largest number of students in Lab Facility	24.15	7.80	21.50	7.40	
30	Adequacy of Ag Budget	3.07	1.12	2.91	1.01	
31	Instructor completed University Teacher Prep Program	1.88	0.33	1.97	0.16	
32	Instructor active in professional teacher organizations	1.93	0.26	2.01	0.30	
33	Instructor updated technical and professional skills	2.00	0.00	1.92	0.28	
34	Number instructor updating activities in past 5 years	11.13	8.88	17.11	26.83	
35	Total number of occupational experience hours	14189	13197	10753	14778	
36	Quality rating Agriculture Advisory Committee	3.13	1.13	2.60	1.17	0.03
37	Quality rating SOEP/SAE	2.69	0.92	2.57	0.98	
38	Quality rating Agriculture Curriculum	2.07	0.83	2.08	0.86	
39	Quality rating facilities and equipment	2.51	0.92	2.32	0.71	
40	Quality rating FFA Program	2.17	0.94	2.01	0.88	
	Teachers n=43, Principals n=39					

Appendix A-5.6 California 1994 Program Evaluations

Individual Program Evaluations by Teachers and Principals
Questions 7 Through 40

Question Number	VARIABLE	TEACHER Mean	TEACHER SD	PRINCIPAL Mean	PRINCIPAL SD	P Value
7	Class periods per day 89-94	0.19	1.26	0.05	0.97	
8	Total periods of Ag 89-94	1.43	3.93	1.09	2.95	
9	Full Time Teaching Assignment	5.39	1.02	5.21	0.92	
10	Total number of Ag Teachers	2.10	1.39	2.11	1.18	
11	Non-Ag courses Ag Teachers teach	0.67	1.03	0.86	1.01	0.04
12A	Ag Courses that meet Graduation Requirements	2.44	1.43	2.14	1.44	
12B	Ag Courses that meet College Entrance Requirements	0.54	0.71	0.54	0.70	
13A	Minimum Class Size	1.27	0.45	1.53	0.51	
13B	Minimum Class Size resulted in fewer Ag Courses	1.31	0.47	1.35	0.49	
14	Communitie's Economic Base Agriculture	1.43	0.50	1.34	0.48	
15	Number Visits by Ag Ed Staff	1.87	1.45	1.83	1.01	
16	Visits by Ag Ed Staff increased?	2.00	0.64	1.94	0.55	
17A	Agriculture Department receives additional funds	1.88	0.33	1.91	0.29	
17B	Amount of funds increased ?	1.83	0.81	2.16	0.78	
17C	Additional funds % of Ag Budget	61.13	27.65	59.64	29.52	
18	Parents direct children away from agriculture	1.44	0.50	1.15	0.36	0.01
19	Placement of program completers in ag. occupations	2.05	0.64	2.06	0.90	
20	Placement of program completers in post-sec. inst.	1.49	0.64	2.21	0.93	0.01
21	Students feel agriculture a viable career option	1.64	0.49	1.59	0.50	
22	Percent students with SOEP/SAE	75.46	23.70	69.36	33.64	
23	Students receive credit for SOEP/SAE	1.93	0.27	1.86	0.35	
24	Supervision of SOEP/SAE by whom	1.00	0.00	1.00	0.00	
25	SOEP/SAE supervision period assigned to ag teacher	1.53	0.51	1.50	0.51	
26	Plan/Prep periods assigned to instructor (not SOEP)	1.31	0.82	1.42	1.12	
27	Percent ag students w/SOEP/SAE Record Book	82.77	27.59	81.89	31.21	
28	Average on-site student supervision visits each year	9.93	22.20	24.94	65.91	
29A	Largest number of students in classroom	33.33	5.81	32.16	5.69	0.03
29B	Largest number of students in ag shop	26.03	5.10	26.21	4.79	
29C	Largest number of students in Lab Facility	29.90	16.12	28.89	16.84	
30	Adequacy of Ag Budget	2.94	1.09	2.61	1.04	0.03
31	Instructor completed University Teacher Prep Program	1.95	0.15	2.00	0.14	
32	Instructor active in professional teacher organizations	1.91	0.22	1.93	0.17	
33	Instructor updated technical and professional skills	1.98	0.10	1.91	0.25	
34	Number instructor updating activities in past 5 years	14.28	9.74	13.02	14.16	
35	Total number of occupational experience hours	11637	10526	9239	8701	
36	Quality rating Agriculture Advisory Committee	2.43	0.94	2.11	0.93	
37	Quality rating SOEP/SAE	2.43	0.80	2.24	0.95	
38	Quality rating Agriculture Curriculum	1.92	0.70	1.88	0.79	
39	Quality rating facilities and equipment	2.10	0.73	2.12	0.89	
40	Quality rating FFA Program	1.62	0.84	1.67	0.74	
	Teachers n=42, Principals n=40					

Appendix B

Survey Instruments

QUESTIONNAIRE

Factors Affecting Enrollment in High School Agriculture Programs

Please answer carefully and as accurately as possible. Thank You for taking time out of your busy schedule to fill out this survey questionnaire. All responses will be kept strictly confidential.

According to your perception as a high school agriculture instructor or principal, please answer the following questions for your particular school:

1. The total population of your school district. _____
2. The total number of students in your school district _____
3. Number of high schools serving this district. _____
4. Your individual school enrollment. _____
5. Your agriculture program enrollment. _____
6. Of the students enrolled in agriculture courses, what percentage are FFA members? _____

OVER THE PAST 5 YEARS, HOW HAVE THE FOLLOWING CHANGED FROM THE PREVIOUS YEAR?

I=INCREASE, D=DECREASE, S=REMAINED THE SAME, ?=DON'T KNOW

CIRCLE YOUR RESPONSE

	84/85 to 85/86 to	86/87 to	87/88 to	88/89 to 89/90	
7. Total school enrollment	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
8. Agriculture course enrollment	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
9. Students who enroll in agriculture courses who have no occupational objective in agriculture.	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
10. FFA membership	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
11. The number of disadvantaged and handicap students	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
12. The % of students in Agriculture who join FFA	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?	I-D-S-?
OVER THE PAST 5 YEARS;	85/86	86/87	87/88	88/89	89/90
13. How many class periods were available to the individual student each day.	_____	_____	_____	_____	_____
14. How many total periods of Agriculture Courses were taught each day?	_____	_____	_____	_____	_____

IN YOUR SCHOOL;

16. A full-time teaching assignment is how many periods per day? _____ PERIODS

17. What is the total number of teachers who teach at least one vocational agriculture course? _____ **TEACHER/S**

18. For your agriculture instructor/s, how many non-agriculture courses do they teach?

	Teacher/s 1	2	3	4
NUMBER OF COURSES *(0,1,2,etc.)*	_____	_____	_____	_____

19. If your agriculture courses meet graduation or college entrance requirements, outside of the agriculture elective area, please list the agriculture course and check the requirement that it fulfills.

AGRICULTURE COURSE/S (NAME/S)	**GRADUATION REQUIREMENT** (CHECK)	**COLLEGE ENTRANCE** (CHECK)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

19a. If your school has an established minimum class size, what is it, and, has it reduced the number of periods of agriculture offered ?

_____(#) **MINIMUM CLASS SIZE** _____**NO** MINIMUM CLASS SIZE

RESULTED IN FEWER AGRICULTURE COURSES ?*(CIRCLE)* **YES** **NO**

(CIRCLE YOUR BEST RESPONSE)

TO THE BEST OF YOUR KNOWLEDGE...

20. Is the economic base of your school district primarily agriculture?

YES **NO**

21. How many times has a State Agricultural Education Specialist/Regional Supervisor or Coordinator/University Agricultural Education Staff visited your school site or land laboratory in the past year?

_____**NUMBER OF VISITS**

22. Would you say that visits by State Agriculture Education Specialist/Regional Supervisor or Coordinator/University Agricultural Education Staff have increased, decreased or stayed the same in the past 5 years?

INCREASED____% **STAYED THE SAME** **DECREASED ____ %**

23. Does your Ag Department receive any funds in addition to basic school support in the form of grants (State Agriculture Education Incentive Grant, VEA funds, Basic Vocational Education Grant, etc.) for vocational programs?

YES, if yes__ **NO**

Has this changed in the past 5 years?

YES, increased **YES**, decreased **NO** CHANGE

AND, these additional funds represent approximately what percentage of the total agriculture budget? (excluding salaries)

_____**% of the Agriculture Budget**

(CIRCLE YOUR BEST RESPONSE)

24. Do you perceive that parents are directing their children away from agricultural careers primarily because of the recent economic crisis in agriculture?

YES **NO**

25. Has your placement of program completers (at least 2 years of agriculture instruction) directly in agricultural careers changed in the past 5 years?

YES	**YES**	**NO**
INCREASED PLACEMENT	DECREASED PLACEMENT	CHANGE

26. Has your placement of program completers into postsecondary institutions changed in the past 5 years?

YES	**YES**	**NO**
INCREASED PLACEMENT	DECREASED PLACEMENT	CHANGE

27. Do you perceive that most students' feel that agriculture is a viable career opportunity area?

YES **NO**

28. What percent of the students enrolled in agriculture have a documented supervised occupational experience program (SOEP/SAE)?

_____**PERCENT OF AGRICULTURE STUDENTS WITH SOEP**

29. Do students receive credit for SOEP/SAE?

YES, if so, describe__ **NO**

_____

30. Supervision of the students, engaged in SOEP/SAE, is primarily accomplished by whom:

_____

31. Is a SOEP/SAE supervision period assigned to the instructor's class day? (separate from preparation period)

YES **NO**

32. The average number of planning/preparation periods each instructor has: (separate from SOEP/SAE supervision period)

_____**NUMBER** OF PREPARATION PERIODS

33. What percentage of agriculture students maintain a SOEP/SAE record book?

_____**PERCENT** OF STUDENTS WITH RECORD BOOK

34. On the average, how many on-site supervision visits are accomplished each year for each student with an SOEP/SAE ?

_____**NUMBER** OF ON-SITE SUPERVISION VISITS PER YEAR

35. What is the largest number of students placed at one time, in the following ?

CLASSROOM _____ AG SHOP _____

LABORATORY FACILITY (greenhouse, animal or land lab)_____

36. On a scale of 1 to 5, rate the adequacy of the total budget for the agriculture program. **(CIRCLE THE RESPONSE)**

1——————2——————3——————4——————5

EXCELLENT ADEQUATE INADEQUATE

INSTRUCTOR QUALIFICATIONS AND COMPETENCE

The following are characteristics that have been determined to be indicators of a qualified and competent instructor. Please respond, as indicated, for each instructor:

	INSTRUCTOR/S			
	1ST	2ND	3RD	4TH
37. Instructor completed a University program of teacher preparation in agriculture **(YES/NO)**				
38. Instructor is actively involved in professional teacher organizations **(YES/NO)**				
39. Instructor has updated his/her technical and professional skills through a variety of activities including courses, workshops, industry inservice training/ employment, etc. **(YES/NO)**				
40. The number of updating activities accomplished in the past 5 years **(NUMBER OF ACTIVITIES)**				
41. Total number of hours of occupational experience past high school, other than teaching **(2000 hrs = 1 year)**				

The following statements describe the qualities or criteria of a good agriculture program. The list is not exhaustive, but the key indicators have been selected. On a scale of 1 to 5, rate how well the statement describes your Agriculture Program. 1 means that your Agriculture Program meets all the criteria, 5 means that your Agriculture Program meets none of the criteria.

AGRICULTURE ADVISORY COMMITTEE

The following statement describes the ideal Advisory Committee.

The members of the Agriculture Advisory Committee are representative of all areas of agriculture in the school's geographical area. The committee functions under written guidelines and is involved in curriculum review, course revision, planning and evaluation. The advisory committee meets 4 times a year and minutes are kept of each meeting and distributed to the local schoolboard and appropriate administrators.

42. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

SUPERVISED OCCUPATIONAL OR AGRICULTURAL EXPERIENCE PROGRAM (SOEP/SAE)

The following describes the ideal SOEP/SAE.

Each agriculture student has engaged in a supervised occupational or agricultural experience program. The agriculture instructor uses a plan to select and develop SOEP/SAE'S that are in agreement with the student's occupational objectives, long range goals, and place of residence. For each student enrolled in SOEP/SAE, there exists a formal training agreement. This agreement includes essential competencies and experiences that are to be acquired during the program. The instructor maintains a record of all SOEP/SAE activities.

43. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

This area left blank intentionally.

AGRICULTURE DEPARTMENT CURRICULUM

The following describes the ideal agriculture curriculum.

Programs of instruction in agriculture are based upon skills, knowledge, and attitudes required for successful employment in the occupations served by the program. Written courses of study for the agriculture program are reviewed annually by the teacher and the advisory committee, and are maintained in the department office. Units of instruction are developed that clearly state objectives, activities, and resources used during instruction. Units of instruction include student evaluation criteria which are appropriate to the instructional objectives. Objectives for the instructional program are based on industry validated competencies needed for entry and advancement in agricultural employment or preparation for further schooling.

44. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

FACILITIES AND EQUIPMENT

The following describes the ideal.

Each school conducting an agriculture program provides facilities, equipment, and supplies for effective operation of the program. The classroom, shop, and laboratory areas are maintained in an orderly, safe, and attractive condition. The facilities are arranged for effective teaching, classroom control and safety. If appropriate, a land laboratory exists and it is located adjacent to the school site. The equipment is modern and is comparable to that found in industry and is adequate to teach the principles necessary for employment or advanced schooling. Secure space is provided for the safe storage of all supplies and equipment.

45. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

FFA

The following describes the ideal FFA and it's relationship to the Agriculture Program.

All students enrolled in an agriculture course belong to and participate in FFA. FFA and leadership activities are an integral part of the instructional program. The FFA Chapter is involved at the local, sectional, district, regional, state and national level. The chapter Program of Activities is based upon the agriculture instructional program and provides for the specialized needs of all members.

46. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

PERCEPTIONS ON ENROLLMENT TRENDS

Vocational Agriculture course enrollments have significantly changed over the past 5 years. What causes these changes? Factors that influence an increase in enrollment may not be the same factors that influence a decrease in enrollment. In your opinion, how does each of the following factors influence enrollment in agriculture. Use the following scale:***(CIRCLE YOUR RESPONSE)***

1 = Contributes significantly to agriculture enrollment increase
2 = Contributes somewhat to agriculture enrollment increase
3 = Doesn't affect agriculture enrollment
4 = Contributes somewhat to agriculture enrollment decrease
5 = Contributes significantly to agriculture enrollment decrease

	contributes significantly to increase				contributes significantly to decrease
47. A positive image of agriculture as a viable career option.	1	2	3	4	5
48. A negative image of agriculture as a viable career option.	1	2	3	4	5
49. A good relationship between the Agriculture teacher/s and County 4-H Leaders.	1	2	3	4	5
50. A poor relationship between the Agriculture teacher/s and County 4-H Leaders.	1	2	3	4	5
51. An increase in total school enrollment	1	2	3	4	5
52. A decrease in total school enrollment	1	2	3	4	5
53. A decline in the agricultural economy	1	2	3	4	5
54. An improvement in the agricultural economy	1	2	3	4	5
55. Competent and qualified agriculture instructor(s)	1	2	3	4	5
56. Incompetent and unqualified agriculture instructor(s)	1	2	3	4	5
57. An active and effective advisory committee	1	2	3	4	5
58. An inactive or ineffective advisory committee .	1	2	3	4	5
59. Good quality Supervised Occupational Experience Programs (SOEP/SAE)	1	2	3	4	5

	contributes significantly to increase				contributes significantly to decrease
60. Poor quality Supervised Occupational Experience Programs (SOEP/SAE)	1	2	3	4	5
61. An increase in high school graduation requirements	1	2	3	4	5
62. A decrease in high school graduation requirements	1	2	3	4	5
63. Good quality agriculture curriculum and course offerings	1	2	3	4	5
64. Poor quality agriculture curriculum and course offerings	1	2	3	4	5
65. Adequate facilities, materials, equipment	1	2	3	4	5
66. Inadequate facilities, materials, equipment1	1	2	3	4	5
67. An adequate agriculture budget	1	2	3	4	5
68. An inadequate agriculture budget	1	2	3	4	5
69. A positive image of FFA in the Community	1	2	3	4	5
70. A negative image of FFA in the Community	1	2	3	4	5
71. A class schedule that is designed to eliminate conflicts between agriculture and graduation requirement courses.	1	2	3	4	5
72. A class schedule that disregards possible conflicts between agriculture and graduation requirements	1	2	3	4	5
73. An Increase in the number of periods in the school day	1	2	3	4	5
74. A decreasing in the number of periods in the school day	1	2	3	4	5

1994 QUESTIONNAIRE

Factors Affecting Enrollment in High School Agriculture Programs

Please answer carefully and as accurately as possible. Thank You for taking time out of your busy schedule to fill out this survey questionnaire. All responses will be kept strictly confidential.

According to your perception as a high school agriculture instructor or principal, please answer the following questions for your particular school:

OVER THE PAST 5 YEARS, HOW HAVE THE FOLLOWING CHANGED ?

I=INCREASE, D=DECREASE, S=REMAINED THE SAME, ?=DON'T KNOW

PLEASE CIRCLE YOUR RESPONSE

Overall Change From 88/89 to 93/94

1. Total school enrollment I---D---S---?
2. Agriculture course enrollment I---D---S---?
3. Students who enroll in agriculture courses who have no occupational objective in agriculture. I---D---S---?
4. FFA membership I---D---S---?
5. The number of disadvantaged and handicap students I---D---S---?
6. The % of students in Agriculture who join FFA I---D---S---?

   Of the students currently enrolled in agriculture courses, what percentage are FFA members? _____%

OVER THE PAST 5 YEARS;	89/90	90/91	91/92	92/93	93/94
7. How many class periods were available to the individual student each day.	_____	_____	_____	_____	_____
8. How many total periods of Agriculture Courses were taught each day?	_____	_____	_____	_____	_____

IN YOUR SCHOOL;

9. A full-time teaching assignment is how many periods per day? _____ PERIODS

10. What is the total number of teachers, in your school, who teach at least one agriculture course?

    _____ **TEACHER/S**

11. For your agriculture instructor/s, how many non-agriculture courses do they teach?

	Teacher/s 1	2	3	4
NUMBER OF COURSES ***(0,1,2,etc.)***	_____	_____	_____	_____

12. If your agriculture courses meet graduation or college entrance requirements, outside of the agriculture elective area, please list the agriculture course and check the requirement that it fulfills. (Life Science, Fine Arts, etc.)

AGRICULTURE COURSE/S (NAME/S)	**GRADUATION REQUIREMENT** (CHECK)	**COLLEGE ENTRANCE** (CHECK)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

13. If your school has an established minimum class size, what is it, and, has it reduced the number of periods of agriculture offered ?

_____(#) **MINIMUM CLASS SIZE** _____**NO** MINIMUM CLASS SIZE

RESULTED IN FEWER AGRICULTURE COURSES ?*(CIRCLE)* **YES** **NO**

(CIRCLE YOUR BEST RESPONSE)

TO THE BEST OF YOUR KNOWLEDGE...

14. Is the economic base of your school district primarily agriculture?

YES **NO**

15. How many times has a State Agricultural Education Specialist/Regional Supervisor or Coordinator/University Agricultural Education Staff visited your school site or land laboratory in the past year?

_____**NUMBER OF VISITS**

16. Would you say that visits by State Agriculture Education Specialist/Regional Supervisor or Coordinator/University Agricultural Education Staff have increased, decreased or stayed the same in the past 5 years?

INCREASED____% **STAYED THE SAME** **DECREASED ____ %**

17. Does your Ag Department receive any funds in addition to basic school support in the form of grants (State Agriculture Education Incentive Grant, VATEA Perkins Act funds, Basic Vocational Education Grant, etc.) for vocational programs?

YES, if yes__ **NO**

Has this changed in the past 5 years?

YES, increased **YES**, decreased **NO** CHANGE

AND, these additional funds represent approximately what percentage of the total agriculture budget? (excluding salaries)

_____**% of the Agriculture Budget**

(CIRCLE YOUR BEST RESPONSE)

18. Do you perceive that parents are directing their children away from agricultural careers primarily because of the recent economic conditions in agriculture?

YES **NO**

19. Has your placement of program completers (at least 2 years of agriculture instruction) directly in agricultural careers changed in the past 5 years?

YES	**YES**	**NO**
INCREASED PLACEMENT	DECREASED PLACEMENT	CHANGE

20. Has your placement of program completers into postsecondary institutions changed in the past 5 years?

YES	**YES**	**NO**
INCREASED PLACEMENT	DECREASED PLACEMENT	CHANGE

21. Do you perceive that most students' feel that agriculture is a viable career opportunity area?

YES **NO**

22. What percent of the students enrolled in agriculture have a documented supervised agricultural experience program (**SAE**) ?

_____**PERCENT OF AGRICULTURE STUDENTS WITH SAE**

23. Do students receive credit for SAE?

YES, if so, describe__ **NO**

_____

24. Supervision of the students, engaged in SAE, is primarily accomplished by whom:

_____

25. Is a SAE supervision period assigned to the instructor's class day? (separate from preparation period)

YES **NO**

26. The average number of planning/preparation periods each instructor has: (separate from SAE supervision period)

_____**NUMBER** OF PREPARATION PERIODS

27. What percentage of agriculture students maintain an SAE record book?

_____**PERCENT** OF STUDENTS WITH RECORD BOOK

28. On the average, how many on-site supervision visits are accomplished each year for each student with an SAE ?

_____**NUMBER** OF ON-SITE SUPERVISION VISITS PER YEAR

29. What is the largest number of students placed at one time, in the following ?

CLASSROOM _____ AG SHOP _____

LABORATORY FACILITY (greenhouse, animal or land lab)_____

30. On a scale of 1 to 5, rate the adequacy of the total budget for the agriculture program. **(CIRCLE THE RESPONSE)**

1——————**2**——————**3**——————**4**——————**5**
EXCELLENT ADEQUATE INADEQUATE

INSTRUCTOR QUALIFICATIONS AND COMPETENCE

The following are characteristics that have been determined to be indicators of a qualified and competent instructor. Please respond, as indicated, for each instructor:

	INSTRUCTOR/S			
	1ST	2ND	3RD	4TH
31. Instructor completed a University program of teacher preparation in agriculture **(YES/NO)**				
32. Instructor is actively involved in professional teacher organizations **(YES/NO)**				
33. Instructor has updated his/her technical and professional skills through a variety of activities including courses, workshops, industry inservice training/ employment, etc. **(YES/NO)**				
34. The number of updating activities accomplished in the past 5 years **(NUMBER OF ACTIVITIES)**				
35. Total number of hours of occupational experience past high school, other than teaching **(2000 hrs = 1 year)**				

The following statements describe the qualities or criteria of a good agriculture program. The list is not exhaustive, but the key indicators have been selected. On a scale of 1 to 5, rate how well the statement describes your Agriculture Program. 1 means that your Agriculture Program meets all the criteria, 5 means that your Agriculture Program meets none of the criteria.

AGRICULTURE ADVISORY COMMITTEE

The following statement describes the ideal Advisory Committee.

The members of the Agriculture Advisory Committee are representative of all areas of agriculture in the school's geographical area. The committee functions under written guidelines and is involved in curriculum review, course revision, planning and evaluation. The advisory committee meets 4 times a year and minutes are kept of each meeting and distributed to the local schoolboard and appropriate administrators.

36. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

SUPERVISED AGRICULTURAL EXPERIENCE PROGRAM (SAE)

The following describes the ideal SAE.

Each agriculture student has engaged in a supervised agricultural experience program. The agriculture instructor uses a plan to select and develop SAE'S that are in agreement with the student's occupational objectives, long range goals, and place of residence. For each student enrolled in SAE, there exists a formal training agreement. This agreement includes essential competencies and experiences that are to be acquired during the program. The instructor maintains a record of all SAE activities.

37. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

This area left blank intentionally.

AGRICULTURE DEPARTMENT CURRICULUM

The following describes the ideal agriculture curriculum.

Programs of instruction in agriculture are based upon skills, knowledge, and attitudes required for successful employment in the occupations served by the program. Written courses of study for the agriculture program are reviewed annually by the teacher and the advisory committee, and are maintained in the department office. Units of instruction are developed that clearly state objectives, activities, and resources used during instruction. Units of instruction include student evaluation criteria which are appropriate to the instructional objectives. Objectives for the instructional program are based on industry validated competencies needed for entry and advancement in agricultural employment or preparation for further schooling.

38. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

FACILITIES AND EQUIPMENT

The following describes the ideal.

Each school conducting an agriculture program provides facilities, equipment, and supplies for effective operation of the program. The classroom, shop, and laboratory areas are maintained in an orderly, safe, and attractive condition. The facilities are arranged for effective teaching, classroom control and safety. If appropriate, a land laboratory exists and it is located adjacent to the school site. The equipment is modern and is comparable to that found in industry and is adequate to teach the principles necessary for employment or advanced schooling. Secure space is provided for the safe storage of all supplies and equipment.

39. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

FFA

The following describes the ideal FFA and it's relationship to the Agriculture Program.

All students enrolled in an agriculture course belong to and participate in FFA. FFA and leadership activities are an integral part of the instructional program. The FFA Chapter is involved at the local, sectional, district, regional, state and national level. The chapter Program of Activities is based upon the agriculture instructional program and provides for the specialized needs of all members.

40. 1———2———3———4———5

MEETS ALL CRITERIA	MEETS HALF	MEETS NONE OF CRITERIA

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PERCEPTIONS ON ENROLLMENT TRENDS

Agriculture course enrollments have significantly changed over the past 5 years. What causes these changes? Factors that influence an increase in enrollment may not be the same factors that influence a decrease in enrollment. In your opinion, how does each of the following factors influence enrollment in agriculture. Use the following scale:***(CIRCLE YOUR RESPONSE)***

1 = Contributes significantly to agriculture enrollment increase
2 = Contributes somewhat to agriculture enrollment increase
3 = Doesn't affect agriculture enrollment
4 = Contributes somewhat to agriculture enrollment decrease
5 = Contributes significantly to agriculture enrollment decrease

	contributes significantly to increase				contributes significantly to decrease
38. A positive image of agriculture as a viable career option.	1	2	3	4	5
39. A negative image of agriculture as a viable career option.	1	2	3	4	5
40. A good relationship between the Agriculture teacher/s and County 4-H Leaders.	1	2	3	4	5
41. A poor relationship between the Agriculture teacher/s and County 4-H Leaders.	1	2	3	4	5
42. An increase in total school enrollment	1	2	3	4	5
43. A decrease in total school enrollment	1	2	3	4	5
44. A decline in the agricultural economy	1	2	3	4	5
45. An improvement in the agricultural economy	1	2	3	4	5
46. Competent and qualified agriculture instructor(s)	1	2	3	4	5
47. Incompetent and unqualified agriculture instructor(s)	1	2	3	4	5
48. An active and effective advisory committee	1	2	3	4	5
49. An inactive or ineffective advisory committee .	1	2	3	4	5
50. Good quality Agricultural Experience Program (SAE)	1	2	3	4	5
51. Poor quality Supervised Agricultural Experience Programs (SAE)	1	2	3	4	5

	contributes significantly to increase				contributes significantly to decrease
52. An increase in high school graduation requirements	1	2	3	4	5
53. A decrease in high school graduation requirements	1	2	3	4	5
54. Good quality agriculture curriculum and course offerings	1	2	3	4	5
55. Poor quality agriculture curriculum and course offerings	1	2	3	4	5
56. Adequate facilities, materials, equipment	1	2	3	4	5
57. Inadequate facilities, materials, equipment1	1	2	3	4	5
58. An adequate agriculture budget	1	2	3	4	5
59. An inadequate agriculture budget	1	2	3	4	5
60. A positive image of FFA in the Community	1	2	3	4	5
61. A negative image of FFA in the Community	1	2	3	4	5
62. A class schedule that is designed to eliminate conflicts between agriculture and graduation requirement courses	1	2	3	4	5
63. A class schedule that disregards possible conflicts between agriculture and graduation requirements	1	2	3	4	5
64. An Increase in the number of periods in the school day	1	2	3	4	5
65. A decreasing in the number of periods in the school day	1	2	3	4	5
66. Parents' positive image of Agriculture as a career option for their children	1	2	3	4	5
67. Parents' negative image of Agriculture as a career option for their children	1	2	3	4	5

Appendix C

Standards for Agricultural Programs

Appendix C

Standards for Agricultural Programs

The following are program standards titles for Oregon and California. Questions were developed from the following lists of program standards developed by Oades and Deeds and the SB 187 Committee (1978, 1982). Since 1990 the California evaluation instrument has changed in format only.

Oregon Standards for Agricultural Programs

1. Qualified and Competent Instructor.

2. Functional written annual and long-range program plan based on community needs.

3. Selection of students based on occupational objectives in agriculture

4. Supervised occupational experience programs contribute to students occupational objectives

5. Adequate supervision of student occupational experience programs

6. Students are placed in the occupation for which they were trained, or further sub-baccalaureate training in the occupation

7. Training program operates continuously throughout the entire year

8. An advisory committee appointed in accord with established board of education policy, assists the instructor in planning, conducting, and evaluating the program

9. A budget is provided which is adequate to meet current and projected program needs.

10. Department records are maintained which are accurate, complete and up-to-date

11. Facilities of sufficient size, quality, and arrangement are provided to meet the instructional program needs

Oregon Standards for Agricultural Programs continued...

12. Active vocational student organization is provided to meet the needs, abilities, and interests of all students, as an integral part of the program

13. Program of sufficient duration and scope to allow students to develop adequate skills and knowledge

14. Sufficient instructional time is provided to meet the stated educational objectives of the vocational agriculture program

15. Program based on validated manpower needs assessment

16. Continuous review and evaluation of programs

17. Up-to-date instructional and reference library

18. Programs that provide for individual differences

19. Curriculum planned and organized

California Standards Titles

1. Establishment of an ongoing state advisory committee
2. Operational program standards for Vocational Education in Agriculture
3. Individual student career plan
4. Supervised occupational experience
5. Future Farmers of America
6. Graduate follow-up
7. Relevant instruction
8. Qualified teachers
9. Student teacher ratio
10. Full year employment
11. Providing for unique program expenses
12. Professional development
13. Facilities, equipment, and supplies
14. Advisory committees
15. Budget
16. Program management
17. Meeting proficiency standards

Appendix D

Schools Included in the Survey

Oregon High Schools Surveyed in the 1989 Study

Adrian High School	Adrian
Amity High School	Amity
Banks High School	Banks
Bonanza High School	Bonanza
Burnt River High School	Unity
Camas Valley High School	Camas Valley
Canby Union High School	Canby
Cascade Union High School	Turner
Central High School	Independence
Chiloquin High School	Chiloquin
Creswell High School	Creswell
Dayton High School	Dayton
Eagle Point High School	Eagle Point
Elkton High School	Elkton
Enterprise High School	Enterprise
Estacada Union High School	Estacada
Glencoe High School	Hillsboro
Hidden Valley High School	Grants Pass
Illinois Valley High School	Cave Junction
Jefferson High School	Jefferson
Joseph High School	Joseph
Lakeview High School	Lakeview
Lost River High School	Merrill
McKay High School	Salem
Myrtle Point High School	Myrtle Point
Newberg High School	Newberg
North Marion High School	Aurora
Nyssa High School	Nyssa
Oakland High School	Oakland
Ontario High School	Ontario
Paisley High School	Paisley
Perrydale High School	Amity
Phoenix High School	Phoenix
Rainier High School	Rainier
Riverside High School	Boardman
Rogue River High School	Rogue River
Roseburg High School	Roseburg
Sandy Union High School	Sandy
Scappoose High School	Scappoose
Sheridan High School	Sheridan
Sherman Union High School	Moro
Silverton Union High School	Silverton
St. Helens High School	St.Helens
St. Paul High School	St. Paul
Stanfield High School	Stanfield
Sutherlin High School	Sutherlin
Thurston High School	Springfield
Vale Union High School	Vale
Woodburn High School	Woodburn
Yamhill-Carlton High School	Yamhill

Oregon High Schools Surveyed in the 1994 Study

Adrian High School	Adrian
Amity High School	Amity
Banks High School	Banks
Bonanza High School	Bonanza
Burnt River High School	Unity
Canby Union High School	Canby
Creswell High School	Creswell
Dayton High School	Dayton
Eagle Point High School	Eagle Point
Elkton High School	Elkton
Enterprise High School	Enterprise
Estacada Union High School	Estacada
Glencoe High School	Hillsboro
Hidden Valley High School	Grants Pass
Illinois Valley High School	Cave Junction
Jefferson High School	Jefferson
Joseph High School	Joseph
Lakeview High School	Lakeview
Lost River High School	Merrill
McKay High School	Salem
Myrtle Point High School	Myrtle Point
Newberg High School	Newberg
North Marion High School	Aurora
Nyssa High School	Nyssa
Oakland High School	Oakland
Ontario High School	Ontario
Paisley High School	Paisley
Perrydale High School	Amity
Phoenix High School	Phoenix
Rainier High School	Rainier
Riverside High School	Boardman
Roseburg High School	Roseburg
Sandy Union High School	Sandy
Scappoose High School	Scappoose
Sheridan High School	Sheridan
Sherman Union High School	Moro
Silverton Union High School	Silverton
St. Paul High School	St. Paul
Stanfield High School	Stanfield
Sutherlin High School	Sutherlin
Vale Union High School	Vale
Woodburn High School	Woodburn
Yamhill-Carlton High School	Yamhill

California High Schools Surveyed in the 1989 Study

Abe Lincoln High School	San Jose
Alisal High School	Salinas
Anderson Valley Secondary	Boonville
Apple Valley High School	Apple Valley
Arcata Union High School	Arcata
Atwater High School	Atwater
Avenal High School	Avenal
Bakersfield High School	Bakersfield
Banning Senior High School	Wilmington
Big Valley High School	Bieber
Biggs High School	Biggs
Burney High School	Burney
Bret Harte Union High School	Altaville
Calexico High School	Calexico
Canoga Park High School	Canoga Park
Carson Senior High School	Carson
Casa Robles High School	Orangevale
Central High School	Fresno
Channel Islands High School	Oxnard
Chico Senior High School	Chico
Clovis High School	Clovis
Colton High School	Colton
Covina High School	Covina
Davis High School	Davis
Del Oro High School	Loomis
Delano High School	Delano
Don Lugo High School	Chino
Dos Palos High School	Dos Palos
East Bakersfield High School	Bakersfield
East Nicolaus U. High School	Trowbridge
East Union High School	Manteca
Eisenhower Senior High School	Rialto
El Molino High School	Forestville
Escalon High School	Escalon
Esparto High School	Esparto
Exeter High School	Exeter
Fallbrook Union High School	Fallbrook
Ferndale Union High School	Ferndale
Firebaugh High School	Firebaugh
Foothill High School	Pleasanton
Fowler High School	Fowler
Fresno High School	Fresno
Gilroy High School	Gilroy
Golden West High School	Visalia
Gonzales Union High School	Gonzales
Grace M. Davis High School	Modesto
Gustine High School	Gustine
Hanford High School	Hanford
Healdsburg Union High School	Healdsburg
Hemet High School	Hemet
Highland High School	Bakersfield

California High Schools Surveyed in the 1989 Study continued

Imperial High School	Imperial
Jefferson High School	Los Angeles
John A. Rowland High School	Rowland Heights
La Habra High School	La Habra
Leland High School	San Jose
Lincoln High School	Los Angeles
Lindhurst High School	Olivehurst
Live Oak High School	Morgan Hill
Livermore High School	Livermore
Luther Burbank High School	Sacramento
Madison High School	San Diego
Monache High School	Porterville
Norco Senior High School	Norco
North Hollywood High School	North Hollywood
North Salinas High School	Salinas
Nova High School	Redding
Orestimba High School	Newman
Oroville High School	Oroville
Placer High School	Auburn
Pliocene Ridge High School	North San Juan
Porterville High School	Porterville
Poway High School	Poway
Princeton High School	Princeton
Quincy Jr/Sr High School	Quincy
Ramona High School	Ramona
Righetti High School	Santa Maria
Ripon High School	Ripon
River City High School	West Sacramento
Riverdale High School	Riverdale
Roosevelt Senior High School	Los Angeles
San Jacinto High School	San Jacinto
San Luis High School	Los Banos
San Ramon Valley High School	Danville
Santa Rosa High School	Santa Rosa
Shafter High School	Shafter
Sonoma Valley High School	Sonoma
South High School	Bakersfield
South Fork High School	Miranda
Strathmore High School	Strathmore
Templeton High School	Templeton
Tomales High School	Tomales
Turlock High School	Turlock
Ukiah High School	Ukiah
Ulysses S. Grant High School	Van Nuys
Valencia High School	Placentia
Wasco High School	Wasco
West High School	Bakersfield
Wheatland High School	Wheatland
Yreka High School	Yreka

California High Schools Surveyed in the 1994 Study

Abe Lincoln High School	San Jose
Anderson Valley High School	Boonville
Arcata Union High School	Arcata
Atwater High School	Atwater
Avenal High School	Avenal
Biggs High School	Biggs
Canoga Park High School	Canoga Park
Carson Senior High School	Carson
Central High School	Fresno
Clovis High School	Clovis
Covina High School	Covina
Davis High School	Davis
Delano High School	Delano
Del Oro High School	Loomis
East Union High School	Manteca
El Molino High School	Forestville
Exeter High School	Exeter
Fallbrook Union High School	Fallbrook
Fowler High School	Fowler
Escalon High School	Escalon
Ferndale Union High School	Ferndale
Grace M. Davis High School	Modesto
Hanford High School	Hanford
Highland High School	Bakersfield
La Habra High School	La Habra
Lindhurst High School	Olivehurst
Live Oak High School	Morgan Hill
Livermore High School	Livermore
Norco High School	Norco
North Salinas High School	Salinas
Placer High School	Auburn
Quincy Jr/Sr High School	Quincy
Ramona High School	Ramona
Righetti High School	Santa Maria
Santa Rosa High School	Santa Rosa
Shafter High School	Shafter
Sonoma Valley High School	Sonoma
South High School	Bakersfield
Tomales High School	Tomales
Turlock High School	Turlock
Ukiah High School	Ukiah
Wasco High School	Wasco
Yreka High School	Yreka