

LIVESTOCK IN THE AGRICULTURAL ADJUSTMENT PICTURE OF THE WESTERN REGION¹

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Agriculture in the western region of the United States is a heterogeneous mixture of range livestock production, single-crop extensive farming, intensive cash-crop farms, general farms, dairy farms, and many other types. The production of livestock is as old as agriculture in the region. Today pressures exist that appear to make an expansion in the production of livestock and livestock products inevitable.

In examining the general question of the place of livestock in the agricultural adjustment of the West, the term "livestock" will mean the commercial production of meat animals, dairy products, wool, poultry, meat, and eggs. It will be assumed that this production takes place under the direction of farm or other business units attempting to sustain operation at a profit.

The term "agricultural adjustment" is given a broad definition rather than a narrow one, such as changes in response to government programs. Any change made by individual farm businesses in response to changing economic or political variables will be considered an agricultural adjustment. This follows from the assumption that any change in the agriculture of the region will either begin with or eventually will affect the operation of individual farm businesses.

The discussion will deal primarily with the 11 western states. Certain of the conclusions drawn from an examination of agricultural adjustment in these states is applicable to other areas or to the nation as a whole.

Variables to Which Agriculture Will Be Adjusting

The type of adjustment is likely to be different from changes resulting from different causes. Enumeration of some of these major causes will aid in understanding the pressures for adjustment even though it is not always possible to say that a particular adjustment results from a single cause.

The first major group to be considered includes adjustments resulting from the economic growth and development of the region. Foremost among these is the increase in human population. A simple comparison will serve to document the magnitude of this increase. Population in the 11 western states in 1956 was 175 percent of the population in 1939. Population figures for California dominate the totals. For that state, the 1956 figure was 198 percent of the 1939 figure. For the same period, population for the United States as a whole increased by only 28 percent.

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It is highly significant that the population in California is slightly more than 50 percent of the population in the 11 western states. This was true in 1939 as well as in 1956. However, the growth in absolute numbers in the state of California to a figure of 13,433,000 in 1956 is very important to the region as a market for agricultural products.³ The present California population is greater than the 1939 total for all western states.

A second major result of economic development is improved transportation. It is sufficient here to point out that almost any city market reached by rail or improved highway can be considered as a potential market by any agricultural producer in the United States. With current technology of cooling and preserving fresh produce, even highly perishable items may be shipped across the continent. This means that for a great number of our agricultural products, the local producer is competing with producers from distant areas of the country. The fact that population and the demand for meat is increasing faster in the West than in any other section of the country does not mean that the growing market can or should be reserved for western producers.

Changes in transportation rates and regulations may cause substantial adjustment in the location of production and processing of agricultural commodities. These will not be dealt with here other than to note that they do exist as influences that force economic adjustments and may affect the livestock industry. They may be extremely important to individual producers or processors, and the adjustments to be made are sometimes severe.

Changes in availability or in competition for labor, water, and land face producers as further indications of economic development within subareas of the region. Around cities and municipal areas there is constant change in availability of these resources sufficient to cause differences over time in the optimum economic allocation of resources.

Increase in population and size of markets has led to increases in availability of processing facilities for some producers. In other cases, with improved transportation and changing market structure, processing facilities have been consolidated in central areas, and producers in smaller communities have found themselves without the processing facilities that once existed.

The changing structure in the market for livestock products may influence livestock production in another way. An increasing amount of our meat is handled through retail outlets that buy in large volume to service a number of large retail stores. Buyers for such organizations are interested in volume built up of large lots of uniform quality. Since they wish to buy on specification, they may buy hundreds or thousands of carcasses per week. Their supply is more likely to come from packers or feedlots dealing in a large volume of standardized product than through stockyards where they might buy animals fed on farms in small lots. A salesman for the feeder or the packer may sit at his desk and deal by telephone with such large-order buyers only.

³Bureau of the Census Current Population Reports, Estimates of the Population of States: 1900-1949, Series P-25, No. 139, U.S. Dept. of Com., Washington 25, D.C., June 27, 1956, p. 3; and Provisional Estimates of the Population of States and Alaska, Hawaii, and Puerto Rico: July 1, 1956, Series P-25, No. 148, Washington 25, D.C., Nov. 18, 1956, p. 3.

Segments of the trade may tend to specialize in meat of a particular type and grade. For example, one packing house in southern California is now dealing only in "choice" steer beef. Its market outlets are such that it has difficulty moving "good" beef if it happens to have carcasses that grade out "good."

These changes resulting from economic growth and development are not likely to be reversible although variables causing them are constantly changing.

Unsettled national or world political conditions make up the second group of causes of change. It has been several years since we have had "wartime conditions," but the organization of production on many of our farms and ranches still shows the influence of changes that were made to increase output during World War II and the Korean War.

Government price support and production control programs are not solely the result of wartime adjustments, but have been influenced by them. These programs have now been with us long enough and have been so integrated and capitalized into the business structure of agriculture that changes in the programs brought about by legislation or administrative directive may be major forces causing adjustments. Such programs may become a permanent part of our agricultural framework, but the uncertainty about details may work to delay or to accelerate adjustments. More will be said later about the changing nature of agriculture in the West as a result of programs currently in force.

Innovations in the technology of livestock production are occurring with a frequency that continuously places some group of farms in a position where adjustment is required to make the most economic use of resources. If producers in one area can adopt a cost-reducing innovation, they are in a position to compete over a wider market area, and increased output will ultimately lower the price and thereby force an adjustment on the part of growers who have not yet adopted the new technique. This has been discussed in other papers at this meeting and will not be covered further here.

Changes in demand for livestock products is another major force dictating adjustment in the livestock industry. A comparison of the estimated per capita consumption of different foods in 1958 with the consumption of those foods in 1935-39 will indicate some changes of importance. The per capita consumption of all meats, carcass weight, for 1958 is expected to be 119 percent of meat consumption in 1935-39. The figure for beef is 140 percent and for pork, excluding lard, 108 percent. Only veal, lamb and mutton show a decrease. In poultry products, the 1958 figure for eggs is 116 percent; for ready-to-cook chicken meat, 194 percent; and for ready-to-cook turkey meat, 255 percent of the earlier figure.

Total milk solids--fat and nonfat are up 5 per cent. The total fat content of the diet per capita is approximately the same in 1958 as in 1935-39. However, there have been important changes in the sources of fats. Butter has declined from 17 pounds per capita to 8.6 pounds per capita. Margarine, on the other hand, has increased from 2.9 to 8.7 pounds per capita. Lard has decreased from 11 to 9.4 pounds. Shortening has decreased to 90 percent of the previous figure of 11.8 pounds, while other edible fats and oils have

increased to 169 percent of their previous per capita level. Generally, these changes represent a shift from animal to vegetable sources.⁴

The over-all consumption of fruits has decreased to 87 percent of the 1935-39 level. The pounds of vegetables consumed has increased only slightly, even though the composition of that weight has changed considerably.

The greatest changes weight-wise and percentage-wise have come in the starchy foods. Potatoes and sweet potatoes have decreased to 73 percent of the weight consumed in 1935-39. Wheat has decreased to 74 percent and corn meal to 35 percent of its earlier figure.⁵

The decrease in consumption of these starchy foods is particularly significant when considering adjustments in meat production. Resources previously devoted to the production of these foods for human consumption have in a large part been shifted to the production of feed for livestock.

Although there are continuous changes occurring in per capita consumption of different foodstuffs, it appears that sudden reversals of the trends discussed here are not probable.

What do we conclude from these per capita consumption data? They tell us (a) as a group, livestock products are in a stronger demand position than nonlivestock products, (b) decreasing demand for cereal products in the diet will release resources for feed production, (c) decreasing demand for animal fats will influence the type of livestock and carcass weights desired in the future.

The Place of Livestock in the Agriculture of Areas Where It Has Been Important Historically

An examination of these economic forces indicates that adjustments in livestock production are inevitable. Should these adjustments be to something greatly different from what we have had in livestock production in the past?

Generally, livestock production has been a method of selling raw materials not otherwise easily sold. The outstanding example of this has been the use of range livestock to market forage that could not be easily marketed in any other way. On our farms, livestock has been used as a means of marketing feed, the operator's and family's labor, the operator's management, and of overcoming economic problems of transportation and storage. This has been true in all parts of the United States, but the Corn Belt is usually pointed out as an outstanding example. Natural conditions favoring corn production have led to the production of feed and forage. Corn has been converted to fat and meat in the form of hogs or beef animals. These animals have been

⁴Use of animal fats in soap making has also been reduced greatly with the expanded use of synthetic detergents.

⁵A. R. S., U. S. D. A. The National Food Situation, April 1958, p. 4. The figures presented here on per capita consumption have been national figures. There may be important differences within regions in the nation, but it is assumed that the changes in per capita consumption at the national level are not significantly less or different from those in the 11 western states and therefore there is an increased demand for meat in the western region of significant magnitude.

shipped live or in processed form to major population centers. More labor and forage have been marketed through dairy products, making the production of fat in the form of butterfat an important operation. The milk was fed to hogs, thus giving a tie-up between the dairy and hog operations.⁶

Some evolution in the form of producing and marketing products has occurred with the improved technology and the increase in population. An increasingly large percentage of the milk produced has gone into fresh human consumption and a decreasing amount into butter and livestock products. Typically, this has meant marketing milk according to rigid specifications and producing it under rigid regulations with regard to sanitation. It has meant a change from selling cream of varying quality for whatever price it might bring to selling a differentiated product for a prearranged contract price.

There is evidence that pork production may be moving toward this type of operation with pig parlors specializing in the production of weaner pigs and feeders producing large lots of uniform meat-type hogs designed to meet rather rigid specifications laid down by the contractual or potential buyer.

We are all aware of the degree to which poultry meat production has moved toward an industrial type of mass production. Some beef operations have reached this stage. Cattle ranchers in some areas have long specialized in the production of calves or feeder animals. There has been an increasing amount of specialization in the cattle feeding business by large operators. In these lots, feeding is on a scientific basis, and the entire operation can be considered similar to factories producing many other types of goods.

In spite of these examples of the production of livestock with the type of economic organization that has evolved for many of our nonagricultural products, the bulk of our livestock operations have not yet evolved as far as our nonagricultural manufacturing. Consider the history of the textile industry. In a primitive state, the manufacture of textiles meant the making of homespun materials by farm wives using farm-produced fibers. Some of this material was sold, thus marketing family labor and fibers not needed for the farm family. In the early industrialization of the textile business, we find the "putting-out" system, in which contractors placed materials and patterns in homes where women worked to cut out and sew garments that were taken back and marketed. All of these have since been superseded by a factory type of production where large volumes of garments are turned out with material meeting rather rigid specifications and so uniform that garments on the shelf in a warehouse or a drygoods store show no more variation than a stack of canned goods or shoe boxes. A housewife can buy a garment of a given size and be assured that it will shrink only a specified amount when laundered. She can be assured that the color will be fast and that the fit of the garment will be within the tolerances expected for the quality or grade that she has bought.

The meat trade has the problem of providing this quality-conscious housewife with a uniform product cut from the meats produced on farms without the quality control exercised in the factories. There appears to be an increasing tendency on the part of consumers to purchase meat ready-cut and

⁶In contrast to the range country, the Corn Belt had other profitable alternatives, but conversion through livestock has permitted greater production of the naturally adapted corn and forage crops.

wrapped. This means stepping up to a counter to select one of many similar parcels. Although we cannot fully document the fact, it appears that a modern housewife expects to be able to take a given piece of meat home and to have the opportunity of knowing that there will be little variation between the piece purchased and cooked on one given day and a similar cut purchased and cooked the week previously. She wishes to be able to buy a product that is uniform over time. The butcher needs to put in front of his customers quantities of uniformly cut and trimmed meat that he can guarantee to be of a uniform quality, whatever that quality may be.

The Place of Livestock in Areas or on Farms Where It may be Expanded

With the feed-grain price relationships that have existed in recent years, there appears to be a widespread increase in the potential for expanding livestock production in at least certain areas of the western region. Any analysis of whether such an expansion should take place within an individual farm business needs to start with the basic question of why do farm businesses include livestock enterprises? Since we are dealing here with commercial business firms, the obvious answer to this should be that they do it because they wish to increase their farm income.

Meat and other livestock products are produced by two distinct types of businesses. One type might be called meat factories or milk factories. On these the animals or birds involved are merely one of the raw materials combined in the manufacture of a product that is sold in anticipation of a profit. At the extreme, these firms produce no feed and no animals. They produce only meat added to animals purchased--or milk or eggs.

The second type of livestock-producing business organization is the one that has existed historically and the one that exists in far greater numbers. Many reasons are given for having livestock as a part of this type of business. However, in the final analysis, the idea of making more net income appears to be the primary reason for having livestock.

Net farm income will be increased directly by the use of a livestock enterprise when labor, capital, farm-produced feed, and management can be marketed in the form of livestock products at prices sufficient to cover all the added costs of livestock production and leave a net income greater than that which would have been available from selling the farm-produced feed and the marketable part of labor, management, and capital. It is not true, of course, that a farmer can profitably add a livestock enterprise in every case where he has feed but no livestock.

The increase in net farm income may come from several reasons other than the selling of factors that could not otherwise be marketed. A second major reason may lie in the fact that on many farms there is need for a legume crop in the cropping sequence to conserve soil or maintain soil productivity. The majority of the legume crops provide livestock feed rather than human food. Therefore, if an area or a farm is to have an acreage of legume, either the farm on which these crops are produced or some other livestock operation must convert these feeds into livestock products that can be used in human consumption.⁷

⁷One exception to this is that in some cases productivity may be maintained by use of a green manure crop, but this is not available to all farmers because of rainfall or other conditions.

Even though a livestock enterprise itself does not add greatly to net farm income, the increased yields from cash crops grown in rotation may be such that the addition of a livestock enterprise to the farm business may prove to be economically feasible. A sidelight to this is the point that perhaps what we need is not feed-consuming units in order to be able to convert the forage to meat, but that the main benefit to the farm business may come from adding manure-producing units to increase crop production. Synthetic fertilizers are widely used and have proved profitable. However, many quite successful farmers are convinced that the conversion of forage crops to salable products may be no more important than the reduction of these forage crops to manure to be applied back to the soil for the production of intensive crops.

Productive agriculture of long standing in such areas as Denmark and parts of our Corn Belt tends to verify this viewpoint. We have all seen grain farms from which the soil productivity has been sold over the years. The same may be true of alfalfa in some of our irrigated areas where hay has been sold from the same farms for many years, and soil productivity has not been maintained. Agronomic data are not conclusive on this point.

Changes in Supply of Feed

The need for livestock to convert feed grains and forages has been given added importance with the diversions from cash crops forced by government programs within the past five years. As acreages of wheat, cotton, rice, and corn have been reduced, there has been an increase in the production of oats, barley, sorghum grains, tame hay, soy beans, flax seed, and rye. Factors released by the reduction in acreage of the food grains and cotton have been diverted in a large measure to the production of feed grains and forages. Comparing 1955 with 1953 at the national level shows that a reduction of 29 million acres of crops under allotment was accompanied by an increase of about 27 million acres of feed crops.⁸

In recent years, barley has been the most important feed grain produced in the 11 western states. With the advent of acreage allotments, it has been the principal alternative to the three allotment crops--wheat, rice, and cotton. Average acreage planted to barley during the years 1954 to 1957 was 168 percent of the average acreage for the period 1935 to 1939. The average production for the years 1954 to 1957, 205,400,000 bushels, was equal to 343 percent of the average production during 1935 to 1939.

We are prone to emphasize that production of feed has jumped since the return to allotments in 1954. Production of barley in 1954 was 159 percent of that in 1953 and in 1957 was 194 percent of 1953. We should also note that the average amount of barley produced in 1951-53 was nearly double the average for 1935-39 while acreage had increased only one-third. Production of oats has remained nearly constant during the last four years, but the production of both corn and sorghum for grain has increased substantially, adding to the total quantity of feed grains available in the western states.⁹

⁸Effects of Acreage Allotment Programs, 1954-55. ARS, USDA, Washington, D. C., December 1957, p. 17.

⁹Data on acreage and production of grains have been taken from the annual summaries and special reports of the Crop Reporting Board of the USDA.

Continuation of current programs or their removal means a continued high level of feed supplies. A large portion of the acreage now being diverted to the production of feed grains has limited adaptability. Most of the wheat land will produce feed or wheat. Reduction in wheat acreage therefore means increase in barley. Increase in wheat acreage is likely to be associated with use of wheat for feed. Barley is an important alternative to both rice and cotton. These increases coupled with the great increase in grain production per acre wherever grown would seem to indicate that feed supplies in the western states will remain higher than in any period prior to the end of World War II. More forage resulting from technological improvements on both tillable and nontillable land will further increase feed supplies.

A drastic change in governmental programs, such as use of cross-compliance, might reduce the acreage of feed crops. However, even if acreage of feed grains were reduced to say the 1953 levels, we can still expect a high level of total feed production.

In time population pressure may force increased consumption of cereals rather than the luxury of converting these cereals to livestock products. Until then, increased supplies of feed grains in the West appear to be a certainty, unless a major war changes the demand for our food grains.

Expansion of the Western Livestock Industry

In spite of the great increase in the availability of feed grains, there has not been a comparable increase in livestock in the region. For the three Pacific Coast states the average number of grain-consuming livestock units for the three years 1954, 1955, and 1956 was only 102 percent of the preceding three-year average. During this time the number of beef animals has built up to the peak of a cycle and, for 1957 and 1958, has declined in the Pacific Coast states. The number of hogs is still reflecting a long-run secular decline on the Pacific Coast.¹⁰ This may be ending in 1958.

Increased feed supplies of this magnitude and the accompanying drop in barley prices have led to recommendations that more meat should be produced in the western states. These recommendations normally imply an increased production of meat for the United States as a whole and are generally based upon the fact that large amounts of meat are shipped into the western states from other regions. For example, during the years 1955-1957 an average of 1,700,000 head of live hogs were shipped into California annually. Only 1.3 percent of these hogs originated in the other 10 western states. The recommendation is frequently made that hogs to supply the market in California and the other western states should be produced with current supplies of feed grains now on hand in the West. Harsten has shown how large supplies of barley in Montana might be used in increased cattle and hog feeding and by the malting and brewing trade.¹¹

¹⁰ Animal Units of Livestock Fed Annually 1909-1956. Sta. Bul. No. 215, USDA, ARS July 1957.

¹¹ Harsten, C. R., Barley, Barley Everywhere With No Place to Go, Ag. Econ. research report #6, Dept. of Ag. Econ. & Rural Sociology, Montana Agr. Expr. Sta. Bozeman, Montana, Feb. 1958.

For a rough approximation of the potential market for barley from the other 10 western states in California we can use data developed by Blanch showing that in Oregon farmers used approximately 440 pounds of barley or its equivalent to produce 100 pounds of liveweight hog for the market. This total included the requirements for breeding stock and total growth of the pig.¹² For a 220-pound hog this would represent approximately 20 bushels of barley, making the total requirement for the 1,700,000 head of hogs shipped into California equal to 34 million bushels of barley. If we make the assumption that these are all fat hogs and therefore would be fed no barley in California, what does this mean in terms of an outlet for barley produced in the other western states in comparison to recent production figures? For barley harvested in the year 1955 in the 10 western states other than California, approximately one-third was used for feed and seed, and two-thirds was sold off the farm. Two-thirds of the production of these states was equal to 88,870,000 bushels. If we subtract from this, one-third of the national amount used for malting--based on the fact that one-third of the barley sold in the nation was sold from these 10 states-- and another 16 million bushels equal to one-third of our net exports, we have remaining 42 million bushels. If 34 million of this is used to feed the hogs for California we have left approximately eight million bushels for all other uses that might be made of barley sold from farms in these 10 western states. This would not be sufficient to feed the hogs shipped live into other western states.¹³

Convincing western farmers that they should go into swine production on this magnitude would be quite a chore in view of the decline of hog numbers that has been taking place in recent years even with highly favorable hog prices. There might be some problem in convincing California and Washington segments of the meat industry and consumers that western barley-fed pork should be substituted on a large scale for corn-fed meat. Whether such a shift would be profitable at the prices which would prevail while midwest supplies were being rerouted to expanding eastern markets needs to be considered also.

This is an extreme example. Not all of the increased feed grain in the West would need to be fed to hogs even though that does appear to be a possible outlet. With increased availability of feed grains in the western states and with a growing market for meat, there will undoubtedly be an increase in meat production. Where this production will take place and the type of organization under which it will occur will depend upon the way in which individual farmers adjust or do not adjust to current market organization. Increases in feed supplies will result in lower feed prices in the region. If individual farm units can supply the trade with the quantity and quality of meat demanded, there will be an outlet for meat produced in farm feedlots. If such adjustments to quantity and quality are not made by individual farmers, the trade interests now importing meat in large volume from outside the region will continue to import from those sources.

¹² Blanch, Grant E., Economics of Hog Production in Oregon, Sta. Bul. 561, Ag. Exp. Sta., Oregon State College, Corvallis, June 1957, p. 9.

¹³ Only live shipments have been considered. In addition, California ships in pork equal to over 3 million head in fresh and processed form. Hasster, James B., Transportation Rates and Other Pricing Factors Affecting the California Swine Industry. Bul. 754, Cal. Ag. Exp. Sta. Berkely 1956.

Increased meat production within the region will take place in large-scale feedlots of an industrial nature when the price of feed reaches the point that makes it appear to be feasible. Such businesses may be able to compete successfully with businesses shipping meat and animals from older established production areas. If this occurs, meat production in the West will be based upon farm and ranch production of feeder animals with the finishing done by larger commercial-type business firms. Farmers who produce feed will sell that feed to others for the production of meat. Any advantages resulting from farm-produced manure or marketing increased quantities of family labor and management will be lost, and the adjustments will probably be in the nature of larger acreages for cash-grain farms.

The type of organization that ultimately takes place will depend upon the devices that are developed to assure to the trade the large volume of the quality of meat that is desired. It is possible that meat production will remain on the individual farm units if these units are organized in such a way that rather than the old-type family enterprise producing nonstandardized products, the products are standardized so that they may be combined into large lots uniformly meeting rigid specifications. One system for accomplishing this is built around the placing of desirable type animals on the farm by an outside agency which may or may not guarantee a market. This system, comparable to the old putting-out system in the industrialization of other manufacturing, may be developed in such a way that standardization and large volume are made available. Any such organization is likely to come not from an individual farmer but from some off-farm organization of farmers or nonfarmers or of a single business firm. Such organizations are developing elsewhere in the country.

It is very doubtful that a successful expansion of the livestock business can take place in the West if it is based on the philosophy of having a cow, a sow, and a few hens to increase the size of farm business.

In summary, let me list some hypotheses on why the livestock industry has not expanded more rapidly in response to the economic changes that seem to indicate the economic feasibility of expansion.

1. Since the greatest increase in feed is coming from cash-crop areas the lack of response on the part of feed-producing farmers may be due to:

a. The hope that acreage diversion is temporary and that high incomes from sale of cash crops may return.

b. A reluctance to embark on a new enterprise about which they have little knowledge.

c. A reluctance to embark on an enterprise that alters the traditional patterns of investment, type and distribution of labor and management, requirement, and leisure.

d. A time lag that should be expected when changes of this magnitude are to be made.

2. Increase in livestock production by other than cash-grain and cotton farmers may be delayed by:

a. Lack of capital.

b. Lack of willingness to risk investment in livestock and livestock equipment because of uncertainty about short-run or long-run prices.

c. The belief that a large supply of low-priced feed grains is not assured to western livestock producers.

3. The lack of expansion may be due to the failure to recognize favorable livestock-feed relationships.

4. The lack of large-scale expansion may be due to a lack of marketing and processing facilities organized to service an expanded western livestock industry.

5. The expansion may follow after a time lag that should be expected to occur with such developments.

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