

Nonfarm production inputs—mixed feeds, fertilizers, farm machinery; role of cooperatives; farm marketing channels.

Farm Supply and Marketing Activities in Relation to Agricultural Adjustment

KENNETH E. OGREN

Agricultural Marketing Service, USDA

ORLIN J. SCOVILLE

Agricultural Research Service, USDA

FARMERS HAVE BECOME increasingly dependent on the rest of the economy — both for production services and marketing services. Farmers buy more and more of the materials and services used in crop and livestock production.

The reduction in number of workers on farms would have been impossible without the workers and capital in farm supply and marketing firms providing production and marketing services to farmers. Thus, while the number of workers directly engaged in farm production has declined, there has been an increase in the number of workers in feed mills, fertilizer plants, farm machinery plants, farm supply stores, food processing plants, and retail food stores,

and other businesses supplying processing, transportation, and distribution services to farmers. This total complex of activities — on and off the farm — is often referred to as “agribusiness.” As a part of the total economy, agribusiness is remaining relatively constant but the “on-farm” portion is declining.

FARM SUPPLY INDUSTRIES

The total quantity of resources used in farm production has changed little since 1940, but there has been a large increase in the use of nonfarm production resources. Over the same period, the quantity of operator and family labor, real estate, and capital produced on the farm has declined by about one-fourth in terms of constant dollars (Fig. 9.1). Purchased resources (machinery, fertilizers, hired labor, feed mixing services and additives, pesticides, veterinarian services, etc.) have increased by 40 percent.

Between 1948 and 1958, the quantity of farm labor declined from 45 percent of total resources used to only 30 percent (Fig. 9.2). The share of expenditures represented

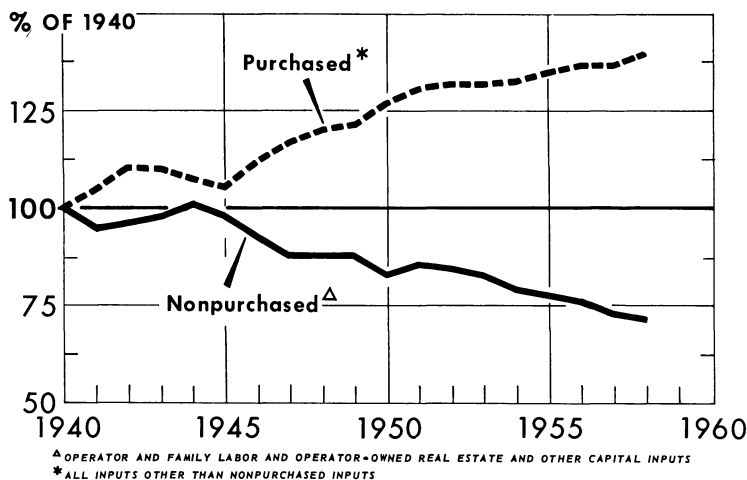


Fig. 9.1 — Purchased and nonpurchased inputs used on U.S. farms.



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Fig. 9.2—Major input groups as percentages of total inputs.

by machinery rose from 16 to 22 percent. The use of fertilizer and lime has increased rapidly; from 1947-48 to 1958 these two items rose from 3 to 5 percent of all resources. The proportion of resources represented by land has remained almost constant. These changes reflect the growing importance of purchased items and the declining importance of production items produced by the farmer.

In 1958 farmers spent over \$15 billion for current production expenses, excluding hired labor and capital expenditures for buildings, motor vehicles, and other machinery and equipment. In 1947-49 these expenditures averaged less than \$11 billion and in 1935-39 less than \$3 billion (Table 9.1). Farmers' expenditures for fertilizers and for the operation of motor vehicles are among the largest items that come exclusively from the nonfarm segment of the economy. A substantial part of farmers' expenditures for livestock, feeds, and seed represents farmers' receipts from sale of these items. Of all farm production expenditures, about 60 percent are estimated to come from off-farm sources.

TABLE 9.1
CURRENT FARM OPERATING EXPENSES, 1935-39, 1947-49, AND 1958

Item	1935-39 average	1947-49 average	1958
	(<i>Million</i>)	(<i>Million</i>)	(<i>Million</i>)
Feed	\$ 675	\$ 3,589	\$ 4,512
Livestock	352	1,499	2,680
Seed	165	546	534
Fertilizer and lime	252	825	1,305
Petroleum, fuel and oil	307	989	1,507
Other motor vehicle operations	192	703	1,304
Repairs on buildings and machinery	321	979	977
Miscellaneous*	648	1,568	2,468
Total excluding hired labor	\$2,912	\$10,698	\$15,287
Hired labor	920	2,903	2,885
Total	\$3,832	\$13,601	\$18,172

* Includes pesticides, ginning, electricity, and telephones (business share), livestock marketing charges, containers, veterinary services and medicines, net insurance premiums, short-term interest, and various other expenses.

Source: Farm Income Situation, USDA.

In addition to the expenditures for current operating expenses, farmers also paid substantial amounts for new construction and major improvements on buildings, motor vehicles and other machinery and equipment, taxes, mortgage interest, and rents to nonfarm landlords (Table 9.2). These expenditures also represent payments for services coming from outside farming. Farm capital expenditures have risen sharply over the 1935-39 period, reflecting both farmers' needs for more machinery and equipment and the sharp increases in cost of these items.

Analyses of future production needs suggest a further increase in the importance of production resource items from off-farm sources. It has been estimated by Barton and Daly¹ that production needed in 1965 could be obtained on perhaps 40 to 50 million fewer acres of cropland than we have used in recent years. The authors estimated that by

¹ Glen T. Barton and Rex Daly, "Prospects for Agriculture in a Growing Economy," in *Problems and Policies of American Agriculture*, Iowa State Univ. Press, Ames, 1959.

TABLE 9.2

FARMERS' CASH EXPENDITURES FOR OTHER THAN CURRENT OPERATING ITEMS,
1935-39, 1947-49, AND 1958

Item	1935-39 average	1947-49 average	1958
	(<i>Million</i>)	(<i>Million</i>)	(<i>Million</i>)
Farm capital expenditures.....	\$ 736	\$ 4,018	\$ 4,440
Property taxes and farm mortgage interest.....	791	1,037	1,870
Net rent to nonfarm landlords.....	413	1,257	1,142
Total.....	\$1,940	\$ 6,282	\$ 7,452

Source: Farm Income Situation, USDA.

1975, with projected increases in crop yields, our needs for farm products will require the use of about as much cropland and cropland pasture as we have used in recent years. They consider that by 1975 we may need one-third fewer man-hours of farm labor or two million fewer workers in farming, but that nonfarm expenditures may increase by about 50 percent and all resources used in farming may increase by 15 percent.

These projections are based upon continual rapid growth of the economy, a population of 230 million persons in 1975 (this estimate of population is lower than some others), and a relatively high level of exports of farm products. Neither the demand nor supply projections allow for the reduction of existing surplus stocks.

The increasing relative importance of the farm supply industry has contributed to the reduction in employment on the farm. But declining employment on the farm has been accompanied by an almost equal increase in employment in the farm supply industry. Davis and Goldberg, using USDA data, estimated that five million persons were employed in the farm supply industry in 1947 and six million in 1954.² There were ten million persons employed in

² J. H. Davis and R. A. Goldberg, *A Concept of Agribusiness*, Graduate School of Business Administration, Harvard Univ., Boston, 1957.

farming in 1947 and eight million in 1954. The number of workers on farms now is a little over seven million and the number employed in the farm supply industries probably has risen a little since 1954.

Farm supply manufacturing industries range from a few large ones to a considerable number that are small. The total number of business firms is somewhat smaller than indicated in Table 9.3 since some firms have more than one establishment.

Feed Industry Grows Rapidly

The mixed-feed industry is one of the largest and most rapidly growing of the farm supply industries.³ Value of shipments of prepared animal feeds increased fourfold from 1939 to 1954 according to the Bureau of the Census. The number of manufacturing establishments increased rapidly from 1927 to 1947, but has since declined.

Feed manufacturing is becoming more decentralized,

TABLE 9.3

SELECTED FARM SUPPLY MANUFACTURING INDUSTRIES; NUMBER OF PLANTS AND EMPLOYEES, 1954 AND 1958

Industry	Plants with 20 or more employees		Number of employees*	
	1954	1958	1954	1958
			(Thousand)	(Thousand)
Prepared animal feeds.	685	720	60	59
Tractors.	74	68	65	60
Farm machinery, except tractors. . .	397	449	74	75
Insecticides & fungicides.	78	90	7	7
Fertilizers.	418	406	32	31

* Including those in plants employing less than 20.

Source: 1958 Census of Manufacturers, Preliminary General Statistics, U. S. Department of Commerce, 1959.

³ Much of the information in this section is taken from John V. Brensike, "The Changing Structure of Markets for Commercial Feeds," *Jour. Farm Econ.*, 40(5):1201-11, 1958.

with an increasing number of plants in the South Atlantic and South Central regions. This shift implies that the industry is becoming more demand-oriented.

As a result of keen competition, manufacturers tend to produce a wide variety of formulas, and many sizes of bags. Only a few of these sell in large volume. Brensike estimates that about 10 percent of the formulas account for 65 percent of volume of the typical firm. Many firms could reduce costs by closing out low-volume formulas.

The retail feed business includes many small independent firms. In 1954 the census reported 16,530 hay, grain, and feed stores, with payrolls of 62,337 persons. In addition, a number of farm supply retailers handle feeds as a sideline. Competition among retailers is keen, and in addition, manufacturers frequently sell direct to livestock feeders.

In 1954 the four largest feed manufacturing companies accounted for 21 percent of shipments for the industry. The 20 largest companies accounted for 43 percent of total value of shipments.

There is little horizontal integration or combination among feed dealers, but a number of retail outlets are owned by feed manufacturers. Selling prices usually are established by the manufacturer through periodic price lists. The retailer has considerable latitude with respect to quantity rates, special charges or discounts, credit practices, and special services. Competition among dealers usually involves special services, including grower integration or contract arrangements, rather than price competition. The feed industry is increasing its participation in farm production activities through bulk handling of feeds, and providing technical services in connection with integration contracts.

Eight Machinery Manufacturers Produce "Full Line"

More persons are employed in farm machinery manufacture than in any other farm supply industry. The industry includes many small firms that produce only a few

items. Eight companies are classified as "full-line" firms, producing tractors, tractor equipment, and a wide variety of their machines. These firms produce about 65 percent of the sales of the industry. There are about 12 to 15 medium-sized companies that produce for a broad domestic market. These firms account for about 10 percent of sales.

The census in 1954 reported 18,689 retail farm equipment dealers with a payroll of 79,625 persons. There also were 1,112 farm and garden machinery wholesalers who hired 46,026 persons.

Full-line equipment manufacturers follow a policy of exclusive franchises for dealers. Each firm has sought to obtain wide distribution for its product. As a result, many dealerships were set up, and competition among them has been strong.⁴

Important economic problems in the industry have included the development of an adequate volume of business by the numerous dealers, maintenance of heavy inventories because of the highly seasonal demand for machinery, and development of adequate sources of credit for farmers and for dealers.

The problem of building an adequate volume of business is being met by a sharp reduction in number of dealers. Increased size of business, greater diversification of products carried by dealers, and more extensive financing arrangements by the manufacturers have helped to alleviate the problem of carrying heavy inventories.

It is increasingly difficult for farmers to find the capital needed to acquire expensive machines. Because of the increasing costliness of farm machinery, some manufacturers and dealers are renting machinery to farmers. This practice is largely experimental, but is growing in importance, particularly for used equipment. In addition to mak-

⁴ Part of the material in this section is based on W. G. Phillips, "The Changing Structure of Markets for Farm Machinery," *Jour. Farm Econ.*, 40 (5):1172-85, 1958.

ing it easier for farmers to obtain machinery, rental provides more flexibility in farm operation and may provide tax advantages to some farmers.

Some equipment manufacturers and dealers are giving increasing attention to the sale of equipment for a production system or a materials-handling system. For example, plans and equipment may be provided for the entire process of cutting, drying, handling, and storage of hay. This approach to equipment selling requires additional knowledge on the part of the dealer in order to design an efficient layout for each individual farm.

Fertilizer Use Shows Phenomenal Growth

Another important farm supply industry includes the manufacture and sale of fertilizers.⁵ Characteristics of the industry of significance to farm adjustment problems include a phenomenal increase in use of fertilizers, a tendency for fertilizer prices to decline relative to the prices of nearly all other production resource items, and a sharp increase in the proportion of fertilizer applied by dealers for farmers.

Changing technology has had a profound effect on production of nitrogen fertilizer. Facilities for production of nitrogen for explosives are adaptable to the production of fertilizer. In 1900, about 90 percent of nitrogen fertilizer came from organic or natural sources. By 1960, nearly 90 percent was of synthetic origin. Since World War II the government has sold or leased to private industry munition plants with an annual capacity of 531,000 tons of nitrogen. In addition, private plants with a capacity of 1.1 million tons were built under rapid tax amortization benefits. On January 1, 1959 the total capacity for producing nitrogen for all purposes was 4.4 million tons, compared with a little

⁵ Part of the material in this section is drawn from E. L. Baum and S. L. Clement, "The Changing Structure of the Fertilizer Industry in the United States," and discussion by Calvin L. Berry, *Jour. Farm Econ.*, 40(5): 1186-1200, 1958.

more than 1.6 million tons on January 1, 1951. In 1958, 2.37 million tons of nitrogen were used as fertilizers.

Along with increased capacity, the number of firms manufacturing nitrogen has increased from four major producers to about seventeen. These are widely scattered over the United States.

The phosphate industry is much older than nitrogen manufacture. Control of phosphate minerals by a limited number of firms has given this industry considerable stability. In recent years, the importance of the Midwest as a market area increased. More concentrated materials were developed and ammonium phosphates introduced. Among the producers of primary fertilizer materials the phosphate industry is outstanding in the degree of vertical integration in the production of mixed fertilizers.

Potash is produced in the United States by about ten plants. The industry has grown rapidly in volume but not in number of firms. Technical progress has been rapid and prices have tended to remain relatively constant.

The fertilizer mixing industry includes integrated firms owned by phosphate producers, and many independent firms which buy primary materials and blend them into formulas. Fillers, conditioners, and other materials are added. These firms are located in the market areas served and usually do not ship their products great distances.

Mixing firms have been criticized from time to time for production inefficiency, particularly with respect to the uneconomically low concentrations of nutrients in dry-mixes, and a lack of attention to farmers' economic interests in pushing the sale of brands of mixed fertilizers. However, nutrient concentration of fertilizers has been increasing rapidly. In recent years, the industry has had excess capacity for nitrogen. Competition has been severe among dealers. Manufacturers and distributors have actively promoted use of fertilizers, and there is a growing tendency for them to sell direct to farmers.

LENDERS SUPPLY \$21 BILLION TO FARMERS

Firms making loans to farmers comprise one of the more important farm supply industries. Although farmers have financed most of their capital needs internally, the rapid growth in capital needed by farmers caused them to borrow an increasing part of their investment requirements in recent years. On July 1, 1959 the total indebtedness of farmers amounted to \$21 billion. Forty percent of this was provided by merchants, farm equipment dealers, and individual lenders and 30 percent by commercial banks. Other important sources of credit included life insurance companies, Federal Land Banks, Production Credit Associations, and the Farmers Home Administration (Table 9.4). Capital provided through land purchase contracts is not included in this table. This form of financing has been increasing and now amounts to about \$2 or \$3 billion.

TABLE 9.4

AMOUNT OF FARM LOANS OUTSTANDING, JULY 1, 1959 (BY TYPE OF LOAN AND SOURCE OF FUNDS)*

Type of loan and source	Amount of loans
	(<i>Million</i>)
Farm-mortgage debt:	
Federal land banks	\$ 2,065
Farmers Home Administration	388
Life insurance companies	2,661
Insured commercial banks	1,443
Individuals and miscellaneous	4,697
Total	\$11,254
Farmers' non-real estate debt:	
Loans by banks and federally sponsored agencies except CCC	\$ 5,800
Loans, book credits, and miscellaneous lenders	3,700
Total	\$ 9,500
Grand total	\$20,754

*Excludes \$2.5 billion of price-support loans made or guaranteed by CCC.
Source: The Balance Sheet of Agriculture, USDA.

The growing complexity of farming is resulting in changes in the activities of lenders. Commercial banks are finding it advantageous to employ agriculturally trained men to service farm loans. About 1,200 banks now have one or more agriculturists on their staff.

Many farm supply firms, including cooperatives, are developing contracting arrangements with farmers as a means of supplying farmers with capital. There is no information on the amount of capital made available to farmers in this manner, but the total is substantial. Farm machinery companies and dealers have always been active in financing purchases of new farm equipment.

COOPERATIVES INCREASE SALES TO FARMERS

Farmer cooperatives play an important role in the farm supply industry. In 1957, there were 979 electric power cooperatives with more than four million members. There were 7,406 farmer cooperatives handling production supplies — of these, 4,500 sold feed, 3,790 sold seed, 4,143 handled fertilizer, and 2,794 handled petroleum products.

The sales of feed, fertilizers and lime, and petroleum by farmer cooperatives are about 20 percent of the total sales of these important farm supplies (Table 9.5). The proportion handled by cooperatives has been increasing, particularly for fertilizers and petroleum products.

MARKETING ACTIVITIES

On the marketing side, farmers are more and more dependent on processing and distributing agencies to provide the outlets for farm products. The marketing system bridges the gap between the farmer and city consumer, and permits farmers to specialize on production. It bridges the gap in several ways — in distance, in time, and in form. Because of the vast network of distribution facilities, today's market for most farm products is nationwide.

TABLE 9.5
PURCHASES OF PRODUCTION SUPPLIES AND EQUIPMENT BY FARMERS, AND NET SALES OF SUCH ITEMS BY FARMER COOPERATIVES,
UNITED STATES, 1950-51 AND 1957-58

Item	Total purchases by farmers, annual average *		Net sales by farmer cooperatives, annual average †		Percent of total handled by cooperatives	
	1950-51	1957-58	1950-51	1957-58	1950-51	1957-58
	<i>(Million)</i>		<i>(Million)</i>		<i>(Percent)</i>	
Feed ‡	\$ 3,749.1	\$ 4,297.3	\$ 694.3	\$ 808.4	18.5	18.8
Seed ‡	346.3	534.2	90.5	95.8	26.1	17.9
Fertilizer and lime	1,031.5	1,291.2	156.1	283.3	15.1	21.9
Petroleum §	1,265.0	1,507.0	224.4	325.0	17.7	21.6
Sub-total	\$ 6,391.9	\$ 7,629.7	\$1,165.3	\$1,512.5	18.2	19.8
Farm machinery, motor vehicles, other equipment	\$ 3,648.6	\$ 3,447.9	\$ 68.0	72.0	1.9	2.1
Other farm supplies 	2,467.5	2,434.4	261.6	323.9	10.6	13.3
Total †	\$12,508.0	\$13,512.0	\$1,494.9	\$1,908.4	12.0	14.1

* Average of total cash purchases for calendar years 1950 and 1951, and 1957 and 1958.

† Average of fiscal years of cooperatives ending between July 1 and June 30 each year. Excludes sales of meats and groceries and petroleum to nonfarmers. Adjustments were not made, however, for small amounts of seed, fertilizer, pesticides, building materials, and appliances sold to nonfarmers.

‡ Total purchases include an estimated 10 percent of feed and 5 percent of seed purchased through noncommercial channels; i.e., one farmer from another.

§ Total purchases includes only 40 percent of purchases for farm automobiles as proportion chargeable for production purposes. Total volume of cooperatives adjusted to exclude sales to nonfarmers and commercial firms.

|| Includes pesticides, building materials, containers, automotive supplies, fencing, roofing, farm hardware, and similar items. Sales by cooperatives include miscellaneous farm equipment.

Source: Farmer Cooperative Service, USDA. Preliminary data.

The importance of marketing activities in agribusiness can be illustrated both by the farm and marketing shares of consumer expenditures and by trends in number of workers on farms and in marketing activities.

Marketing Takes Larger Share of Consumer Expenditures

For most consumer goods derived from farm products, the returns to marketing agencies are a much larger part of consumer expenditures than are the farmer's returns, especially for those farm products that are used as raw materials in manufacturing or processing. In 1958, U.S. civilian consumers spent about \$86 billion for food and alcoholic beverages, textile products, tobacco, and leather products that were derived from domestically produced farm products (Table 9.6).⁶ Of this total, farmers received an estimated \$23 billion or about 27 percent of consumer expenditures. Their share was somewhat higher for food products than for nonfood products principally because of the greater processing involved in the nonfood products. The farmer's share of a "market basket" of food products purchased by urban consumers at grocery stores averaged 38 percent in 1959.⁷ But the farmer's share is also low for many food products — such as bread, crackers, prepared breakfast food — where the final form bought by the consumer differs greatly from the raw product sold by the farmer.

The estimates in Table 9.6 refer only to the major groups of consumer items derived principally from farm products. Not included in any of these groups are many nonfood products like paint and soap, which contain considerable amounts of fats and oils. An automobile may have farm-produced raw materials in its upholstery, cushions, tires, and paint.

⁶ The derivation and limitations of statistics (for the year 1954) comparable to those in Table 9.6 are described in "The Marketing Bill for Agricultural Products," *Agr. Econ. Res.*, 6:101-7, October 1955.

⁷ The statistics for the "Market Basket" are published regularly in the quarterly AMS report, *The Marketing and Transportation Situation*, and analysis and description of these statistics are given in *Farm-Retail Spreads for Food Products*, USDA Misc. Publ. 741.

TABLE 9.6

CONSUMER EXPENDITURES, FARM VALUE, AND MARKETING BILL FOR PRINCIPAL GROUPS OF AGRICULTURAL PRODUCTS, 1958

Item	Consumer expenditure *	Farm value	Marketing bill †	Excise taxes
	(Billion)	(Billion)	(Billion)	(Billion)
Food	\$57.7	\$20.8	\$36.9	\$. . .
Nonfood:				
Textile products	11.0	1.1	9.9	. . .
Alcoholic beverages	8.3	.5	4.5	3.3
Tobacco products	5.7	.7	2.6	2.4
Leather products	3.4	.2	3.2	. . .
Total nonfood	\$28.4	\$ 2.5	\$20.2	\$5.7
Total food and nonfood	\$86.1	\$23.3	\$57.1	\$5.7

* These statistics do not include expenditures for such imported products as coffee, tea, bananas, sugar, pineapples, wool, and silk. Also excluded are some nonfarm products such as seafoods and clothing made from synthetic fibers. Thus, total consumer expenditures for food, clothing and shoes, alcoholic beverages, and tobacco products, as reported by the Department of Commerce, are about a third higher.

† Consumer expenditures minus farm value of equivalent quantity, except for alcoholic beverages and tobacco products where estimates of federal, state, and local excise taxes also are subtracted.

Source: Agricultural Marketing Service.

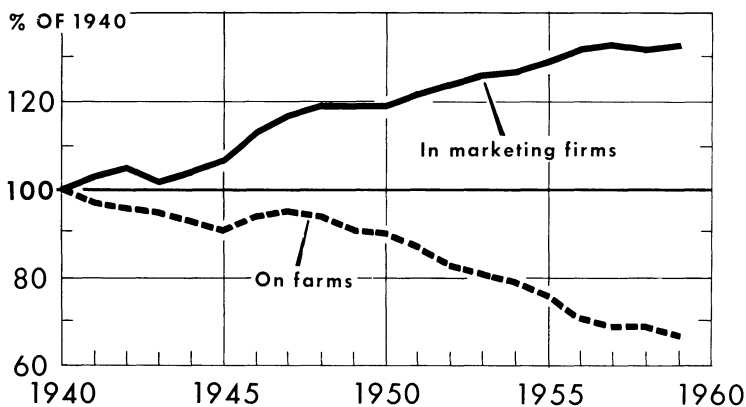
The share of consumer expenditures for food and fiber going for off-farm activities in the processing and distributing of farm products has tended to increase. In 1959, for example, marketing agencies received the largest proportion of consumer expenditures for food on record except for the depression years of 1932 and 1933 when farm prices of food products were very low in relation to price levels in the nonagricultural economy. (Comparable time-series data for nonfood products are not available.) This trend likely will continue as more and more services are provided by marketing agencies, especially for food products.

More Labor in Marketing, Less on Farms

Almost ten million workers (on an equivalent full-time basis) are needed to process, transport, and distribute the farm products. This figure includes only those workers

directly employed in marketing farm products, not those employed by firms providing services, equipment, and supplies to marketing firms. The ten million workers in marketing compares with a little more than seven million workers on farms. These figures, however, are not directly comparable with those for food marketing because the number on farms includes many part-time family and hired workers not adjusted to a full-time basis.

Changes in the labor used in marketing food products relative to changes in number of workers on farms indicate the increased importance of food marketing services (Figure 9.3). Between 1939 and 1959, for example, the number of full-time jobs in marketing domestically produced food products rose from 3.8 million to 5.3 million, an increase of 40 percent.⁸ During this same period, the number of workers on farms declined by a third. This divergent relative change in numbers of workers was caused in part by the faster productivity gain among farm workers than among marketing workers; however, the



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NEG. 1969-60 (6) AGRICULTURAL MARKETING SERVICE

Fig. 9.3 — A comparison of U.S. workers in farm production and in marketing of food.

⁸ Similar data are not available for nonfood products.

increase in marketing services relative to farming appears to be the more important factor.

The built-in maid services now provided with many food products are quite familiar. Also, a much larger proportion of the food supply now goes through the marketing system because of the continued decrease in number of people living on farms and growing their own food supply. Urbanization and specialization in farm production make for long transportation hauls. More meals eaten away from home are another important factor. These influences are all likely to increase marketing services for food in future years.

COORDINATION OF FARM PRODUCTION AND MARKETING

With the growth of agribusiness, coordination of farming and business has increased. Vertical integration is a term commonly applied to this growing farm-business coordination. It exists in varying degrees and forms. A farmer whose operations are vertically integrated shares some of the management decisions and risks in production with one or more related businesses — for instance, his suppliers, processors, or distributors — or he does some of his own processing or distributing. Farmer-businessmen arrangements can extend from connections only slightly closer than an open-market relationship to the complete ownership and operation of the farm by off-farm business.⁹

Changes in Marketing Channels¹⁰

Increasing coordination in farm production and off-farm business is reflected in “shorter” marketing channels — that is, farm products change ownership fewer times between the farmer and the consumer even though the distance that farm products move to market has increased greatly in many instances.

⁹ *Contract Farming and Vertical Integration in Agriculture*, USDA Info. Bul. No. 198, July 1958.

¹⁰ This section is based on *Changing Marketing Channels for Farm Foods*, AMS-350.

Marketing channels for farm products in the United States have gone through three principal phases of change during the history of our country. In the early Colonial period marketing channels were short, both in numbers of middlemen and in distance. The few people who were dependent on purchased foods and other farm products generally bought either directly from farmers or from small retailers who bought from farmers.

During the nineteenth century, the typical marketing channel for farm products in the United States became longer and more complex. Specialized marketing firms arose such as grain buyers, livestock dealers, fruit and vegetable shippers, and other specialized country assemblers. Large central markets for farm products were established. Commission merchants, jobbers, brokers, order buyers, and other forms of wholesalers became an important part of the marketing system for moving products from thousands of country assembly points to the hundreds of thousands of neighborhood retail stores.

Improvements in transportation, growth of urban centers, and specialization of production areas all combined to lengthen marketing channels and increase the number of marketing agencies and the number of times the products changed hands between the farmer and the ultimate consumer. As the number and complexity of marketing channels grew, public criticism of marketing developed. Many farmers and consumers believed these marketing intermediaries performed no essential functions, and their participation made the price spread between farmers and consumers wider than it should be.

In recent decades, farm products have again been moving through shorter and more direct marketing channels but with an important difference from the Colonial period. Buyers of farm products are now for the most part large-scale processors and retail chains or affiliated retail buying groups instead of vendors, peddlers, and country storekeepers. The size of the buying firms has grown much more than has the size of the farmer-seller.

Large processing firms organized around 1900 began selling directly to retailers. Food processing companies that adopted direct marketing set up organizations and facilities for selling directly to the many small retail stores. Warehouses, commonly called branch houses, were maintained in the larger cities from which products were distributed to retail stores. More recently, the formation and rapid growth of large retail food-store companies has been a strong force in shortening marketing channels for food and increasing direct buying of farm products.

Changes in the Organization and Practices of Marketing Firms

The channels used for marketing farm products have always been in a state of transition. But marketing in general — the institutions, organization, structure, and the services they perform — is changing constantly. Some of the changes are related primarily to “internal” factors such as development of new product forms, new processes for preserving quality, and improved methods for transporting and handling farm products. Other changes may be in the nature of adjustments to “external” factors such as higher consumers’ real income, changes in the size and location of population, changes in the business environment and competitive forces, and developments in technology on the farm that affect the supply of farm products.

RETAILING

The growth of supermarkets with their large-scale retailing and mass merchandising is the dominant factor influencing changes in the organization, marketing channels, and buying practices for farm food products.

Supermarkets are a small but growing proportion of the total number of grocery stores, but they account for a large part of total grocery store sales. In 1959, supermarkets (stores with sales of over \$375,000) were 11 percent of the total, but these stores accounted for 69 percent of grocery store sales. This was an increase from 43 percent of sales in 1952. Superettes (annual sales of \$75,000 to

\$375,000) were 20 percent of the total in number and 24 percent of sales. The remaining 69 percent of the total number — almost 200,000 stores — accounted for only 7 percent of sales.¹¹

The current trend is toward fewer retail stores, larger supermarkets with more items, and greater emphasis on nonfood lines. However, different trends are developing in some areas. These include delicatessen chains and miniature supermarkets with a relatively complete merchandising line but with minimum selection. These smaller retailers can offer location, service, and convenience features that may compete effectively with the large competitors.

Many chain retailers and large independent retailers now own and operate their own warehouse facilities, and perform many of the functions formerly performed by independent wholesale houses. Some wholesalers have sponsored successful voluntary retail groups who merchandise and operate under a common name; their operations are similar to those of a chain organization. Other independent retailers have joined cooperative wholesale buying groups to obtain the advantages of large-scale buying and merchandising.

Many of the larger chains and voluntary and cooperative retail groups have central purchasing departments that buy directly from manufacturers and shippers. Direct buying gives retailers greater control over their supply. They can arrange with manufacturers and shippers to make and supply the type, grade, and quality of product they specify. Direct buying frees retailers from dependence upon wholesalers for the type of product and the volume needed, at the time it is needed.

Direct buying by retail food stores from manufacturers, country assemblers, and farmers is likely to continue to increase because (1) the number of corporate chains large enough to engage in direct buying is increasing, and (2)

¹¹ The definitions and statistics are based on the 1960 edition of "Facts in Grocery Distribution" published by the *Progressive Grocer*.

the voluntary and cooperative groups are doing an increasing proportion of the buying for independent retailers.

Small chains are growing larger by acquiring independent stores and stores of other chains, and by building new stores. The advantages of being large enough to warrant direct buying and private brands often provide a motive for expansion. The most rapid growth in size of chainstores has been in the intermediate size group. The proportion of total grocery store sales accounted for by the three or four largest chains has stayed at about the same level in recent years.

WHOLESALE

The growth of large-scale retailing has affected the organization and services performed by the wholesale trade. A small number of wholesalers with efficient mechanized operations now handle a large share of the wholesale grocery business. The number of small wholesalers is declining and they are getting a smaller share of the total business.

Despite direct buying by retail food chains, sales of food wholesalers have not decreased. This is partly because of the increase in wholesalers affiliated with voluntary and cooperative groups. Sales to hotels, restaurants, institutions, and buyers other than retail food stores account for a larger share of total sales of grocery wholesalers than formerly.

The increased coordination of retailing with the wholesaling and other functions of the marketing system has reduced the flow of products through organized terminal and wholesale markets. More fruits and vegetables now move directly from suppliers to retailers or retailer-affiliated wholesalers. For example, the volume of fruits handled by terminal fruit auctions has dropped from 160,000 carlots in 1929 to about 55,000 carlots (with somewhat larger loads per cars) in 1957.¹²

¹² *The Changing Role of the Fruit Auctions*, U.S. Agr. Mktg. Serv., Mktg. Res. Rpt. No. 331, June 1959.

The proportion of eggs and butter moving through produce exchanges has fallen off so much that prices based on these auctions cover only a small fraction of the total supply. In Chicago, for example, about one-half of the eggs move direct from country points to retail outlets.¹³ The importance of central markets for livestock has declined markedly in recent decades. In 1923, terminal markets handled 77 percent of all hogs slaughtered under federal inspection; by 1955 this percentage was down to 37.¹⁴

In the wholesaling of nonfood products there is also evidence of increasing coordination of the processing and distributing steps with products moving through fewer buyers and sellers than formerly.

PROCESSING

Large-scale operations appeared in the processing of farm products before they developed in wholesaling and retailing. Large companies first appeared in the meat packing industry and by 1900 the five largest meat packers bought nearly half of all slaughter animals sold in the United States. During the first three decades of this century large companies were organized in the baking, milling, canning, dairy, and tobacco industries.

The size and scope of processing operations has continued to increase but there are still a large number of small establishments and companies processing farm products. Trends have varied greatly among industries. The growth of large-scale plants and reduction in numbers of small plants have been much more pronounced in some industries than others. Shifts in production areas have caused changes in locations of many plants in some industries.

In 1956-57, 34.7 thousand corporations processing food and beverages, textiles, apparel and leather products, and

¹³ *Movement of Shell Eggs Into Retail Channels in the Chicago Metropolitan Area*, U.S. Agr. Mktg. Serv. AMS-338, September 1959.

¹⁴ *Livestock Auction Markets in the United States — Development, Volume Handled, and Marketing Charges*, U.S. Agr. Mktg. Serv., Mktg. Res. Rpt. No. 223, March 1958.

tobacco products reported total assets of \$36.1 billion on their income tax returns.¹⁵ For 1948–49, a larger number of corporations — 36.6 thousand — reported only \$27.3 billion in assets.

Many companies in recent years have expanded their operations by mergers; others built new plants. The advantage of having a full line has encouraged companies to diversify their production, sometimes by merging with companies that manufactured different products. Technological developments stimulated large investments by processors since the end of World War II. Expenditures for new plant and equipment by food processors varied between three-quarters and \$1 billion annually. Total annual investments of all processors of farm products have approached \$2 billion in some years.

ASSEMBLY

Assemblers are the first link in providing markets to farmers for their products. The number of assemblers is declining. In part, the reduction was a long delayed adjustment to improvements in transportation facilities. With improved roads and use of motortrucks, large establishments drawing products from a wider area became feasible and more economical. The functions of assemblers have been integrated into the activities of other marketing firms by direct deliveries to processors and other buyers. The location and type of assemblers changed also in response to changes in location of production and in marketing practices.

Integration Activities of Farm Supply Firms

Among farm supply firms, feed dealers, hatcheries, and seed firms have been active in developing contracts and other integrating arrangements with farmers. The outstanding example of feed dealer-farmer integration is found in broiler production. It is estimated that about 95 percent

¹⁵ "Statistics of Income 1956–57," Internal Revenue Service.

of all broilers are produced under contract or under the direct ownership of feed dealers or processing firms. Under these contracts broilers usually are owned by the contractor. He also furnishes chicks, feed, and other supplies. The farmer receives a flat fee per broiler produced or a minimum guarantee plus a bonus, calculated on the basis of feed conversion efficiency. A growing proportion of turkeys are produced under similar contracts.

In the hatchery industry, egg producers under contract are supplied with breeding stock. The contract provides for purchase of eggs usually at a guaranteed minimum price plus incentive bonus payments.

Hatcheries, feed dealers, and poultry processors frequently are integrated to some degree through either outright ownership, contracts, or agreements.

Feed firms are experimenting with various kinds of production contracts with hog producers. At present the proportion of hogs produced under contract is very small.

Much of the vegetable seed production is regulated by contracts between farmers and seed companies. These companies in turn have contracts with large wholesalers and retail seed dealers.

Under the contract the farmer prepares the seedbed, cultivates, and irrigates the crop. The company rogues, harvests, threshes, cleans, and stores the seed. The company also provides seed. The contract usually specifies price and time of delivery of the crop. The entire vegetable seed industry is thus closely integrated. These arrangements are said to improve regulation of the supply, reduce needed carryover, reduce price risks, and protect quality.

About three-fourths of the hybrid corn seed is produced under contracts with seed companies. Several of them are farmer cooperatives. The contracts are quite similar to those in the vegetable seed industry.

The grass and legume seed industries are not highly integrated except for the production of certified seeds where contracting is customary. Among forage crops, private

varieties are increasing in importance. This is particularly true for alfalfa. If continued, this trend will stimulate integration.

EFFECTS ON AGRICULTURAL ADJUSTMENT

Large-Scale Buyers of Farm Products

Trends in the organization, size, and scope of firms marketing farm products have important repercussions on farmers, through the markets in which farmers sell.

Buyers tend to be larger and fewer in number. In many country sales of farm products, the farmer obtains a bid from only one buyer. Unless the farmer has adequate knowledge of prices being paid in other transactions for products of the same quality, he may accept a price that is lower than he could have obtained from other buyers. With highly perishable products and no other buyers readily available, he may have little alternative than to accept the only price offered.

Procurement of farm products by processors and retailers through specification buying direct from shippers and farmers is likely to increase. Buyers prefer to buy from farmers who can supply a large volume of products having uniform, specified characteristics. Products that meet the buyers' specifications may receive price premiums, so long as the supply is relatively limited.

Many farmers must decide how to adjust their production and marketing programs to large-scale buying practices. Some may need to increase their volume of production.

Contract or specification buyers frequently offer a higher price for quantity deliveries. For example, in 1959, one egg marketing cooperative offered a premium of 2 cents a dozen on deliveries of from 150 dozen to 749 dozen eggs a week, and 3 cents on deliveries of 750 dozen or more. (One hundred and fifty dozen eggs is the annual production from about 350 hens, and 750 dozen would require about 1,800 hens.) A differential of 3 cents a dozen would

mean an additional net income of 30 cents per hen in a year — a substantial inducement either to expand size of flock or get out of egg production.

The small farmer is likely to have increasing difficulty in finding satisfactory outlets for his products. Retailers, whether chains or affiliated independents, merchandise large quantities of products through concentrated advertising and promotion. These retail groups need a large supply of uniform quality products. Cooperative selling may meet the need for large quantities of products, but coordination of production, in timing and quality, also will be necessary.

The by-passing of wholesale markets through direct buying has weakened the position of many traditional markets as price-making centers. Trading in butter and eggs on the New York and Chicago Merchantile Exchanges and central markets in some other cities has declined to low levels. Many observers contend that the volume of sales in these markets is so low that prices do not always reflect changes in supply and demand conditions. Different methods are needed in some instances for pricing of commodities purchased from farmers.

Providing adequate market news on prices to farmers as a growing volume of farm products by-passes terminal markets is a related problem, and is of major importance to farmers. The collection, summarization, and reporting of satisfactory price data become more costly and difficult as direct sales at country points increases.

Farmers are not the only group needing to adjust to changes in the agribusiness sector of our economy. Trends in the production and marketing of farm products also have important repercussions on the marketing agencies of farm products, especially the smaller firms. Small-scale assemblers and processors of farm products are likely to have increasing difficulty in finding outlets that will enable them to compete effectively with larger-scale buyers. For example, the small-scale firms may need to work more

closely with farmers in improving production practices and in doing more sorting and grading to obtain a uniform supply of standardized products.

Effects of Marketing Costs and Services on Farm Prices

In a broad sense, a highly developed marketing system contributes both to a higher level and greater stability of farm prices. The price variability resulting from seasonal and cyclical fluctuations in farm production and marketing is reduced by storage, refrigeration, and processing facilities that help provide a more even flow of products to consumers. Processing has widened the market for many food products by making them available in more forms, in all seasons of the year, and to consumers all over the country. This is particularly important for perishable farm products.

The increasing importance of marketing costs may tend to make farm prices more variable. The costs that make up the spread between farm and retail prices are "sticky" (because labor costs are a high proportion of total costs). Spreads per unit are likely to be as high (or in some cases higher) for a large volume marketed as for a small volume. Thus, for a given percentage change in the retail price, the percentage change at the farm level is likely to be greater. The smaller proportion that the farm price is of the retail price, the greater the impact on farm prices.

Most of the products derived from the so-called basic farm commodities — wheat, cotton, corn, tobacco, rice, and peanuts — are products for which the farmer's share is 20 percent or less. That is, they are products for which large percentage changes in farm prices would have relatively little effect on retail prices.

Marketing and marketing costs are not, however, the primary cause of either instable or low farm prices. The stability of farm production as a whole plus the inherent instability in the production of many individual farm products overshadow marketing as a cause of instable farm

prices. But an efficient marketing system does and can contribute greatly toward stabilizing and improving farm income.

The efficiency of this marketing system is not measured by the share of the consumer's dollar which it takes, nor do these percentage shares of the consumer's food dollar measure the net returns of either farmers or marketing firms. As the marketing system performs more and more services relative to farming, a larger share will go to marketing. One of the important implications of this trend to agricultural adjustment is that fluctuations in prices at the farm level have less effect relatively on retail prices than formerly, and therefore less effect on consumption.

On the cost side, the increasing proportion of farm resource items that are purchased by farmers, and the rigid nature of prices for many of these make it more difficult for farmers to withstand periods of low prices. However, increased use of purchased items has been accompanied by improved production efficiency that has tended to offset the effect of these factors.¹⁶

Contract Farming Speeds Adoption of Technology

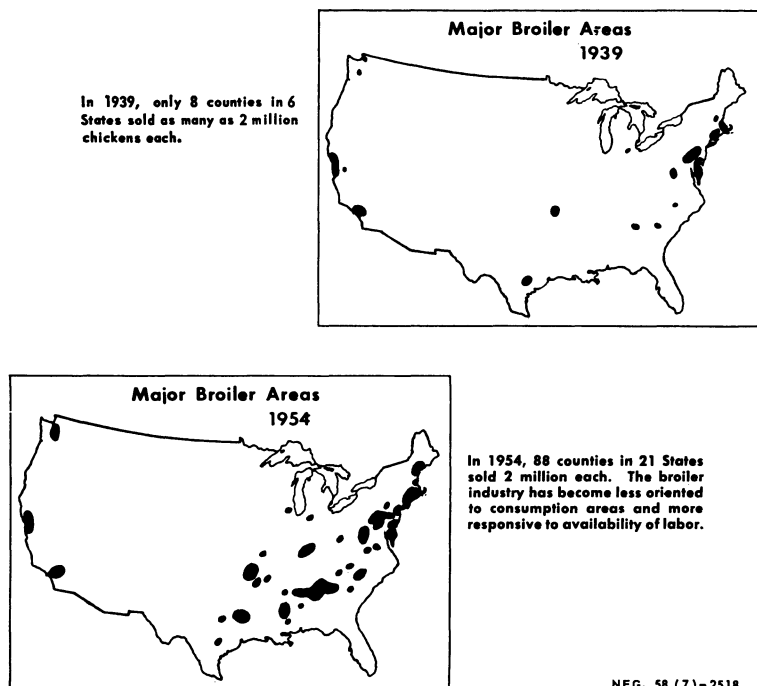
An increase in the number of integration arrangements between farmers and suppliers, processors, and distributors speeds up technical progress. As a result, efficiency is improved and a better quality of product is obtained. Contract farming arrangements usually provide for management assistance. They encourage the use of improved strains or varieties, carefully balanced livestock rations, and improved marketing and handling practices.

Integration may stimulate production. If farmers can market produce only if they have a contract, as is the case with sugar beets and some vegetable crops grown for processing, contract arrangements may restrain production. However, if integration arrangements facilitate the acquisi-

¹⁶ W. H. Brown, "Are Farmers More Vulnerable to the Price-Cost Squeeze?" *Jour. Farm Econ.*, 41:558-68, 1959.

tion of capital and technical knowledge by farmers, production may be stimulated. This has clearly been the case with broiler production which increased about 34 fold in 25 years. A similar but less spectacular growth is occurring in turkey production. It is probable that integration has been an important factor in the growth of this industry.

A small beginning in integrated hog production has been made. Further extension of contract hog production can stimulate production. For each of these industries the principal business firms that engage in contracting are feed dealers or feed distributors. The contractor provides feed for which the grower does not pay until he has sold his product.



NEG. 58 (7)-2518

Fig. 9.4 — Regional changes follow vertical integration. This is illustrated by shifts in broiler production since 1940.

The contracting activities of suppliers and processors may influence the location of farm production. Contracting in the broiler industry has made the feed supply and working capital more fluid. Feed has tended to move into areas where there was an abundance of low-cost labor, particularly in the Southeast. New broiler processing facilities developed in the areas expanding production. Figure 9.4 indicates the regional shifts in location of the broiler industry between 1939 and 1954.

One of the important avenues of agricultural adjustment involves cost reduction to improve the competitive position of our farm products with foreign farm products and with synthetic substitutes. Opportunities for cost reduction or improving efficiency will increasingly be found in the off-farm industries of food and fiber production, processing, and distribution since they now comprise two-thirds to three-fourths of the total employment and total cost. This brief review of some of the industries serving farming points out some of the ways in which efficiency can be improved.

Cost reduction and improving efficiency in marketing and financing should improve demand for farm products and also permit better prices to be paid for farm products. Cost reduction in the farm supply industries should reduce farmers' costs.

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