PLANNING FOR THE FUTURE

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The last quarter century has witnessed a marked change in the relative importance of poultry production as a branch of agriculture, as shown by the increase in gross poultry income as a percentage of total gross farm income during each of the following three-year periods:

<table>
<thead>
<tr>
<th>Period</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>1916-18</td>
<td>8.43</td>
</tr>
<tr>
<td>1925-27</td>
<td>11.19</td>
</tr>
<tr>
<td>1934-36</td>
<td>11.57</td>
</tr>
<tr>
<td>1943-45</td>
<td>13.25</td>
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</table>

At least two factors are responsible for the progressive expansion of the poultry industry: (1) the relative efficiency of poultry in converting feed into food for humans; (2) the fact that poultry production is not only a farm enterprise that uses relatively inexpensive labor and provides considerable quantities of eggs and meat for home use in addition to products sold but also because there has been considerable increase in commercial egg, broiler, and turkey production.

Foods of animal origin are essential in the human dietary to supply the deficiencies of certain amino acids, minerals, and vitamins in grains and other plant foods. From the standpoint of converting feedstuffs into foods of animal origin, milk production is the highest in efficiency. Egg production ranks second in efficiency. Pork production, considering the relative amount of fat produced, ranks third. Chicken, duck, goose, and turkey meat production rank above beef and lamb production in efficiency, although beef cattle and sheep utilize forage crops to a greater extent than the various classes of poultry except geese. It is very obvious therefore, that the poultry industry occupies a very favorable position in producing animal food products for mankind.

Egg and chicken meat production is by far the most important branch of the poultry industry, accounting for slightly over 90 percent of the gross annual poultry income. Income from turkeys amounts to about 8 percent and from ducks, geese, and guineas a little over 1 percent of the gross poultry income. Within the chicken industry, the income from market-egg production is relatively much more important than the income from farm-raised chickens, which in turn is much more important than the income from commercially produced broilers.

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From the over-all standpoint, barring an outbreak of World War III, the future of the poultry industry looks reasonably good but difficult situations may arise and everything possible must be done to increase efficiency of production, improve the quality of the finished product, and reduce the costs of marketing. To the extent that these things are accomplished, there will result an increase in the per capita consumption of eggs and poultry meat. Efficiency is the basic factor that will maintain the stability of the poultry industry.

INCREASING EFFICIENCY OF PRODUCTION

During the past 25 years, the rate of lay has increased approximately 40 percent. Fewer pounds of feed are required per pound of broiler and turkey grown to market age than even a decade ago. Hatchery operators, feed manufacturers, and processing plant operators are all doing a better job than formerly. The costs of production and marketing have increased considerably, however, so that in the immediate future there is more need than ever of increasing efficiency of operations all along the line.

Better Breeding. In spite of the increase in rate of lay that has taken place, there are still thousands of flocks that return a relatively low labor income to farmers and commercial flock owners. The cost of feed represents over one-half of the total costs of egg production. Of the total feed consumed for egg production, a flock of 5-pound hens laying 100 eggs per bird use about 83 percent of their feed for maintenance whereas if the same flock laid 200 eggs per bird, about 70 percent of their feed would be used for maintenance. Feed used for maintenance returns no profit to the flock owner. A high level of egg production is absolutely necessary to secure a reasonable profit over feed and other costs. All market egg producers will appreciate the significance of the following statement: a 5-pound, 100-egg bird consumes about 9.5 pounds of feed per dozen eggs produced whereas a 5-pound, 200-egg bird consumes about 5.6 pounds of feed per dozen eggs produced. Flocks laying a hen-housed average of about 180 eggs per bird should be the rule and not the exception in the future.

There should be more extensive cooperation between hatchery operators and poultry breeders carrying on progeny testing to develop high laying strains, especially since over 90 percent of the chickens raised in the country every year are purchased from hatcheries. All laying flocks should be bred
for early sexual maturity to enable them to produce more eggs during the fall months when egg prices are relatively high.

In all probability crossing inbred lines of progeny-tested bred-to-lay strains will increase and hybrid pullets may supplant considerable numbers of purebred pullets unless the latter are secured from superior progeny-tested parents. Improvements in the techniques of close inbreeding in developing inbred lines may make it possible for others than large-scale breeders, as at present, to produce superior egg laying hybrid pullets. Producing hybrid chickens of real merit is more complicated and more expensive than producing hybrid corn but progress achieved to date would indicate that the breeders of purebred strains must improve their selection techniques or lose some of the outlets for chicks to the "hybrid" breeders. Crossing inbred strains of a purebred variety or breed offers an opportunity for "purebred" breeders to retain their market outlets. At any rate, since the farmer and commercial market egg producer in the future are going to demand strains of pullets noted for early sexual maturity, high rate of lay, and persistency of production, poultry breeders must improve their selection pressure techniques.

Crossbreeding for broiler production has been practiced extensively because it has been found that in many cases crossbred chickens grow faster than purebred chickens, have somewhat less mortality, and thus require fewer pounds of feed per pound of broiler produced. In some of the commercial broiler-producing areas during the past few years, there has been a preference for purebred broilers of strains with relatively light undercolor to avoid dark pinfeathers in the dressed broilers and fryers. An immediate future need is to develop sound methods of measuring and evaluating degrees of breast fleshing in broilers and fryers. The greatest future need in the rapidly expanding broiler industry is by progeny testing to develop fast-growing strains of meatier type birds that will weigh at least 3.5 pounds at about 11 weeks on a feed consumption of approximately 3 pounds of feed per pound of gain in weight. Also, the strains of breeders used to produce chicks for broiler production must be bred for high egg production to enable the hatchery-flock owner to make a reasonable return from his hatchery flock.

Turkey breeders have made remarkable progress in developing superior fleshing in some of the leading turkey varieties but there is still great need to breed for increased
egg production and higher hatchability in order to reduce the present high costs of producing poults.

**Better Feeding Practices.** Much more is known concerning the nutritive requirements of baby chicks than of babies. During the past decade the progress made in poultry nutrition research has been remarkable, particularly with respect to amino acid and vitamin requirements and sources of feedstuffs and how they should be processed to supply these requirements. Protein is the most expensive part of the poultry diet, vegetable protein supplements being less expensive than animal protein supplements. The biological value of all protein supplements is influenced by the processing methods employed in their manufacture, a problem demanding much more intensive research. Certain vitamins, still unidentified, are known to be necessary for the utilization by poultry of vegetable protein supplements, especially soybean meal which is used so extensively in poultry diets. Fish meal, liver meal, meat meal, cow manure and chicken manure contain a vitamin necessary for optimum growth and hatchability. Whey and soybean oil meal contain another unidentified vitamin necessary for growth in chickens. These new vitamins should be added to the list of over a dozen known vitamins required by poultry, available supplies of A, D, and riboflavin in poultry diets being of chief concern to the poultryman and feed manufacturer.

There will undoubtedly be more extensive use of special concentrates of amino acids and vitamins in poultry diets in general. Future diets for broilers, especially during the first five or six weeks, may be of the high protein, high energy, and low fiber content in order to secure early rapid growth. From the standpoint of agricultural economy as a whole, greater use in poultry diets should be made of vegetable wastes, since research has demonstrated that they are of relatively high nutritional value. Future demands on feed manufacturers are going to be more exacting in developing diets for different classes of poultry raised for meat production or kept for hatching-egg or market-egg production.

**More Efficient Management.** In addition to breeding strains of birds that will utilize feed more efficiently in meat and egg production and developing better balanced diets that will permit of more efficient utilization of the nutrients, there is great need for increased efficiency in management practices in order to save time and labor. Larger sized flocks kept
in wider houses, simplified heating systems for broiler houses, more birds per poultryman, and reducing the chore route are future necessities in increasing management efficiency. Two cases are sufficient to illustrate the inefficiency of incompetent management. The first case is that of 40 broiler producers who secured the same kind and quality of chicks, the same kind and quality of feed, and were given identical suggestions concerning management practices to follow. The difference among these producers in the cash cost of raising broilers varied as much as 6.3 cents per pound of meat sold. Some of the broilermen paid a high price for their inefficiency. The second case is that of two poultrymen tending their respective laying flocks. In doing the chores per 1000 layers per day, the more efficient poultryman took 20 minutes and walked about 1,600 feet whereas the less efficient poultryman took 110 minutes and walked about 7,750 feet. On a yearly basis the less competent fellow spent 20 more days and walked over 300 miles further tending his flock. Most poultrymen could undoubtedly save time and labor by better organization of the chore route.

FUTURE PLANNING

With fewer animal units on hand than during the past few years and with the prospect of lower feed prices, the situation would seem favorable for an increase in all classes of livestock units in the United States during 1949. The limitations of reproductive ability in the case of dairy cows, beef cattle, and sheep, however, will prevent material increases in dairy products for at least two years and in supplies of beef and lamb for over a year. On the other hand, in order to increase the number of dairy cows and beef cattle two years hence, large numbers of calves will necessarily have to be withheld from the market, thus decreasing the potential supplies of beef and veal during the next two years. This in itself would tend to increase the price of red meats. Increased supplies of pork, eggs, roasters, and turkeys are possible by the fall of 1949. Since the available supplies of red meats during at least the first half of 1949 will be short of the demand, especially in view of probable wage increases and the normal increase in human population, prices of all classes of livestock products are bound to be relatively quite high.

Since broilers can be grown to market age in approximately four months from the time the eggs are laid from which the broilers are secured, it would seem possible to have a fur-
ther expansion of the broiler industry to make up for some of the deficiencies of red meats during a good part of the first half of 1949. It would seem reasonable to plan to raise more poults next year and to hatch more chicks for laying-flock replacement purposes not only because the production of red meats will not meet consumer demand but also because with lowered feed prices egg and turkey meat production should be relatively profitable. Hatching too many chicks and poults should be avoided, of course, otherwise hatchery operators and poultry breeders might suffer from a temporarily demoralized market. Extreme fluctuations in the production of any agricultural commodity are harmful.

There are uncertainties that make it impossible to predict what might be considered to be a normal course of events in egg and poultry production. At least one round of increased wages seems certain, and more may follow later. Whatever increases are granted will have an inflationary effect, which may in turn be followed by price controls, rationing of meats, or other governmental regulations. The long-time economic outlook for the poultry industry is unpredictable. Some sound economists believe that, barring a serious threat of war, the next marked change in economic conditions will be downward. Corn, wheat, and other grains harvested in 1949 will have a bearing on poultry developments in 1950. In view of all of these factors, the poultry industry should probably plan for moderate increases in 1949 and then a year hence, based on returns secured between now and then, take stock again and plan accordingly.

Probably the soundest advice that could be given to farmers and commercial poultrymen with respect to planning for the future would be to do everything possible to increase the efficiency of production and improve the quality of eggs and poultry meat for consumers. Only chicks and poults of the best quality should be purchased so that eggs and poultry meat can be produced on fewer pounds of feed per dozen and per pound. Hatchery operators might well eliminate some of the less economically important breeds and varieties of chicks they have offered the public. The turkey industry must still further reduce flock-replacement costs. Feed manufacturers must take advantage of the newer findings in poultry nutrition in order to produce still better mashes. Most flock owners could increase their management efficiency by a better organization of their daily chore route and using more labor-saving equipment.
Larger flock units per man reduce labor costs. Laying flocks should be culled more efficiently and except for those who practice progeny testing, all-pullet flocks are usually more profitable. A reasonable degree of sanitation is still the best practice for controlling losses from mortality but certain sulfa drugs and antibiotics offer some hope as additional measures in controlling some of the more important diseases. Simplified market terminology for eggs and poultry marketed would be a blessing to consumers. Enormous savings could be made in reducing egg breakage and deterioration of egg and poultry meat quality on poultry plants and in market channels. All of these factors are of great importance in maintaining the poultry industry on a sound economic basis from which procedure would be assured reasonable returns for years to come.

LIBERAL FEEDING OF LAYERS FOR BEST RESULTS

Partially starved hens cannot lay all of the eggs they are capable of laying. At the U. S. Southwest Poultry Experiment Station, Glendale, Arizona, 3 groups of White Leghorn pullets of the same breeding were fed and managed exactly the same except that group 1 had free access to feed at all times, group 2 was fed 87.5 per cent as much as group 1 consumed, and group 3 was fed 75.0 per cent as much as group 1 consumed. The results secured speak for themselves.

<table>
<thead>
<tr>
<th>Group</th>
<th>Amt. of Feed Fed</th>
<th>Ave. No. Eggs per Hen Annually</th>
<th>Lbs. of Feed Consumed per Doz. eggs</th>
<th>Feed Cost Per Doz. Eggs* (cents)</th>
<th>Profit above Feed Cost Per Hen**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Free Access</td>
<td>182</td>
<td>4.4</td>
<td>13.2</td>
<td>$1.79</td>
<td></td>
</tr>
<tr>
<td>2 87½% of Group 1</td>
<td>124</td>
<td>5.6</td>
<td>16.8</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>3 75% of Group 1</td>
<td>88</td>
<td>6.8</td>
<td>20.4</td>
<td>.34</td>
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</tbody>
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*Feed cost $3 per 100 lbs.  **Average egg price 25 cents a dozen.

Restricting feed consumption decreased egg production and increased the number of pounds of feed required to produce each dozen eggs. Feed cost per dozen increased and profit per hen decreased as feed consumption decreased. It simply does not pay to be stingy in feeding layers, especially if they are bred-to-lay.
GOOSE RAISING IN CZECHOSLOVAKIA

Goose raising is an important source of income to many farmers in Czechoslovakia. The climate of the country is very suitable and there is a relative abundance of succulent pasture a good part of the year.

In the Fall of the year, many of the geese are purchased from the farmers and are sent to fattening stations. The feathers obtained from the geese at the small and large fattening stations, three of the largest ones being located at Libus, Pavolice, and Prisovice, are sent to feather factories. At the feather factories, the feathers are cleaned, washed, and sorted and are then sold to many countries in Europe and abroad.

The Czech (Bohemian) goose is the recognized economical breed.

SEPARATE POULTRY DEPARTMENT AT FARUK UNIVERSITY

A separate poultry department has recently been established at the Faruk First University, Alexandria, Egypt. This action has been taken as the result of the growing importance of the poultry industry in Egypt. The poultry department will expand the University interests in poultry research, teaching, and extension.—Morley A. Jull.