

AN ABSTRACT OF THE THESIS OF

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The analysis of participation decisions in government commodity price support programs has become a difficult decision for many farmers. The programs have become more complex and are subject to constant change. Spreadsheet templates were designed for farmers to use to help determine participation decisions in future government commodity programs. The templates were tested using real financial and physical data from three Oregon wheat farms. The program analyzed was the 1985 Wheat Set-Aside program.

Prior micro level farm program analysis has traditionally been done by hand using some type of budget technique or by some type of mathematical programming. Both of these methods have either time or resource constraints. The advent of microcomputers and spreadsheets have allowed the combination of the best of both mathematical programming and hand budget techniques. Spreadsheets allow the construction of familiar hand budgets that can be quickly changed by using the spreadsheets capabilities of asking "What if ?" questions. The templates use the principles of coordinated financial statements and accounting as a foundation. Coordinated financial statements are

used because commodity programs have become complex and rules can change mid way through the crop year. Other templates using partial budgets are usually only for the analysis of a single program and under a single set of rules. The partial budget templates typically don't take into account income tax implications and cashflow consequences of the commodity program they model.

The templates use the spreadsheet Multiplan on the Digital Rainbow 100 microcomputer. The spreadsheet templates start the analysis from a financial statement and then proceed through income statements and tax template out of the program, and a income statement and tax template in the program. The templates conclude with a statement of changes in financial position for determining the effects on cashflow in and out of the program.

The program analyzed was to both determine participation decisions for three different types of farms and to test the templates ability of adapt to three completely different types of farms. The general result for all of the farms under the most likely price and yield combination indicated participation provided the highest net income. On the Willamette Valley farm where wheat is a small percentage of farm income it was always advantageous to participate. For the Columbia Plateau farm it was advantageous to participate in all but the highest expected price and yield combinations. For the Columbia Basin farm the decision was not clear, for medium and high yields and prices above approximately three dollars and sixty cents non participation provided higher net income.

Oregon Farm Models: A Spreadsheet Approach

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OREGON FARM MODELS: A SPREADSHEET APPROACH

I. INTRODUCTION

General Situation

Farm level decision making has become one of the most complex portions of modern production agriculture. Modern farming is filled with a large number of risks and uncontrollable factors. Successful managers focus on exercising their control over those factors that can be controlled. The decision to participate in various commodity stabilization programs is one of the factors managers can control.

The decision to participate in government programs is a difficult one at best. The correct strategy for each farmer is dependent on his or her situation. The operator's objectives, the level of debt on the farm, aversion to risk, and the mix of crops grown and other factors contribute to the uniqueness of each farming operation. The method to arrive at a decision on participation needs to be accurate and reflect the circumstances associated with that farm.

Oregon's farmers are not often taken into account when government programs are designed due to the difference in farm types

in the state and the small portion Oregon contributes to the total agricultural production of the United States. The United States Department of Agriculture designs most of the programs with Midwest agriculture in mind, and with the types of farms and situations found in the grain belt of the Midwest. They also design the examples to induce participation with Midwest conditions, it makes it very difficult for Oregon farmers to determine whether it is to their advantage to participate. Often the programs when they are announced are very complex and have many facets to them which need to be analyzed depending on the farmers situation.

The substantial changes in government agricultural programs have created a need to assess how these alterations will affect individual Oregon farmers. New agricultural policies are coming into effect at an ever increasing rate. For example the new Acreage-Set-Aside program and the 1983 Dairy Program. The reason for the increase in agricultural programs is the outcome of pre-existing programs which have resulted in cost over runs and tremendous government stockpiles of excess foodstuffs. These programs are not simple and because of their profound influence on farms they do not lend themselves to casual analysis. Time has also become an element in the decision process. Most programs are announced with short notice before compliance dates. For example, the 1984 Wheat Program was announced in September of 1983, while most wheat planted in Oregon are winter varieties planted in October. This is a very critical time for farm labor. Growers had approximately one month to make a decision whether to participate in the 1984 Wheat Program.

The rules also change in the middle of the program as shown by the rule changes announced three days before the sign-up deadline of February 28, 1984. The rule change was in regard to the amount of barley that could be planted on summer fallow ground. It left many farmers unable to determine which action was the most profitable to take.

The techniques for farm decision making have progressed along with the general improvement in agricultural productivity. As production agriculture has become more complex so have the tools of decision theory. Techniques currently exist to help farmers with decisions at the farm level such as whether to participate in a commodity program, but because of technique complexity farmers are rejecting the decision aids (Bristol 1981). The reason for this phenomenon has been that many new decision aids require extensive calculations and are complex, thus not useful to many producers. Extension agents and other advisors are unable to make individual recommendations to farmers due to budget constraints and insufficient knowledge of farmers managerial objectives and individual financial situations. This leaves farmers in a gap on determining participation decisions, they have to extrapolate from published examples to their own farms, and sometimes end up with less than satisfactory results.

Models of farm firm behavior were used extensively in the past for examining farm level decisions. During the 1950s and 1960s, models of firm behavior were used to help farmers cut costs and improve efficiency. Then, during the 1970s, the focus of modeling

research changed to macromodels reflecting the new concerns for national and international agricultural issues (Lee 1983).

Micromodeling is again proving useful for three specific needs: understanding responses of farmers to specific economic conditions and policy provisions, understanding the distributive effects of policy in question, and providing additional detail and behavioral responses not well specified in current macromodels.

A new technique of micromodeling has been developed for decision analysis. The development of the microcomputers and software has advanced the use of electronic spreadsheets. Electronic spreadsheets are software packages that allow the user to develop extensive interdependent relationships within the computer, then change one variable factor to see how it affects the other variables. These spreadsheets are used for many different purposes mostly in financial planning. They are now beginning to be used for other diverse purposes such as to model soil erosion (Wear and Gum 1984). The spreadsheets have become extremely popular because they are easy to use and comprehend.

Statement of the Problem

The specific problem addressed in this research is the construction of a generic spreadsheet template for the analysis of different government policies. The template model must be able to reflect different options open to farmers under each government program, yet have the ability to accurately reflect the differences

in Oregon farm structures. The template shall include the following: a balance sheet at the beginning; an income statement and an estimate of the income tax effects in the program; an income statement and an estimate of income tax effects out of the program; statement of cashflow in and out of the program; and a balance sheet at the end of the time period to show the effects in and out of the program. All of these statements must be financially interconnected to project the results of the program over the time period selected.

Partial budgets of most of the government programs have already been done. A partial budget of the P.I.K. program has been done to reflect conditions in Texas (Knutsen 1982). A partial budget for the dairy program has been developed by the Oregon State University Extension Service (Gamroth 1983). The spreadsheets have the capacity to link the partial budgets into a whole farm budget.

Objectives

The objective of developing any model is to better understand reality. The objective of this research is the same, to develop a computer micromodel to reflect the operational conduct of farm businesses. The basis of the micromodel will be the accounting model as presented by any introductory accounting or farm management textbook (James and Stoneberg 1982). The computer model will have the same qualities as the typical accounting model. It will have all of the financial statements interconnected and dependent on one another as required by accounting principles. The model when

completed will look like any financial report, but will have the ability to instantly reflect changes in one statement throughout the report.

The specific objective of this research is to build a generic spreadsheet template which, with appropriate modifications, will correctly forecast the likely financial consequences of most actions taken by farmers. The specific consequences to be forecast is the financial effects of participation versus non-participation of farmers in the 1985 Acreage Set-Aside program for wheat. The specific models to be developed to test the generic spreadsheet include:

1. Columbia High Plateau Dry Land Wheat Farm.
2. Columbia Basin Irrigated Farm.
3. Willamette Valley Mixed Vegetable and Wheat Farm.

These farm types were selected because they represent major wheat growing farm structures found in Oregon.

Procedures

The computer hardware to be used in this research is the Digital Rainbow 100. The spreadsheet software to be used is Multiplan. The format of the template will be based on the concept of coordinated financial statements. There will be a balance sheet to represent a starting financial position and then separate income statements to reflect participation and non-participation which will transfer to a statement of cash flow with a column for participation

and one for non-participation.

The main limitation of this approach is in the accuracy of the financial data to be inserted into the spreadsheet template. Farmers are notorious for not keeping accurate financial records, and for accurate forecasts the model is dependent on accurate records. The accounting model to be used has been developed by the accounting industry so that it will reflect the true financial position of any business. Given that the template is complete and has been tested for accuracy, it can be presumed to yield accurate predictions of the financial consequences of participation by farmers in various farm programs.

Upon completion of the templates and testing with a simple example, data from each one of the above farm types will be inserted into the templates for analysis. A basic recommendation for the participation decision will be made for each farm and sensitivity analysis will be done on the variables with the greatest uncertainty such as price and yield to determine the range of indecision for each farm. The range of indecision being the combination of price and yields where a decision about participation is not clear.

The real benefit of this approach is that it is readily understandable to those who comprehend accounting and budgeting principles. It gives a substantive answer that does not need significant interpretation by an expert. Simplicity is its greatest feature.

II. LITERATURE REVIEW AND THEORETIC FRAMEWORK

Micro Level Farm Program Analysis

Micro level farm analysis has been done since the turn of the twentieth century. Agricultural production analysis has developed as financial and economic tools have developed. The initial work was with simple budgets and the determination of parity prices for major crops during the period before World War One. This type of work continued during the time between the first and second world wars. Improvements in farm analysis continued as techniques of budgeting and economic analysis improved, but during this time American agriculture was still dominated by small self sufficient farms that did not require significant financial analysis. After the Second World War, increases in the size and mechinization of farms along with the constant surplus of agricultural products created problems. As a partial solution agricultural economists of the time continued with micromodeling to help farmers cut costs and improve effeciency. The quality of the micromodeling had increased substantially as farmers were starting to keep better records and to use some form of accounting.

The focus of micromodeling between the fifty's and sixty's changed to helping farmers and ranchers determine the best method for long term growth and complete financial management, instead of managing from year to year. Techniques of optimization such as linear programming started to occupy the largest segment of micromodeling

research. The focus continued to adapt to current needs of the times and started to take into account aggregate supply responses of the farmers and ranchers to forces outside their control. This led to the greatest change in agricultural modeling, from a micro focus to a macro focus during the seventies. This was facilitated by the tremendous increase in the availability of computers, the large increase in agricultural trade, and the United States new dominance in the world export markets. Models of current national and international conditions became the most popular for economists to pursue because of the perceived need to determine the United States new role in providing food to the world.

Micromodeling is again proving useful in today's current agricultural climate of reduced farm incomes and commodity surpluses. Micromodels help provide understanding of producers' likely responses to specific conditions and policy provisions. They also help in determining the likely distributive effects of a new policy, and they provide the details the macromodels alone cannot determine.

Current micromodeling being done is focused on determining the optimum actions producers should take on typical or hypothetical farms and ranches. An example of this is the FLIP-SIM model from Texas A&M (Richardson, Lemieux, & Nixon 1982). The FLIP-SIM model is being used for all sorts of problems being encountered on farms. Two applications of the model are to determine participation decisions in crop insurance and Agricultural Stabilization and Conservation Service (ASCS) disaster relief programs and to describe entry into farming and the control of assets by leasing and how this affects firm survival. This type of

modeling is good for describing how specific policy provisions will affect an optimal farm, but does not help specific producers make rational decisions given that their farms are probably not optimal farms. Many of the provisions of the policies can have significant effects on producers that are not readily apparent in the optimal farm situation.

A second type of model that is being used to determine participation decisions is analyzing the net benefits of participation using a normative risk model based on stochastic dominance theory (Kramer & Pope 1982). The authors state that their objective is to

"contribute to the understanding of the economic incentives facing a grower choosing to participate or not to participate in commodity programs by assessing the benefits (improved income or income stability) and cost (set-aside acreage)."

Again this is good for the policy analyst and for farmers to determine what characteristics of the programs can have the greatest effect on their farms, but this model does not address the needs of the individual farmer to determine his or her participation decision.

Micromodeling has not strictly been done with optimal farms or with large aggregations of farms as described above. McCarl et al. at Purdue University established a linear programming model for farmers to use individually to help them determine investment decisions and select a maximum net income cropping pattern. This involved 5000 producers on Midwest commercial grain farms, and was designed for use by farmers directly, with moderate help from farm management specialists. This program was very good for specific farmers with farms that fit into the model's parameters. The model was limited to corn, soybeans, silage,

double crop soybeans, and wheat. Those farms with significant amounts of livestock were not able to make use of the model as livestock was not in the L.P. matrix. For those farmers who did participate, it required attendance at a three day seminar for instruction and use of the model, filling out a 524 question questionnaire, and then getting interpretation of the results. This is a good model for those farmers who fit into the parameters, but for those farmers who have different crops it does not work. This type of model also takes a tremendous amount of expert time to develop and support, thus they are usually very expensive to support. For areas of the country such as the Pacific Northwest with the large number of different farm crops the development of this type of model would be prohibitive.

The last basic problem with the three types of modeling listed above is gaining producer confidence in the results. All of the models are excellent from a technical standpoint, but unless the user has a significant amount of training in operations research and economics, interpreting the results can be impossible. The majority of farmers find it difficult to make major financial decisions on investments or courses of action that will significantly effect their operations without complete understanding of exactly how the decision aids determined the correct course of action. From a producer's stand point this is one of the greatest limitations of most of the agricultural economic work being produced today. The application of the K.I.S.S. (Keep It Simple Stupid) principle should be a major consideration when designing and developing models for use by those who are not familiar with the model's construction.

Application of Microcomputers

The use of microcomputers has mushroomed since the introduction of the Apple computer in 1977. The first uses of the microcomputer were for entertainment and for people with experience in programming larger mini and mainframe computers. The first wide spread business use of microcomputers started with the advent of Visi-Calc, the first spreadsheet software. Microcomputers continued to improve and increase in their application to small business. Word processing software was developed that allowed the users to transform their microcomputers to word processors negating the need to have stand alone word processors. Data base software was adapted to the microcomputer and has been the basis of many other more refined software programs such as accounting systems for small businesses.

The three main types of software used in conjunction with microcomputers today is word processing, data base management, and spreadsheets. Each of these uses has many variations, but these three are the main types being taught and developed. Word processing software allows the microcomputer when linked to a printer to work as a electronic typewriter which can store text in a secondary memory. Text can be recalled from the secondary memory and displayed on a monitor for editing and then routed to a printer for printing a copy of the text on paper. Data base management is not new to computers, it has just been transformed from the mainframe computer to microcomputers. Data base management is just as the name implies, the manipulation of data or information. It can be as simple as a mailing list or as

complex as an accounting system.

Spreadsheets are a unique application, they did not exist before the advent of the microcomputer. Spreadsheets are the result of a programmer's frustration with the use of accountant's lined and ruled paper. The original idea behind the spreadsheet was to create a smart editor, but the result was that buyers of the software were more interested in using its forecasting capabilities. A spreadsheet is an aggregate of concurrently active cells organized into a rectangular array similar to a paper spreadsheet used by accountants. Each cell has a value rule specifying how its value is to be determined. Every time a value is changed anywhere in the spreadsheet, all values dependent on it are recomputed instantly and the new values are displayed.

The uses of microcomputers are not limited to the uses listed above, microcomputer uses are as unlimited as the owners imagination. Some of the other uses of microcomputers are planning (PERT/CPM), graphics, accessing remote computers, statistical analysis, and entertainment.

Applications to Agriculture

Primary microcomputer applications in agriculture today include accounting and spreadsheet purposes. Accounting has become a important use for the microcomputer because producers can adapt their general ledger to uses such as cost accounting which before the advent of microcomputers required extensive calculations and time. In today's

agricultural economic climate, it is advantageous that cost accounting be done to analyze the costs and returns from the various operations on most farms and ranches. For producers with large labor requirements, the advent of payroll accounting software has saved a tremendous amount of time involved with payrolls. This has only become possible on a large scale due to microcomputers and accounting software.

The application of spreadsheets is the most diversified use of microcomputers in production agriculture. The range of spreadsheet applications is unlimited. Some examples of current uses include; equipment scheduling, crop budgeting, break-even analysis, cash flow projections, loan analysis, control of strategic assets, land purchase alternatives, and government program analysis. Each of these applications can be explored further in Computers in Farming by Steven T. Sonka.

Marketing is another use of the microcomputer especially when spreadsheets are linked with graphic packages such as Lotus 1-2-3. Price histories on any commodity can be placed into the spreadsheet, and by linking with the graphics capabilities, charts and graphs can be produced for market analysis. Charts of daily price movements can be superimposed over five or ten day moving averages of price, or both. It is only limited by the time and expertise of the computer operator.

There are many scientific applications of microcomputers to agriculture as well, but they are beyond the scope of this thesis. The future applications to agriculture are unknown, again they are only as limited as the imaginations of farmers and ranchers and the companies that produce the micro-electronics.

Government Agricultural Programs and The Extension Service

The Extension Service has been involved with government agricultural programs since its inception. The Extension Service itself was the result of an agriculture program. The original intent of the Extension Service was to act as a liaison between the Land Grant Colleges, which were producing new scientific advances, and farmers and ranchers who were interested in applying the new technologies. They also received the task of being the liaison between the Department of Agriculture and the producers. The Extension Service was to interpret the guidelines of the Department of Agriculture and turn them into the practice of the farmers and ranchers. This arrangement worked very well until the perceived role of the Extension Service changed from being a consulting service for commercial producers to a service for the public at large. The current restricted budget has also curtailed the ability of the Extension Service to do individualized consulting.

In the past it was also much easier to advise producers because the commodity programs were simpler to interpret, and markets and prices were much more predictable. With today's diversified producers, complex government programs, and unpredictable markets it is almost an impossibility for the Extension Service to be expected to guide individual producers on participation decisions. This has left the Extension Service to produce examples of how the new programs will affect "typical producers". The problem is there are very few "typical producers". This problem has been relieved somewhat by the introduction of microcomputers and easy to use software.

The Extension Service has taken a lead roll in the development of microcomputers for agricultural use. The Extension Service see's the use of microcomputers and related technology as an explosion that has occured in recent years, and will continue for some time. The Extension Service, especially the farm management specialists, have started to develop software for use in management extension programs. There have been several catalogs of computer software produced by Land Grant Colleges and the Extension Services. For example Florida Extension circular 531 Updated Inventory of Agricultural Computer Programs Available for Extension Use.

These programs are in a large cross section of applications and programing languages. In the early stages of development the software was written in such languages as Fortran, Basic, and Pascal. This software included programs for the analysis of commodity programs such as "The analysis of participation in government crop programs". This program was written in Basic for the Tandy TRS-80 microcomputer by Dr. Ted Nelson from the University of Oklahoma. The problem with this type of programming is that it is very labor intensive, requires extensive training in its use, and is complex to develop for universal applications. The software is made either with broad assumptions that limit usefulness or with restrictions that limit audiences. Then as the higher level application software such as Visi-Calc and dBASE II were developed "templates" of programs in the higher level languages were also developed. These higher level languages allowed "non-programers" to develop specialized microcomputer applications.

An example of this type of software is a template for the

analysis of 1984-85 Dairy Commodity Program (Gamroth 1983). The author is a dairy specialist with the Oregon State University Marion County Extension Service and not a formally trained computer programmer. It is a spreadsheet template for dairy producers to use in helping to determine the decision to participate in a government commodity program to reduce surplus milk. It was designed to be used in conjunction with a questionnaire that was to be sent to the Extension Office to be entered into the computer by the dairy agent. The agent would then contact the dairy producer and discuss the results. This can have problems such as the template does not exactly model the producers farm or the producer does not understand how the figures were calculated.

An example of a template developed for crop farmers is a template for determining participation in the 1982 Set-Aside program. This was written by the staff of AgriComp magazine and included in their March/April 1982 edition. The article includes a small section explaining the template and then gives a listing for each of the formulas that should appear in each cell of the template. The template itself is divided up into five different crops and asks the operator to fill in questions concerning the expected costs and returns associated with being in and out of the 1982 Set-Aside program. It was one of many different types of templates put together for the Set-Aside programs.

Both of the examples described above are templates that use the techniques of partial budgeting to determine the best course of action. Templates that use partial budgets have two main advantages, being usually faster and easier to put together than whole farm budgets. The

disadvantages, however, are that they do not take into account the complete financial position of the business operation. They often ignore any tax implications of the decision and cashflow changes that occur. A second problem area with partial budget templates is that they are often inflexible to any changes that might occur in the enterprise being analyzed. For example the changes in the 1984 Wheat Set-Aside program as it affected dry land wheat farmers in Eastern Oregon.

Federal Agricultural Commodity Programs

Federal agricultural commodity programs have been an attempt by the government to improve the incomes of farmers that have traditionally lagged behind those of nonfarm families. Other stated objectives of the agriculture programs have been to provide steady supplies of commodities to consumers at a reasonable cost. The situation the government most often finds itself in is an oversupply of commodities and insufficient farm incomes. This is the result of many factors but primarily due to the drive by producers to become more efficient, to increase margins which results in the aggregate the growth in commodity supply is greater than the growth in demand. Thus the purpose of most of the agricultural policies is to control the commodity supply and to create minimum commodity price for farmers.

Agricultural commodity programs originated out of the agricultural depression of 1920 to 1922 and started with the concept of parity. This is the comparison of farm prices to nonfarm prices and

the equality between agriculture and the rest of society. This comparison led to price supports for the major agricultural commodities such as wheat, corn, and dairy products among others. Parity was the dominant factor in determining agricultural commodity policy from the twenties until the Food and Agriculture Act of 1973. Parity was used for such things as setting loan levels, target prices, and release prices. The concept of parity only takes into account the changes in price levels and does not take into account the changes in technology. A replacement for parity was made in the 1973 act to take into account the changes in technology. The 1973 act uses the cost of commodity production as the determinant factor in setting price supports rather than parity. The cost of production method has continued to be the basis of current agricultural commodity programs. For a complete discussion of agricultural policy and commodity programs see The Economics of Farm and Food Policy by Ludwig M. Eisgruber.

The 1985 Wheat Program

The commodity program that will be used to test the templates in this thesis is the 1985 Wheat Program. The purpose of this commodity program is similar to most government commodity programs in the past. The goal is to reduce the current oversupply of wheat and to provide a price floor for producers. The basic premise is that if wheat producers will cut back on their wheat production the government will guarantee a minimum price. This program like most commodity programs is voluntary and entered into by specific consent of the producer.

The specific obligation of the producer to participate in the 1985 program is to set-aside thirty percent of the average of their 1983 and 1984 acres planted to wheat plus those acres considered planted to wheat, such as prior set-aside acres. The acres set-aside must be maintained in a conservation use, that is planted to a cover crop such as grass, peas, or tilled in such a manner to prevent erosion or weed growth. The land set-aside cannot be grazed or other wise used during the principal six month growing period.

The government's obligation to the producer for complying with the provisions of the program are three fold. First, the producer receives a two dollar and seventy cent per bushel paid diversion on ten percent of the producer's wheat base or one third of the acres put into conservation use. The number of bushels credited in the paid diversion program for each acre is based on the producer's proven yields, or by a committee of producers in the area based on the soil type and known skill of the grower. Therefore the paid diversion is determined by multiplying the proven yield by the diversion price per bushel by ten percent of the base acres.

The second provision of the program is the producer can obtain nonrecourse loans against all of the current production regardless of yield as soon as it is harvested. The loans have nine month terms and the producer must pay storage costs for the time period. The current national average loan rate is three dollars and thirty cents per bushel. The loan rate can vary by state and county. For example in Eastern Oregon the loan rate is three dollars and thirty cents per bushel. In Western Oregon the loan rate is three dollars and forty

nine cents per bushel.

The third provision is that producers receive in December following the harvest a deficiency payment based on the difference between the target price and the national average loan rate. The current target price is four dollars and thirty eight cents and the loan rate of three dollars and thirty cents thus leaves a deficiency payment of one dollar and eight cents. The exact payment is determined by multiplying the deficiency payment by the proven yield by the number of acres in actual production for the current year. The program also has the provision that the actual cash payment, deficiency payment plus paid diversion cannot exceed fifty thousand dollars per producer per year.

Theoretical Foundations

Decision Theory

The general section of micro-economic theory relevant to participation decisions is referred to as the "theory of the firm". Specifically, the decision to participate in a government program in the majority of cases is a profit maximization decision in a multi-product, multi-input case with some fixed inputs. The problem with the decision to participate in the majority of government agricultural programs is that partial participation is not allowed. The agricultural producer must declare full participation or no participation at all. One of the simplifying assumptions of the theory of the firm is that all inputs and outputs are infinitely divisible. The opportunity to participate in a government program is not infinitely divisible therefore the theory of the firm breaks down right from the beginning. If this were the only basic assumption that was violated then it could probably be ignored, but in the real world situations of most agricultural producers, all of the simplifying assumptions are violated. This requires another basis of theory to work from to determine the best decision given the decision makers objectives.

Decision theory is the section of micro-economics that best deals with the problems involving the choice between two or more specific actions. When there is no divisibility of actions to be taken, decision theory provides a method to reduce the subjective

nature of decisions. When the decision to be made becomes more complex than intuition alone can handle, the use of the payoff matrix is the technique of choice to break the decision down to workable levels.

The payoff matrix allows the user to break down each of the components of the decision into manageable parts. The idea behind the payoff matrix is that each of the possible outcomes is evaluated, and given the decision maker's objective, a strategy is selected. The first component when constructing a payoff matrix is the determination of alternative actions. In the case of this context it would be to participate or not participate in a specific government program. The second component of the payoff matrix is the events that determine the outcomes for each of the actions. Again in this context the events would be the price level and the yield of the crop involved in the decision. In this example there could be other events that could affect the outcome of each strategy, but for most crops price and yield are the two components with the greatest amount of uncertainty. The third component of the payoff matrix is the payoff or outcome associated with each action/event combination. In this context it is the net income after tax associated with being in the program at a particular price and yield combination.

<u>Events</u>	<u>Alternative Actions</u>	
	In program	Out of Program
A	\$ 250	\$ 300
B	\$ 275	\$ 275
C	\$ 300	\$ 250

Figure 2-1 Example of a Simple Payoff Matrix.

Figure 2-1 is an example of a simple payoff matrix in the context of this thesis. The two alternative actions are participation represented by the column "In Program" and not participating represented by the second column labeled "Out of Program". The events as represented by the letters A, B, and C can be thought of as a particular combination of price and yield. For example event "A" could be seventy bushel yield and a price of four dollars per bushel. The values within the table are the payoffs associated with each of the combinations. The payoffs are represented by the net income after taxes associated with each combination, but the payoffs can represent any quantity or unit that can be determined. These payoffs can be thought of as the results of the combination of events that are represented by the event and

action.

In the general case for any given decision there is usually a wide range of alternative actions that are possible. These would be listed across the top of the payoff matrix as S1 through Sn. Each of the listed actions or strategies should be carefully evaluated to eliminate those that are clearly unattractive or not feasible.

Selection of the significant events is just as important as determining the possible choices. Each of the events are listed down the side of the matrix and listed N1 through Ns. The determination of each event must take into consideration the possible bad events as well as the positive events. To determine what should be included, two factors need to be considered: (1) the possible impact or total magnitude of the effect that the event can have on the payoff and (2) the chance the event will occur. The selection of which events to include in the payoff matrix is a matter of judgement and computational help available. Each additional event will add (n) more payoffs that will have to be figured.

The events included in the payoff matrix must be organized in a particular way. For a logical analysis, the events must be combined so as to be mutually exclusive and collectively exhaustive. Mutually exclusive means that only one of the group of events can occur. For example in the thesis context yield can not be both seventy bushels per acre and one hundred bushels per acre. Collectively exhaustive means that the events listed in the payoff matrix include all of the possible outcomes. Again in the context of this thesis the possible price range would vary from 2.75 per bushel to 5.00 per bushel at 25

cent intervals. The price range from \$4.00 to \$5.00 should include \$4.25, \$4.50, and \$4.75. The size of the interval does not matter, but once the interval is selected all of the prices on the interval should be included.

After each of the alternative actions and possible events are determined, the next step is to determine the payoffs for each action/event combination. The determination of each of the outcomes can become a tedious task. Usually the payoffs are measured in monetary terms, although this is not necessary. The decision maker can use any measure which is consistent with the evaluation to be made. For example the criteria might include total production, leisure time, or some other measure consistent with the manager's objectives. To continue with the example each of the payoffs could be the profit or some other measure of financial success associated with being in or out of the government program at the price and yield listed.

The advantage to using the payoff matrix is that it provides a framework for specifying the various components of a decision. It breaks the decision down into those sections that can and cannot be controlled. The payoff matrix then determines the outcome of each of the combinations so that the decision maker can focus on the strategies that show the most promise according to the decision maker's objectives. The decision maker goes through essentially the same process whether or not the payoff matrix is used. Each alternative is evaluated and a decision is determined. The advantage to the payoff matrix is that each possible outcome is determined, reducing

the chance a possible outcome is overlooked.

Agricultural Firm Objective Function

Profit maximization is the most often assumed objective function of farmers and ranchers when economic research work is done. The observed objective functions of most farmers however is not profit maximization, but usually a series of objectives, or some undefined objective. Lin, Dean and Moore, in their article, "An Empirical Test of Utility Versus Profit Maximization in Agricultural Production", found that when tested, profit maximization was a poor indicator of an agricultural producers objective function. It was observed that agricultural producers are more risk adverse than what profit maximization would predict. From a theoretical point of view it is very difficult to model any other objective besides profit maximization. To avoid this difficulty it will be assumed that the rational decision on participation in a government program is made using the profit maximization objective. All of the techniques used in this thesis will allow for the use of other objectives besides profit maximization, but because any other objective is assumed to be partially irrational from an economists point of view they will be ignored.

Coordinated Financial Statements: Principles in Financial Analysis

To determine each of the possible outcomes in the payoff matrix

some method must be chosen to reflect the state of the farming enterprise given the action/event combination. Accounting and basic budget techniques give the best measure of the outcome of the action/event combination. Accounting is a universal language, it can be understood and the same meaning derived by the agricultural producer as by the banker or extension agent.

The purpose of accounting is to communicate financial information about an economic entity. The financial information provided by an accounting system is needed by agricultural decision makers to help them plan and control the activities of the agricultural firm. Financial information is also needed by others; owners, creditors, and the government, those people who have an interest in the financial position and operating results of the business.

For the accounting system to provide the needed financial information about a business enterprise it needs to be an orderly system that will keep track of the daily business transactions. It must then provide a means to summarize the individual transactions of the business into financial reports on the position of the business on a timely basis. Its basic requirements are to summarize most of the business activities into monetary terms. It must also be able to classify transactions and events into related groups or categories for the analysis of inter-related activities, for example the division of fuel purchased for a farm into different enterprises.

The accounting system for the manager operator of an agricultural enterprise should be the basis for any of the decisions

made effecting the business. It is the system where the manager can determine whether a profit has been made or a loss incurred. For consistent, good decisions a manager must have a dependable source of information pertaining to the decision. The source of this information should be the accounting system. The decisions made are only as good as the information that backs up the decision. Accounting can be the basis for evaluation of any financial alternative, the link between the operating enterprise and the action/event combination in the payoff matrix.

The accounting system should be the framework to hang business projections for the future. The lack of good financial records increases the variance of any projection. So much that a back of the hand guess with good records will most likely have a smaller variance than the most sophisticated linear programming model with poor records and data.

Production agriculture has traditionally had a poor history of keeping accurate financial records. Many producers kept their financial and production records in their head and checkbook. Today some producers have changed to modern computerized accrual accounting systems that conform to generally accepted accounting practices, but many producers especially small growers have not significantly improved their accounting and record keeping practices. Therefore, there needs to be a satisfactory system for smaller agricultural producers who use cash accounting to determine participation decisions that are equally useful to the more sophisticated producer with the computerized accounting system. This system currently exists

and is the Coordinated Financial Statements for Agriculture developed by T.L. Frey and D.A. Klinefelter. The system they have developed is to help farmers and ranchers with single entry cash accounting systems to gauge their financial performance each year by converting their cash records to an accrual income statement.

Coordinated Financial Statements for Agriculture

The coordinated set of financial statements utilizes both a modified cost and or current market bases for valuation of the assets. This allows the use of strict accrual system or a cash system to determine income or loss. It should be noted that the two systems should not be intermixed as it can lead to erroneous results. However, businesses that keep records on a cash basis can use the system of Coordinated Financial Statements to determine their income on an accrual bases. The term coordinated comes from the fact that each of the statements are linked together so that the condition and performance of the business can be determined looking at a single set of financial statements. The balance sheet reflects the initial position at the start of the fiscal year. The income statement and a statement of changes in financial position reflect the performance of the business during the fiscal year. The final statement is a closing balance sheet to show the condition of the business at the end of the fiscal year. This would be the beginning balance sheet for the next year. All of the statements have supporting schedules for more detailed description of the business. Those readers who are

interested in a more detailed description of coordinated financial statements should see the booklet by Frey and Klinefelter.

The following diagram shows the financial links and is a pictorial description of how the system works.

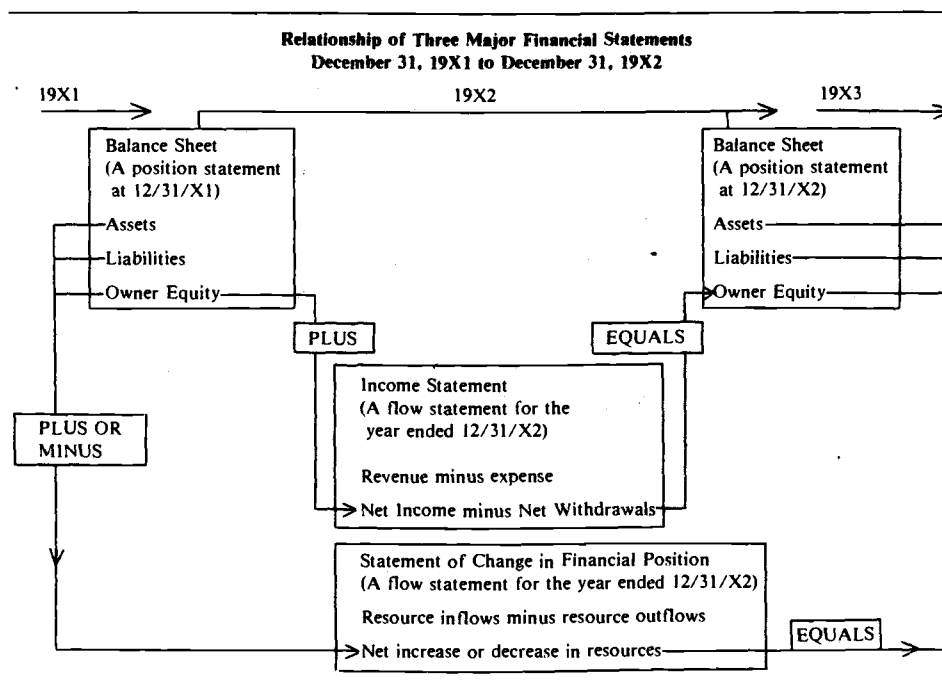


Figure 2-2 Relationship of Major Financial Statements. (Frey and Klinefelter)

From an initial position on the beginning balance sheet; to the income or loss from the income statement along with the changes in resources coming from the statement of changes in financial position.

The final position on the ending balance sheet is indicated. A detailed description of each statement is in the following paragraphs.

The balance sheet is a statement of the financial position of an economic entity at a moment in time. Assets, what the business owns or controls, minus liabilities or debts, equals owners equity or net worth of the economic entity. Each item in the balance sheet is identified and has a dollar value attached. The balance sheet represents the cumulative effect of the progress for the economic entity that it represents, but does not represent how the entity got to its current position.

The income statement is used to describe how the business performed during the business cycle. It totals all of the revenue of the economic entity and deducts the expenses incurred to generate the revenue leaving the net income for the business. The net income is more difficult to determine than the former sentence suggests, but this is the basic idea behind the income statement. The single greatest problem in identifying net income, is it income on a cash or an accrual basis? Is income recognized when it is earned or when the cash is received? Other problems exist in determining net income such as non-cash expenses like depreciation. These two issues are the subjects of complete chapters in accounting textbooks. For those readers who are interested in a more complete description of income statements and their components see any first year accounting textbook. (For example Accounting: The Basis for Business Decisions by Meigs and Meigs)

The statement of changes in financial position is the most complex of the three statements used in the coordinated financial statements. This statement has the least familiarity. Most individuals readily understand the balance sheet and the income statement, but the statement of changes in financial position has the least applicability to a working individual. It is also the newest statement that is required by the accounting industry. It was instituted as a requirement for annual reports in 1971. Previous to this time the same information was published under the title of Funds Flow or Sources and Applications of Funds.

The Statement of Changes in Financial Position essentially summarizes the appropriate transactions of the business for that year. It categorizes all of the transactions as to how they affect investment, operations and financing, both from an inflow and outflow position. The statement keeps track of the funds or cash position of the business and can be summarized by figure 2-3 below.

	<u>BUSINESS TRANSACTIONS</u>		
<u>Investment</u>	<u>Operations</u>	<u>Financing</u>	
Purchase of Assets	Revenues	Increase in Debt	
Sale of Assets	Expenses	Decrease in Debt	

Figure 2-3 Schematic of Statement of Changes in Financial Position. Those items on the top line are a source of funds and the bottom line is a use of funds.

The statement of changes in financial position keeps track of the sources and uses of the business's funds during the year. The definition of the funds is typically thought of as cash, but this statement is not limited to cash transactions. It also keeps track of other assets of the business. If one of the assets is traded for an expense item, this would show up on the statement of changes in financial position.

The central issue of the statement is an analysis of how business decisions have changed the balance sheet accounts. The net change of each account on the statement of changes of financial position shows how management decisions were translated into net changes in the balance sheet accounts. It provides more information than the balance sheet alone provides, and it gives the details of the managerial decisions behind the changes in the balance sheet.

The structure of the statement is so that the sources of funds equals the uses of funds. The typical sources of funds would include operations, gifts, inheritances, increase in paid in capital, funds generated by decreasing assets, and funds generated by increasing liabilities (new borrowings). The typical uses of funds (spendings) are net withdrawals, gifts, investments, and debt repayment.

The use of the statement of changes in financial position is divided into backward looking or analysis of past performance and forward looking or making projections for the future. The analysis of the past is to examine the initial position of the business and to determine how the business got to its current position. It gives an insight on how the business decisions were made and how the manager

can make decisions to repeat positive past performances and how to avoid previous mistakes. The analysis of the future can be on a pro-forma basis. This is to project how the business could perform in the future. When alternatives exist the pro forma statement can be used to determine how a proposed plan could be expected to affect the operation. Other possibilities exist to determine future feasibilities, especially when the implementation would take several years. Analysis of the future funds flow would indicate whether the project would allow the business to remain solvent.

The coordinated financial statement system is not a replacement for an accurate accounting system. It is, however an easily learned and understood method for evaluating the past performance of a business. It also provides a very good foundation for doing pro forma analysis of businesses in the future.

III. METHODOLOGY

Restaurant Napkins to Linear Programming

The current range of decision tools available to farmers and ranchers trying to make a major decision about their operation runs from using a pencil on the back of a napkin to a full scale linear programming model. Both ends of the scale have problems and difficulties from the average producer's point of view. The napkin is usually not large enough and not sophisticated enough to provide the basis for a solution which a producer can be comfortable. Linear programming is the ideal tool for most decision problems on farms, but can be difficult to interpret the results and leave the producer just as uncomfortable with the decision as when a solution was determined using a napkin. The choices available to agricultural producers are not limited to these two alternatives, but they do represent the range being used today in production agriculture.

The use of paper and pencil to establish a simple budget to make a decision on a farm operation is probably the most popular technique in production agriculture. It is usually simple and easy to interpret and satisfactory for simple problems. For larger and more complex decisions paper and pencil can take a tremendous amount of time and does not allow for any sensitivity analysis. Each variable is discrete and the value for the variable must be selected by using the best estimate available. It can also be very difficult

to analyze a particular decision using a pencil and paper because of the number of variables and alternatives open to the farmer. The first estimate because of time and resource constraints has to be the best estimate.

The other end of the range is the use of the computer and linear programming models to determine the best course of action for a farm decision. Linear programming is probably the best technique from a theoretical point of view. It allows all of the variables to be continuous and the computer selects the set of values for the variables that optimizes the objective function. The problem with this however is most agricultural producers do not have the training and time to develop a model of their operation. If the producer did have the training and equipment available, often the time and cost of modeling the farm is greater than the profit potential from the decision at hand. This leads to agricultural producers taking their best hunch. In today's agricultural economic climate most producers cannot afford to be guessing.

The alternative to this situation is the use of the electronic spreadsheets coupled with microcomputers. The advent of spreadsheets was a completely new type of software for computers never developed on the earlier main frame computers. The spreadsheet allows the user to ask "What if ?" questions. It is a computer alternative to the napkin approach. The spreadsheet can be a very powerful tool for economic planning, because it allows the user to vary any of the values in the analysis. The spreadsheet allows the user to ask an infinite number of discrete "What if ?" questions. What if price

goes to this or yield is that? The electronic spreadsheet can instantly analyze these "What if? questions. It is between the paper and pencil approach and linear programming. It is easy to understand, but is a very powerful tool for making economic decisions.

Selection of a Spreadsheet

The selection of a spreadsheet was done on the basis of the matching hardware and software being available to the author. The Oregon State University Department of Agricultural and Resource Economics had several choices available in both hardware and software. The major concerns were: budget, funds were not available for the purchase of new hardware or software; the adaptability of the templates to other users, (hardware and software compatibility); selecting a software package with which the author was familiar to minimize the time spent learning the spreadsheet; and choosing the spreadsheet with the sophistication required to perform the needed modeling.

The choices of hardware available were the Digital Equipment Company (DEC) Rainbow 100's, Apple Computer's Apple II+, International Business Machine's IBM PC or one of IBM's look alike. There were other computers available, but as the above models have become the most popular, the choices were limited to these for the reason of compatibility. The software packages considered were Visi-Calc, Multiplan, Supercalc, and Lotus 1-2-3. Each package had

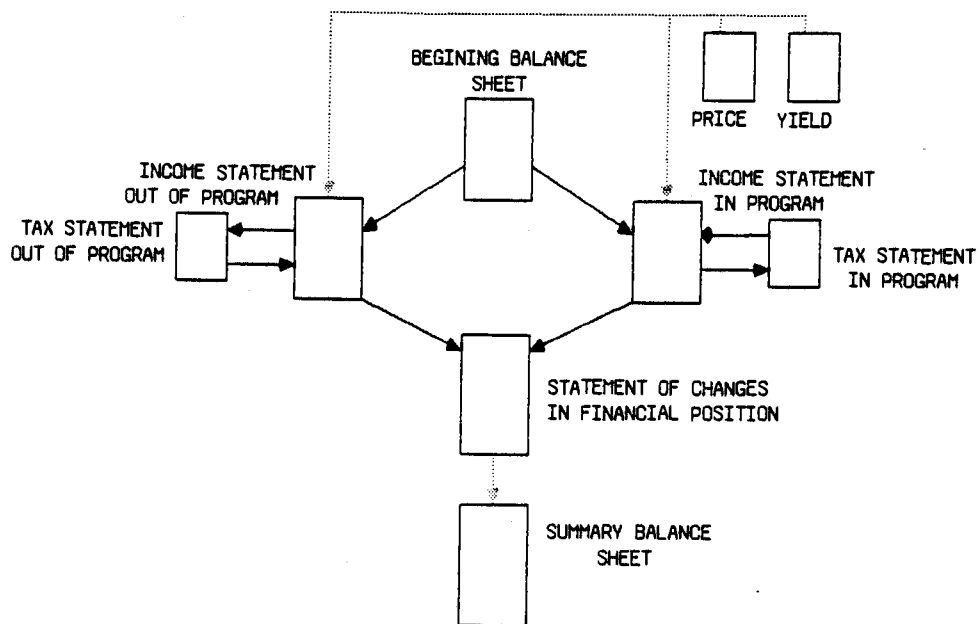
its own advantages and disadvantages. Visi-calc was the most readily available package and the one that has been on the market and available the longest. It did not, however have the power needed to perform all of the needed functions. Lotus 1-2-3 is the most advanced software package considered, and it is the ideal package from a theoretical point of view, but it would have been the most difficult package to learn. Additionally it is the spreadsheet most limited with regard to hardware available to the author. In the future Lotus's capabilities make it the choice for further work. Supercalc and Multiplan both were just about equal in power and both would be suitable software packages. They are both available for 8 bit and 16 bit machines and are widely used spreadsheet packages. The final decision was made to use Multiplan because the author has worked with Multiplan much more than with Supercalc.

The selection of Multiplan as the software implied the choice of the DEC Rainbow 100 as the choice for the hardware. The reason for this choice is that the IBM PC's require CP/M operating system chips to run Multiplan and this is not a very popular configuration of the IBM PC. The Apple II+'s were eliminated because they are older machines and are becoming out of date with respect to new software and research work. The DEC Rainbow 100's were the most readily available for the author's use.

Template Design

The design of the templates started with the beginning balance sheet and then proceeded through the process of being in or out of the program, and the conduct of business through the cycle of one year. The templates need to be easy to use and comprehend. The flow of the templates has to be the same flow as the farmers would follow when determining their budgets. Another factor was the requirement that the templates conform to the accounting model as understood by most farmers and other potential users of the templates.

There is a distinct tradeoff between the ease of use for one particular government program and the adaptability of the templates for any government program. It was the authors bias that the templates should be adaptable to any program. When tradeoffs occurred the choice was always adaptability first. The templates can be modified once a particular program is identified or a individual farmer selected. A schematic diagram of the templates is shown below. (Figure 3-1)



<u>Template Name</u>	<u>File Name</u>
Begining Balance Sheet	B:bbsheet
Triangular Distribution of Yield	B:yield
Triangular Distribution of Price	B:price
Income Statement Out of Program	B:outin
Income Statement In Program	B:inin
Tax Worksheet in the Program	B:intax
Tax Worksheet Out of Program	B:outtax
Statement of Cash Position	B:cashflow
<hr/>	
Summary Balance Sheet	B:sbsheet

Figure 3-1. Schematic Diagram of Templates and listing of linkages and table of file names associated with each template.

Each of the solid lines indicate a formal linkage between the spreadsheets. Multiplan allows one spreadsheet to be dependent on

another. Entire networks of spreadsheet templates can become interconnected. The value represented in the designated cell is automatically transferred to the dependent template when the new template is loaded into the computer. Each of the links have an unlimited number of values that can be carried by that link. Multiplan does not restrict the data to be transferred to only one cell. The number of cells that are linked from template to template range from 1 to 18 cells. The dashed lines indicate informal linkage. The linkage is important, however, the numbers must be transferred between the templates manually, that is, recorded from one template and then put into the dependent template by the operator. In this case the computer will not do the linkage automatically. The only two informal linkages are the values for the triangular distribution of price and yield. The reason for the informal linkages instead of formal linkages is the linked cell in the dependent template becomes locked. The price and yield data could not be changed in the income statements without first going back to the price and yield templates. For a complete discussion of linkages and the rules for their use in Multiplan see the Multiplan Reference Manual pages 27-29 and 96-101. The manual gives a complete description of how linkages work and examples of simple external relationships.

Beginning Balance Sheet

The beginning balance sheet template has the same format as most balance sheets a farmer would fill out for an agricultural loan.

It is divided into three sections: current, intermediate, and long term assets and liabilities. The balance sheet is a fairly simple form to fill out. The operator must list all of the assets as well as the liabilities of the business enterprise. Suggestions of typical assets and liabilities are put into the template for ease of use and to help users put the financial information into the correct sections of the template. Each section of the template has a area for other assets or liabilities. The only formulas in this portion of the template are sums that total all of the liabilities and debts and formulas to determine net worth and debt to asset ratios for the information in the template.

A second page to this template is the schedule of debt repayments. This form is partially filled out by completing the liabilities section of the balance sheet portion of the template. The creditor and current balance appear automatically. The interest rate, term, and annual payment needs to be filled in by the user. The interest payment and payment totals are computed by the template. The summary values for interest and principal are determined by the template by adding the appropriate values in the upper portion of the template. This section of the template was included so that different levels of debt could be analyzed. It also gives the operator a listing of all debts and a schedule of what the level of debt is costing per year. In the appendix is a blank example of the form.

The balance sheet is not dependent on any of the other sheets. It does not have any sheets that feed data or values into the template. Information is fed from the beginning balance sheet to four

other sheets: income statement out-of-the program, income statement in-the-program, the cashflow statement, and the ending balance sheet. The data that are passed between sheets is both individual cells and ranges of cells. Multiplan transfers the data by naming each cell or range of cells to be linked between the spreadsheets. For example the cell that contains the date on the balance sheet is named "DATE" and then the date entered on the balance sheet appears on all of the templates. The Multiplan manual contains a complete explanation of how the "Name" command is used and its applications.

Income Statements

The two income statements are basically identical. The only difference is one reflects income as projected in the program and the other reflects income projected out of the program. The income statements are divided into three separate sections: income section, expense section, and a section for showing the gain or loss from the sale of capital items. At the top of the income statement appears the individual or farm name and the date entered on the beginning balance sheet. This is an example of one of the linkages and the type of information that can be brought forward onto a new spreadsheet.

The income section is broken into three subsections: crop income, livestock income, and other farm income. The crop income section is fairly straight forward. The crop name, number of acres, average yield, operators share, and price per unit received are

entered. The spreadsheet then figures total production, operator's share, a total gross income and a total number of acres in crop. The price and yield figures can be from the triangular distributions or the operators best estimate of price and yield.

The livestock sales section of the income statement is subdivided into two subsections. A section for the sales of natural increase livestock and capital livestock and a subsection to reflect the sale of livestock purchased for resale. The type of livestock is entered into the template along with a 1 for capital livestock, the number of animals, the average weight, and the average price received per pound. The spreadsheet then determines the average value per head, the capital sales and gross income values for that type of livestock. The subsection for livestock purchased for resale is just about the same except that it asks for the cost or basis of the animals and then determines the gross income by deducting the cost or basis. Totals are kept for the number of livestock sold, total pounds, capital sales, and gross income. The gross income and capital sales totals are then taken into account further down in the spreadsheet.

The third section is other farm income. Its purpose is to reflect any other income derived from the farming operation. Typically this would be some type of custom operation or government price support program. It is a fairly simple section. The operator fills in the type of income, the number of units, and the value per unit. The template then determines the gross income for that line. A small section of the other farm income is set aside for sales from

inventory. Typically this section would not be used as the templates assume all of the crops and livestock will be sold each year. The spreadsheet then totals up all of the subtotals from each subsection and presents a total farm sales at the bottom of the income section of the income statement.

The expense section of the income statement is very simple being divided into two sections: one for operating costs, and the second for fixed or non-cash expenses. The operating costs list the typical categories of farm operating expenses. The value of each is entered into the column on the right hand side of the screen. The values entered are totals for the farm for the year in the category listed. A method to subdivide the costs based on the crops would be very difficult to make applicable to all possible crops and programs. This is one of the areas where broad application took precedence over ease of use. The operating interest line is determined by the template from the current interest section of the beginning balance sheet. The total current interest is totaled and then brought forward by a linkage. The area below the operating interest is for other categories of operating costs that have not been listed. The spreadsheet then determines the total operating expenses which is used further down the spreadsheet.

The fixed or non-cash expense section is divided into five small subsections: depreciation, real estate taxes, insurance, interest costs and other fixed costs. The depreciation is divided into sections for machinery, breeding stock, irrigation equipment, buildings and other. These values must be determined by the user and

then entered into the templates. The real estate taxes and insurance categories are straight forward. The interest cost sections are determined by the spreadsheet itself. The intermediate and long term interest totals from the beginning balance sheet are linked to the intermediate and long term interest cells of the fixed costs section and appear when the template is loaded. The balance of the fixed or non-cash costs section is for other non-cash costs that have not been taken into account. A small section determines the total farm sales, the total costs, and the operating farm income.

The last subsection of the income statement is the income or loss associated with the sale of capital items. In each category of capital stock the template asks for the gross sales, and the cost or basis, and then determines the capital gain. The reason that capital income is separate from the operating income is due to the special treatment of capital gains on figuring the income tax liability.

The template then determines the total farm income by totaling all of the sources of income and deducting all of the expenses. The federal income tax is determined on a separate spreadsheet template and then linked to the income statement. To determine the net farm income after tax the operator must run through the income statement to arrive at the total farm income before taxes and then work through the income tax template and load the income statement template to determine the after tax income.

There are no complex formulas in the income statement. The only calculation done is addition and subtraction. The only complex formulas used in the income statement templates are "IF" statements

used for determining capital sales and for formatting reasons. In Multiplan if formulas are present in cells, but have no values, a zero appears. To make the templates more attractive extensive use of the "IF" statements were made so that even where formulas occur in the template a blank appears unless there is a value other than zero.

The linkages for the income statement come from the beginning balance sheet and the income tax worksheet corresponding to the income statement. The spreadsheet templates that are dependent on the income statement are the cashflow statement and the corresponding income tax template. The names used in the income statements and the corresponding areas are listed in the appendix.

Income Tax Worksheets

The income tax template is a worksheet to estimate the federal income tax effects on the farm operation in and out of the government program being evaluated. The income tax template is for individuals. Those filing as subchapter S farm corporations and subchapter C corporations would have to figure their tax liability by hand. The basis of the form is the 1040. It works through each section that has a major impact on the income tax liabilities of the operator and then gives a estimate based on the 1984 tax rates.

The initial section of the form asks the operator for the number of exemptions and the filing status. The filing status options are single, married, and married filing single. These options were chosen because they are the most popular. The other

filing option tax rates are variations of those listed. Someone with another filling status can get a reasonable estimate of their income tax liability using one of the filing options listed. The income section lists the various forms of income found on the IRS 1040. These values are entered by the operator. The farm income and farm capital gains are entered from associated income statement automatically when the current template is loaded. This is done by Multiplans linkage function. The adjustments to income as found on the 1040 are on the template and are deducted from the total income giving the adjusted gross income. The next section lists all of the itemized deductions as found on schedule A of form 1040. The correct standard deduction is selected based on the filing status choosen by the operator. The template selects the correct standard deduction and if the itemized deductions do not exceed the standard deduction then the template enters a zero for the adjusted deduction. The adjusted deduction is then subtracted from the adjusted gross income to give the income after deductions. The final adjustment to income is made by subtracting the adjustment for exemptions based on the number entered earlier in the spreadsheet. This then determines the taxable income.

The estimate of income tax liability is then made by the template based on the level of income and the filing status of the operator. Given the income tax liability the template asks for any tax credits that might be available and then determines another balance. The worksheet then figures the self employment tax for the operator based on the farm income and asks for any other taxes. The

template then determines the estimated total tax based on all of the information put into the spreadsheet. The only Multiplan names used in the income tax worksheet is tax for the cell in which the total tax figure resides. It is used to link the tax worksheet to the appropriate income statement. The income tax worksheet template is dependent only on the income statement.

Statement of Changes in Financial Position

The Statement of Changes in Financial Position is the summary sheet for the templates. It allows a direct comparison of participation vs non-participation. The statement shows the sources and uses of cash and then reflects a net change in cash position. The majority of the information on this template is determined earlier by the income statements and tax worksheets. It has the flexibility to take into account possible transactions that might take place during a year that are not otherwise taken into account earlier in the templates. Again, flexibility in the templates was emphasized so that the set of templates would be as useful as possible.

The Statement of Changes in Financial Position is divided into two sections, sources of cash and uses of cash. The sources of cash section is subdivided into four sections: operations, sale of non-current assets, increases in farm loans, and other. The operations section is determined by the spreadsheet from the income statement template. The only operator determined value is for other

non-cash expenses. The sale of non-current assets is also determined by the templates from the income statements. The increase in farm loans is completely determined by the operator. It was included again to reflect flexibility of the templates.

The uses of cash section of the Statement of Changes in Financial Position is divided into three subsections: non-current investment, repayment of debt, and non-farm withdrawals. The non-current investment is an area that is not determined by the templates and needs to be filled in by the operator depending on the situation. The repayment of debt is determined by the templates from the income statement and the beginning balance sheet. The non-farm withdrawal section is determined by the operator. Both sections are then totaled and the uses of cash are subtracted from the sources of cash to give the net changes in cash position.

Ending Balance Sheet

The ending balance sheet is included to make the set of templates complete. The analysis of the program begins and ends with a balance sheet. The problem in using the ending balance sheet is the conflict of cash accounting and accrual accounting. Most farmers when making participation decisions in government programs want to know the cash effects of the participation decision. The analysis by the accrual method does not always reflect the true cash position. For example the difference in the true rate of depreciation and the government allowed rates of depreciation. For this and other reasons

it is not recommended that the ending balance sheet be used as the final determinate of participation. The ending balance sheet is included in the set of templates but makes several simplifying assumptions such as the order debts are paid off. The assumptions are to complete the balance sheet and determine a net worth.

Triangular Distributions of Price and Yield

The last two templates that make up this set of spreadsheets used to determine participation decisions are accessory templates. They are not necessary for the use of the other templates. They are included because crop prices and crop yields can be the most difficult variables to estimate. These two variables can have the greatest effect on the final level of profit or loss for a farm operation. They are templates that help determine the probability of achieving a certain price or yield. The two templates are identical except for labels associated with each template. Below is a cursory description of how the templates work and how they are designed. For a description of triangular distributions see Nelson et al. Making Farm Decisions in a Risky World: A Guidebook.

The triangular distribution templates are divided into two sections the first being a simple sheet that asks for the most likely or mode value, lowest possible, and highest possible price or yields. The template then needs to know the price or yield graduations. The minimum graduations are already preset as default values. The template then gives the median price or yield given the numbers in

the template. The median value is the value of price or yield that indicates the middle of the distribution, that is half the area under the distribution curve is to either side of the median. It means that the probability that the price or yield will be greater than the value given is fifty percent and the probability that the price or yield will be less than the value given will be fifty percent. The second section gives a more detailed analysis of the probabilities associated with each level of price and yield. The first column gives the price or yield graduation. This is simply a breakdown of the price or yield at each graduation from the minimum to the maximum values. In the second column are values of X that are used only for calculation of the other values. The third column is the most useful for further examination. It lists the subjective probability of price or yield being greater than the price or yield on the row that the probability value is listed. The balance of the columns are used to figure intermediate values to determine the mean value of price or yield. .

Typical Oregon Farms: Assumptions and Economic Structure

Characteristics

The characteristics of a typical Oregon farm are very difficult to determine, it depends on the criteria of "typical". For the purposes of this thesis the typical Oregon farm will consist of a family of four, two parents and two children. The farm operation will be a single proprietorship owned and operated by the family. Each of the farms evaluated in the templates will be assumed to be of this structure. The assumed objective of each operation will be to maximize profit. It has been argued that the majority of agricultural producers are not profit maximizers, but this is not a question of this thesis.

The typical Oregon farm family will be placed in each of the farm types listed earlier and the decision to be analyzed will be to participate or not to participate in the 1984-85 Wheat Set-Aside Program given the actual financial data from farms in operation in each of the listed locations.

IV. RESULTS

Results of Changes in Price and Yield on Participation

Decisions for Example Farms

The testing of the templates ability to model characteristic Oregon farms was done by selecting three typical Oregon farms that regularly produce wheat. One farm from each of the following geographical areas was included; the Willamette Valley, the Columbia Basin, and the Columbia High Plateau. The government commodity program analyzed was the 1985 Wheat Program.

The data put into the templates were obtained from actual farms in each of these three areas. The managers of the operations provided the most recent financial and physical parameters of the farms. Some of the data have been changed to protect the identities of these farms. The changes made are not significant to the outcome of this research. Assumptions regarding the reduced costs from participation in the programs, the actual ASCS base acres, and established yields were made to provide data for accurate tests of the templates. All of the values selected were chosen to reflect, in the author's opinion the most realistic values given all of the other data associated with the particular farm. The expense cost reductions from being in the program were extrapolated by reducing each expense item associated with growing wheat by twenty five percent on a per crop basis. The requirement to participate is that wheat acreage be reduced by thirty percent, the twenty five percent

was arrived at by assuming the cost reduction would not be a direct thirty percent, but somewhat less than thirty percent. The actual values used do not make a significant difference to the outcome of this research as the research is not to test whether these individual farms should participate in the current commodity program, but it is to test the adaptability of the templates and the ability of the templates to determine the financial differences between being in the program or being out of the program. It should be clear however, that the examples are real farms and use the latest financial data as given by each farm manager.

For each of the farms is a listing of the templates with all of the data included for the most likely case of price and yield for wheat. These templates can be found in the Appendix. In each case the decision to participate could be made at any of a number of different points in the template. However, the decision point should be as early as possible in the flow through the templates to simplify the decision process. For example, the decision to participate or not to participate could be made at gross income, net income before taxes, net income after taxes, at net change in cash position, or at the change in net worth on the ending balance sheet. The actual point at which the choice is made has to be the decision makers, given the circumstances surrounding the decision. For this case the most appropriate value to use in arriving at a decision is the net income after taxes. To pursue it any further does not make sense because the decision to participate or not to participate given only price and yield changes will affect the net change in cash position

in the same absolute amount as the net income after tax.

For each of the farms a low, medium, and high yield were selected to be placed in the templates, and then the net income after tax was determined in the program and out of the program for each ten cent level of price change per bushel of wheat from three dollars to five dollars. This was then graphed to show which action would yield the highest income, being in or out of the program. The graphs are included under the sections for each farm.

Willamette Valley Farm

The Willamette Valley Farm is a large, highly diversified farm growing eleven different commodities with wheat being one of the major commodities. The operation farms its own land, approximately two thirds of the total and cash rents the balance. All of the farm can be irrigated from various sloughs or shallow wells. The farm has historically been a very profitable operation. The last few years, however, with depressed farm prices for the various commodities grown in the Willamette Valley it has had a depressed income. This situation will correct itself when commodity prices strengthen.

The results of the analysis for the Willamette Valley farm show that it is best to participate under all yields and at all price levels, (See figures 1, 2, and 3) given that all other yields and prices are constant. Whether all prices and yields would remain constant while wheat price and yield change is doubtful as those factors that affect wheat price and yield would probably affect other

commodities. However, this analysis at least gives an idea of the participation decision the farm manager has to make.

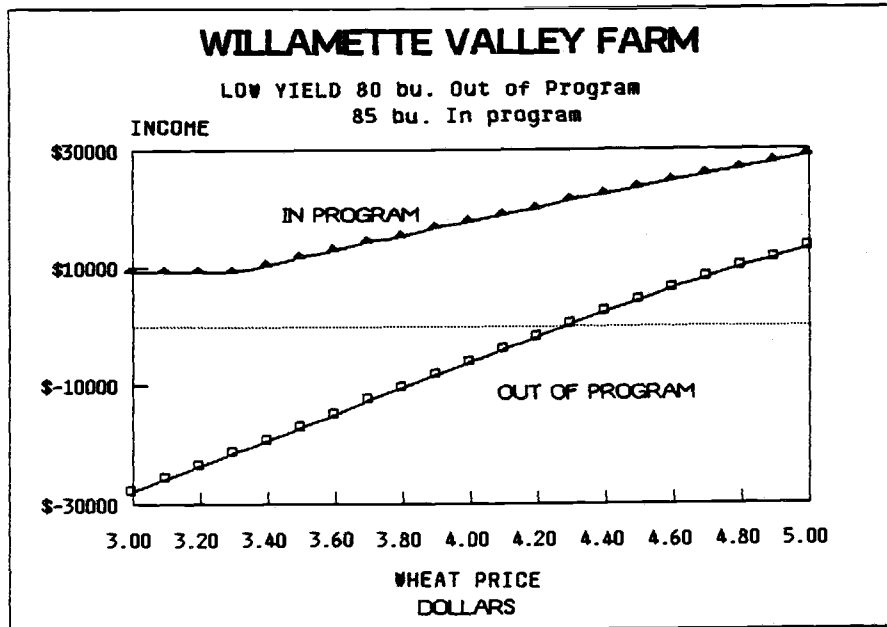


Figure 4-1. Willamette Valley Farm Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Low Yields

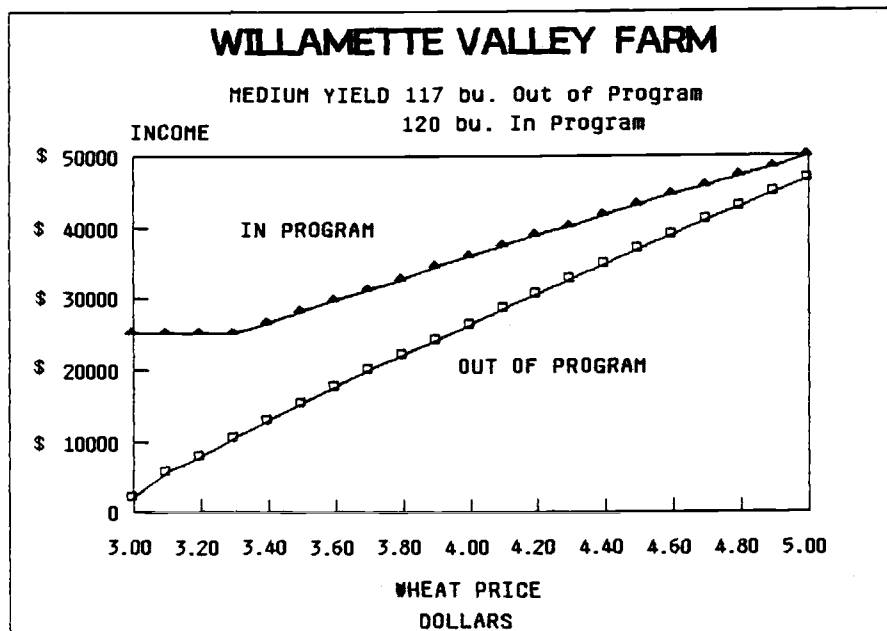


Figure 4-2. Willamette Valley Farm. Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Medium Yields

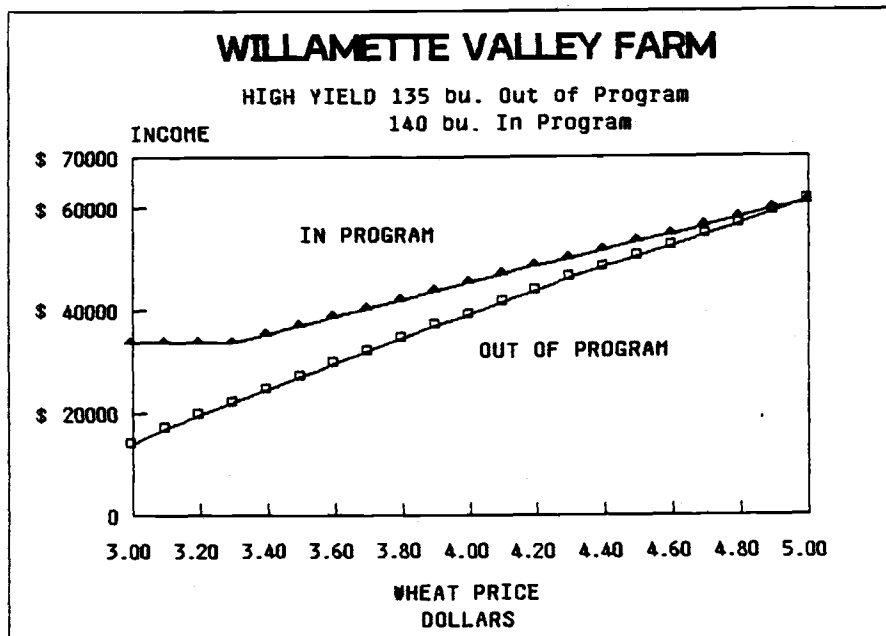


Figure 4-3. Willamette Valley Farm. Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. High Yields.

Columbia Basin Farm

The Columbia Basin farm is a large sized family operation irrigating wheat and alfalfa hay. The farm operation is split between two separate properties approximately thirty miles apart. Both properties are owned and no rented land is farmed. The source of irrigation water is from wells and must be lifted over one hundred feet at both locations. The farm was traditionally a dry land farm practicing a summer fallow wheat crop rotation. After irrigation became available alfalfa was started in a rotation with the wheat. The wheat is grown on an every other year basis and the irrigation is used to supplement the natural rainfall. This is done because of the limitation of water and the increased cost of electricity. The farm

has been a successful operation and should continue to be successful in the future. The only foreseeable problem is the availability of water and the cost of the electricity for pumps.

The results with this farm are more difficult to interpret (See figures 4, 5, and 6). A single recommendation on participation or non-participation is not possible as the answer is not clear cut. For the low yield the best choice would be to participate in the program. For the medium and high yields the choice is a more difficult one to make as it would depend on the expected price level received for the year's wheat crop. The result on this farm is much more sensitive to price and yield as wheat is a much more significant portion of farm income.

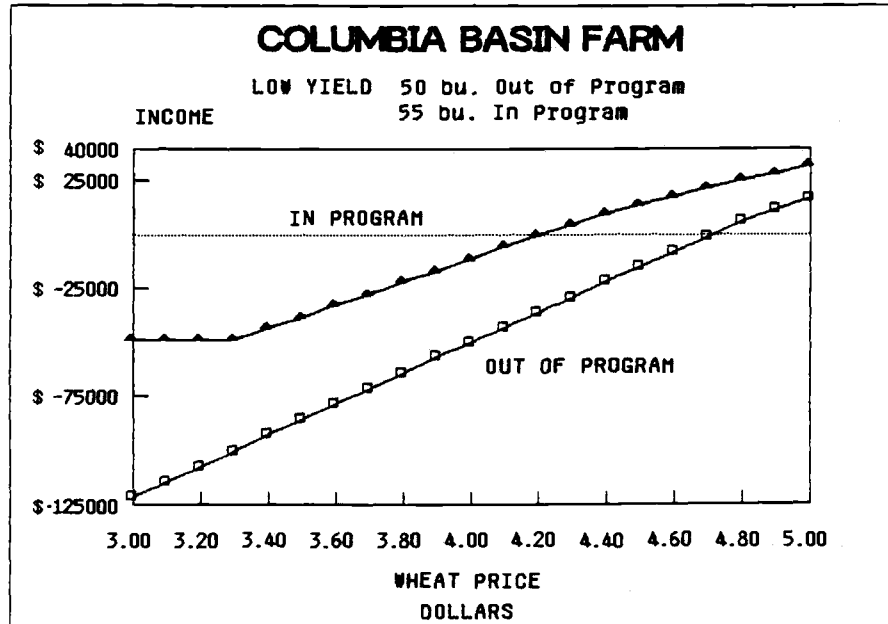


Figure 4-4. Columbia Basin Farm. Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Low Yields

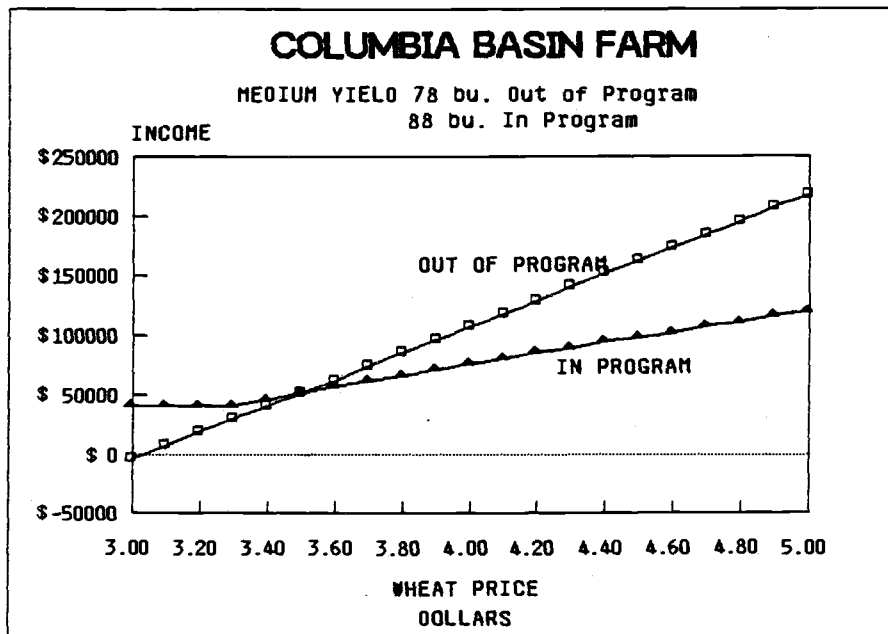


Figure 4-5. Columbia Basin Farm. Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Medium Yields

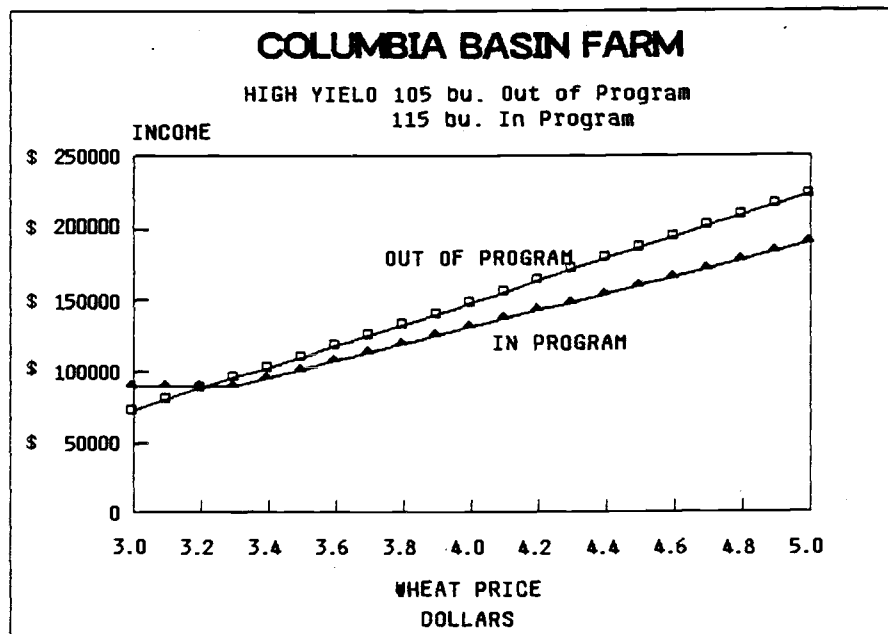


Figure 4-6. Columbia Basin Farm. Net Farm Income After Tax In and Out of the 1985 Wheat Set-Aside Program. High Yields

Columbia High Plateau

The Columbia High Plateau farm is a dry land small grain operation that uses a wheat or barley, summer fallow crop rotation. This is done as the yearly rainfall is less than what is needed to grow an annual grain crop. The soils on the farm are deep and will store one years rain fall to be used in the next year when the crop is being grown.

The farm operation leases all of the crop land. It has a 67-33 percent crop share lease with the land owners. The terms of the lease requires that the land owner participate in the government program along with the farmer. This means that the landlord shares 67-33 in the benefits of participation. The analysis becomes more difficult when the financial effects of participation are determined for a landlord. In most cases the most advantageous decision for the farmer is the most advantageous decision for the land owner. This assumption was made in this case.

The 1985 Wheat Program, in this area, is unique in that it allows the farmers to grow barley on their set aside ground instead of putting it to a conservation use. It still has all of the benefits of the program in other areas. The reason for this is to minimize the possible soil erosion and not throw off the crop rotations for the future.

The analysis of this farm does not make any distinction between being in or out of the program with regards to costs or yields. The reason there are no differences between costs is that the farm will

be planted all to wheat or seventy percent to wheat and thirty percent to barley. There is no significant cost difference between planting barley or wheat. The reason for not having a difference in yield is that the soil on the farm is completely uniform and again all of the farm will be planted.

One peculiarity to this farm is the wheat in inventory. It is used to stabilize income from year to year for tax reasons. The actual wheat held over each year is sold in the next year and at harvest a determination is made on how much to hold over to the next year. It was assumed in the analysis that all of the wheat would be sold in the next year to create a uniform base for analysis of the operation. The actual amount held over the next year would be dependent on next years price and yield. The financial data can be seen in the appendix.

The results for this farm are just about the same as the irrigated farm. They can be seen in figures 4-7, 4-8, and 4-9. For low yields net income after tax is higher for the decision to participate at all price levels examined. For medium yields the advantage is to participate until the price received for wheat reaches approximately four dollars and eighty cents per bushel. For the high yield the advantage goes to being out of the program when the price received reaches three dollars and eighty cents per bushel.

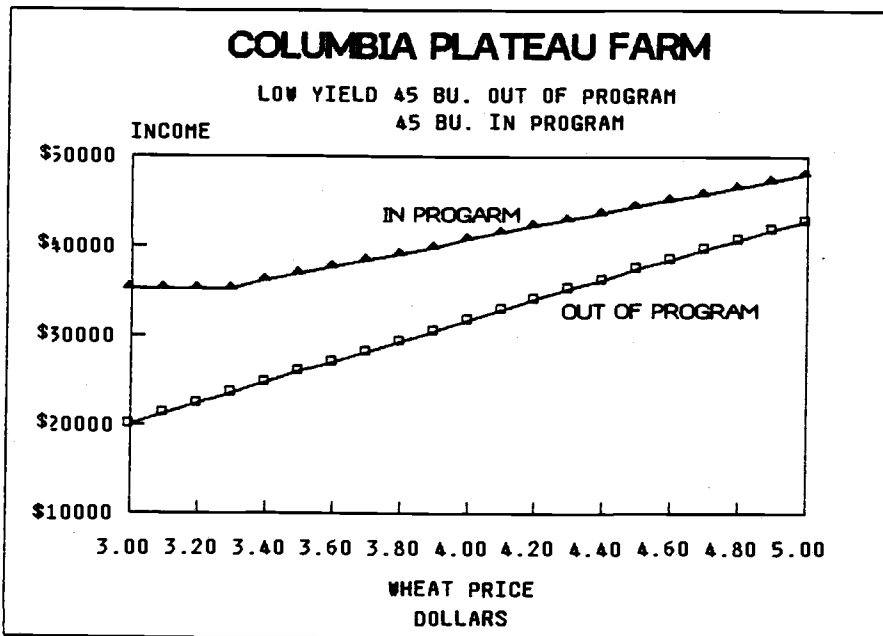


Figure 4-7. Columbia Plateau Farm. Net Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Low Yields

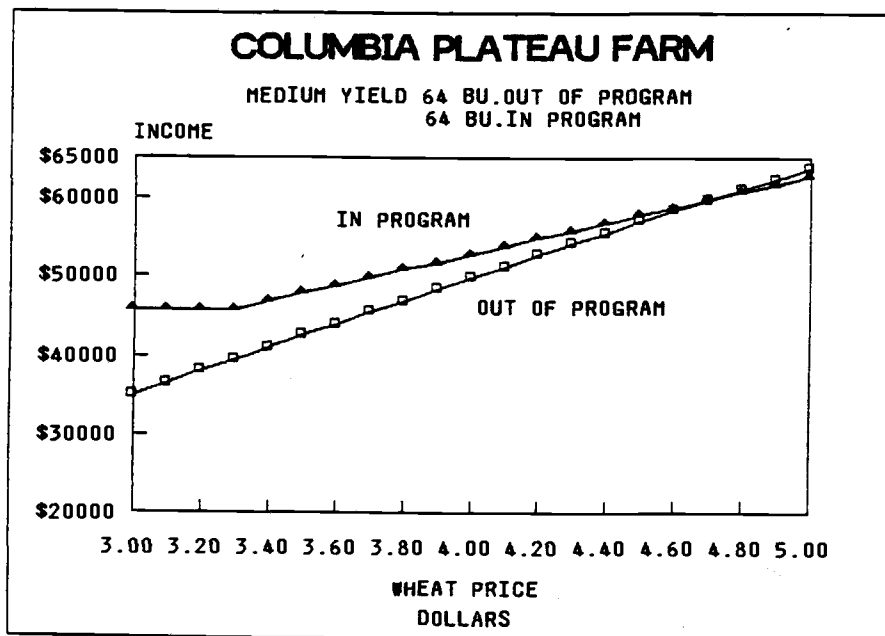


Figure 4-8. Columbia Plateau Farm. Net Income After Tax In and Out of the 1985 Wheat Set-Aside Program. Medium Yields

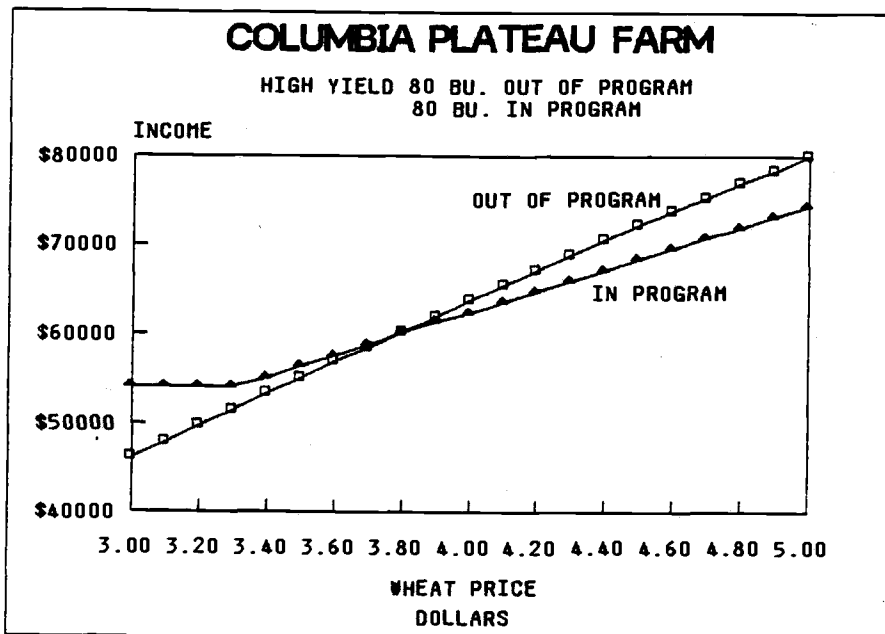


Figure 4-9. Columbia Plateau Farm. Net Income After Tax In and Out of the 1985 Wheat Set-Aside Program. High Yields

Summary of Results

The most general statement of results is that net income after tax tends to be more stable in the program than out. This can be observed from all of the graphs that net income after tax in the program has less slope than net income after tax out of the program. For the risk adverse farmer the choice seems to be always in the program, especially when yields cannot be estimated with any reliability. However broad the recommendation, it still remains that participation is dependent on the individual farms financial position, skill of the manager, ability to absorb risk and all of the other factors of farm management that determine profit from loss.

It is also useful to note that the templates are not just for

policy analysis, but can be used to determine any two alternative decisions in farm management. The decision could be to buy more land or to rent land, or any other decision that presents two distinct alternatives to a farm manager.

V. CONCLUSION

Summary: Objectives vs. Outcome

The decision to participate in government commodity programs has traditionally been a difficult decision for agricultural producers, especially in the Pacific Northwest with its large number of diversified farm types. The specific objective for this research was to develop a microcomputer model so that producers, extension agents, and policy makers can develop models of Oregon farms to determine the financial and operational effects of various government commodity programs. The model was to be based on the accounting model, be simple to use, and adaptable to many different situations. The model once developed was tested using three different Oregon farm types that would be eligible for the 1985 wheat commodity program. The model was to be developed using a microcomputer and spreadsheet software, both of which have become very popular and are readily available to agricultural producers.

The only objective that has not been explicitly met is the requirement that the model be based completely on the accounting model. The requirements of the accounting model state that the financial record keeping system start and end from a balance sheet. The model does not do this. The problems arise from trying to reconcile cash and accrual accounting. Both forms are useful and found extensively in production agriculture. To eliminate this

problem two choices presented themselves; to ignore the problem and end the analysis at the net change in cash position, or make restrictive assumptions that would limit the usefulness to those with accrual accounting systems. The first choice was made because decisions that could come up in the future to which a solution is not apparent at the stage of the statement of changes in financial position could be determined on an ending balance sheet by hand, with paper, pencil, and pocket calculator.

Data were obtained from three different types of Oregon farms and inserted into the templates to test the templates and determine the participation decisions for each of the farms given their unique characteristics. Recommendations and implications of the programs were then reported given assumptions about the farm managers objectives.

The decision to participate in any government program that has significant financial implications for a farm operation will probably never be easy, or be a decision that can be made without extensive analysis. The requirement to keep good financial records will always remain for production operations. The decision maker will have to continue to search for the most appropriate method to determine the choice that best achieves his or her goals.

Conclusions and Implications

Policy analysis has traditionally be done by "experts", now these templates will allow "non-experts" to do policy analysis. Farmers and ranchers will be able to analyze policy to see how it will affect them and their businesses. Policy makers will not have an excuse for designing commodity programs whose participation will not be able to be predicted. The templates as developed are not limited to current policy, but can be used in the analysis of proposed policy as well. Those most affected will have the opportunity to determine quickly how proposed policies will effect them, and through the polictical process will have a chance to prevent poor policies from being passed into law.

The factors that have the greatest effect on the participation decisions of producers can be determined so that the decision maker has a smaller range of factors to consider. By using a typical farm, extension agents could determine the breakeven points that producers should consider. ASCS offices could install microcomputers and give direct advice to producers who are unsure about participation.

As an extension of determining the breakeven points, farmers, ranchers and others interested can go back to the triangular distribution templates and payoff tables to determine the probability of not incurring a loss or reaching some other predefined financial goal. This can easily be done once a payoff table such as the ones in the appendix are completed.

As an example the Columbia Basin Farm has the probability of

incurring a loss if both price and yield are low. To determine the probability of a loss occurring the probability of each price and yield combination must be determined. The price probabilities can be determined by going back to the price triangular distribution template and reading the probabilities for each price out of column four in the data table. The yield probabilities can be derived the same way if the payoff table were determined using the yield triangular distribution template. For this work the triangular distribution template is not used to determine the yields in the payoff tables. Since just three levels of yield are used in the analysis the probabilities associated with each yield level was calculated separately. The probability of each price yield combination is the product of the individual probabilities. Then to determine the probability of incurring a loss all of the individual probabilities associated with the price and yield events resulting in a loss are summed together. For the Columbia Basin Farm the probability of a loss in the program is only 4.6 percent. The probability of a loss out of the program is 13.5 percent. For the probabilities used and values obtained please see the Columbia Basin farm payoff tables and price yield probability tables in the appendix. See pages 79-82.

These templates will allow producers to do a better job of determining their participation decisions. There will be less ambiguity in participation decisions leading to a more efficient system. Another implication of these templates is as a decision tool. They were intended to be used for determining participation

decisions and policy analysis, but they can be used for any financial decision that a agricultural producer might have. For example if the operator recognized that the farming operation needed to get larger, the templates could be used to determine if it would be better to rent or buy land. The uses of the templates are unlimited in being able to determine the best alternative given two possible choices.

Implications for Future Research

Suggestions for future research would first be directed towards the conversion of these templates to other hardware and software configurations. The first conversion should be to the IBM-PC and 1-2-3 from Lotus. This combination has many attractive features, such as great availability and high popularity. Lotus 1-2-3 has the ability to drop the external links and bring all of the templates onto one spreadsheet. This would allow the spreadsheet to be much faster. Other features of 1-2-3 that should be explored are its ability to develop data tables. The operator specifies the independent and dependent variable, for example price received for wheat and net income after tax. The operator then selects the low value, the high value, and the price increment and 1-2-3 figures the dependent value for each independent value. Then using 1-2-3's graphics capabilities these values could instantly be graphed to give an easily interpreted result. This would greatly speed up the analysis so that more factors could be considered. There are limitless possibilities for different variations of how these

templates could be modified.

The second suggestion for future work is to make the templates menu driven. Menu driven software is much easier to learn and use, and mistakes are much more difficult to make using a menu. Helps could be developed to make sure the user minimizes the simple mistakes.

The templates themselves could be improved several ways. The greatest improvement would be in the expense section of the income statement. As it currently exists the expense values are broken down only by item for the whole year. It would be best if the expenses could be broken down by crop so that costs could be more easily estimated. The tax templates will need to have constant update due to tax changes. Especially if the proposed indexing of the current tax rates is adopted. The cashflow statement could be improved with a depreciation schedule, and a list of questions to be asked concerning investment and debt repayment. This is the template that could best be improved by conversion to a menu. The other templates are fairly satisfactory as is, there is always room for improvement but they are satisfactory as they currently exist.

A larger consideration is to adapt the templates to decisions that are beyond two choice options, and to longer term decisions that might encompass two or three years. Other possible consequences of wide spread template uses in the Extension Service Offices is sources of data for other research. The use of the templates would be an organized source of primary data for farm management and production economic research.

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APPENDIX

TABLES OF RESULTS
WILLAMETTE VALLEY FARM

Net Income After Taxes In the Program

(Dollars)

<u>Price</u>	<u>YIELDS</u>		
	<u>85 bu.</u>	<u>120 bu.</u>	<u>140 bu.</u>
3.00	9,268	25,145	33,671
3.10	9,268	25,145	33,671
3.20	9,268	25,145	33,671
3.30	9,268	25,145	33,671
3.40	10,531	26,671	35,463
3.50	11,776	28,200	37,212
3.60	13,020	29,832	38,870
3.70	14,421	31,368	40,528
3.80	15,453	32,903	42,168
3.90	16,658	34,439	43,844
4.00	17,838	35,974	45,501
4.10	19,017	37,449	47,052
4.20	20,156	38,870	48,603
4.30	21,270	40,291	50,154
4.40	22,385	41,712	51,705
4.50	23,455	43,133	53,256
4.60	24,521	44,554	54,806
4.70	25,587	45,938	56,357
4.80	26,621	47,273	57,908
4.90	27,723	48,603	59,459
5.00	28,893	49,932	60,976

WILLAMETTE VALLEY FARM
 Net Income After Tax Out of Program
 (Dollars)

<u>Price</u>	<u>YIELD</u>		
	<u>80 bu.</u>	<u>117 bu.</u>	<u>135 bu.</u>
3.00	-27,816	2,287	14,320
3.10	-25,632	5,681	17,054
3.20	-23,448	7,883	19,715
3.30	-21,264	10,392	22,245
3.40	-19,080	12,841	24,675
3.50	-16,896	15,238	27,042
3.60	-14,712	17,589	29,684
3.70	-12,528	19,884	32,154
3.80	-10,344	22,076	34,624
3.90	-8,160	24,190	37,063
4.00	-5,976	26,271	39,349
4.10	-3,792	28,481	41,634
4.20	-1,608	30,671	43,919
4.30	522	32,811	46,159
4.40	2,502	34,951	48,296
4.50	4,484	37,061	50,434
4.60	6,462	39,041	52,572
4.70	8,231	41,021	54,710
4.80	9,951	43,002	56,848
4.90	11,627	44,982	58,986
5.00	13,301	46,867	61,083

COLUMBIA PLATEAU FARM
 Net Income After Tax Out of the Program
 (Dollars)

<u>Price</u>	<u>YIELD</u>		
	<u>45 bu.</u>	<u>64 bu.</u>	<u>80 bu.</u>
3.00	20,182	34,810	46,221
3.10	21,361	36,442	47,992
3.20	22,526	37,957	49,764
3.30	23,653	39,473	51,536
3.40	24,781	40,989	53,308
3.50	25,897	42,505	55,080
3.60	26,974	44,020	56,852
3.70	28,210	45,498	58,624
3.80	29,435	46,932	60,377
3.90	30,586	48,350	62,057
4.00	31,373	49,768	63,737
4.10	32,888	51,186	65,417
4.20	34,390	52,604	67,098
4.30	35,190	54,022	68,778
4.40	36,341	55,440	70,458
4.50	37,409	56,858	72,138
4.60	38,474	58,287	73,767
4.70	39,539	59,695	75,326
4.80	40,604	61,056	76,884
4.90	41,669	62,401	78,442
5.00	42,734	63,746	80,000

COLUMBIA PLATEAU FARM
 Net Income After Tax In the Program
 (Dollars)

<u>Price</u>	<u>YIELD</u>		
	<u>45 bu.</u>	<u>64 bu.</u>	<u>80 bu.</u>
3.00	35,313	45,788	53,998
3.10	35,313	45,788	56,998
3.20	35,313	45,788	56,998
3.30	35,313	45,788	56,998
3.40	36,119	46,781	55,215
3.50	36,908	47,773	56,456
3.60	37,645	48,765	57,696
3.70	38,399	49,758	58,937
3.80	39,145	50,750	60,177
3.90	39,891	51,742	61,362
4.00	40,673	52,735	62,539
4.10	41,383	53,727	63,715
4.20	42,129	54,720	64,892
4.30	42,875	55,712	66,068
4.40	43,620	56,704	67,245
4.50	44,366	57,697	68,421
4.60	45,112	58,689	69,597
4.70	45,835	59,681	70,774
4.80	46,532	60,657	71,950
4.90	47,220	61,598	73,127
5.00	47,928	62,539	74,240

COLUMBIA BASIN IRRIGATED FARM

Net Income After Taxes Out of the Program

(Dollars)

<u>Price</u>	<u>YIELDS</u>		
	<u>50 bu.</u>	<u>78 bu.</u>	<u>105 bu.</u>
3.00	-120,812	-2,372	72,573
3.10	-113,762	7,685	80,186
3.20	-106,712	16,108	87,757
3.30	-99,662	23,788	95,287
3.40	-92,612	31,210	102,838
3.50	-85,562	38,437	110,388
3.60	-78,512	45,256	117,939
3.70	-71,462	51,650	125,489
3.80	-64,412	58,029	133,040
3.90	-57,362	64,198	140,590
4.00	-50,312	70,247	148,141
4.10	-43,262	76,087	155,692
4.20	-36,212	81,696	163,242
4.30	-29,162	87,305	170,793
4.40	-22,122	92,914	178,343
4.50	-15,062	98,523	185,894
4.60	-8,012	104,132	193,444
4.70	-962	109,741	200,995
4.80	5,519	115,350	208,545
4.90	11,211	120,959	216,086
5.00	16,526	126,568	223,647

COLUMBIA BASIN IRRIGATED FARM
 Net Income After Tax In the Program
 (Dollars)

<u>Price</u>	YIELD		
	<u>55 bu.</u>	<u>88 bu.</u>	<u>115 bu.</u>
3.00	-48,960	42,099	90,296
3.10	-48,960	42,099	90,296
3.20	-48,960	42,099	90,296
3.30	-48,960	42,099	90,296
3.40	-43,532	47,356	96,084
3.50	-38,103	52,393	101,873
3.60	-32,676	57,430	107,662
3.70	-27,248	62,357	113,450
3.80	-21,820	67,134	119,239
3.90	-16,392	71,911	125,027
4.00	-10,964	76,451	130,816
4.10	-5,536	80,880	136,604
4.20	-108	85,309	142,393
4.30	4,823	89,739	148,181
4.40	9,362	94,168	153,970
4.50	13,534	98,597	159,758
4.60	17,554	103,027	165,547
4.70	21,384	107,456	171,335
4.80	24,995	111,885	177,124
4.90	28,643	116,315	182,912
5.00	32,346	120,744	188,701

TABLE OF PROBABILITIES

COLUMBIA BASIN IRRIGATED FARM

Price and Yield Probabilities In the Program

Yield	55 BU.	88 BU.	115 BU.
Probability	.0590	.7318	.2092

Price and
Probability

Table of Joint Probabilities

3.00	0.005	(.0001)	.0010	.0003
3.10	0.01	(.0006)	.0073	.0021
3.20	0.03	(.0018)	.0220	.0063
3.30	0.05	(.0030)	.0366	.0105
3.40	0.07	(.0041)	.0512	.0146
3.50	0.09	(.0053)	.0659	.0188
3.60	0.0967	(.0057)	.0708	.0202
3.70	0.09	(.0053)	.0639	.0188
3.80	0.833	(.0049)	.0610	.0174
3.90	0.076	(.0045)	.0556	.0159
4.00	0.0633	(.0037)	.0512	.0146
4.20	0.0567	(.0033)	.0463	.0132
4.30	0.05	.0030	.0366	.0105
4.40	0.0433	.0026	.0317	.0091
4.50	0.0367	.0022	.0269	.0077
4.60	0.030	.0018	.0220	.0063
4.70	0.0233	.0014	.0171	.0049
4.80	0.0167	.0010	.0122	.0035
4.90	0.010	.0006	.0073	.0021
5.00	0.0033	.0002	.0024	.0007

Total of Value of Numbers in Parenthesis is .046

4.6 Percent Chance of Incurring a Loss

95.4 Percent Chance of Incurring of a Gain

Note: Those probabilities within parenthesis are associated with loss price yield events.

COLUMBIA BASIN IRRIGATED FARM			
Price and Yield Probabilities Out of Program			
Yield	50 BU.	78 BU.	105 BU.
Probability	.1326	.6582	.2092

Price and
Probability

Table of Joint Probabilities

3.00	0.005	(.0007)	(.0033)	.0010
3.10	0.01	(.0013)	.0066	.0021
3.20	0.03	(.0040)	.0197	.0036
3.30	0.05	(.0066)	.0329	.0061
3.40	0.07	(.0093)	.0461	.0087
3.50	0.09	(.0119)	.0592	.0108
3.60	0.0967	(.0128)	.0631	.0117
3.70	0.09	(.0119)	.0592	.0109
3.80	0.0833	(.0110)	.0548	.0101
3.90	0.076	(.0101)	.0500	.0092
4.00	0.07	(.0093)	.0461	.0085
4.10	0.0633	(.0084)	.0417	.0077
4.20	0.0567	(.0075)	.0373	.0686
4.30	0.05	(.0066)	.0329	.0061
4.40	0.0433	(.0057)	.0285	.0524
4.50	0.037	(.0049)	.0242	.0048
4.60	0.030	(.0040)	.0197	.0036
4.70	0.023	(.0031)	.0153	.0028
4.80	0.016	.0022	.0110	.0020
4.90	0.010	.0013	.0066	.0012
5.00	0.0033	.0004	.0022	.0004

Total of Values in Parenthesis is .134

13.2 Percent Chance of Incurring a Loss

86.8 Percent Chance of a Gain

Note: Those joint probabilities within parenthesis are associated with loss price yield events.

Obtaining Copy of Diskette or Template Formulas

A copy of the template diskette can be obtained by contacting the Department of Agricultural and Resource Economics at Oregon State University. At this time the templates are available only for the Digital Rainbow 100 using the spreadsheet Multiplan. Template formulas are available on paper for conversion to other spreadsheets.

BLANK TEMPLATES

FINANCIAL STATEMENT OFBLANK TEMPLATES DATE.....7/12/84

ASSETS	Start of Year	LIABILITIES	Start of Year
<hr/>			
CURRENT			
Cash on Hand		Real Estate Taxes	
Cash in Bank		Operating Line	
Accounts Receivable			
Farm products on hand		Past Due Accounts	
Growing Crops			
Livestock for Sale		Debts to Retire Within One Year	
Prepaid Expenses		C.C.C. Liens on Crop	
Other			
TOTAL CURRENT \$	0	TOTAL CURRENT \$	0
<hr/>			
INTERMEDIATE			
Automobiles		Debts 1 to 7 Years Purpose	Start of
Machinery and Trucks		Creditor	Year
Irrigation Equipment			
Livestock			
Personal Property			
Other			
		C.C.C. Liens	
TOTAL INTERMEDIATE \$		0 TOTAL INTERMEDIATE \$	0
<hr/>			
LONG TERM			
Real Estate		Start Liens	Start of
1.		of Year Creditor	Year
2.			
3.			
4.			
5.			
6.			

7.
Real Estate Contract
Receivable:

Underlying Debts

2.

3.

Co-op Retains

Other Creditors

Other

TOTAL FIXED \$	0	TOTAL LONG TERM \$	0
TOTAL ASSETS	0	TOTAL LIABILITIES	0

		NET WORTH	0
		DEBT TO ASSET RATIO	0.0

STATEMENT 2		SCHEDULE OF DEBT REPAYMENT			
Creditor	Interest Rate	Annual Term	Interest Payment	Current Balance	

Real Estate Taxes					
Operating Line					
Past Due Accounts					
Debts to Retire Within One Year					
C.C.C. Liens on Crop					
TOTAL CURRENT \$		0	0	0	0

INTERMEDIATE DEBTS Creditor & Purpose	Interest Rate	Annual Term	Interest Payment	Current Balance	
C.C.C. Liens					
TOTAL INTERMEDIATE \$		0	0	0	0

LONG TERM DEBTS Creditor	Interest Rate	Annual Term	Interest Payment	Current Balance	

Underlying Debts

Other Creditors

TOTAL LONG TERM \$	0	0	0
GRAND TOTALS \$	0	0	0

*****SUMMARY*****			
TOTAL INTEREST PAYMENT	0		
TOTAL PRINCIPAL PAYMENT	0		
INTERMEDIATE INTEREST	0		
LONG TERM INTEREST	0		
INTERMEDIATE PRINCIPAL	0		
LONG TERM PRINCIPAL	0		

BLANK TEMPLATES Date of
 Income Statement Out of Program Analysis 7/12/84

LAND USE PLAN & CROP SALES

Crop	Average Acres	Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
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Totals 0 0

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Average Price/Lbs.	per Head	Average Value Capital Sales	Gross Income
------	---------------	--------	-------------------	-----------------------	----------	-----------------------------------	-----------------

Purchased for Resale

Cost

Totals 0 0 0 0

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income
------	--------------------	-------------------	-----------------

SALES FROM INVENTORY
Product

Beginning Sales from
Inventory Inventory Balance

Gross
Income

Total Other & Inventory Income

0

TOTAL FARM INCOME

0

FARM EXPENSES

Operating Costs	Amount
Hired Labor	
Repairs, Maintance	
Cash Rent	
Feed Purchased	
Seed Plants Purchased	
Fertilizers, Lime	
Herbicides, Pesticides	
Machine Hire	
Supplies Purchased	
Breeding fees	
Veterinary, Drugs	
Gasoline, Fuel, Oil	
Storage, warehousing	
Utilities	
Freight	
Conservation expenses	
Operating Interest	0
Other Operating Expenses	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
TOTAL OPERATING EXPENSES	0

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount
Depreciation		
Machinery		
Breeding stock		
Irrigation Equipment		
Buildings		
Other		
Total Depreciation		0
Real Estate Taxes		0
Insurance		
Fire and Loss		
Health		
Liability		
Total Insurance		0

Interest Cost			
Intermediate	0		
Long Term	0		
Total Interest Cost		0	
Other Fixed Cost	0		
1.			
2.			
Total Other Fixed Costs		0	

Total Fixed Costs		0	
Total Farm Sales		0	
Total Costs		0	
OPERATING FARM INCOME		0	

Farm Income(Loss) from the Sale of Capital Items	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	0	0	0
Machinery & Equipment			0
Building & Improvements			0
Land			0
Other			0
Total Farm Capital Sales	0	0	0

NET FARM INCOME	\$	0	
FEDERAL INCOME TAXES	\$	0	
NET FARM INCOME AFTER TAXES	\$	0	

SIMPLE TEST

Date 7/12/84

Out of Program

Individual Estimated Federal Income Tax Worksheet

Exemptions	1	***Filing Status Choices***		
Filing Status	1	Single - 1		
		Married - 2		
		Married Filing Single - 3		
-----				Adjusted
-----Income-----				Totals
Wages & Salaries				
Dividends & Interest				
Tax Refunds				
Business Income				
Capital Gains	Farm-	0	Other-	0
Supplemental Gains				
Rents Royalties Etc.				
Farm Income				0
Other Income				
1.				
2.				
3.				
TOTAL INCOME				0
				=====
--Income Adjustments--				
Moving Expense		0		
I.R.A. Deductions		0		
Keogh Payments				
Alimony Paid				
Married Couple Deductions		0		
Other Adjustments				
Total Adjustments				0
ADJUSTED GROSS INCOME				0
				=====
-----Itemized Deductions-----				
Medical		0		
Taxes		0		
Personal Interest		0		
Contributions		0		
Casualty & Theft Losses		0		
Misc. Deductions		0		
Total Deduction		0		
Filing Status Adjustment		2300		
Adjusted Deduction				0
Income After Deductions				0
Adjustment for Exemptions				- 1000
Taxable Income				-1000
				=====
INCOME TAX				\$ 0
				=====
-----Tax Credits-----				

I.T.C.
Elderly
Political Contributions
Other Credits

TOTAL CREDITS

- 0

BALANCE DUE

0

=====

-----Other Taxes-----

Self Employment Tax

0

Alternative Minimum Tax

Recapture of I.T.C.

Other Taxes

TOTAL OTHER TAXES

0

ESTIMATED FEDERAL TAX

0

=====

MARRIED FILING JOINT
SCHEDULE Y

3400
5500
7600
11900
16000
20200
24600
29900
35200
45800
60000
85600
109400
>109400
TAX

0

SINGLE TAXPAYER
SCHEDULE X

2300
3400
4400
6500
8500
10800
12900
15000
18200
23500
28800
34100
41500
55300
81800
>81800
TAX

0

MARRIED FILING SEPARATE

1700
2750
3800
5950
8000
10100
12300
14950
17600
22900
30000
42800
54700
81200
>81200
TAX

0

0

SIMPLE TEST

Date 7/12/84

STATEMENT OF CHANGES IN FINANCIAL POSITION

Cash Provided	IN PROGRAM	OUT OF PROGRAM
Operations		
Net Income (Loss)	0	0
Non-Cash Expenses		
Depreciation	0	0
Other	0	0
Total	0	0
Inventory Increase < >	0	0
Total From Operations	0	0
Other	0	0
Sale of Non-Current Assets		
Breeding Livestock	0	0
Machinery & Equipment		
Other	0	0
Buildings & Improvements	0	
Land		
Other		
Total Sales	0	0
Increase in Farm Loans		
C.C.C. Loans	0	0
Operating Loan	0	0
Equipment	0	0
Breeding Livestock	0	0
Other	0	0
Real Estate	0	0
Other	0	0
Total Increase in Debts	0	0
TOTAL SOURCES OF CASH	0	0
Cash Applied		
Non-Current Investment		
Breeding Livestock	0	0
Equipment	0	0
Other	0	0
Buildings & Improvements	0	0
Land	0	0
Other	0	0
Total Investment	0	0
Repayment of Debt		
Intermediate Debt	0	0

Long Term Debt	0	0	
Total Debt Repayment		0	0
Non-Farm Withdrawals			
Salary & Living Expenses	0	0	
Income Taxes & Social Security	0	0	
Gifts & Donations	0	0	
Other	0	0	
Total Non-Farm Withdrawals		0	0
TOTAL CASH APPLIED		0	0
		=====	=====
NET CHANGE IN CASH POSITION		0	0
		=====	=====

TRIANGULAR DISTRIBUTION OF PRICE

PRICE

MOST LIKELY PRICE	-	0.00	PRICE GRADUATIONS	-	0.1
LOWEST POSSIBLE PRICE	-	0.00	MINIMUM GRADUATION		
HIGHEST POSSIBLE PRICE	-	0.00	10 CENTS		
			MEADIAN PRICE	-	\$0.00

VALUE OF X FOR MOST LIKELY PRICE- 0

NOTE: IN TABLE IGNORE ALL NUMBERS TO THE RIGHT AND BELOW ***** SYMBOLS.

SUMMARY FINANCIAL STATEMENT OFBLANK TEMPLATES DATE.....7/12/84

ASSETS	In Program	Out of Program	LIABILITIES	In Program	Out of Program
CURRENT					
Cash on Hand			Real Estate Taxes		
Cash in Bank			Operating Line		
Accounts Receivable			Past Due Accounts		
Farm products					
Growing Crops					
Livestock for Sale			Debts to Retire Within One Year		
Prepaid Expenses			C.C.C. Liens on Crop		
Other					
TOTAL CURRENT \$	0	0	TOTAL CURRENT \$	0	0

INTERMEDIATE					
Automobiles			Debts 1 to 7 Years Creditor	Start of Year	End of Year
Machinery and Trucks					
Irrigation Equipment					
Livestock					
Personal Property					
Other					
TOTAL INTERMEDIATE \$	0	0	TOTAL INTERMEDIATE \$	0	0

LONG TERM					
Real Estate	Start of Year	End of Year	Liens Creditor	Start of Year	End of Year
1.					
2.					
3.					
4.					
5.					
6.					

7. Real Estate Contract Underlying Debts
Receivable:
1.
2.
3.
Co-op Retains Other Creditors

Other

TOTAL FIXED \$	0	0	TOTAL LONG TERM \$	0	0
TOTAL ASSETS	0	0	TOTAL LIABILITIES	0	0
<hr/>					
			NET WORTH	0	0
			DEBT TO ASSET RATIO	0	0

WILLAMETTE VALLEY FARM TEMPLATES

FINANCIAL STATEMENT OFWillamette Valley DATE.....10/31/84

ASSETS	Start of Year	LIABILITIES	Start of Year
CURRENT			
Cash on Hand		0 Real Estate Taxes	
Cash in Bank	-23375		
Accounts Receivable shareholder	33793	Operating Line	339630
Farm products on hand		Past Due Accounts Note Payable	70000
Growing Crops		Accrued Taxes	1135
Livestock for Sale		Debts to Retire Within One Year	
Prepaid Expenses	1016		
Other		C.C.C. Liens on Crop	
TOTAL CURRENT \$	11434	TOTAL CURRENT \$	410765
INTERMEDIATE			
Automobiles		Debts 1 to 7 Years Purpose	Start of Year
Machinery and Trucks	630126	Creditor	
Irrigation Equipment		Equipment	8813
Livestock			
Personal Property			
Other			
Buildings	165562		
Accumulated Depreciation	-566218		
		C.C.C. Liens	
TOTAL INTERMEDIATE \$	229470	TOTAL INTERMEDIATE \$	8813
LONG TERM			
Real Estate	Start of Year	Liens Creditor	Start of Year
1. Total	508287	Federal Land Bank	782879
2.		Private Contract	100000
3.			-70000
4.			
5.			
6.			

7. Real Estate Contract Underlying Debts
 Receivable:

2.

3.

Co-op Retains 106604 Other Creditors

Other

TOTAL FIXED \$	614891	TOTAL LONG TERM \$	812879
TOTAL ASSETS	855795	TOTAL LIABILITIES	1232457

		NET WORTH	-376662
		DEBT TO ASSET RATIO	144.0

STATEMENT 2	SCHEDULE OF DEBT REPAYMENT			
Creditor	Interest Rate	Annual Term Payment	Interest Payment	Current Balance

Real Estate Taxes				
Operating Line	14		47548.2	339630
Past Due Accounts				
Note Payable	12	8400	8400	70000
Accrued Taxes		1135	0	1135
Debts to Retire Within One Year				
C.C.C. Liens on Crop				
TOTAL CURRENT \$		9535	55948	410765

INTERMEDIATE DEBTS	Interest Rate	Annual Term Payment	Interest Payment	Current Balance

Creditor & Purpose				
Equipment	14	2370	1233.82	8813

C.C.C. Liens				
TOTAL INTERMEDIATE \$		2370	1233.82	8813

LONG TERM DEBTS	Interest Rate	Annual Term Payment	Interest Payment	Current Balance

Creditor				
Federal Land Bank	12.5	118381	97860	782879
Private Contract	10	60000	10000	100000

Underlying Debts

Other Creditors

TOTAL LONG TERM \$	178381	107859.88	882879
GRAND TOTALS \$	190286	165041.9	1302457

*****SUMMARY*****

TOTAL INTEREST PAYMENT	165042
TOTAL PRINCIPAL PAYMENT	25244
INTERMEDIATE INTEREST	1234
LONG TERM INTEREST	107860
INTERMEDIATE PRINCIPAL	1136
LONG TERM PRINCIPAL	70521

Willamette Valley
Income Statement Out of Program Date of
Analysis 10/31/84

LAND USE PLAN & CROP SALES

Crop	Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat	273	117.0	31941	100	3.50	31941	111794
Sugar Beet Seed	78	3982	310596	100	0.52	310596	161510
Sweet Corn	76	12.2	927.2	100	100.00	927.2	92720
Cabbage Seed	35	1710	59850	100	1.28	59850	76608
Peppermint	85	85	7225	100	10.01	7225	72322
Bush Beans	31	7.65	237.15	100	120.00	237.15	28458
Red Clover	100	429	42900	100	0.95	42900	40755
Squash	30	26.76	802.8	100	25.50	802.8	20471
Radish Seed	45	1200	54000	100	0.65	54000	35100
Other				100			6068
Totals	753						645806

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Price/Lbs.	Average Value per Head	Capital Sales	Gross Income
Beef		4	1005	0.68	683.4		2733.6

Purchased for Resale

Cost

Totals	4	1005	0	2733.6
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NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income
Custom Farming	14832	1	14832
Rent	3630	1	3630
Dividends	486	1	486
Miscellaneous	1380	1	1380

SALES FROM INVENTORY Product	Beginning Inventory	Sales from Inventory	Balance	Gross Income
------------------------------	---------------------	----------------------	---------	--------------

Total Other & Inventory Income 20328
TOTAL FARM INCOME 668868

FARM EXPENSES

Operating Costs	Amount

Hired Labor	70356
Repairs, Maintance	24423
Cash Rent	32553
Feed Purchased	5329
Seed Plants Purchased	9517
Fertilizers, Lime	54227
Herbicides, Pesticides	55535
Machine Hire	38690
Supplies Purchased	5056
Breeding fees	
Veterinary, Drugs	
Gasoline, Fuel, Oil	22542
Storage, warehousing	
Utilities	9853
Freight	
Conservation expenses	
Operating Interest	55948
Other Operating Expenses	
1. Dues & Subscriptions	289
2. Equipment Rental	26556
3. Licenses	1074
4. Professional Services	6978
5. Payroll Taxes	11577
6. Market Charges	4982
7. Miscellaneous	1323

TOTAL OPERATING EXPENSES	436808

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount

Depreciation		
Machinery		
Breeding stock		
Irrigation Equipment		
Buildings		
Other	74374	
Total Depreciation		74374
Real Estate Taxes	12622	12622
Insurance		
Fire and Loss		
Health		
Liability	17512	
Total Insurance		17512

Interest Cost		
Intermediate	1233.82	
Long Term	107859.88	
Total Interest Cost		109094
Other Fixed Cost	0	
1.		
2.		
Total Other Fixed Costs		0

Total Fixed Costs		213602
-------------------	--	--------

Total Farm Sales		668868
Total Costs		650410

OPERATING FARM INCOME		18457.8
-----------------------	--	---------

Farm Income(Loss) from the Sale of Capital Items	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	0	0	0
Machinery & Equipment			0
Building & Improvements			0
Land			0
Other			0
Total Farm Capital Sales	0	0	0

NET FARM INCOME	\$	18458
FEDERAL INCOME TAXES	\$	3220
NET FARM INCOME AFTER TAXES	\$	15238

Willamette Valley Date 10/31/84
 Out of Program
 Individual Estimated Federal Income Tax Worksheet

Exemptions	4	***Filing Status Choices***
Filing Status	2	Single - 1
		Married - 2
		Married Filing Single - 3

	Adjusted Totals
-----Income-----	
Wages & Salaries	
Dividends & Interest	
Tax Refunds	
Business Income	
Capital Gains Farm- 0 Other- 0	
Supplemental Gains	
Rents Royalties Etc.	
Farm Income	18458
Other Income	
1.	
2.	
3.	
TOTAL INCOME	18458

--Income Adjustments--	
Moving Expense	0
I.R.A. Deductions	0
Keogh Payments	
Alimony Paid	
Married Couple Deductions	0
Other Adjustments	
Total Adjustments	- 0
ADJUSTED GROSS INCOME	18458

-----Itemized Deductions-----	
Medical	0
Taxes	0
Personal Interest	0
Contributions	0
Casualty & Theft Losses	0
Misc. Deductions	0
Total Deduction	0
Filing Status Adjustment	3400
Adjusted Deduction	0
Income After Deductions	18458
Adjustment for Exemptions	- 4000
Taxable Income	14458

INCOME TAX	\$ 1494

-----Tax Credits-----	

I.T.C.
Elderly
Political Contributions
Other Credits

TOTAL CREDITS

0

BALANCE DUE

1494

-----Other Taxes-----

Self Employment Tax 1726

Alternative Minimum Tax

Recapture of I.T.C.

Other Taxes

TOTAL OTHER TAXES

1726

ESTIMATED FEDERAL TAX

3220

MARRIED FILING JOINT
SCHEDULE Y

3400	0
5500	
7600	
11900	
16000	1494.244
20200	
24600	
29900	
35200	
45800	
60000	
85600	
109400	
>109400	
TAX	1494.244

SINGLE TAXPAYER
SCHEDULE X

2300	0
3400	
4400	
6500	
8500	
10800	
12900	
15000	1892.555
18200	
23500	
28800	
34100	
41500	
55300	
81800	
>81800	
TAX	1892.555

MARRIED FILING SEPARATE

1700	0
2750	
3800	
5950	
8000	
10100	
12300	
14950	2271.9438
17600	
22900	
30000	
42800	
54700	
81200	
>81200	
TAX	2271.9438

Willamette Valley

INCOME STATEMENT IN PROGRAM DATE 10/31/84

LAND USE PLAN & CROP SALES

Crop	Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat	191	120.0	22920	100	3.50	22920	80220
Sugar Beet Seed	78	3982	310596	100	0.52	310596	161510
Sweet Corn	76	12.2	927	100	100.00	927	92720
Cabbage Seed	35	1710	59850	100	1.28	59850	76608
Peppermint	85	85	7225	100	10.01	7225	72322
Bush Beans	31	7.65	237	100	120.00	237	28458
Red Clover	100	429	42900	100	0.95	42900	40755
Squash	30	26.76	803	100	25.50	803	20471
Raddish Seed	45	1200	54000	100	0.65	54000	35100
Other				100			

Totals 671 608165

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Price/Lbs.per Head	Average Value Capital Sales	Gross Income
Beef		4	1005	0.68	683.4	2733.6

Purchased for Resale

Cost

Totals 4 1005 0 2733.6

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income
Custom Farming	14832	1	14832
Rent	3630	1	3630
Miscellaneous	1866	1	1866
Paid Land Diversion	3194 bu.	2.70	8624
Deficiency Payment	23875 bu.	1.08	25785

SALES FROM INVENTORY Product Beginning Inventory Sales from Inventory Balance Gross Income

Total Other & Inventory Income 54737
TOTAL FARM INCOME 665635

FARM EXPENSES

Operating Costs	Amount

Hired Labor	69189
Repairs, Maintance	23805
Cash Rent	32553
Feed Purchased	5329
Seed Plants Purchased	9267
Fertilizers, Lime	49799
Herbicides, Pesticides	53977
Machine Hire	38690
Supplies Purchased	5056
Breeding fees	0
Veterinary, Drugs	0
Gasoline, Fuel, Oil	21305
Storage, warehousing	0
Utilities	9853
Freight	0
Conservation expenses	0
Operating Interest	55948.2
Other Operating Expenses	
1. Dues & Subscriptions	289
2. Equipment Rental	26556
3. Licenses	1074
4. Professional Services	6978
5. Payroll Taxes	11410
6. Market Charges	4982
7. Miscellaneous	1323

TOTAL OPERATING EXPENSES	427383

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount

Depreciation		
Machinery	0	
Breeding stock	0	
Irrigation Equipment	0	
Buildings	0	
Other	74374	
Total		74374
Real Estate Taxes		
Insurance	12622	12622
Fire and Loss	0	
Health	0	
Liability	17512	

Total Insurance		17512
Interest Costs		
Intermediate	1233.82	
Long Term	107859.88	
Total Interest Cost		109094
1.		
2.		
3.		
Total		109094

Total Fixed Costs		200980
-------------------	--	--------

Total Farm Sales		665635
Total Costs		628363

OPERATING FARM INCOME		37272
-----------------------	--	-------

Farm Income (Loss) from the Sale of Capital Item	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	0	0	0
Machinery & Equipment			0
Buildings & Improvements	0	0	0
Land			0
Other			0
Total Farm Capital Sales	0	0	0

TOTAL FARM INCOME	\$	37272
FEDERAL INCOME TAXES	\$	9072
NET FARM INCOME	\$	28200

Willamette Valley
In Program
Individual Estimated Federal Income Tax Worksheet

Date 10/31/84

Exemptions	4	***Filing Status Options***
Filing Status	2	Single - 1
		Married - 2
		Married Filing Single - 3

	Adjusted Totals
-----Income-----	
Wages & Salaries	0
Dividends & Interest	
Tax Refunds	
Business Income	
Capital Gains	0
Farm-	0
Other-	0
Supplemental Gains	
Rents Royalties Etc.	
Farm Income	37272
Other Income	
1.	
2.	
3.	
TOTAL INCOME	37272
-----Income Adjustments-----	
Moving Expense	
I.R.A. Deductions	0
Keogh Payments	
Alimony Paid	
Married Couple Deductions	0
Other Adjustments	
Total Adjustments	- 0
ADJUSTED GROSS INCOME	37272
-----Itemized Deductions-----	
Medical	0
Taxes	0
Personal Interest	0
Contributions	0
Casualty & Theft Losses	
Misc. Deductions	
Total Deduction	0
Filing Status Adjustment	3400
Adjusted Deduction	- 0
Income After Deductions	37272
Adjustment for Exemptions	4000
TAXABLE INCOME	33272
INCOME TAX	5734
-----Tax Credits-----	

I.T.C.	0	
Elderly		
Political Contributions		
Other Credits		
TOTAL CREDITS		- 0
BALANCE		5734

-----Other Taxes-----		
Self Employment Tax	3338	
Alternative Minimum Tax		
Recapture of I.T.C.		
Other Taxes		
TOTAL OTHER TAXES		3338
ESTIMATED FEDERAL INCOME TAX		9072

MARRIED FILING JOINT
SCHEDULE Y

3400	0
5500	
7600	
11900	
16000	
20200	
24600	
29900	
35200	5734.181
45800	
60000	
85600	
109400	
>109400	
TAX	5734.181

SINGLE TAXPAYER
SCHEDULE X

2300	0
3400	
4400	
6500	
8500	
10800	
12900	
15000	
18200	
23500	
28800	
34100	7225.5055
41500	
55300	
81800	
>81800	
TAX	7225.5055

MARRIED FILING SEPARATE

1700	0
2750	
3800	
5950	
8000	
10100	
12300	
14950	
17600	
22900	
30000	
42800	8958.2715
54700	
81200	
>81200	
TAX	8958.2715

Willamette Valley

Date 10/31/84

STATEMENT OF CHANGES IN FINANCIAL POSITION

Cash Provided	IN PROGRAM	OUT OF PROGRAM
Operations		
Net Income (Loss)	37272	18458
Non-Cash Expenses		
Depreciation	74374	74374
Other	0	0
Total	111646	92832
Inventory Increase < >	0	0
Total From Operations	111646	92832
Other	0	0
Sale of Non-Current Assets		
Breeding Livestock	0	0
Machinery & Equipment	0	0
Other	0	0
Buildings & Improvements	0	0
Land		
Other		
Total Sales	0	0
Increase in Farm Loans		
C.C.C. Loans	0	0
Operating Loan	0	0
Equipment	0	0
Breeding Livestock	0	0
Other	0	0
Real Estate	0	0
Other	0	0
Total Increase in Debts	0	0
TOTAL SOURCES OF CASH	111646	92832
	-----	-----
Cash Applied		
Non-Current Investment		
Breeding Livestock	0	0
Equipment	0	0
Other	0	0
Buildings & Improvements	0	0
Land	0	0
Other	0	0
Total Investment	0	0
Repayment of Debt		
Intermediate Debt	1136	1136

Long Term Debt	70521		70521	
Total Debt Repayment		71657		71657
Non-Farm Withdrawals				
Salary & Living Expenses	0		0	
Income Taxes & Social Security	9072		3220	
Gifts & Donations	0		0	
Other	0		0	
Total Non-Farm Withdrawals		9072		3220
TOTAL CASH APPLIED		80729		74877
		-----		-----
NET CHANGE IN CASH POSITION		30917		17954
		-----		-----

COLUMBIA BASIN FARM TEMPLATES

FINANCIAL STATEMENT OFColumbia Basin Irrg.DATE.....8/27/84

ASSETS	Start of Year	LIABILITIES	Start of Year
CURRENT			
Cash on Hand		Real Estate Taxes	
Cash in Bank	17658	Operating Line	
Accounts Receivable		OPL Bank	229910
Employee Advance	494	Past Due Accounts	
Prepaid Tax	2882	Payroll Taxes	5187
Farm products on hand			
Growing Crops			
Livestock for Sale		Debts to Retire Within One Year	
Prepaid Expenses			
		C.C.C. Liens on Crop	
Other			
TOTAL CURRENT \$	21034	TOTAL CURRENT \$	235097
INTERMEDIATE			
Automobiles		Debts 1 to 7 Years Purpose	Start of
Machinery and Trucks	457510	Creditor	Year
Irrigation Equipment	202831	ABC Credit	6750
		Deere Motor Credit	60000
Livestock			
Personal Property			
Other			
		C.C.C. Liens	
TOTAL INTERMEDIATE \$	660341	TOTAL INTERMEDIATE \$	60000
LONG TERM			
Real Estate	Start	Liens	Start of
1. Home Place	of Year	Creditor	Year
2. River Place	1007806	Insurance Company	352000
3.	671871	Smith	266916
4.			
5.			
6.			

7.	Real Estate Contract Receivable:		Underlying Debts	
2.				
3.	Co-op Retains Morrow County G.G	41147	Other Creditors	
Other				
	Wells	129629		
	TOTAL FIXED \$	1850453	TOTAL LONG TERM \$	618916
	TOTAL ASSETS	2531828	TOTAL LIABILITIES	914013

			NET WORTH	1617815
			DEBT TO ASSET RATIO	36.1

STATEMENT 2		SCHEDULE OF DEBT REPAYMENT				
Creditor	Interest Rate	Annual Term	Annual Interest Payment	Interest Payment	Current Balance	

Real Estate Taxes						
Operating Line						
OPL Bank	14.5	-	33337	33337	229910	
Past Due Accounts						
Payroll Taxes	-	-	5187		5187	
Debts to Retire Within One Year						
C.C.C. Liens on Crop						
TOTAL CURRENT \$			38524	33337	235097	

INTERMEDIATE DEBTS		Interest Rate	Annual Term	Annual Interest Payment	Interest Payment	Current Balance
Creditor & Purpose						
ABC Credit		13	5	1919	878	6750
Deere Motor Credit		14.5	7	14206	8700	60000
C.C.C. Liens						
TOTAL INTERMEDIATE \$			16125	9578	66750	

LONG TERM DEBTS		Interest Rate	Annual Term	Annual Interest Payment	Interest Payment	Current Balance
Creditor						
Insurance Company		9	25	35835	31680	352000
Smith		10	15	35092	26692	266916

Underlying Debts

Other Creditors

TOTAL LONG TERM \$	70927	58372	618916
GRAND TOTALS \$	125576	101286	920763

*****SUMMARY*****

TOTAL INTEREST PAYMENT	101286
TOTAL PRINCIPAL PAYMENT	24290
INTERMEDIATE INTEREST	9578
LONG TERM INTEREST	58372
INTERMEDIATE PRINCIPAL	6548
LONG TERM PRINCIPAL	12555

Columbia Basin Irrg. Date of
Income Statement Out of Program Analysis 8/27/84

LAND USE PLAN & CROP SALES

Crop	Average Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat Irr.	1410	78.0	109980	100	3.50	109980	384930
Barley Dryland	303	0.64	193.92	100	108.81	193.92	21100
Alfalfa	70	7.38	516.6	100	77.00	516.6	39778

Totals	1783						445809
--------	------	--	--	--	--	--	--------

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Average Number	Average Weight	Average Price/Lbs.per Head	Average Value Capital Sales	Gross Income

Purchased for Resale

Cost

Totals	0	0			0	0
--------	---	---	--	--	---	---

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income

SALES FROM INVENTORY
Product

Beginning Sales from
Inventory Inventory Balance

Gross
Income

Total Other & Inventory Income 0

TOTAL FARM INCOME 445809

FARM EXPENSES

Operating Costs	Amount

Hired Labor	20291
Repairs, Maintance	23720
Cash Rent	
Feed Purchased	
Seed Plants Purchased	3701
Fertilizers, Lime	33468
Herbicides, Pesticides	6339
Machine Hire	
Supplies Purchased	1179
Breeding fees	
Veterinary, Drugs	
Gasoline, Fuel, Oil	57392
Storage, warehousing	2359
Utilities	45982
Freight	1769
Conservation expenses	3539
Operating Interest	33337
Other Operating Expenses	
1. Miscellaneous	2949
2.	
3.	
4.	
5.	
6.	
7.	

TOTAL OPERATING EXPENSES	236025

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount

Depreciation		
Machinery	27616	
Breeding stock		
Irrigation Equipment	24164	
Buildings	17260	
Other		
Total Depreciation		69040
Real Estate Taxes	7800	7800
Insurance		
Fire and Loss	2250	
Health	6480	
Liability	3647	
Total Insurance		12377

Interest Cost			
Intermediate	9578		
Long Term	58372		
Total Interest Cost		67949	
Other Fixed Cost	0		
1.			
2.			
Total Other Fixed Costs		0	

Total Fixed Costs		157166	
Total Farm Sales		445809	
Total Costs		393191	
OPERATING FARM INCOME		52618	

Farm Income(Loss) from the Sale of Capital Items	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	0	0	0
Machinery & Equipment			0
Building & Improvements			0
Land			0
Other			0
Total Farm Capital Sales	0	0	0

NET FARM INCOME		\$ 52618	
FEDERAL INCOME TAXES		\$ 14181	
NET FARM INCOME AFTER TAXES		\$ 38437	

Columbia Basin Irrg. Date 8/27/84
 Out of Program
 Individual Estimated Federal Income Tax Worksheet

Exemptions	4	***Filing Status Choices***	
Filing Status	2	Single - 1	
		Married - 2	
		Married Filing Single - 3	

		Adjusted	
		Totals	
-----Income-----			
Wages & Salaries			
Dividends & Interest			
Tax Refunds			
Business Income			
Capital Gains	Farm-	0	Other- 0
Supplemental Gains			
Rents Royalties Etc.			
Farm Income			52618
Other Income			
1.			
2.			
3.			
TOTAL INCOME			52618

--Income Adjustments--			
Moving Expense	0		
I.R.A. Deductions	0		
Keogh Payments			
Alimony Paid			
Married Couple Deductions	0		
Other Adjustments			
Total Adjustments			- 0
ADJUSTED GROSS INCOME			52618

-----Itemized Deductions-----			
Medical	0		
Taxes	0		
Personal Interest	0		
Contributions	0		
Casualty & Theft Losses	0		
Misc. Deductions	0		
Total Deduction	0		
Filing Status Adjustment	3400		
Adjusted Deduction			0
Income After Deductions			52618
Adjustment for Exemptions			- 4000
Taxable Income			48618

INCOME TAX			\$ 10843

-----Tax Credits-----			

I.T.C.
Elderly
Political Contributions
Other Credits

TOTAL CREDITS

0

BALANCE DUE

10843

-----Other Taxes-----

Self Employment Tax 3338

Alternative Minimum Tax

Recapture of I.T.C.

Other Taxes

TOTAL OTHER TAXES

3338

ESTIMATED FEDERAL TAX

14181

MARRIED FILING JOINT
SCHEDULE Y

3400	0
5500	
7600	
11900	
16000	
20200	
24600	
29900	
35200	
45800	
60000	10842.682
85600	
109400	
>109400	
TAX	10842.682

SINGLE TAXPAYER
SCHEDULE X

2300	0
3400	
4400	
6500	
8500	
10800	
12900	
15000	
18200	
23500	
28800	
34100	
41500	
55300	13308.386
81800	
>81800	
TAX	13308.386

MARRIED FILING SEPARATE

1700	0
2750	
3800	
5950	
8000	
10100	
12300	
14950	
17600	
22900	
30000	
42800	
54700	15577.913
81200	
>81200	
TAX	15577.913

Columbia Basin Irrg.

INCOME STATEMENT IN PROGRAM DATE 8/27/84

LAND USE PLAN & CROP SALES

Crop	Average Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat Irr.	987	88.0	86856	100	3.50	86856	303996
Barley	303	0.8	242	100	108.00	242	26179
Alfalfa	70	7.38	517	100	77.00	517	39778
Set-A-Side	423						

Totals	1783						369953
--------	------	--	--	--	--	--	--------

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Average Value Price/Lbs.per Head	Capital Sales	Gross Income

Purchased for Resale

Cost

Totals	0	0			0	0
--------	---	---	--	--	---	---

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income
Government Payments			
Paid Diversion	141 Acres	210.60	29695
Deficiency Payments	76986 Bu	0.88	67748
\$50,000 Limitation	47442.3 Dollars	-1.00	-47442

SALES FROM INVENTORY Product	Beginning Inventory	Sales from Inventory Balance	Gross Income

Total Other & Inventory Income 50000
TOTAL FARM INCOME 419953

FARM EXPENSES

Operating Costs	Amount

Hired Labor	18000
Repairs, Maintance	18976
Cash Rent	0
Feed Purchased	0
Seed Plants Purchased	2591
Fertilizers, Lime	23427
Herbicides, Pesticides	4437
Machine Hire	0
Supplies Purchased	1179
Breeding fees	0
Veterinary, Drugs	0
Gasoline, Fuel, Oil	43044
Storage, warehousing	1651
Utilities	36785
Freight	1238
Conservation expenses	7078
Operating Interest	33337
Other Operating Expenses	
1. Miscellaneous	2949
2.	
3.	
4.	
5.	
6.	
7.	

TOTAL OPERATING EXPENSES	194692

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount

Depreciation		
Machinery	27616	
Breeding stock	0	
Irrigation Equipment	24164	
Buildings	17260	
Other	0	
Total		69040
Real Estate Taxes	7800	7800
Insurance		
Fire and Loss	2250	
Health	6480	
Liability	3647	

Total Insurance		12377
Interest Costs		
Intermediate	9578	
Long Term	58372	
Total Interest Cost		67949
1.		
2.		
3.		
Total		67949

Total Fixed Costs		149366
-------------------	--	--------

Total Farm Sales		419953
Total Costs		344058

OPERATING FARM INCOME		75895
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Farm Income (Loss) from the Sale of Capital Item	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	0	0	0
Machinery & Equipment			0
Buildings & Improvements	0	0	0
Land			0
Other			0
Total Farm Capital Sales	0	0	0

TOTAL FARM INCOME	\$	75895
FEDERAL INCOME TAXES	\$	23502
NET FARM INCOME	\$	52393

Columbia Basin Irrg. Date 8/27/84
 In Program
 Individual Estimated Federal Income Tax Worksheet

Exemptions	4	***Filing Status Options***		
Filing Status	2	Single - 1		
		Married - 2		
		Married Filing Single - 3		
-----Income-----				
			Adjusted	
			Totals	
Wages & Salaries				0
Dividends & Interest				
Tax Refunds				
Business Income				
Capital Gains		Farm- 0	Other-	0
Supplemental Gains				
Rents Royalties Etc.				
Farm Income				75895
Other Income				
1.				
2.				
3.				
TOTAL INCOME				75895

---Income Adjustments---				
Moving Expense				
I.R.A. Deductions		0		
Keogh Payments				
Alimony Paid				
Married Couple Deductions		0		
Other Adjustments				
Total Adjustments			-	0
ADJUSTED GROSS INCOME				75895

-----Itemized Deductions-----				
Medical		0		
Taxes		0		
Personal Interest		0		
Contributions		0		
Casualty & Theft Losses				
Misc. Deductions				
Total Deduction		0		
Filing Status Adjustment		3400		
Adjusted Deduction			-	0
Income After Deductions				75895
Adjustment for Exemptions				4000
TAXABLE INCOME				71895

INCOME TAX				20164

-----Tax Credits-----				

I.T.C.	0	
Elderly		
Political Contributions		
Other Credits		
TOTAL CREDITS		0
BALANCE		20164
-----Other Taxes-----		-----
Self Employment Tax	3338	
Alternative Minimum Tax		
Recapture of I.T.C.		
Other Taxes		
TOTAL OTHER TAXES		3338
ESTIMATED FEDERAL INCOME TAX		23502

MARRIED FILING JOINT
SCHEDULE Y

3400 0
5500
7600
11900
16000
20200
24600
29900
35200
45800
60000
85600 20164.047
109400
>109400

TAX 20164.047
SINGLE TAXPAYER
SCHEDULE X

2300 0
3400
4400
6500
8500
10800
12900
15000
18200
23500
28800
34100
41500
55300
81800 24080.768
>81800

TAX 24080.768
MARRIED FILING SEPARATE

1700 0
2750
3800
5950
8000
10100
12300
14950
17600
22900
30000
42800
54700
81200 26740.722
>81200
TAX 26740.722

Columbia Basin Irrg.

Date 8/27/84

STATEMENT OF CHANGES IN FINANCIAL POSITION

Cash Provided	IN PROGRAM	OUT OF PROGRAM
Operations		
Net Income (Loss)	75895	52618
Non-Cash Expenses		
Depreciation	69040	69040
Other	0	0
Total	144935	121658
Inventory Increase < >	0	0
Total From Operations	144935	121658
Other	0	0
Sale of Non-Current Assets		
Breeding Livestock	0	0
Machinery & Equipment	0	0
Other	0	0
Buildings & Improvements		
Land	0	0
Other	0	0
Total Sales	0	0
Increase in Farm Loans		
C.C.C. Loans	0	0
Operating Loan	0	0
Equipment	0	0
Breeding Livestock	0	0
Other	0	0
Real Estate	0	0
Other	0	0
Total Increase in Debts	0	0
TOTAL SOURCES OF CASH	144935	121658
	=====	=====
Cash Applied		
Non-Current Investment		
Breeding Livestock	0	0
Equipment	0	0
Other	0	0
Buildings & Improvements		
Land	0	0
Other	0	0
Total Investment	0	0
Repayment of Debt		
Intermediate Debt	6548	6548

Long Term Debt	12555		12555	
Total Debt Repayment		19103		19103
Non-Farm Withdrawals				
Salary & Living Expenses	0		0	
Income Taxes & Social Security	23502		14181	
Gifts & Donations	0		0	
Other	0		0	
Total Non-Farm Withdrawals		23502		14181
		42605		33284
TOTAL CASH APPLIED		=====		=====
NET CHANGE IN CASH POSITION		102330		88374
		=====		=====

COLUMBIA PLATEAU FARM TEMPLATES

FINANCIAL STATEMENT OFCOLUMBIA PLATEAU DATE.....8/31/84

ASSETS	Start of Year	LIABILITIES	Start of Year
CURRENT			
Cash on Hand	2500	Real Estate Taxes	
Cash in Bank			
Accounts Receivable		Operating Line PCA	38910
Farm products on hand Wheat	42500	Past Due Accounts	
Growing Crops			
Livestock for Sale Steers	8000	Debts to Retire Within One Year	
Prepaid Expenses		C.C.C. Liens on Crop	
Other			
TOTAL CURRENT \$	53000	TOTAL CURRENT \$	38910
INTERMEDIATE			
Automobiles	12500	Debts 1 to 7 Years Purpose	Start of
Machinery and Trucks	118585	Creditor	Year
Irrigation Equipment			
Livestock Aged Cows	11500		
Personal Property			
Other			
TOTAL INTERMEDIATE \$	142585	C.C.C. Liens TOTAL INTERMEDIATE \$	0
LONG TERM			
Real Estate	Start of Year	Liens Creditor	Start of Year
1.			
2.			
3.			
4.			
5.			
6.			

7.
Real Estate Contract
Receivable:

Underlying Debts

2.
3.
Co-op Retains

1200 Other Creditors

Other

TOTAL FIXED \$	1200	TOTAL LONG TERM \$	0
TOTAL ASSETS	196785	TOTAL LIABILITIES	38910

		NET WORTH	157875
		DEBT TO ASSET RATIO	19.8

STATEMENT 2		SCHEDULE OF DEBT REPAYMENT			
Creditor	Interest Rate	Annual Term Payment	Interest Payment	Current Balance	

Real Estate Taxes					
Operating Line PCA	14.75	44649	5739	38910	
Past Due Accounts					
Debts to Retire Within One Year					
C.C.C. Liens on Crop					
TOTAL CURRENT \$		44649	5739	38910	

INTERMEDIATE DEBTS Creditor & Purpose	Interest Rate	Annual Term Payment	Interest Payment	Current Balance	
C.C.C. Liens					
TOTAL INTERMEDIATE \$		0	0	0	

LONG TERM DEBTS Creditor	Interest Rate	Annual Term Payment	Interest Payment	Current Balance	

Underlying Debts

Other Creditors

TOTAL LONG TERM \$	0	0	0
GRAND TOTALS \$	44649	5739	38910

*****SUMMARY*****

TOTAL INTEREST PAYMENT	5739
TOTAL PRINCIPAL PAYMENT	38910
INTERMEDIATE INTEREST	0
LONG TERM INTEREST	0
INTERMEDIATE PRINCIPAL	0
LONG TERM PRINCIPAL	0

COLUMBIA PLATEAU Date of
Income Statement Out of Program Analysis 8/31/84

LAND USE PLAN & CROP SALES

Crop	Average Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat	570	64.0	36480	67	3.50	24441.6	85546

Totals 570 85546

NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Price/Lbs.	Average Value per Head	Capital Sales	Gross Income
Yearlings		18	615	0.65	399.75		7195.5
Cows	1	2	1100	0.36	396	792	792

Purchased for Resale

Cost

Totals 20 1715 792 7195.5

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income

SALES FROM INVENTORY

Product	Beginning Inventory	Sales from Inventory	Inventory Balance	Gross Income
Wheat	\$ 42500	42500	0	42500

Total Other & Inventory Income 42500

TOTAL FARM INCOME 135241

FARM EXPENSES

Operating Costs	Amount

Hired Labor	10100
Repairs, Maintance	5600
Cash Rent	1490
Feed Purchased	4735
Seed Plants Purchased	6000
Fertilizers, Lime	7000
Herbicides, Pesticides	7000
Machine Hire	
Supplies Purchased	3250
Breeding fees	
Veterinary, Drugs	350
Gasoline, Fuel, Oil	6625
Storage, warehousing	
Utilities	1580
Freight	
Conservation expenses	
Operating Interest	5739
Other Operating Expenses	400
1. FICA & Taxes	1100
2.	
3.	
4.	
5.	
6.	
7.	

TOTAL OPERATING EXPENSES	60969

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount

Depreciation		
Machinery		
Breeding stock		
Irrigation Equipment		
Buildings		
Other	6188	
Total Depreciation		6188
Real Estate Taxes		0
Insurance		
Fire and Loss	2000	
Health	4505	
Liability	3000	
Total Insurance		9505

Interest Cost			
Intermediate	0		
Long Term	0		
Total Interest Cost		0	
Other Fixed Cost	0		
1.			
2.			
Total Other Fixed Costs		0	

Total Fixed Costs		15693	
Total Farm Sales		135241	
Total Costs		76662	
OPERATING FARM INCOME		58579	

Farm Income(Loss) from the Sale of Capital Items	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	792	0	792
Machinery & Equipment			0
Building & Improvements			0
Land			0
Other			0
Total Farm Capital Sales	792	0	792

NET FARM INCOME		\$ 59371	
FEDERAL INCOME TAXES		\$ 16566	
NET FARM INCOME AFTER TAXES		\$ 42805	

COLUMBIA PLATEAU Date 8/31/84
 Out of Program
 Individual Estimated Federal Income Tax Worksheet

Exemptions	4	***Filing Status Choices***	
Filing Status	2	Single - 1	
		Married - 2	
		Married Filing Single - 3	

-----Income-----				Adjusted
				Totals
Wages & Salaries				
Dividends & Interest				
Tax Refunds				
Business Income				
Capital Gains	Farm-	792	Other-	317
Supplemental Gains				
Rents Royalties Etc.				
Farm Income				58579
Other Income				
1.				
2.				
3.				
TOTAL INCOME				58896

--Income Adjustments--				
Moving Expense		0		
I.R.A. Deductions		0		
Keogh Payments				
Alimony Paid				
Married Couple Deductions		0		
Other Adjustments				
Total Adjustments			-	0
ADJUSTED GROSS INCOME				58896

-----Itemized Deductions-----				
Medical		0		
Taxes		0		
Personal Interest		0		
Contributions		0		
Casualty & Theft Losses		0		
Misc. Deductions		0		
Total Deduction		0		
Filing Status Adjustment		3400		
Adjusted Deduction				0
Income After Deductions				58896
Adjustment for Exemptions			-	4000
Taxable Income				54896

INCOME TAX				\$ 13228

-----Tax Credits-----				

I.T.C.
Elderly
Political Contributions
Other Credits

TOTAL CREDITS

- 0

BALANCE DUE

13228

-----Other Taxes-----

Self Employment Tax 3338

Alternative Minimum Tax

Recapture of I.T.C.

Other Taxes

TOTAL OTHER TAXES

3338

ESTIMATED FEDERAL TAX

16566

=====

MARRIED FILING JOINT
SCHEDULE Y

3400 0
5500
7600
11900
16000
20200
24600
29900
35200
45800
60000 13228.357
85600
109400
>109400
TAX 13228.357

SINGLE TAXPAYER
SCHEDULE X

2300 0
3400
4400
6500
8500
10800
12900
15000
18200
23500
28800
34100
41500
55300 15945.184
81800
>81800
TAX 15945.184

MARRIED FILING SEPARATE

1700 0
2750
3800
5950
8000
10100
12300
14950
17600
22900
30000
42800
54700
81200 18410.881
>81200
TAX 18410.881

COLUMBIA PLATEAU

INCOME STATEMENT IN PROGRAM DATE 8/31/84

LAND USE PLAN & CROP SALES

Crop	Average Acres	Average Yield	Total Production	Operators Share %	Price per Unit	Operator Share	Gross Income
Wheat	399	64.0	25536	67	3.50	17109	59882
Barley	171	1.5	257	67	100.00	172	17186

Totals	570						77067
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NOTE: Operators share on own land is 100.

LIVESTOCK SALES

Kind	1 For Cap.	Number	Average Weight	Price/Lbs.	Average Value per Head	Capital Sales	Gross Income
Yearlings		18	615	0.65	399.75		7196
Cows	1	2	1100	0.36	396	792	792

Purchased for Resale

Cost

Totals	20	1715			792	7195.5
--------	----	------	--	--	-----	--------

NOTE: For sales of capital livestock place 1 in column 2.

OTHER FARM INCOME

Kind	Number of Units	Value per Unit	Gross Income
Paid Diversion	11.46 Acres	172.80	1980
Deficiency Payments	17109 bu.	0.88	15056

SALES FROM INVENTORY

Product	Beginning Inventory	Sales from Inventory	Inventory Balance	Gross Income
Wheat	\$ 42500	42500	0	42500

Total Other & Inventory Income 59536
TOTAL FARM INCOME 143799

FARM EXPENSES

Operating Costs	Amount
<hr/>	
Hired Labor	10100
Repairs, Maintance	5600
Cash Rent	1490
Feed Purchased	4735
Seed Plants Purchased	6000
Fertilizers, Lime	7000
Herbicides, Pesticides	7000
Machine Hire	0
Supplies Purchased	3250
Breeding fees	0
Veterinary, Drugs	350
Gasoline, Fuel, Oil	6625
Storage, warehousing	0
Utilities	1580
Freight	0
Conservation expenses	0
Operating Interest	5739
Other Operating Expenses	400
1. FICA & Payroll Taxes	1100
2.	
3.	
4.	
5.	
6.	
7.	
<hr/>	
TOTAL OPERATING EXPENSES	60969.2

FIXED OR NON-CASH EXPENSES

Item	Amount	Total Amount
<hr/>		
Depreciation		
Machinery	0	
Breeding stock	0	
Irrigation Equipment	0	
Buildings	0	
Other	6188	
Total		6188
Real Estate Taxes	0	0
Insurance		
Fire and Loss	2000	
Health	4505	
Liability	3000	

Total Insurance		9505	
Interest Costs			
Intermediate	0		
Long Term	0		
Total Interest Cost		0	
1.			
2.			
3.			
Total		0	

Total Fixed Costs		15693	
Total Farm Sales		143799	
Total Costs		76662	
OPERATING FARM INCOME		67137	

Farm Income (Loss) from the Sale of Capital Item	Gross Sales	Cost or Basis	Capital Gain
Breeding Livestock	792	0	792
Machinery & Equipment			0
Buildings & Improvements	0	0	0
Land			0
Other			0
Total Farm Capital Sales	792	0	792

TOTAL FARM INCOME		\$ 67929	
FEDERAL INCOME TAXES		\$ 19957	
NET FARM INCOME		\$ 47972	

COLUMBIA PLATEAU In Program
 Date 8/31/84
 Individual Estimated Federal Income Tax Worksheet

Exemptions	4			***Filing Status Options***
Filing Status	2			Single - 1
				Married - 2
				Married Filing Single - 3

-----Income-----				Adjusted Totals
Wages & Salaries				0
Dividends & Interest				
Tax Refunds				
Business Income				
Capital Gains	Farm-	792	Other-	316.8
Supplemental Gains				
Rents Royalties Etc.				
Farm Income				67137
Other Income				
1.				
2.				
3.				
TOTAL INCOME				67454

---Income Adjustments---				
Moving Expense				
I.R.A. Deductions		0		
Keogh Payments				
Alimony Paid				
Married Couple Deductions		0		
Other Adjustments				
Total Adjustments				0
ADJUSTED GROSS INCOME				67454

-----Itemized Deductions-----				
Medical		0		
Taxes		0		
Personal Interest		0		
Contributions		0		
Casualty & Theft Losses				
Misc. Deductions				
Total Deduction		0		
Filing Status Adjustment		3400		
Adjusted Deduction				0
Income After Deductions				67454
Adjustment for Exemptions				4000
TAXABLE INCOME				63454

INCOME TAX				16619

-----Tax Credits-----				

I.T.C.	0	
Elderly		
Political Contributions		
Other Credits		
TOTAL CREDITS		0
BALANCE		16619

-----Other Taxes-----		
Self Employment Tax	3338	
Alternative Minimum Tax		
Recapture of I.T.C.		
Other Taxes		
TOTAL OTHER TAXES		3338
ESTIMATED FEDERAL INCOME TAX		19957

MARRIED FILING JOINT
SCHEDULE Y

3400 0
5500
7600
11900
16000
20200
24600
29900
35200
45800
60000
85600 16618.555
109400
>109400
TAX 16618.555

SINGLE TAXPAYER
SCHEDULE X

2300 0
3400
4400
6500
8500
10800
12900
15000
18200
23500
28800
34100
41500
55300
81800 20028.777
>81800

TAX 20028.777

MARRIED FILING SEPARATE

0
1700
2750
3800
5950
8000
10100
12300
14950
17600
22900
30000
42800
54700
81200 22604.314
>81200
TAX 22604.314

COLUMBIA PLATEAU

Date 8/31/84

STATEMENT OF CHANGES IN FINANCIAL POSITION

Cash Provided	IN PROGRAM	OUT OF PROGRAM
Operations		
Net Income (Loss)	67137	58579
Non-Cash Expenses		
Depreciation	6188	6188
Other	0	0
Total	73325	64767
Inventory Increase < >	0	0
Total From Operations	73325	64767
Other	0	0
Sale of Non-Current Assets		
Breeding Livestock	792	792
Machinery & Equipment		
Other	0	0
Buildings & Improvements	0	
Land		
Other		
Total Sales	792	792
Increase in Farm Loans		
C.C.C. Loans	0	0
Operating Loan	0	0
Equipment	0	0
Breeding Livestock	0	0
Other	0	0
Real Estate	0	0
Other	0	0
Total Increase in Debts	0	0
TOTAL SOURCES OF CASH	74117	65559
Cash Applied		
Non-Current Investment		
Breeding Livestock	0	0
Equipment	5500	5500
Other	0	0
Buildings & Improvements	0	0
Land	0	0
Other	0	0
Total Investment	5500	5500
Repayment of Debt		
Intermediate Debt	0	0

Long Term Debt	0	0	0
Total Debt Repayment		0	0
Non-Farm Withdrawals			
Salary & Living Expenses	0		0
Income Taxes & Social Security	19957		16566
Gifts & Donations	0		0
Other	0		0
Total Non-Farm Withdrawals		19957	16566
TOTAL CASH APPLIED		25457	22066
		=====	=====
NET CHANGE IN CASH POSITION		48660	43493
		=====	=====