Study and Prospects of Contract Farming in Oregon

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Production and market organization in an industry is a result of economic forces. In broiler production, the environment has encouraged production by contract. Specialization of various phases of production and marketing—a result of new technological developments—has made these functions dependent on each other. Decisions by firms in one part of the industry have a direct impact on other firms. Lack of coordination between production and marketing phases results in lower profits for the firms. Contract production has scheduled production among firms.

No regular increase or decrease in average production efficiency was found in the growing phase of broiler production because of size of business or amount of integration. Single broiler businesses may have gains or losses in production efficiency regardless of contracts. Evidently the lower limit placed on size of business in this study was high enough to enable broiler growers to use efficient production methods. The ability of the grower to recognize improved production methods by himself or with the help of fieldmen, extension personnel, or others makes a greater difference in production efficiency than signing a contract.

Prices of supplies used in broiler growing go down as size of enterprise goes up. Quantity discounts on feed—savings brought about by bulk handling—result in lower prices for bigger businesses. Small enterprises are faced with increasing competition from larger enterprises which are expanding at a faster rate than the small businesses.

Broiler firms produce under contract in order to shift some risks of production to other firms in the industry. When the outlook is for low prices, growers sign contracts more readily. Some firms that have produced independently shift to contract production at such times. A tendency for continued low prices for broilers has resulted in a shift of most growers to some form of contract production.

Contract production in other livestock and poultry businesses will probably increase. However, unless changes occur faster than at present, other contract business will increase at a much slower rate than in the field of broiler production. Whether or not the trend toward contract production will continue and the speed with which arrangements develop will depend on changes that occur in these industries. Changes will not, of course, occur in all industries at the same time.

Modern broiler production is a new industry and has experienced rapid
growth and change. Established market organization and methods have not deterred growth and rate of change as much as will probably be the case for better established industries. New advances as a result of research have occurred at a rapid pace in all phases of the broiler industry (partly because of contract production) but in other industries production methods have remained about the same. Production in other industries requires a longer time and products may be stored to reduce price variation. Specialization of farm phases of production has not been as great in other industries as it has been in the broiler industry. Thus some situations that have encouraged broiler production by contract have not been present in other industries. For example, credit has been more readily available from regular lending agencies since feed supplies from crop enterprises or other assets could be used as security for obtaining credit.

Contract production will remain as an important method of coordinating production and marketing so long as prospects for greater efficiency in use of resources exist for most of those participating in the arrangement.

**Introduction**

Coordination of production and marketing has been a problem in agriculture ever since farming became a business. Contracts, as aids to coordination, have been used during the past 30 to 40 years in production of processed fruits and vegetables, sugar beets, and other products where an assured supply of products was necessary to make efficient use of processing plants and equipment. In most cases, coordination has been achieved by regulating planting and harvesting schedules in line with processing plant requirements and market demand. Field service departments provided management assistance to growers and maintained quality products by advising on matters such as fertilization, planting, insect and disease control, irrigation, and harvesting.

In recent years, a form of coordination known as vertical integration has expanded to other agricultural industries. The broiler industry frequently is cited as an example since it is more integrated than most other agricultural industries. Other enterprises such as egg production, turkey production, swine production, and beef and lamb fattening enterprises are mentioned frequently in news releases, research and extension publications, and professional agricultural journals as possibilities for integration.

The first part of this bulletin is an analysis of the broiler industry in Oregon. Primary emphasis is given to whether or not coordination between production and marketing results in more efficient use of feed. Reasons for the rapid growth of contract arrangements in the broiler industry also are summarized.

The second part of this bulletin discusses prospects for growth of integration in other poultry and livestock industries.

1 Vertical integration has been defined several ways. Most definitions state that vertical integration involves the control of more than one step in the production and marketing process. Vertical integration means that control extends across activities usually performed by two or more separate firms.
Broiler production in Oregon increased at a faster rate than the average rate of increase in the United States. Between 1934 and 1958, production increased about 65 times in Oregon compared to an increase of 40 to 45 times in the country as a whole. The number of broilers produced in Oregon increased from about 120,000 to more than 8 million, while gross income increased from $53,000 to about $5.2 million. This rapid growth may be attributed to new developments in breeding, nutrition, husbandry practices, and processing.

Early broiler production was a high-risk enterprise. A disease outbreak or a price decline for broilers was often financially disastrous for an individual grower. Because of this high risk, credit agencies usually were reluctant to finance broiler production unless other assets were available to secure a loan. Prospective broiler growers frequently were unable to satisfy security requirements. To expand sales of feed and supplies, feed manufacturers or dealers extended credit to broiler growers. Credit for feed and related needs allowed established and prospective growers alike to use their own funds to finance buildings and equipment to expand or start a broiler business.

**Broiler growing enterprises**

Personal interview survey data were obtained from a sample of 41 broiler growers selected at random within three size strata.

Growers interviewed in the small size group had produced broilers commercially for 3.5 years on an average (Table 1). Growers in the medium and the large size groups had 4.8 and 8.0 years of experience respectively. This relationship shows that broiler growers may start with a small business and expand as experience is acquired.

A majority of broiler growers in all three groups were experienced poultry producers when they began to grow broilers commercially. However, growers in the medium size group who were experienced poultry producers represented only 53% of this size group; 64% and 91% were experienced poultry producers in the small and large size groups respectively. Of the experienced growers, most had been egg producers. Turkey production was the second most frequent type of experience.

Broiler production was the only commercial farm enterprise of most growers interviewed. Approximately one-third produced either small grains, orchard products, or pasture on a relatively small scale. Only four growers had other poultry or livestock enterprises.

Growers in the small size group were employed off the farm more than growers in the other two groups. This shows that production of 10,000 to 40,000 broilers per year did not provide full time employment. School bus driving or truck driving was the most common type of off-farm employment. Operators in the small size group worked about one-fourth time off the farm while family labor cared for the birds. Nearly half the growers in the medium size group worked off the farm—averaging about one-fifth of the group’s working time. Only three growers in the large size group were employed part time off the farm.

Data obtained showed the change in annual capacity of the enterprises
Table 1. Experience of broiler growers by size groups, Willamette Valley and Medford area, Oregon, 1957-58.

<table>
<thead>
<tr>
<th>Size group</th>
<th>Number of broilers produced annually</th>
<th>Experience as commercial broiler grower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>10,000-39,999</td>
<td>3.5</td>
</tr>
<tr>
<td>Medium</td>
<td>40,000-99,999</td>
<td>4.8</td>
</tr>
<tr>
<td>Large</td>
<td>More than 100,000</td>
<td>8.0</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>4.3</td>
</tr>
</tbody>
</table>

*Weighted to account for different sample size in each stratum.

For 1956, 1957, and 1958. The percentage increase in size was fastest for the large size group (Table 2). Most expansion resulted from construction of new buildings. The fact that larger enterprises were expanded at a faster rate increases the difference in average size of the three groups over time. Future of the small size enterprises will depend largely on their ability to produce at a cost competitive with other broiler growers and to increase their size to achieve lower costs of production.

Table 2. Number of broilers produced and percentage increase in production by size groups for the years 1956, 1957, and 1958.

<table>
<thead>
<tr>
<th>Size group</th>
<th>Number of broilers produced</th>
<th>Increase from 1956 to 1958</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>16,000 18,600 23,500</td>
<td>47</td>
</tr>
<tr>
<td>Medium</td>
<td>38,700 48,500 66,300</td>
<td>71</td>
</tr>
<tr>
<td>Large</td>
<td>68,200 106,000 142,500</td>
<td>109</td>
</tr>
<tr>
<td>Average</td>
<td>26,900 35,400 46,800</td>
<td>59</td>
</tr>
</tbody>
</table>

*Weighted to account for different sample size in each stratum.*
Other integrated firms

Hatcheries. Four hatcheries supplied about 70% of the chicks to growers. Hatcherymen set up delivery schedules with growers in order to achieve lower costs per unit of production. Oral agreements and written contracts were used about equally in establishing delivery dates for growers in the small and medium size groups. Growers in the large size group usually had oral agreements.

Feed manufacturers. Three feed manufacturers supplied about three-fourths of the feed for broilers fed during 1958. Bulk delivery of up to 12 tons of feed at one time at highly competitive prices plus capital requirements of financing broiler producers made it imperative that the feed manufacturing company, rather than the local dealer, deal directly with growers. Written contracts were the rule since credit was usually involved. Most feed companies financed feed and other items such as medicines and propane gas. In some instances, the chicks also were financed by the feed company. The feed company usually took a chattel mortgage on the chickens. Feed manufacturers received payment when the broilers were sold. The check issued by the processor was often made payable to the feed manufacturer and the grower.

Broiler processors. Four processors purchased a majority of the broilers sold by growers in the Willamette Valley. A processor located in southern Oregon purchased most of the broilers produced in the Medford area. A broiler grower frequently agrees to sell his broilers to a particular processor even before he receives the baby chicks.
Oregon's broiler industry requires huge quantities of feed even though efficiency has improved. Three manufacturers supplied about three-fourths the feed for Oregon broilers fed during 1958.

Practically all broilers were processed when they were 61 to 64 days old. Larger enterprises tended to sell younger broilers. Broilers averaged between 3.3 and 3.4 pounds live weight for all three size groups.

**Contract production and efficiency**

This phase of the study dealt with determining whether or not feed was used more efficiently by large or small growers and by those with much or little integration. Mathematical equations were developed which showed the average relationship between pounds of feed fed and liveweight of broilers for the batches included in the study.

No dependable relationship existed between size, degree of integration, and the production function. This means that small growers and those with low levels of integration were using feed as efficiently as any other size group and degree of integration.

**Cost and returns analysis**

Since size of enterprise and level of integration do not change production efficiency, the important economic question remaining is: which method of production and size of enterprise yields the greatest net returns per bird? With the physical relationship the same, the cost and returns phase of the problem becomes the determining factor.

Table 3 shows receipts and selected costs per 1,000 birds for five groups of enterprises of various sizes and levels of integration. These data show that both feed and chick costs are

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1 Because nearly all of the 41 growers in this study were integrated to some degree, it was necessary to calculate an index of integration which could be used to show the degree of coordination. The calculated indices ranged from zero to 72%. The zero index meant no integration at all whereas 72% represented the highest degree of integration.
Table 3. Receipts and selected costs per 1,000 broilers for five groups of various sizes and levels of integration, 1958.

<table>
<thead>
<tr>
<th>Group</th>
<th>Receipts</th>
<th>Chicks</th>
<th>Feed¹</th>
<th>Total expenses</th>
<th>Receipts less expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Medium size—low degree of integration</td>
<td>$747</td>
<td>$144</td>
<td>$449</td>
<td>$593</td>
<td>$154</td>
</tr>
<tr>
<td>2. Large size—low degree of integration</td>
<td>734</td>
<td>141</td>
<td>442</td>
<td>583</td>
<td>151</td>
</tr>
<tr>
<td>3. Small size—high degree of integration</td>
<td>753</td>
<td>153</td>
<td>467</td>
<td>620</td>
<td>133</td>
</tr>
<tr>
<td>4. Medium size—high degree of integration</td>
<td>751</td>
<td>146</td>
<td>432</td>
<td>578</td>
<td>173</td>
</tr>
<tr>
<td>5. Large size—high degree of integration</td>
<td>745</td>
<td>144</td>
<td>413</td>
<td>557</td>
<td>186</td>
</tr>
</tbody>
</table>

¹Includes medication.

lower among growers of large and medium size than among small producers when a high degree of integration exists. This means that large and medium size growers were able to buy baby chicks and feed at slightly lower prices than were the small size growers.

Prices received for broilers indicated only minor differences among the groups. These prices were based on the market price reported at Portland. Additional receipts from rebates on feed, chicks, and processing and market pool settlements indicated no consistent pattern.

The difference between the selected expense items and receipts was what the broiler grower received to pay for other costs of production such as labor, fuel, litter, and interest on capital investment. Receipts less costs was calculated to indicate the relative amount a broiler grower in the various groups

Oregon broilers are packed in crushed ice and are moved, on a daily basis, to retail outlets.
would have left to meet these expenses. Data were collected for those items expected to vary with size and level of integration. Thus the differences reflect relative profitability for the groups of enterprises. On the basis of the range, there is a difference of about five cents per bird sold.

Implications of data

The analysis of physical relationships indicated no advantage for contractual methods of performing the growing phase of broiler production. Independent growers were able to grow a pound of live broiler for the same pounds of feed as producers under contract.

Growers whose enterprises had a low index of integration have apparently been able to achieve efficiency as independent growers. Many undoubtedly receive suggestions and advice on management from feed manufacturers and other firms without signing a contract.

Efficiency of production did not change as a result of size of enterprise. Small enterprises, on the average, were able to produce broilers as efficiently as large enterprises.

Costs are always important to the individual grower. His ability to bargain influences the prices he pays. The bargaining position of a grower is stronger before he has signed a contract.

Prices paid for feed and baby chicks were lower among large growers. This reflects lower costs for bulk handling of feed and quantity discounts afforded large enterprises. Owners of small enterprises may well consider increasing the size of their enterprise in order to gain price concessions.

Applications of Contract Arrangements to Other Farm Enterprises

Part of the interest in the development of contractual arrangements in broiler production and marketing has resulted from the possible expansion of these arrangements to other agricultural industries. An important part of this study was to ascertain the feasibility of contractual production in farm feeding enterprises other than broilers.

Commercial laying flocks, turkey growing, swine fattening, cattle fattening, and lamb fattening were the other enterprises considered. These businesses were included in the study because:

- They involve feeding poultry or livestock to produce a marketable product or products rather than for breeding purposes.
- They frequently are mentioned as being adaptable to contractual production.

These enterprises have been subject to sales contracts in the past. Important contract terms were time of delivery and price. Eggs from commercial laying flocks frequently have been delivered to independent buyers or farmers' cooperatives under some contractual arrangement wherein the
grower knew what price he would receive for his eggs relative to market prices established at centers of trade. Turkeys, hogs, beef cattle, and lambs have been sold on the basis of a contract price at a specified delivery date.

The contract now used in broiler production differs from those that have been used in other feeding enterprises in that it is a contract to produce according to prescribed practices and time schedules.

The price the grower will receive often is not stated in the contract. However, the grower is assured of a minimum price or amount if he achieves a specified level of production efficiency. Generally, the contracts are not with the buyer, but with a feed manufacturing firm or hatchery. Whether or not the other industries considered in this section would be willing to produce under similar contractual arrangements, depends on changes that may occur in the future. It is possible, however, to outline conditions in these industries which encourage or discourage development of contractual arrangements.

**Rapid technological advance**

Rapid technological advance in all phases of broiler production was important in development of contract usage in this industry. New strains and crosses of meat-type chicks increased gaining ability and quality of finished broilers. Uniformity of size and a larger proportion of meat in the carcass weight were favorable to an increase in demand for broilers. Nutrition research provided poultrymen with feed formulas which gave a faster, as well as a more efficient rate of growth. New feed developments, coupled with breeding advances, have provided a more even degree of finish in a shorter feeding time—making it possible to market a younger but still a well-developed bird. Although there may be a point beyond which younger birds are of lower eating quality, consumers agree that quality has been increased by the younger selling age. Advancements in processing broilers have made it possible to market a ready-to-cook broiler which is easier to prepare at time of cooking. Packaging of the ready-to-cook bird has made self-service retailing of broilers possible. All of these innovations have resulted in what is, essentially, a new product. The broiler the homemaker buys today is a different product than the broiler of 10 years ago. Broiler quality has been increased while costs per unit have been reduced.

Application of contractual arrangements to other industries will depend largely on technological developments applicable to those industries. Rate or degree of this advance and rate of adoption by established firms will influence development of contractual arrangements. A major advance which is being adopted with caution by growers may cause integrating firms to offer contracts which encourage adoption of the new technology.

Technological advance in egg production, turkey feeding, swine fattening, cattle feeding, and lamb feeding has not been as rapid as in broiler production. Amount of feed required to produce a given output has decreased faster for broilers than for other enterprises (Table 4). Processing methods have changed less and quality improvements have not been as pronounced as in the broiler industry. A major technological advance in breeding, nutrition, or processing would hasten and encourage adoption of contract production arrangements.
Table 4. Index of change in feed units required to produce a given output of specific commodities, United States, 1940-56.

<table>
<thead>
<tr>
<th>Year</th>
<th>Broilers</th>
<th>Turkeys</th>
<th>Eggs</th>
<th>Hogs</th>
<th>Sheep &amp; lambs</th>
<th>Cattle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Index (Average 1940-44=100)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1940</td>
<td>104</td>
<td>105</td>
<td>97</td>
<td>98</td>
<td>100</td>
<td>96</td>
</tr>
<tr>
<td>1941</td>
<td>99</td>
<td>105</td>
<td>100</td>
<td>96</td>
<td>103</td>
<td>100</td>
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<tr>
<td>1942</td>
<td>103</td>
<td>97</td>
<td>103</td>
<td>103</td>
<td>98</td>
<td>100</td>
</tr>
<tr>
<td>1943</td>
<td>99</td>
<td>97</td>
<td>102</td>
<td>101</td>
<td>97</td>
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<tr>
<td>1944</td>
<td>95</td>
<td>95</td>
<td>98</td>
<td>102</td>
<td>102</td>
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</tr>
<tr>
<td>1945</td>
<td>97</td>
<td>92</td>
<td>105</td>
<td>110</td>
<td>97</td>
<td>98</td>
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<td>1946</td>
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<td>1947</td>
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<td>1949</td>
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<td>86</td>
<td>102</td>
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<td>1950</td>
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<td>1951</td>
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<tr>
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<tr>
<td>1955</td>
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<tr>
<td>1956</td>
<td>66</td>
<td>83</td>
<td>92</td>
<td>100</td>
<td>99</td>
<td>95</td>
</tr>
</tbody>
</table>

*Includes other sheep and lamb feeding in addition to lamb fattening.

Perishability of product

One of the factors influencing price variability and therefore supply variability is perishability of product. Perishable products must be sold when ready for market. Increased quantities frequently must be sold at reduced prices. Low prices usually mean low profits. Low profits may cause supply to decrease. In time, this situation will result in higher prices and profits since costs of production change less rapidly.

High profits encourage established growers to expand their enterprises and new growers to enter the industry. Prices decline as production increases and the fluctuations occur again—assuming no change in other factors. Perishability adds to fluctuation of price since storage of part of the product during periods of increased supply—and consequent low price—is not possible.

Of the products considered in this study, broilers offer the least possibility for storage. Consumer acceptance of fresh frozen broilers has been low. Frozen birds have sold at a discount compared with freshly processed broilers. Discounts plus added costs of freezing and storage make it imperative that broilers be sold fresh within a very short time after they are processed.

Broiler processors operate on a relatively fixed margin. Any reduction in price at retail tends to be shifted directly to the grower. The price the grower receives tends to increase when retail prices increase.
Under these circumstances, the broiler grower is faced with greater price uncertainty than growers of less perishable products. Prices for products that can be stored fluctuate in response to changes in supply, but the fluctuations are usually small.

Although all the other products considered are more perishable than farm products such as grain, they are less perishable than broilers in that some storage is possible at least during processing. In some instances, fattening of livestock may be slowed down in order to market when prices are higher. Eggs, if refrigerated and held under proper conditions of humidity, lose quality slowly. Several processes have been developed to extend the storage period for eggs.

Frozen turkeys are readily accepted by consumers, and usually are marketed during late summer and fall. Storage helps prevent the market from becoming glutted and prices falling to disastrously low levels. Turkeys formerly were considered a "holiday meat" to be consumed during the Thanksgiving, Christmas, and New Year holiday seasons. With modern storage methods, however, turkeys are now available to consumers throughout the year.

Beef and lamb usually are sold fresh within two to three weeks after slaughter. This period allows the meat to be transported to more distant markets under refrigeration without loss of quality. In the case of beef, in particular, the longer time period improves eating quality. Beef and lamb may be frozen without suffering heavy price discounts.

A large proportion of pork consumed in the United States has been cured and can be stored. Meat packers cure large volumes of pork cuts during periods of temporarily depressed prices when the outlook is for higher prices. Cured meat can be stored until supplies arriving at markets are reduced and prices are strengthened.

**Seasonality and length of production period**

Contract arrangements, as they have developed in the broiler industry, require year-round production schedules. Each part of the industry is coordinated with other parts by contracts.

Hatcheries set eggs to supply growers with chicks which when grown will fulfill the contract between the grower and processor. The processor knows from experience that he will be able to sell the volume of broilers contracted to retail outlets when they are delivered. Since broilers require only about 65 days to grow to 3.25 pounds live weight, the grower can produce between 4 and 5 batches in a 12-month period. By staggering starting dates for the growers, a processing plant can have a steady supply available. This procedure also establishes a constant need for chicks and feed.

Availability of chicks at any time during the year and length of the production period makes the broiler industry different from the other enterprises considered in this study. This constant production possibility, with a short time span between the beginning and end of production, makes broilers particularly suited to contract production.

Egg production requires a longer period than broilers. Chicks may be ordered for delivery at any season of the year, but a six-month growing period usually is required to bring a laying flock into production. Generally, it is profitable to retain the flock for at least one year after the hens start to
This longer production period would require that the contractor—usually the feed manufacturer—obligate his capital for a longer time. Amount of capital per hen would be considerably more than that required for a broiler so each grower would have to be advanced a larger sum. This increases the amount of capital required by the contractor. Repayment would be complicated because income, part of which could be paid to the contractor, is received over a period of a year.

Feeding of turkeys, swine, beef cattle, and lambs has differed from broiler growing in another way. Pouls or feeder animals have not been available on a year-round schedule, but have been available seasonally. Turkey feeding has been a spring to autumn enterprise since pouls were available in spring and turkeys were grown in open pens rather than buildings. Pens often were fields which were a source of feed, and comparatively little shelter was required for the birds.

Cattle and lamb feeding have been winter enterprises since feeder cattle and lambs have been available at the close of the summer grazing period. In addition, feed supplies are more plentiful in late summer. Swine may be produced in any month, but general practice has been to have sows farrow in spring and fall so market hogs would be available five to six months later.

These seasonal patterns have developed mainly because costs are lowest when they are followed. Any deviation from these common practices has tended to increase costs. For example, feeder cattle can be sold for a lower price in September—after they have spent the summer grazing on low-cost forage—than at any other time. Cost of feeder animals is a major expense in cattle feeding and it is important in determining overall profitableness of the enterprise.

Changes in the industries which would make feeder animals available at low cost on a year-round basis would make contract production more practical. Development of large year-round feeding operations in some states indicates a trend in this direction.

**Market organization**

New developments tend to be accepted at a faster rate when they do not replace an established method. Broiler production developed on a commercial scale without terminal market facilities such as those now used for hogs, cattle, sheep, and eggs. Direct methods of marketing were adopted for broilers as specialized processors established plants and started purchasing live birds.

Marketing methods for hogs, cattle, sheep, and eggs have been established for many years. Established marketing firms and agencies often are bypassed when contracts are used. Market outlets that might be bypassed if contracts develop attempt to keep up their volume by making their services more attractive to farmers.

Cattle, lamb, or swine feeders have more market outlets available than do poultry producers. It is possible to ship livestock to the market where it seems possible to get the highest net price. This shifting of supplies between markets evens up market prices when allowances are made for transportation and shrinkage cost differences. Livestock feeders might be slow to give up this choice of markets for a contract which specified when and where livestock were to be delivered and which did not quote a specific price.
in advance. Feeders might be more willing to do business on a contract basis if something were offered which would increase their net returns. A major nutritional advance might make this possible. For example, feed manufacturing firms may be able to offer increased returns, such as a guarantee similar to that used in broiler contracts, to growers who use their feeds.

▲ Established production areas

New methods of production are difficult to implement in an established production area. This undoubtedly was one reason why broiler growing areas developed in the southern states. Established poultry producers had their own ideas about production and were not as receptive to suggestions from field service personnel as were new broiler growers who were looking for management help and sources of operating capital.

Use of contracts in other industries will depend partly on how receptive producers are to new ideas and whether new producers can be encouraged to enter production. Geographic changes in production areas may result from pressures which encourage contract business.

▲ Financing in relation to security

The broiler growing phase of the broiler industry is unusual in that a day-old chick is not enough security to offer to obtain operating capital through usual credit sources. The fact that many broiler growers buy all their feed adds to the problem. To solve this situation, broiler growers contracted with firms in other phases of the industry to supply credit until the birds could be sold.

Established credit agencies will usually extend credit to businesses such as cattle, lamb, and hog feeding because either the feed or the feeder animal is owned and can be pledged for security. Feed manufacturing firms are willing to extend feed on credit. Feeders operating on this basis can remain independent producers.

Laying enterprises are somewhat like animal fattening enterprises since the laying hen can be used for security. When egg production begins, income from egg sales remains constant. Egg producers can pay for feed and other supplies shortly after their use.

Turkey growing is more like broiler growing than the other businesses considered. Contract business probably will develop faster in turkey growing than in red meat animal feeding because of need for capital and lack of adequate security.

▲ Degree of specialization and source of feed

Broiler growing is a highly specialized enterprise. Most growers have little, if any, cropland, and many have only the land occupied by the broiler buildings and the farmstead. Some growers, whose enterprises are too small to provide full employment, have an off-farm job.

One of the factors encouraging specialization is the requirement that practically all feed be specially prepared to obtain high feeding efficiency. This has encouraged development of specialized broiler rations, based on nutritional research, by feed manufacturing firms.

Concentrate feeds make up a large proportion of broiler rations. Wheat or corn and soybean or cottonseed meal are the basic ingredients. The ration fed encourages production of all classes of livestock and poultry near the sources of the main ingredients,
but concentrate feeds can be shipped easily and cheaply. As a result, broiler growing shifted to areas of low labor costs, favorable climate, or other cost reducing factors. Lower labor costs along with reduced housing requirements for the birds accounted, to a considerable degree, for the increase of broiler production in the southern states. Lack of more attractive alternatives also may have been a factor. Contracts made available the out-of-pocket capital necessary for a grower to begin production.

Turkeys and commercial laying flocks also require a high proportion of manufactured feeds. Swine fattening rations consist largely of concentrate feeds, but use of grains produced on the farm where the hogs are fed has been much greater than in poultry enterprises.

Cattle and lamb fattening rations require relatively large amounts of farm produced roughage. Also, many agricultural by-products are utilized. Roughages and some by-product feeds are bulky relative to their value, so it is more profitable to locate feeding pens near these sources than it is to transport feed great distances. In the western United States, feeding areas have been concentrated in irrigated farming valleys where low cost feeds are available. By-products of sugar beet refineries or canning crop processing plants often have been available to encourage feeder businesses. Rangelands adjacent to these valleys are used as a primary feed source for breeding herds in production of feeder animals.

Two types of cattle and sheep fattening businesses are found in the western states. One, the farmer-feeder operation, is found throughout the area. Owners of farmer-feedlots do not specialize in livestock feeding, but they produce a major part of the rations fed. These fattening enterprises often are active only during part of the year. The second feeding business is operated by a specialist in livestock feeding who buys a large part of the rations fed, and does business on a year-round basis. These enterprises have, in the past, generally been located in California, but some have been located in central and eastern Oregon. These specialized operations are much larger than the farmer-feeder business. Generally, specialized feedlots have a feed manufacturing plant, and some of the larger enterprises employ people trained in nutrition, veterinary medicine, and marketing.