



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

1
Ag84Ab
c.4

THE FOOD AND FIBER SYSTEM-- HOW IT WORKS

U. S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE



THE FOOD AND FIBER SYSTEM—HOW IT WORKS

Economic Research Service
U.S. Department of Agriculture
Agricultural Information Bulletin No. 383

ABSTRACT

For many years, the U.S. food and fiber system has provided the Nation with an abundance of food and fiber at a reasonable cost. This effort has greatly benefited from the industrialization of agriculture; and increasingly it has entailed close ties among the system's sectors, particularly those that supply inputs to farming, processing, and distribution of agricultural products. The system's performance has seldom been questioned. Recently, however, its efficient performance has been hampered by a combination of domestic and foreign developments, especially those related to energy.

Research and information are needed to reveal more about the performance of the various sectors of the system and their interrelationships. Impediments to performance need to be identified and opportunities for more efficient performance explored. Though this publication mainly describes the current structure and performance of the food and fiber system, it also identifies some steps that would lead to improved future performance.

Keywords: Food and fiber system, Inputs, Production, Pricing practices, Processing, Wholesaling, Retailing, Consumer demand, Performance measures

FOREWORD

The food and fiber system performs a critically important function in our industrial economy. Without the system's high-level contributions of essential food and fiber goods and related services, the Nation could not sustain its position as the most prosperous country in the world.

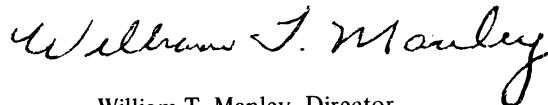
The system embraces and depends on functions related to production, manufacturing, and distribution. How well the system performs can be one measure of how well these functions are carried out. Policies of financial institutions and the Government also affect performance.

So far the system has functioned well in providing food and fiber to the American public and in helping to meet requirements of deficit countries. However, because of increasing interdependence among its segments, the system's flexibility is becoming more limited. This means, for example, that a failure of any of several nonfarm segments to function properly could seriously reduce agriculture's capability to provide the Nation and the world with plentiful supplies of food and fiber.

Recent events involving energy, international trade and monetary policy, and domestic economic controls disrupted the system's performance. Because serious problems could arise from this growing interdependence among the system's sectors, research and information are needed both to monitor the system's performance and to identify ways to avoid deteriorations in productivity.

This publication attempts to explain the scope and characteristics of the food and fiber system. Three closely related parts or sectors are examined—input, farm, and product market, as well as how the last sector relates to consumers, the ultimate clientele.

The publication should be of interest and value to persons seeking an overview of the food and fiber system. It was put together by the staff of the National Economic Analysis Division (NEAD), Economic Research Service, under the leadership of James R. Donald and with a major contribution from Levi A. Powell, Sr. The report covers the broad area of inquiry that is part of NEAD's responsibility within the Economic Research Service.



William T. Manley, Director
National Economic Analysis Division

CONTENTS

	<i>Page</i>
Summary	iii
An Overview	1
The Input Sector	5
What Farmers Need	5
What Farmers Spend	13
Future Prospects	14
The Farm Sector	17
What Farmers Produce	17
What Farmers Earn	18
A Look at Farm Structure	20
What About Performance?	24
The Product Market Sector	27
Markets Here and Abroad	27
Pricing Farm Products	27
Processing	28
Wholesaling	30
Retailing	32
New and Growing: Food Away From Home	34
How Well Does the Market Perform?	35
Future Prospects	40
Consumers	43
Expenditures	43
Consumers' Concerns	43
And the Future?	47

SUMMARY

The Nation's food and fiber system produced goods worth about \$243.6 billion in 1973. These flow through the producing sectors of the system—input, farm, and product market—to the fourth sector, consumers, who, by their purchases, create the demand to continue the flow. In 1973, the farm sector purchased nearly \$66 billion in production ingredients, mainly from the input sector, to produce basic food and fiber worth about \$90 billion. The product market sector processed and distributed these products, adding \$155 billion in costs. Of the \$243.6 billion total, exports took around \$18 billion and the American consumer purchased the rest.

Despite tremendous technological gains and complex technical inputs used, land remains the farmer's most basic input in production—over half the Nation's 2.3 billion acres are used to produce crops and livestock. Because of farm mechanization, labor needs in agriculture have fallen dramatically, from 9.4 million persons in 1950 to 4.3 million persons in 1973. As to capital inputs, farmers are borrowing more money; in 1973, 40 percent of annual capital investment came from loans, and total debt had climbed to 18 percent of asset value. Nearly 75 percent of farmers' cash receipts go to purchase inputs and services and to pay interest and taxes. Feed takes the biggest share, followed by capital items such as buildings, and by livestock. Farm dependency on purchased inputs is growing, up 20 percent since 1950. Thus, recent lags in supplies and sharply higher prices for fuel and fertilizer have affected farmers critically. And their transport needs outstrip existing facilities. Improvements in the input sector will benefit the farmer and they will help offset future cost increases in all sectors of the food and fiber system.

In the past two decades, crop production per acre has more than doubled; beef and veal output have risen 50 percent. Because of expanding export markets and heavy domestic demand, both crop and livestock cash receipts increased more than 100 percent in 1963-73. Net farm income in 1973 was over \$32 billion, almost three times the 1960 level.

Though production and marketing of certain commodities have become more closely linked with nonfarm businesses, two-thirds of total farm output still

comes from family farms. About 58 percent of the land in commercial farms in 1969 was owned and operated

by individuals, partnerships and family corporations. Rented land was also owned chiefly by these types of owners. Nonfamily corporations owned and operated about 10 million acres, 1 percent of the total acreage. Number of farms has dropped over the past two decades, and farm size has expanded, resulting in an improvement in production efficiency and farm income.

As to performance, average productivity will go up over time because of advances in research and technology, and application of both. Output per man-hour is expected to be about 75 percent higher in 1985 than in 1970.

The product market sector represents the largest part of the food and fiber system. Combined costs of domestic marketing activities totaled over \$82 billion in 1973; food retailing made up 52 percent, wholesaling took 14 percent, and processing, about 34 percent. For all three groups, plant size is increasing, plant numbers falling, and labor represents the largest operating cost.

Profits after taxes of food processors average about 2.4 percent of sales. General line wholesalers marketed \$26 billion worth of food products in 1973, a 12-percent gain from 1972. Profits after taxes remained steady at about 1-1½ percent of sales. Foodstores, about 17 percent of all U.S. retailers, sold \$106 billion in 1973. The 20 leading chainstores had increased their share of total sales to over 40 percent by 1969 but this amount remained fairly stable during the past 5 years and increased competition from independent affiliated retailers may hold down future growth. Profits after taxes have ranged between 1.1 and 1.3 percent of sales but they fell to 0.7 percent in 1973 because of rising operating costs.

Several possibilities exist for improved future performance in the marketing sector: using known technology better; overcoming inefficient labor-management practices; improving unreliable, costly transportation; reducing outmoded, excessive product handling; and further using the Universal Product Code and automatic checkout. Government can also help by reviewing rules and regula-

tions that could hinder productivity growth and by developing economic policies conducive to such growth.

During 1962-71, retail food prices increased about 3 percent per year while per capita income increased over 6 percent annually. Food prices increased a little over 4 percent in 1972, however, and 14.5 percent in 1973, while income gained by almost 7 and 12 percent, respectively. Out of each food dollar consumers spent in 1973, 62 cents went to marketers to assemble, process, and distribute food, and about 38 cents went to farmers to produce it. Looking at farm and market together, 39 cents of each food dollar went to wages and salaries, 36 cents to purchased production inputs and marketing, and 25 cents to overhead and capital. Consumers have several concerns about the food and fiber system: barriers to communicating their needs to the system;

lack of confidence in advertising, quality, warranties, and product safety; environmental pollution; and indifference and lack of response by industry. Recently, consumer groups and food and fiber industries have worked more closely to determine mutually acceptable actions and goals.

Two major statistical series measure performance of the food and fiber system: monthly farm-food market basket statistics and the annual farm-food marketing bill. Both series measure changes in at least four areas—retail prices, farm value, marketing margins, and the farmer's share of the retail dollar spent for foods produced on the Nation's farms. Total system performance can be improved through use of research, information, and technology to assure an adequate supply of high-quality food and fiber.

THE FOOD AND FIBER SYSTEM—HOW IT WORKS

AN OVERVIEW

Nearly everyone here and abroad uses food and fiber daily. Where do the supplies come from? And how? They originate, of course, with the farmer. But today, the process of meeting food and fiber needs involves much more than farming. It includes many activities beyond the farm gate—farm input supply, for example, as well as both marketing and processing of agricultural products. These activities, performed by what are termed nonfarm industries, have become increasingly important. They particularly influence the control of assets and decisionmaking within the overall system. As agricultural production, like many other types of production, is becoming more specialized and its components more integrated, it gets harder to separate farm from nonfarm industries. Thus, agriculture, now part of the industrial age, becomes part of a large economic complex—the Nation's food and fiber system.

Combining diverse commercial enterprises, and using a heterogeneous mix of labor, materials, capital, and technology, the food and fiber system meets rapidly changing consumer needs in both domestic and world markets—with a significant contribution to the national economy (table 1). It does this basically through three economically interdependent sectors—input, farm, and product market (marketing).

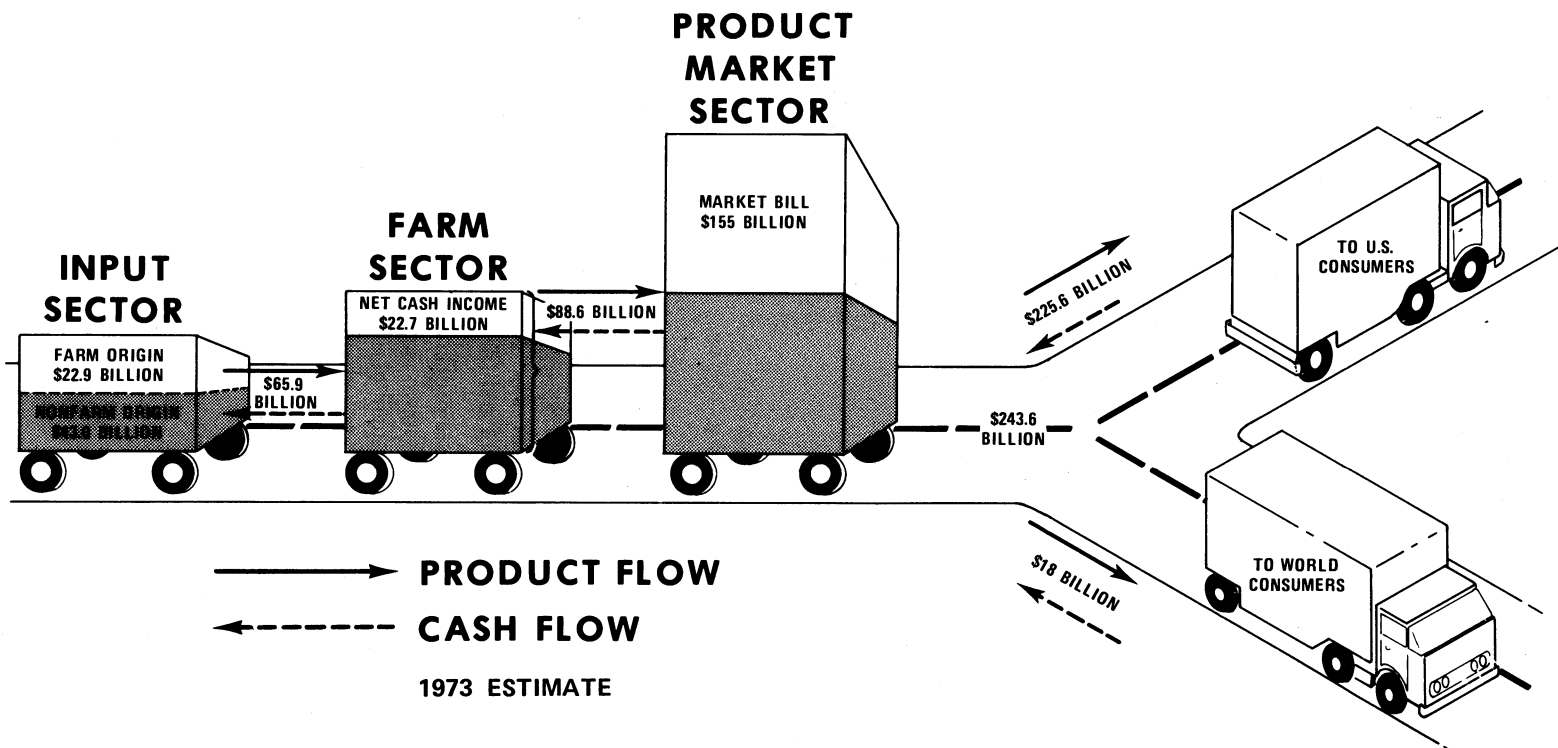
From the input sector come goods and services such as fertilizer, chemicals, petroleum, machinery, and equipment. In 1973, farmers purchased nearly \$66 billion of production ingredients, mainly from this sector. With these inputs, the farm sector provides the

Table 1—Contributions by food and fiber sector to total U.S. economy, 1967

Subsector	Sector contribution to gross national product	Intermediate inputs	Total	Civilian employment
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Million persons</i>
Farm	18.9	32.2	51.1	3.3
Food processing ...	22.5	61.2	83.7	1.7
Textiles and apparel manufacturing ..	11.9	23.0	34.9	1.9
Other manufacturing ..	21.7	31.9	53.6	1.7
Resource based industries and services	27.6	21.5	49.1	1.8
Trade and transportation ...	58.3	24.4	82.7	7.7
Imports	---	8.5	8.5	---
Total, food and fiber	160.9	202.7	363.6	18.1
U.S. economy	795.4	725.1	1,520.5	78.9

HOW PRODUCTS AND CASH FLOW THROUGH OUR FOOD AND FIBER SYSTEM

Figure 1



basic food and fiber products, worth about \$90 billion in 1973. Finally, the product market sector processes and distributes these products to final users. Combining these products with merchandising inputs and activities worth \$155 billion in 1973, the marketing sector distributed products worth about \$243.6 billion. The

export share was about \$18 billion (fig. 1).

Thus, our food and fiber system contributes significantly to the Nation's economy. Directly or indirectly, it accounts for nearly 24 percent of the Nation's gross business activity and 23 percent of total employment.



CURRENT CONCERNS

Because people look to the food and fiber system for products they need, they readily form notions about the functions of the farming, processing, and marketing sectors while often overlooking the crucial role of the input sector. This sector supplies the system with materials, services, labor, and capital needed to produce and market the Nation's food and fiber. In recent years, the importance of inputs has increased; today, they account for over 80 percent of final costs to consumers for food originating on the farm.

Though the farming and product market sectors depend more heavily on purchased inputs than before, productivity, especially in farming, has improved significantly as a result. But more improvements in inputs are needed; achieving them is critical to performance of the system. For example, only a few years ago, surplus capacity and financial difficulty characterized the fertilizer industry. Recently, supplies

could not satisfy demand at prevailing prices, not only for fertilizer, but for machinery, feed, fuel, and some pesticides as well. Additionally, some farmers for several years have had trouble getting labor. To be sure, the farm sector has devised technical substitutes for many farm jobs, yet some activities continue to require large amounts of labor. Labor efficiency also affects performance of the product market sector. For example, outmoded packing and handling methods and materials hold down performance in processing and marketing. Also, another issue remains throughout the food and fiber system: the alleged lack of adequate supplies of capital on equitable terms.

The remainder of this chapter primarily considers farm inputs, for which detailed information and research are available. The chapter on the product market sector contains input information of a more limited scope.

THE INPUT SECTOR

What Farmers Need

In 1972, farmers purchased 62 percent of all material they used, a 20-percent increase over the share in 1950. This growing dependency on inputs from outside sources means that what happens in the supplying industries has critical impact on farmers. Recent developments are illustrative, especially lagging supplies and sharply higher prices of fuel and fertilizer. Further, farmers' transportation needs have outstripped existing facilities.

These developments reflect underlying forces at work in the input supply industries, especially forces of economic, sociological, political, and technological origins. Technological events deserve brief further comment since the input sector is a virtual wellspring of technological innovations that affect agricultural productivity. From this sector comes a major share of innovations that are built into the inputs farmers receive. And, through effective communication, input sector representatives have been largely responsible for the adoption and application of efficiency-promoting ideas and techniques by producers.

However, despite tremendous gains in technology and the complex array of technical inputs used in modern

farming, land remains the most basic factor of production. Appreciation of this fact has been responsible for the continuing evolvement of Government policies and programs concerned with protection and improvement of this essential natural resource.

The Land: Many Uses, Much Variety

The United States has approximately 2.3 billion acres of land. Farmers use a little over half to produce crops and livestock, and nearly one-fourth represents ungrazed forest. The rest is distributed among several uses—urban, transportation, recreational, wildlife, and other special concerns—and some is essentially unused (fig. 2).

Currently, about 428 million acres represent cropland, of which farmers used some 354 million acres for crops in 1973. Farmers also plant crops not for harvest but to improve the soil—28 million acres; and they use some land temporarily as pasture—46 million acres. Cropland diverted under Federal supply control programs dropped from 62 million acres in 1972 to 19 million in 1973. The 43 million acres released increased substantially the cropland harvested. Such acreage

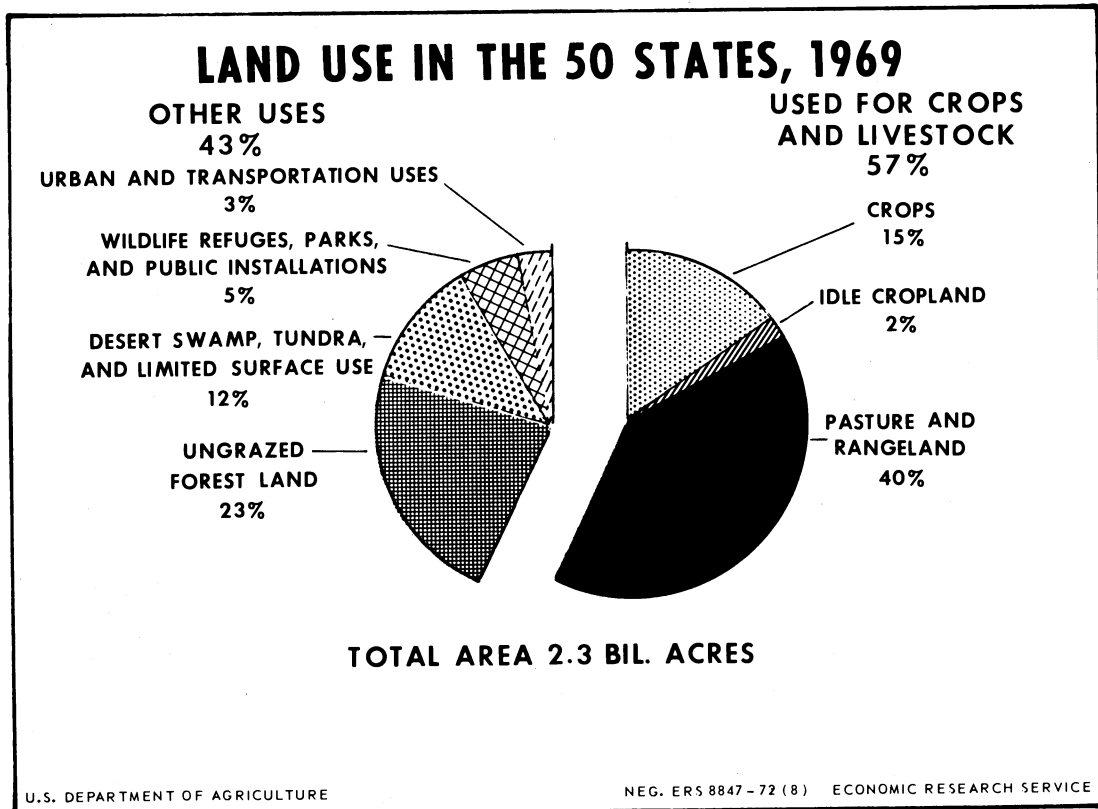


Figure 2

further increased in 1974 as cropland diversion requirements were dropped (fig. 3).

In recent years about 1.5 million new acres have been added annually to the cropland base. Many of these additions have been possible because of public and private development of irrigation and drainage facilities, conservation works, or both. Some new land is converted pasture, some results from improvements in dryland farming techniques.

Livestock grazed on some 890 million acres in 1969, a 13-percent decline since 1950. But most of the decrease was in woodland used for grazing, which cannot handle many animals. Altogether, pasture and rangeland yield the equivalent of only 6 bushels of corn per acre. Excluding cropland pasture cuts the yield in half. Nonetheless, pasture and range produce most of our feeder cattle. The West's farmers generally use ranges to capacity and there is some competition with wild-life resources. To meet the rapidly growing, continuing demand for beef, farmers have used more feed concentrates per pound of meat. However, demand has more than offset their efforts; thus the need is also up for pasture and other types of roughage.

Our land also has other uses. Between 1960 and 1970, about 730,000 acres of rural land were converted

annually to urban uses. Another 130,000 acres went for highways and airports outside cities. Reservoirs and flood control areas took another 300,000 acres annually. Probably 700,000 acres of this total were from cropland each year, and 1 million acres were taken for recreation and wilderness areas, parks, and wildlife refuges. Very little of this rural land had been cropland previously.

Losing 7 million acres of cropland to nonagricultural uses between 1960 and 1970 had little measurable effect on our agricultural output. During that decade about 15 million new acres of cropland were developed. However, the cropland base lost over 20 million acres mainly because they became uneconomic to farm. And some 50-60 million cropland acres were diverted under supply control programs to other uses.

An important element in making land usable is irrigation. Over the years more areas have been irrigated, particularly the arid regions of the West where the process is needed to assure crop productivity. Irrigation is now practiced on about 10 percent of the Nation's farms and ranches. Land irrigated increased about half a million acres per year over the past decade. Crops are grown on two-thirds of the acreage irrigated, gaining relative to hay and pasture which make up the rest.

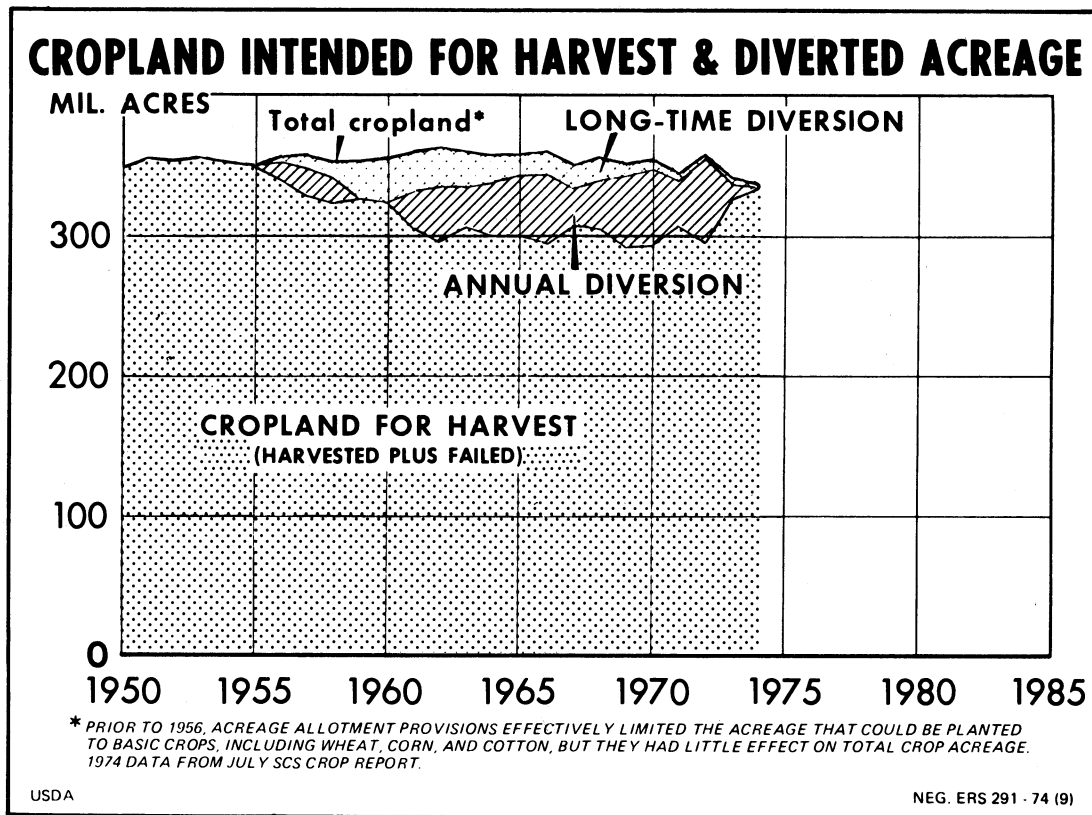


Figure 3

The Labor: People and Machines

Agricultural employment has declined dramatically over the years because of farm mechanization. Numbers of people employed in farm production dropped from 9.4 million in 1950 to 4.3 million in 1973. Most of these people—3.3 million—are farm operators or members of their families. Slightly over 1 million are hired farmworkers.

What explains the decline in farm labor? Partly, the dynamics of the farming sector—farmers have shifted the inputs they use, to lower costs and increase productivity. Labor cost has tended to rise relative to most other inputs, so farmers have been rapidly substituting capital for labor to help hold down costs. They are using inputs like pesticides and machinery that permit increased output and reduce labor input.

Substitution has been slower for some crops, especially for some fruits and vegetables (fig. 4). Also, producers of such crops have found it hard to compete with imports from countries paying lower wages. So they have tended to shift to crops that need less labor.

Composition of the work force and skills required are also changing. As farms enlarge to utilize the capacity of machinery and other new technology, more unpaid family workers than hired workers leave the farm work

force. But mechanization has also eliminated much of the need for seasonal and migratory workers and their numbers have dropped sharply over time. Thus, the types of farm jobs available are changing: farmers need skilled machine operators for example, instead of field hands and unskilled laborers. This shift also brings farmers into direct competition with nonfarm employers for skilled workers.

Another impact on farm labor stems from laws. Traditionally, farmworkers were not covered under much of U.S. labor legislation. More recently, this pattern of exclusion has been narrowed. For example, minimum wage legislation now covers all workers on farms hiring more than 500 man-days a quarter. Also, the Congress in 1974 established a wage floor of \$2.30 per hour by 1978. The possibility of such a floor affects both farmers making long-term investment decisions and other persons who want to work in agriculture. Additionally, farmworkers are covered by occupational health and safety standards of the Environmental Protection Agency (EPA) and the Department of Labor (DOL).

Because of these various changes, specialized management and service industries have become more important to the production sector. For example, in

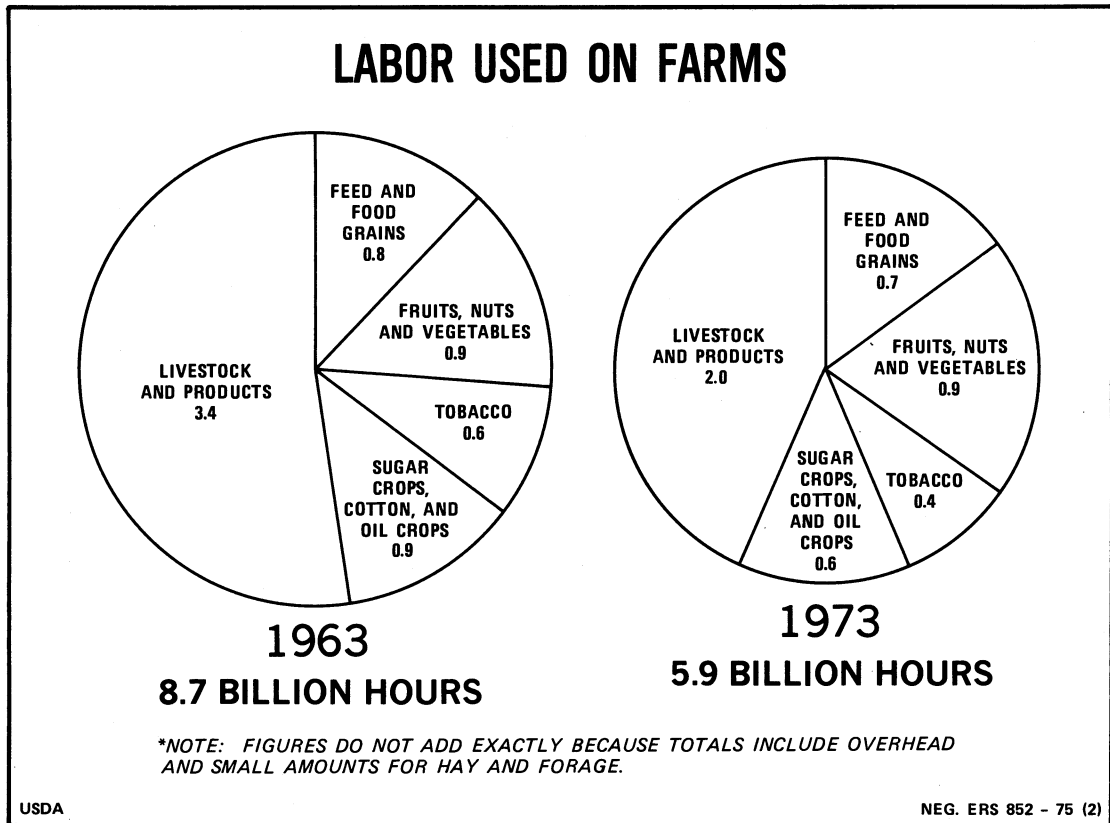


Figure 4

1969, 32,000 firms grossed \$2.1 billion in agricultural services; of this, \$1.1 billion was for farm-related services. In addition, management and consulting firms, agricultural colleges and universities, the U.S. Department of Agriculture, and input suppliers provide management and financial advice. Many firms, usually input suppliers, also provide services either on a fee basis or as part of the input package.

Now let's look more closely at the machine. Its effect on agriculture has been revolutionary. Virtually gone is the need for animal power, and human labor requirements have been drastically reduced. Not only has production risen significantly as a result, but the resources of many people have been released for potentially more productive pursuits. Coupled with other technological advances, use of farm machinery has made the U.S. farming sector a highly proficient agricultural production plant.

Row crops have benefited most, primarily because of tractor use. Though number of tractors dropped slightly in the 1960's, horsepower available increased; machines became larger. The 1960's also saw a conversion to self-propelled combines. Mainly because livestock and poultry have more specialized needs than crops do, equipment has developed more slowly for these industries. But wider use is now being made of items such as continuous-flow feed mills, feed handling equipment, structure and equipment for environmental control of livestock facilities, cages for layers and broilers, and waste disposal systems.

The farm machinery industry is quite concentrated; the seven largest firms produced about half the value of farm machinery shipped in 1970. Though about 1,500 farm machinery firms serve agriculture, only seven of these are so-called full-line companies. Some 15 are long-line companies and about 1,400 are short-line equipment manufacturers. The long-line companies are generally more specialized than full-line companies. And, the short-line companies are more geographically limited—often producing specialized equipment applicable only to specific geographic areas. Imports of major items of farm machinery (tractors and harvesting machinery) purchased by farmers amount to less than 10 percent of farm machinery produced and sold domestically.

To Fuel Our Farms

Machines, as we know, need energy to operate. Because farmers rely greatly on machines, they also rely greatly on energy. The recent scarcity reached them too. In 1972, some farms experienced shortages of petroleum, which affected both grain drying and

availability of nitrogen fertilizers. As scarcities increased in 1973, the Government took actions, including such measures as fuel allocation and removal of price controls on fertilizers—to provide adequate energy for expanded 1974 food and fiber production. But prices of fuel and fertilizer rose sharply in the fall of 1973, a development that will affect the farming sector and the cost of food and fiber in the years ahead. Though precise data are not available, the country's energy requirements are rising; and some 12 to 13 percent of these needs are involved in the production, processing and marketing of food.

Because use of machinery on farms is increasing, so is demand for petroleum electricity, natural gas, and liquid propane (LP) gas. Farm fuel consumption rose nearly fourfold from 1939 to 1974, yet farming consumes only about 3 percent of the petroleum fuels used in this country and something less than 3 percent of the total electricity used. And the annual rate of growth in farm use of petroleum has been slower than for the general economy during the past few years.

However, the rate of growth by type of fuel is quite another story. During the last 10 years, gasoline consumption on farms had remained near 4.0 billion gallons. Diesel fuel use, on the other hand, doubled, increasing about 7 percent annually. In 1973, farmers used about 2.5 billion gallons of diesel, compared with 1.1 billion in 1964 (fig. 5).

One explanation for the growing use of diesel is that a greater proportion of the new power units on farms use this fuel. In 1972, 80 percent of all new tractors purchased were diesel powered. And from 1964 to 1973, the proportion of these tractors on farms increased from 18 to 39 percent (fig. 6). This trend to diesel power is not limited to tractors. Sales of self-propelled combines operating on diesel made up 55 percent of combines purchased during the first half of 1973, after climbing from 23 percent in 1971 to 35 percent in 1972.

Why the shift to diesel? Economic incentives, mainly—it takes about a third more gasoline and about two-thirds more LP gas to do what a gallon of diesel does. And diesel fuel has historically been lower priced than gasoline.

Farmers also use LP gas heavily, chiefly propane. But unlike gasoline and diesel, LP gas use on farms represents a substantial share of national LP consumption—17 percent, mainly reflecting the increase in crop drying.

Greater mechanization and less labor use in farming have also required more electricity. Needs are double what they were in the past two decades, although there are half as many farms now. The proportion used in farm production alone is not known; however, use has increased substantially because of the adoption of milking machines, elevators, augers, and other feed handling devices (fig. 7).

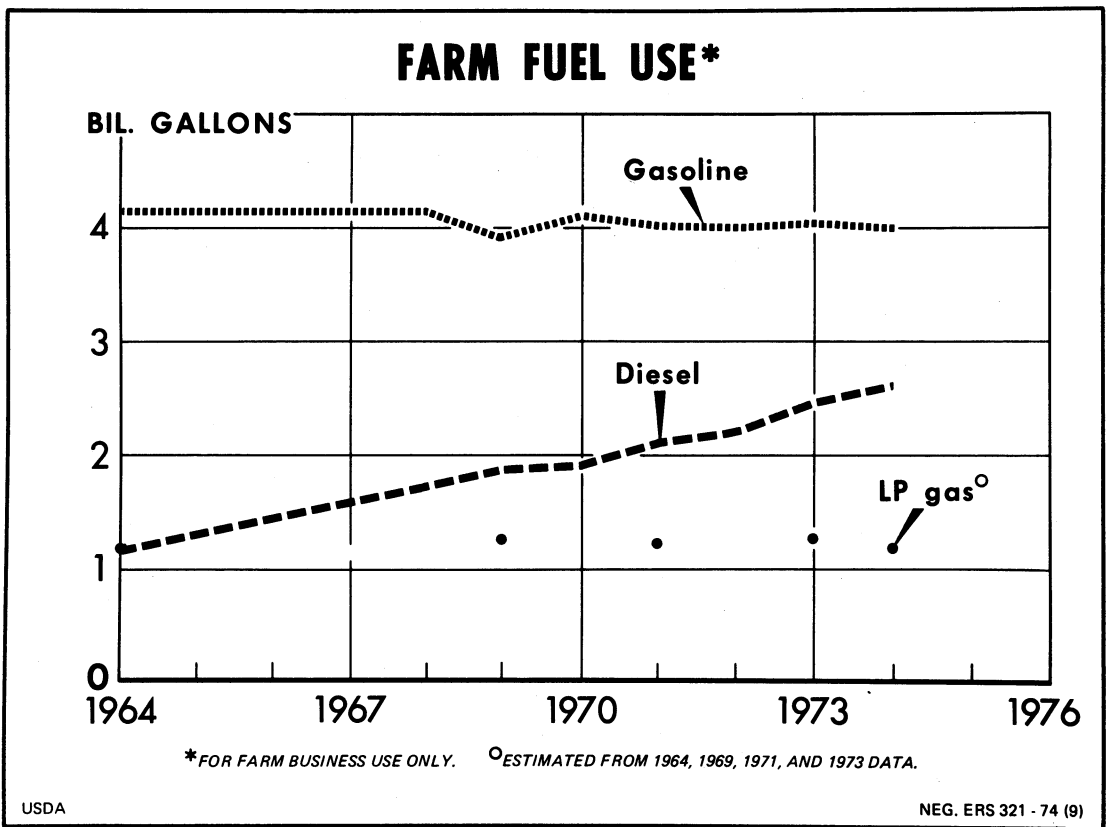


Figure 5

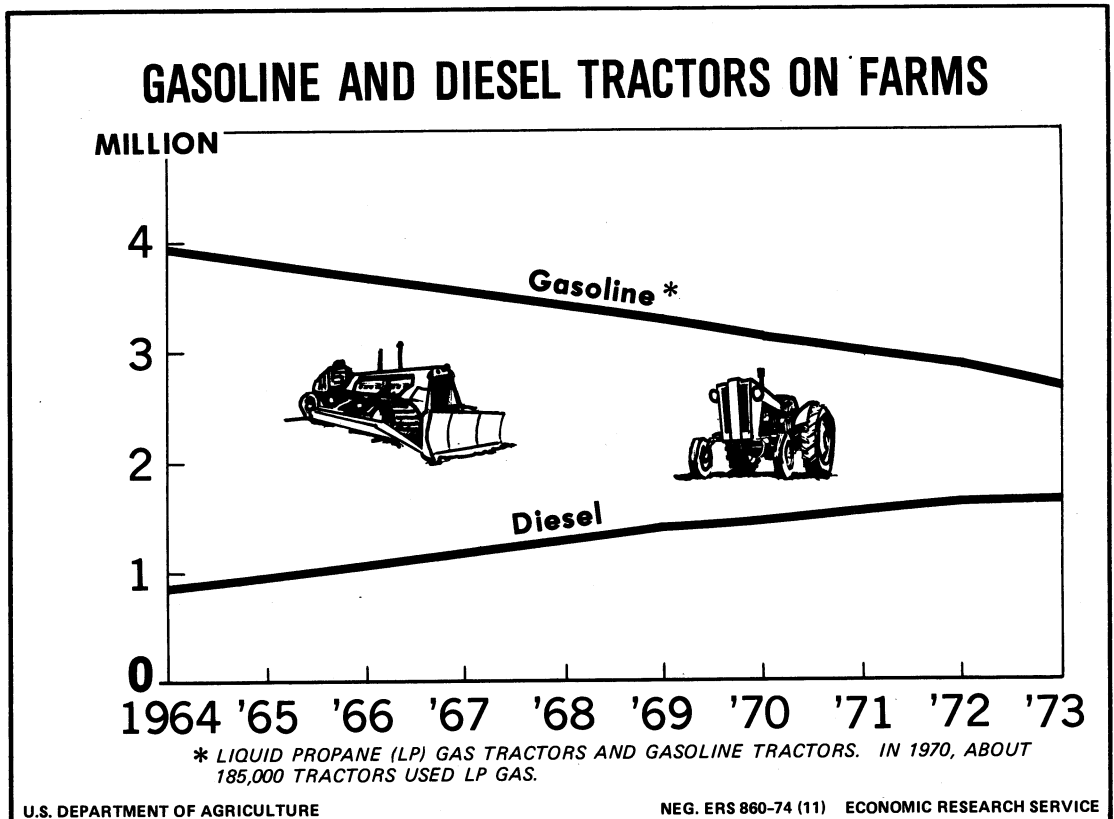
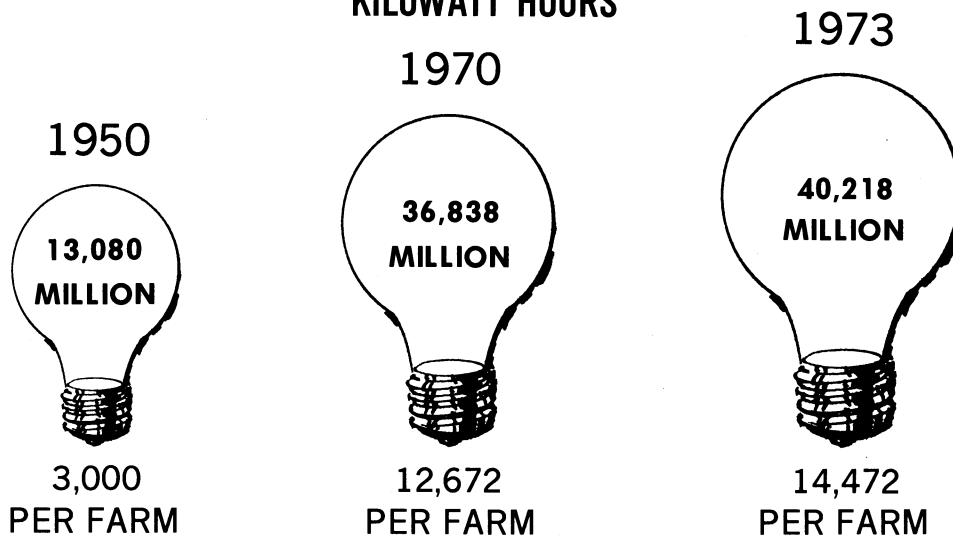


Figure 6

ANNUAL USE OF ELECTRICITY ON FARMS AND PER FARM

KILOWATT HOURS



U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 856-74 (11) ECONOMIC RESEARCH SERVICE

Figure 7

To Grow and Protect Our Crops

Historically, the fertilizer industry has supplied farmers with increasing amounts of nutrients at relatively low cost. However, the industry is also critically dependent on energy, and developments in late 1973 had serious implications for the farming sector. In 1973, use of primary plant nutrients (nitrogen, phosphate and potash) for all fertilizer purposes amounted to about 19 million tons. All these fertilizers need natural gas, fuel oil, electricity, or other forms of energy. Some fertilizers require gas as a feedstock; others use it as fuel in the production process. Overall, the industry consumes about 2 percent of available domestic natural gas.

Production of nitrogen fertilizer, used extensively by farmers, largely depends on the availability of natural gas. About 36,000 cubic feet of gas go into 1 ton of ammonia which contains 1,640 pounds of nitrogen. And, in 1973, some 8.3 million tons of nitrogen were used for fertilizer in the United States. Where will future supplies of ammonia come from? Possible sources cause some concern: however, several U.S. ammonia plants are under construction and others are being planned. To be sure, other efforts are being considered but 15- to

20-year contracts for gas supplies are hard to get, and longtime commitments are essential before ammonia plants can be built. If gas continues in tight supply, farmers will pay more and more for nitrogen fertilizer in the years ahead.

And use of nitrogen by farmers is growing, increasing more than 4 times in the past 15 years. Consumption of other fertilizer components has gone up too—phosphate nearly doubled, use of potash went up three-fourths during 1962/63-1972/73. Though phosphate supplies are tight in relation to demand, less concern exists about future sources; producers are increasing capacity and output. Although prices of potash advanced sharply in late 1973, along with nitrogen and phosphate, reserves in the United States and Canada appear adequate for many centuries to come. Prices and supplies of potash from Canada do reflect governmental regulation and control, however.

Although fertilizer prices rose dramatically as supplies tightened, competitive forces within the industry remain strong—particularly among the approximately 5,000 local outlets. In many years fertilizer prices were so low that dealers operated at a loss. For example, in 1969 and 1970 fertilizer prices were at their lowest level in some time (fig. 8). Farm

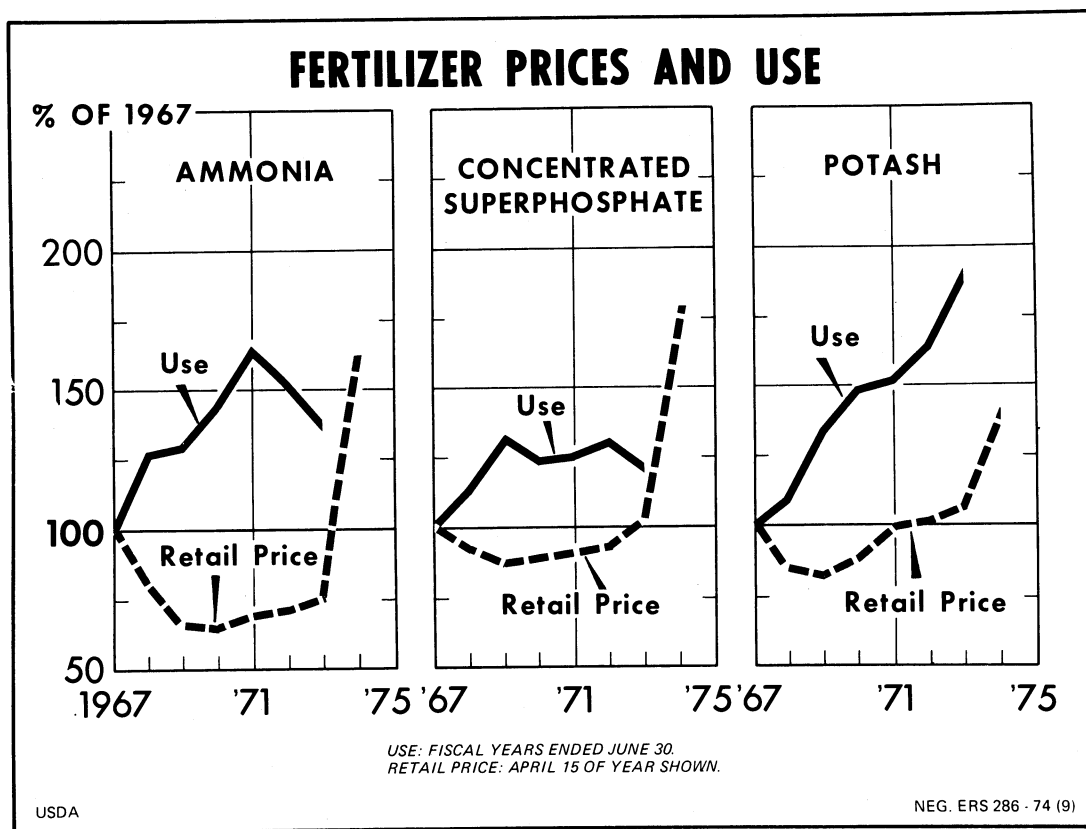


Figure 8

prices of ammonia alone averaged \$75 a ton in 1970, half of 1957-59 figures. Possibly the impact of rising fertilizer costs can be tempered by increases in industry efficiency. As shown in a recent ERS-sponsored study at Michigan State University, fertilizer costs to farmers could be reduced as much as 25 percent through more efficient mixtures and distribution systems.

Cooperatives act as one competitive and important force in the fertilizer industry. They have progressed significantly in building and acquiring manufacturing, storage, and distribution facilities for some fertilizers. In 1969-70, cooperatives produced about 20 percent of all anhydrous ammonia, up from 7 percent in 1959-60, and 28 percent of wet phosphoric acid, up from 4 percent. Urea production also gained; cooperatives produce 15 percent of all urea used in fertilizer and 17 percent of the amount used in feed.

Pesticides share a kinship with fertilizers because of their chemical makeup and partial dependence on the petroleum industry. Many of the 300 or more basic pesticide chemicals are synthesized from petroleum, and pesticides are produced from such petroleum products as benzene, naphtha, and toluene. There were few reported shortages of pesticides in 1973; availability of intermediate products needed to produce them was not

a severe problem. However, continued availability depends both on how profitable it might become to divert these products to other uses, and on the amount of ingredient chemicals available to producers and formulators. Thus, the need for energy remains critical.

Farmers protect their crops with pesticides. In 1971, they treated 41 percent of all crop acres (excluding pasture) with herbicides and 17 percent with insecticides. For herbicides, the figures were 95 percent of rice areas; 92 percent, peanuts; 82 percent, cotton; and 79 percent, corn. For insecticides, percentages were 87, peanuts; 77, tobacco; and 61, cotton.

By using pesticides, farmers have reduced the use of fuel in tillage and other cultural practices. And if energy conservation practices increase, so will use of pesticides. However, in recent years, use has been questioned by some environmentalists who have been instrumental in the passage of pesticide control legislation. The Federal Environmental Pesticides Control Act of 1972, which is basically an amendment to the Federal Insecticide, Fungicide, and Rhodenticide Act, establishes new guidelines for and restrictions on the use of pesticides.

The regulation of pesticide chemicals by the Environmental Protection Agency and other agencies of the U.S. Government could have severe impacts on pest

control in the United States and it could affect the availability of specific pesticides. Some farm operators may need to use mechanical means to control pests and weeds. Such use on any major scale would increase tillage and, therefore, labor and energy requirements for agriculture. Biological control methods for insects could be used, though they have limitations and would probably cost more money than chemical methods do. The control methods available need to be considered and evaluated carefully as to their limitations, costs, and effects.

Feeding Our Livestock

To provide food for the Nation's livestock, the feed manufacturing industry uses raw materials produced mostly on the farm. In doing so, it is unlike other farm input industries which rely on commercially produced materials. Much of the feed produced is consumed either on the producing farm or comes from nearby producing farms. Pastureland furnishes about one-third of the feed eaten by livestock (table 2). However, increasing amounts of nonagriculturally produced ingredients like urea are being included in commercial formula feeds. The share of feed manufactured by a separate nonfarm industry has thus been growing.

Table 2—Feed consumed by livestock and poultry feeding years, 1950 and 1970¹

Farm material ²	Feed consumption			
	1950 total	Percent- age of total	1970 total ³	Percent- age of total
	<i>Thousand tons</i>	<i>Percent</i>	<i>Thousand tons</i>	<i>Percent</i>
Corn	73,096	25	101,275	24
Other feed grains ..	27,610	9	42,631	10
Byproduct feeds ..	28,578	10	44,524	11
Other concentrate feeds	3,478	1	4,838	1
Total concen- trates	132,762	45	193,268	46
Hay	42,101	14	52,982	13
Other harvested roughages	15,694	5	24,784	6
Pasture	107,306	36	148,117	35
Total roughages ..	165,101	55	225,883	54
Total all feed ..	297,863	100	419,151	100

¹ Excludes Alaska and Hawaii. ² Measured in feed units (corn equivalent). ³ Preliminary.

A look at the changing structure of firms engaged in commercial feed production shows the shift away from elevator and flour businesses prevalent in the 1920's and 1930's to feed industry firms that handle the process from start to finish. Though those firms are getting larger, their numbers have declined only slightly. However, the leading firms control less of the market. In the 1930's the four largest firms accounted for 25 percent of industry shipments. By 1969, this share had fallen to 12 percent of industry sales, while the 20 largest firms made slightly under 22 percent of the total reported sales of manufactured feeds. This is not a great degree of concentration. Yet all but five or six of these 20 firms do business in relatively small geographic areas. Not enough is known about how much these firms penetrate markets in other regions. Thus, farmers in some areas may have relatively limited choices in where to buy feed.

Farmer cooperatives have made an important contribution to the feed industry. In the last two decades they handled about 20 percent of the commercial formula food business in the United States, besides contributing much to innovations in services and increasing competition. Corporations produce about 65 percent of formula feed, while single owners and others account for 15 percent.

Use of manufactured feed has increased because livestock numbers and production are rising to meet mounting consumer demand. If use of DES (diethylstilbestrol) in cattle and sheep rations is permanently banned, feed use would be greater and efficiency gains in animals slower, although substitutes for DES probably would have some offsetting effect. Of all formula feed produced in 1969, about 40 percent was for dairy, beef and sheep; another 40 percent for poultry; 15 percent for hogs; and 5 percent for other feed use.

Knitting the System Together

Transportation serves to bind together the components of the food and fiber system. However, the transportation sector of the national economy is largely general purpose; agriculturally related traffic accounts for less than one-fifth of all freight traffic. Thus, decisions about the structure and performance of the transportation industry may not adequately consider agricultural requirements, particularly for bulky low-valued or perishable goods shipped to and from rural areas.

The transportation sector is a mixed system of Federal regulations, government ownership, and private enterprise. Governments own nearly all of the Nation's highways, waterways, ports, and airways. Governments regulate the rates charged, services, entry of new firms,

and safety. Major rail, air, truck and barge systems are regulated by different agencies, and coordination of regulations is a significant problem. However, local transportation of inputs to farms tends to be largely carried out by retailers or farm operators themselves, mostly by truck. These trucks are largely exempt from regulation, and delivery charges tend to be part of the contract or purchase price of the inputs.

There are some major issues of concern in agricultural transportation. For example, freight cars are not always available to haul grain and deliver fertilizer and other inputs. Some rail lines serving elevators, farm supply firms, and other rural industries have been abandoned. Fuel shortages have made it hard to deliver inputs and farm foods and fiber, particularly for truckers. These developments further compound the problems faced by agriculture and the American consumer, beyond difficulties connected with the adequacy of transportation facilities.

The critical importance to farms of transportation capacity came into sharp focus in 1972 and 1973, when increased shipment of stored commodities and expanded production in 1973 strained that capacity. Movement of commodities off farms rose nearly 7 percent in 1973 as grain and soybean marketings were up sharply. Daily shortages of railcars, barges, and trucks developed; and fruit, vegetable, and grain growers experienced marketing difficulties.

Most certainly needed is an inventory analysis of the commercially feasible navigable waterways, railroads, and highways, showing density and condition—a major task. Also needed is a review of government policies affecting transportation. A responsive, efficient transportation system is essential to adequate performance by the food and fiber system.

Financing Our Farms

While transportation provides physical linkage among elements of the food and fiber sector, finance acts as the economic lubricant. Since acquiring other necessary production inputs depends on the availability of credit or funds, finance can be regarded as the general-purpose input.

The relative importance of farmer borrowings as a source of financing capital investment has been increasing over time. In the early 1950's, for example the volume of new loans less repayments financed only 17-18 percent of annual capital investment in real estate and non-real estate assets. By 1973, this percentage had risen to 40 percent of annual capital investment.

As of January 1, 1974, farmers' total debt amounted to \$81.7 billion, or 18 percent of the value of total assets—compared with \$12.4 billion, or about 9 percent

of total assets in 1950. Total debt nearly tripled during 1961-73 (fig. 9). This sharp climb has paralleled the growth in use of purchased inputs and the rise in farm real estate values. Loan fund increases have been provided by the traditional sources of debt capital, including commercial banks, insurance companies, Federal land banks, Production Credit Association (PCA's), Farmers Home Administration, individuals, merchants, and dealers. Individuals, merchants, and dealers continue to be important sources of both farm mortgage and non-real estate loans. Commercial banks hold most non-real estate farm loans made by institutional lenders; Federal Land Banks and Life Insurance Companies lead as institutional lenders of farm mortgage debt.

In recent years, Federal land banks and PCA's which are farmer-owned cooperatives have become more important sources of loan funds because they are now more competitive with commercial banks and insurance companies. Also, taxation policies and regulations give cooperatives a competitive edge. Insurance company farm lending, on the other hand, has been adversely affected by a restrictive monetary policy which did two things. It increased the demand for policy loans and it diverted funds to nonfarm lending because of the interest rate ceilings imposed by many States. Although national monetary policy has affected the cost of loan funds, farmers have not been as seriously affected by recent policy changes as have other sectors of the economy.

During roughly the same time period, the Federal Reserve has, to counteract some of the problems faced by commercial bankers, increased banks' ability to borrow on a seasonal basis at Federal Reserve discount windows. Thus, added supplies of funds are available to agriculture in periods of peak loan demand. In addition, new legislation makes it easier for commercial banks to form agricultural credit companies, pool their funds, and carry overline loans from the smaller banks.

In the past, financial institutions have been criticized for not being competitive. They were seen as content to function under existing regulations and guidelines; they were not making innovative changes which would result in a better flow of funds among sectors as well as greater competition within the banking industry. These institutions now appear to be changing; many constructive innovations are emerging, as exemplified by liberalized lending policies of both Federal land banks and PCA's.

What Farmers Spend

Clearly, agriculture, far from being independent, needs a lot of support and inputs from other businesses. The farm input bill—a summary of purchases by farmers

from input industries—offers one way to understand the linkage between the two groups. Moreover, taken relative to farm receipts and consumer expenditures, the bill shows both what farmers contribute and where the consumer's dollar goes among the different subsectors of the food and fiber system.

In 1973, farmers spent almost \$65 billion—nearly three-fourths of their total cash receipts—on inputs, services, interest, and taxes (fig. 10). Their largest cash outlay went for feed (20 percent), followed by capital items (16 percent), which include expenditures for buildings and machinery. Livestock purchases were a close third—about 12 percent of cash receipts.

While the total quantity of inputs has shown little change, the mix has shifted sharply. Purchased inputs have gained steadily; nonpurchased inputs (including operator and unpaid family labor, operator-owned real estate, and other capital inputs) have trended downward. Also, to illustrate the shifting mix among individual inputs, the quantity of labor devoted to farming has declined nearly 40 percent since 1960, while the use of fertilizer has more than doubled.

From the consumer's food dollar, the farmer received about 38 cents in 1973. Of this amount, 16 cents went for purchased inputs and 2.4 cents for hired labor. The farmer retained 19.6 cents to cover interest, taxes, and depreciation and as returns for management, labor and investment.

Disruptions in the input sector have affected the entire economy, especially the farming sector. Because of all-out farm production efforts, sharply expanding foreign sales, and strong domestic demand, coupled with the energy crisis, input manufacturers could not provide adequate quantities of some items. Shortages of fuel and

fertilizer developed. Difficulties were encountered in obtaining pesticides, baling wire, and twine. Transportation services proved inadequate. Moreover, short supplies and sharply rising prices for packaging materials, containers, and other related inputs contributed substantially to increased costs of food processing, handling, and retailing.

Future Prospects

Because purchased inputs likely will become more important ingredients in cost of food and fiber products to consumers, widespread benefits could be realized from improved performance in this sector. As demand for supplies has increased, prices for inputs have risen sharply, and future pressures likely will persist, particularly for energy-related inputs. Thus, productivity gains in the input sector will significantly help offset future cost increases and assure the Nation's consumers of a bountiful food and fiber supply.

There are indications that some of the disruptions in the food and fiber system caused by the stress on the input sector can be alleviated in several years, particularly in the farm sector. Certain input manufacturers already have taken steps to fill capacity gaps. For example, planned additions to nitrogen plant capacity should assure adequate supplies by 1980. Phosphates and other inputs should be adequate in a shorter timespan.

Still, the likely future performance of the input sector is difficult to predict with precision because not enough is known about its economic linkages and functional processes. Concentrated research in this area could yield important dividends in pointing the way toward improved performance of the sector.

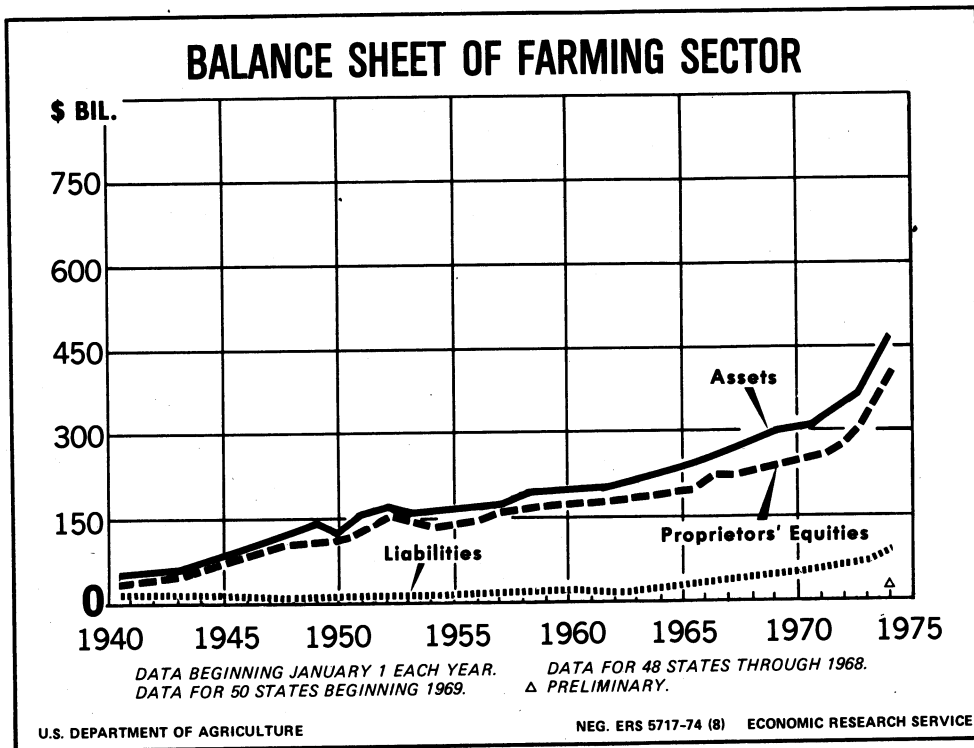


Figure 9

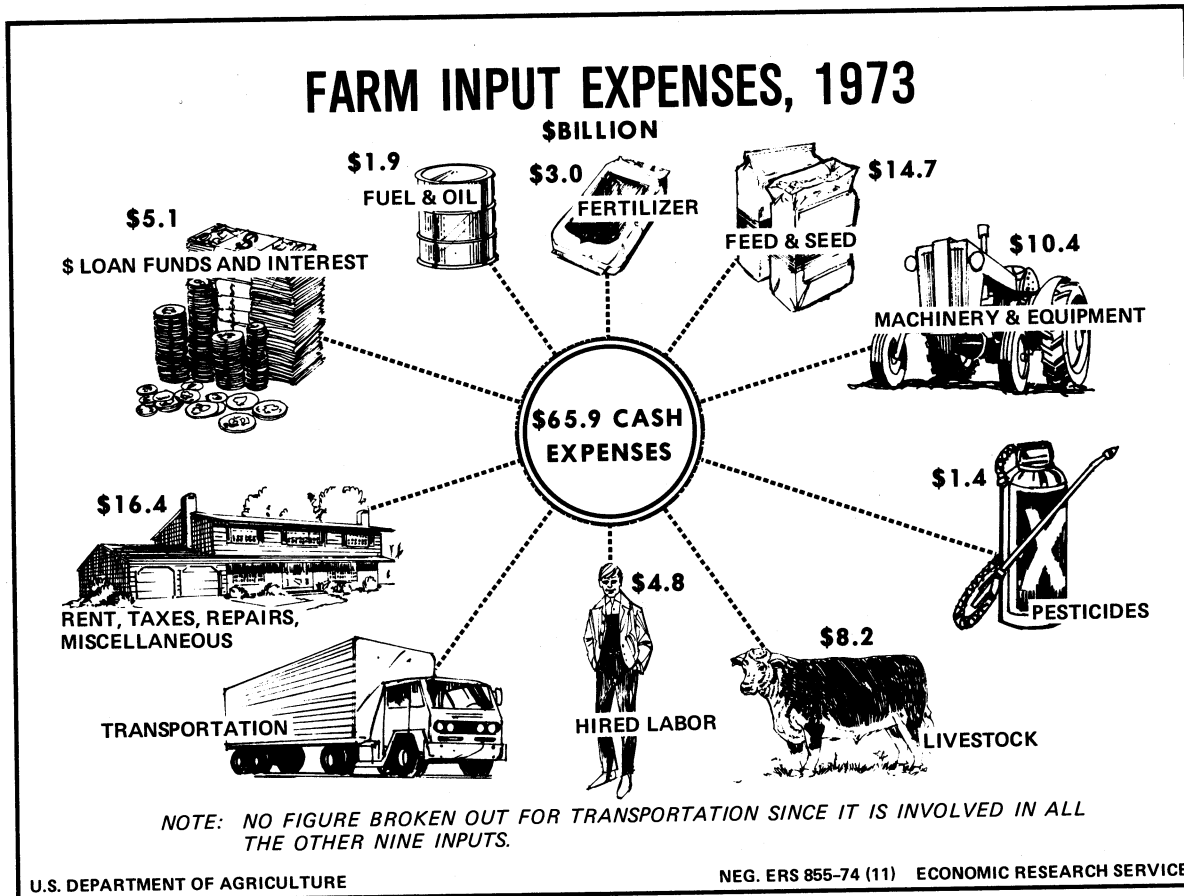


Figure 10



A MAJOR KEY TO ABUNDANCE

The quality of our food, the low percentage of income we spend for it—these achievements are unmatched by other nations. Agriculture's industrialization along with the accompanying gains in productivity have made American farms the world's most efficient—a major key to our abundance.

Agricultural industrialization has been characterized by many adjustments in operations and in organization. Historically, a large share of the U.S. population operated a large number of farms. Production by these farmers met most of their household's needs; the rest was sold to people who did not farm. As the country's economy developed, a good part of what farmers did

was transferred to what is called the product market sector. As this transfer occurred, the Nation's farms also grew increasingly dependent on the input sector. And they gained in efficiency by using more machines, fertilizer, and other inputs.

All these changes have increasingly commercialized and formalized the farm sector. The farmer's function has become that of transforming inputs, which come more and more from other industries, into agricultural products. These basic raw materials, in turn, become inputs for the food and fiber processors. Now let's take a closer look at the farm component of the food and fiber system.

THE FARM SECTOR

What Farmers Produce

The Nation's farms have met our food and fiber needs so proficiently that during most of the 1950's and 1960's, 50 to 60 million acres of land were idled to better balance supplies with demand. Yet output increased by half (fig. 11). The achievement of yield increases, in particular, allowed greater production on fewer acres of land. Recently because of sharply expanding demand, particularly for export, idled acreage has again been put into production.

Helped by this greater planting flexibility under Government programs and relatively high prices for products, farmers have responded to increasing food and fiber needs by expanding acreage and output. And the potential exists for bringing additional cropland into production. But the greatest potential source of expanding output remains continued gains in productivity. Such gains will come hand in hand with further advances in both the farm and input sectors.

The aggregate index of farm inputs has increased only about 5 percent since 1960, while the volume of farm output has expanded around 25 percent. The result? Output per unit of input has gone up significantly (fig. 11).

Crops: Productivity Gains

Though rather similar gains have occurred in both crop and livestock production, crop output has risen a little faster, because of gains in productivity. Since 1950, crop production per acre has climbed more than one-half (fig. 12). Corn is an excellent example. Over the past two decades, per acre yields have gone up over 2 bushels annually. A progression of technology and management advancements are responsible—hybrid seed, fertilizer, pesticides, increased plant population, and new tillage practices.

Crop production depends heavily on inputs of nonfarm origin. Roughly half the output value represents input purchases; only 8 percent of total value represents purchases of inputs from the farming sector.

Livestock: Expanding to Meet Demand

Large increases in production of feed crops, particularly corn and soybeans, have, coupled with pasture and forage, provided the ingredients for expanded livestock production to meet growing consumer demand. Beef and veal output have doubled over the past two decades. And because consumers

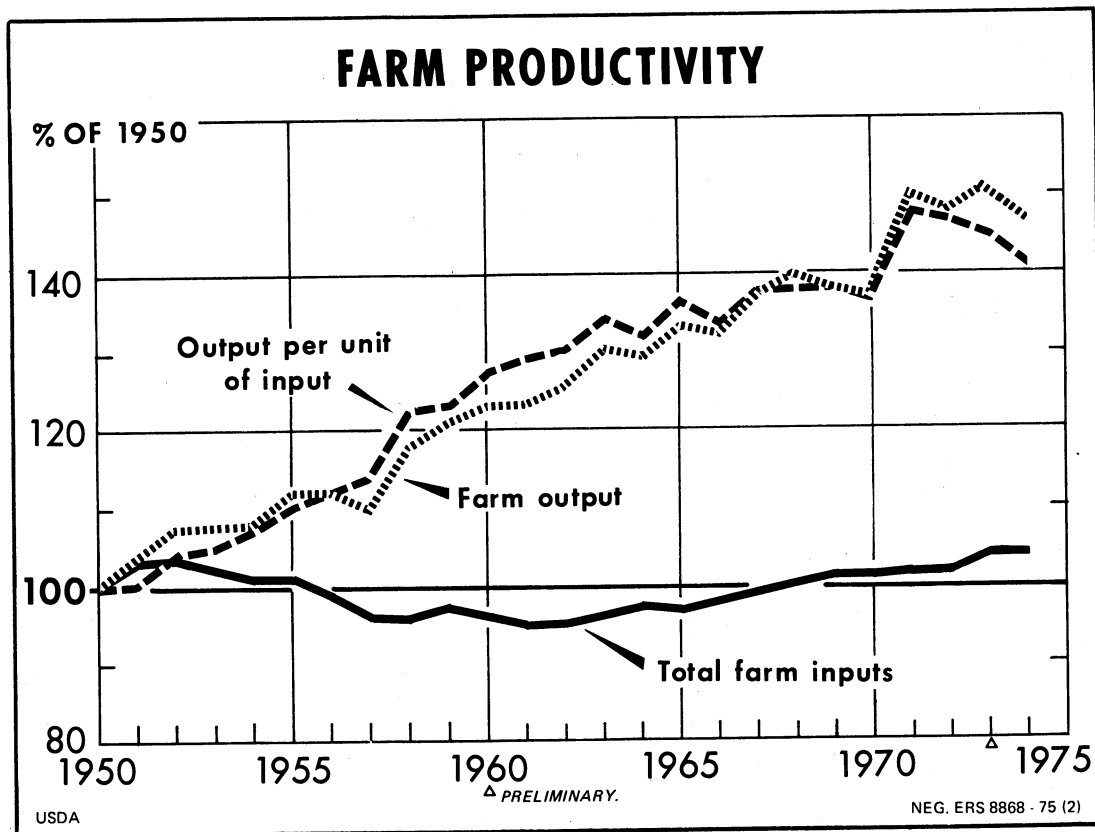


Figure 11

CROP PRODUCTION PER ACRE AND CROPLAND USED FOR CROPS

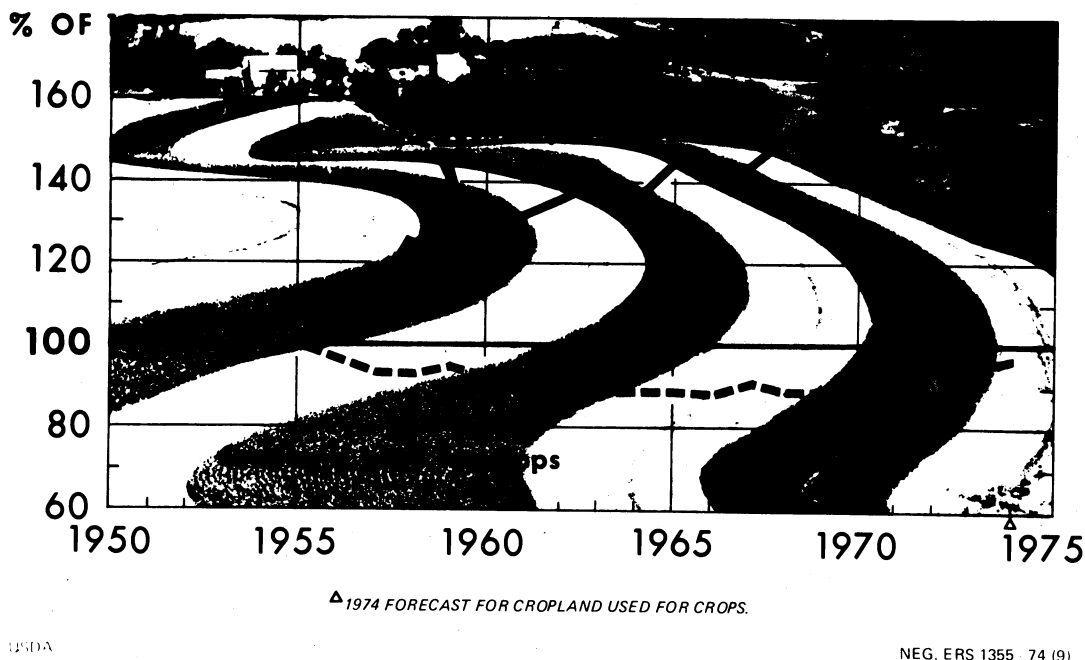


Figure 12

demand better quality beef, the number of fed cattle has nearly tripled and total cattle inventory has risen substantially (fig. 13).

A key to expanding beef output is to increase the production of calves, which requires pasture—or at least forage. There is enough and available and adapted to forage production, now and in the near future, to meet demand. Farmers will need to use more land for cow and calf operations and they must increase the productivity of current pasture and rangeland.

Earnings Up for Crops and Livestock

Most of the output of the Nation's farms is sold to the product market sector. With industrialization, the share produced for farm households has declined. Feed grains and hay are major exceptions; significant portions of these crops are used on farms for animal feeds.

Farmers' cash receipts from marketing represent gross receipts from commercial market sales as well as loans (net of redemptions) made or guaranteed by the Commodity Credit Corporation and purchases under price support programs. In recent years, market prices have been well above loan levels for major crops; thus, market sales have accounted for nearly all of cash receipts.

Crop marketings have risen about one-fifth over the past decade. Grain and oil crops (primarily soybeans) have shown the most dramatic rise; combined cash receipts almost doubled from 1972 to 1973, in response to expanding export market and strong domestic demand. For all crops, prices have reflected rising demand, particularly in recent years. Cash receipts in 1973 more than doubled the 1963 level (fig. 14).

Livestock and products marketed have risen about a tenth in volume during the past decade; but the sharp rise in poultry and egg marketings was moderated by a decline in that for dairy products. Meat animal marketings increased a tenth. Overall, cash receipts from marketings more than doubled from 1963 to 1973, reflecting higher prices and expanding demand (fig. 14).

What Farmers Earn

We can measure farmers' income or well-being mainly in two ways. Viewing the farm sector as a business or industry, the most commonly used measure is how much net income farmers realize from farming. Obtained by deducting farm production expenses from gross farm income, net income represents both the aggregated returns to unsalaried labor and also the farmers' returns from investment in land and capital goods. The second measure in which we consider all people living on farms,

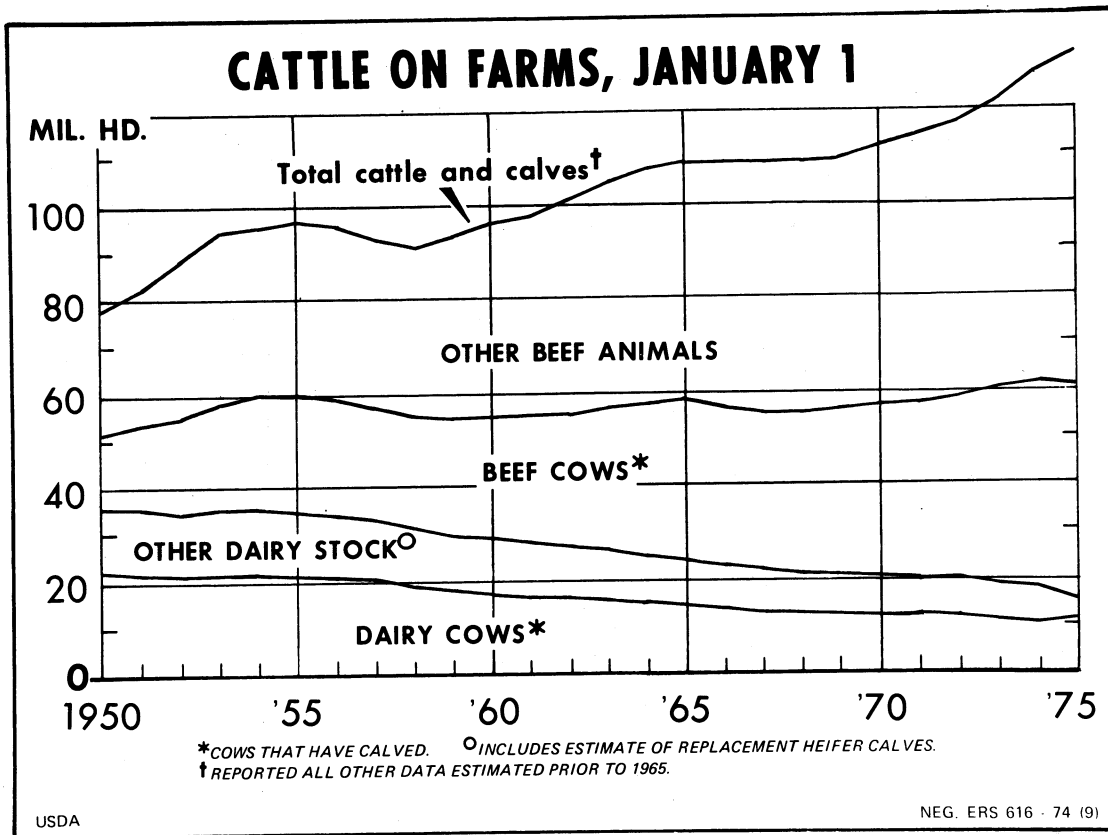


Figure 13

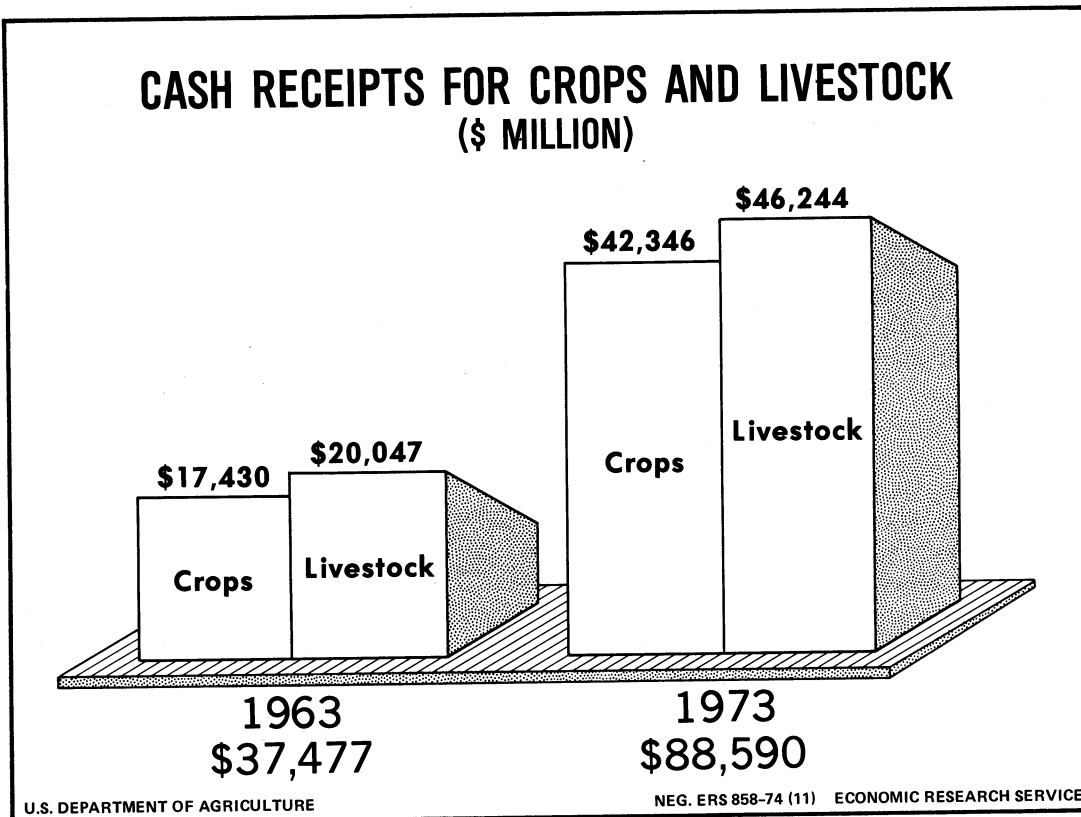


Figure 14

represents the shares of their personal income from both farm and nonfarm sources.

Income From Farming

Realized net income from farming, as mentioned, is the difference between gross income and production expenses. Gross farm income, in turn, consists of:

- Cash receipts from farm marketings, both commercial market sales and net loans and purchases by the Commodity Credit Corporation.
- Government payments to farmers, including direct payments in connection with farm programs
- Nonmoney income, including the value of farm products consumed directly in farm households and the value of housing provided by farm dwellings.
- Other farm income from recreation, machine hire and custom work.

By far the major part of realized gross farm income, cash receipts from farm marketings accounted for more than a 90-percent share in 1973. Mainly because of increases in cash receipts, realized gross farm income has trended upward since 1960.

However, in recent years, most of the sharp rise in gross income has stemmed from:

- Farm prices, which rose in response to strong consumer demand
- Tightening supplies in both domestic and world markets.

Direct government payments went up during the 1960's, as farm programs were geared to keep domestic commodity prices at competitive world levels; thus, farm income was maintained or supplemented through payments. From 1960 to 1972, they represented 2 to 7 percent of gross farm income. In 1973, they fell to below 1 percent because of the sharp rise in farm prices that accompanied expanded exports.

Farmers' production expenses rose persistently in the past decade, as both volume and price of purchased inputs increased. During the energy crisis, fuel and fertilizer prices jumped sharply. A continuation of higher input prices would have important implications for the entire food and fiber system in the years ahead. It could well mean that, for farmers to supply adequate amounts of food and fiber, consumers will have to pay much higher prices for food than in past years.

Still, prices received by farmers in 1972-73 rose much more than those paid for inputs. Realized net farm income in 1973 exceeded \$32 billion, almost three times the 1960 level (fig. 15).

Income From All Sources

Personal income of the farm population from farm sources represents net income of farm operators,

including government payments, less net income of nonresident farm operators; plus wages and salaries and other labor income of farm resident workers; less contributions of farm resident operators and workers to social insurance. Personal income from nonfarm sources consists of nonfarm wages and salaries, business and professional earnings, and interest and transfer payments, such as unemployment compensation, social security, and veterans benefits. Also included are rental income from nonfarm sources and an estimate of income from items such as dividends and royalties.

Income from nonfarm sources generally rose faster than that from farm sources, increasing from about 39 percent of total income in 1960 to nearly 53 percent in 1971. As farm income went up sharply in 1973, the percentage from nonfarm income fell to 38. However, many farm families, particularly those with modest farming operations, continue to earn more from nonfarm sources than from farming (table 3). Wages and salaries from off-farm employment contribute heavily to income from nonfarm sources.

The upward trend in nonfarm income increases the importance of the dual farming structure that has evolved in recent decades. One group has operations large enough to provide an adequate income; the other group of smaller yet productive operators supplements its income through nonfarm sources. This dichotomy, however, can be expected to change further because of differentials in economic opportunity. The disposable income of the farm population rose dramatically in 1973—reaching nearly 113 percent of that of the nonfarm population on a per capita basis and was the highest on record (fig. 16). Yet in investment terms, the ratio of earnings to asset equity in farming lags behind that in many other industries.

A Look at Farm Structure

Owners, Sizes, Numbers

In recent years, much controversy about farm structure has centered around two aspects of it:

- How farms are distributed by type of owner
- Whether large corporations are gaining control of agriculture.

To be sure, the industrialization process within agriculture has meant that production and marketing of several commodities have become more closely tied in with nonfarm businesses. At the same time, major crops—including wheat, feed grains, and soybeans—continue to be produced by the traditional, independent family farms.

Of the 918 million acres of land in farms with sales of \$2,500 or more in 1969, 44 percent were owned and operated by individual farmers. Partnerships and family

FARM INCOME COMPONENTS

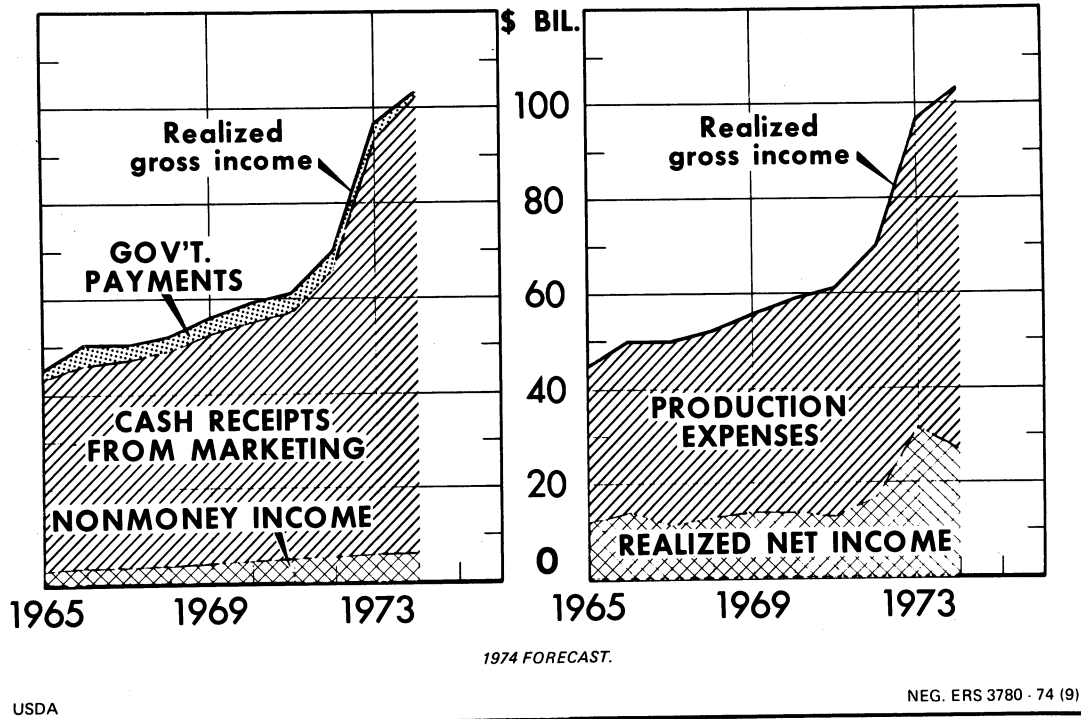


Figure 15

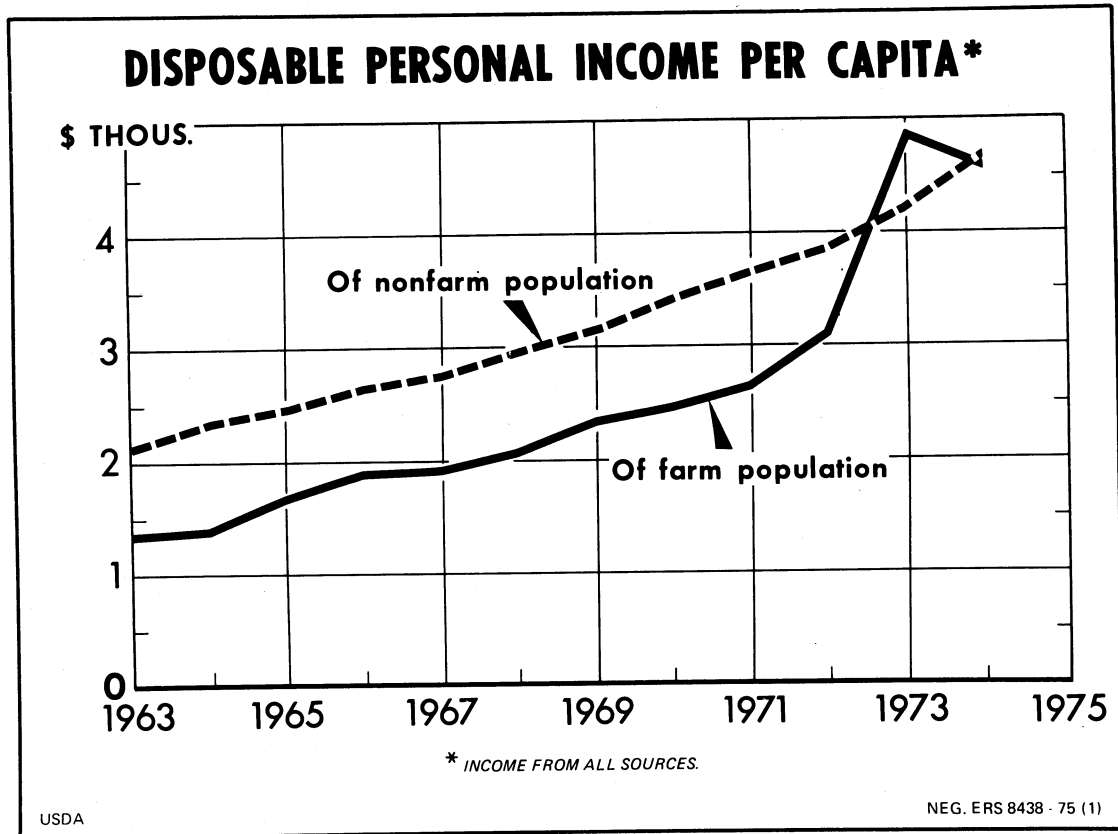


Figure 16

Table 3—Farm and off-farm income, per farm, 1973

Value of sales class	Realized net farm income	Off-farm income	Total, including nonmoney income from farm food and housing	Off-farm income share of total
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Percent</i>
All farms	11,332	8,249	19,581	42
\$100,000 and over	102,808	9,486	112,294	8
\$40,000 and over	24,360	4,997	29,537	17
20,000-39,999	13,355	4,325	17,680	24
10,000-19,999	7,263	5,500	12,763	43
5,000-9,999	3,992	7,294	11,286	65
2,500-4,999	2,095	8,361	10,456	80
Less than 2,500	1,082	13,930	15,012	93

¹ Includes Government payments.

Source: *Farm Income Situation*, FIS-224, Econ. Res. Serv., U.S. Dept. Agr., July 1974.

corporations owned and operated an additional 129 million acres, or 14 percent. Owners of the 376 million acres of rented land were also predominately individuals, partnerships and estates. Corporations owned 65 million acres, of which family corporations operated 39 million. Family and nonfamily corporations combined owned 16 million acres which they rented to others.

About 50 million acres, or 5 percent of all land in commercial farms were owned by Federal, State and local governments, or were in Indian reservations. Most of this land was rented to other farm operators. (fig. 17).

Historical trends in farm numbers and size, two other aspects of farm structure, illustrate the dynamic forces causing structural changes in the farm sector. While the number of farms has dropped over the past two decades, farm size has expanded.

These changes reflect attempts to improve production efficiency and farm incomes. Increases in farm size have been greatly facilitated by technological advances in machinery and other laborsaving techniques. And the economies realized in bulk purchasing of inputs and lower capital costs sometimes favor expanding farm size. However, only 5.5 percent of all farms exceeded 1,000 acres in 1969, most of which were livestock ranches and wheat farms where large acreages have long been required (table 4).

The greatest decline over the years has occurred in farms of less than 50 acres—both in actual numbers and as a percentage of all farms. They accounted for half of the total decline of 1 million farms between 1959 and 1969. Some of the land given up by this group of farms has been added to larger farms, but a substantial portion of all small farms are used primarily for rural residences

Table 4—Farm size, selected year, 1959-69¹

Size class (acres)	1959	1964	1969	1959	1964	1969
	<i>1,000 farms</i>	<i>1,000 farms</i>	<i>1,000 farms</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Less than						
50	1,056.7	820.0	635.6	28.5	26.0	23.3
50-99	657.3	542.4	459.9	17.7	17.2	16.9
100-179 ..	772.1	632.9	541.8	20.8	20.0	19.8
180-259 ..	414.1	355.4	306.9	11.2	11.2	11.2
260-499 ..	471.5	451.3	419.4	12.7	14.3	15.4
500 or more	336.2	355.7	366.6	9.1	11.2	13.4
Total ...	3,708.0	3,157.9	2,730.2	100.0	100.0	100.0

¹ Detail may not add to totals because of rounding. Percentage computed from unrounded data.

Source: Censuses of Agriculture.

and part-time farming. Without off-farm employment opportunities, the number of small farms likely would have fallen more.

Farms selling more than \$40,000 worth of farm products annually more than doubled in number from 1959 to 1969, increasing their share of total cash receipts from 31 to 53 percent (table 5).

Getting Products to Market

While the structure of the farm sector continues to be dominated by the family farm operator, coordination of

1 FARMLAND—AND WHO OWNS IT

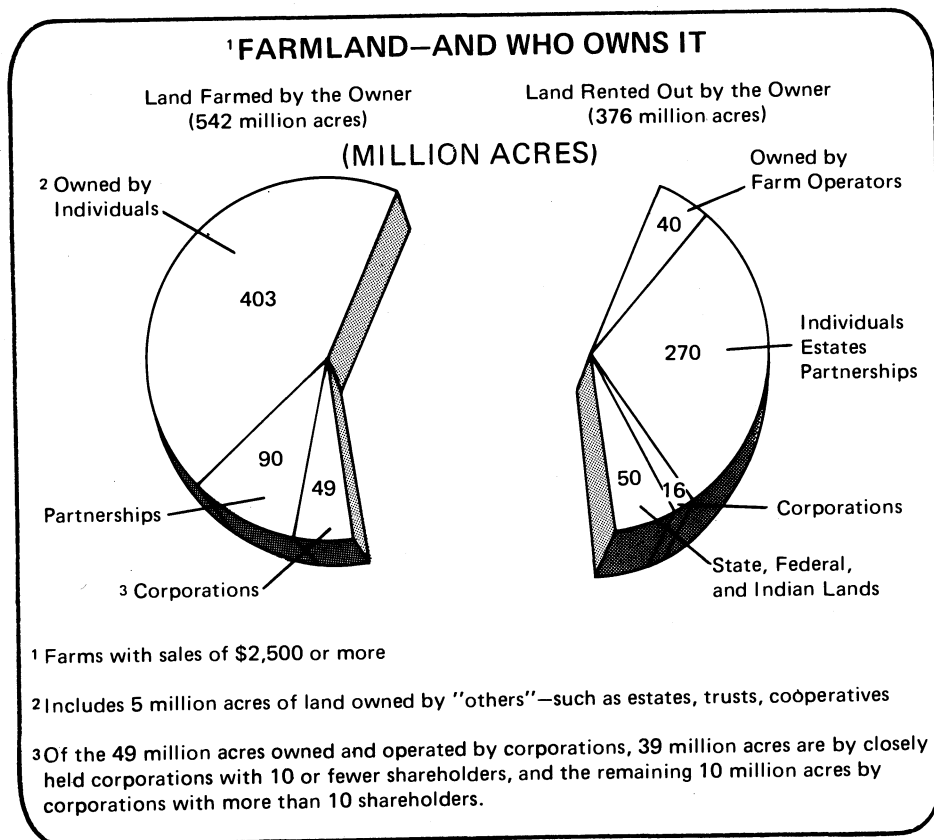


Figure 17

Table 5—Percentage distribution of number of farms and cash receipts by sales class, 1959, 1964, 1969, and 1973

Sales class	Percentage distribution							
	Number				Cash receipts			
	1959	1964	1969	1973	1959	1964	1969	1973
Less than \$2,500	46.9	45.1	40.0	26.4	6.1	4.6	3.3	1.0
\$2,500 to \$4,999	16.0	13.6	14.6	17.2	7.6	4.9	3.6	2.1
\$5,000 to \$9,999	16.9	15.4	13.8	9.2	15.6	10.9	6.9	2.4
\$10,000 to \$19,999	12.3	13.9	13.3	11.7	21.7	19.1	13.1	5.9
\$20,000 to \$39,999	5.3	7.8	11.0	19.8	18.1	20.0	20.4	19.1
\$40,000 and over	2.6	4.2	7.3	15.7	30.9	40.5	52.7	69.5

Source: Compiled from Farm Income Situation, FIS-224, Econ. Res. Ser., U.S. Dept. Agr., July 1974, and unpublished data.

production and marketing of farm products has expanded for several reasons:

- Larger average size of operations
- Increasing specialization of production
- Adaptability of some commodities to closer ties with nonfarm sectors

The extent of formal coordination between production and processing, for example, ranges from virtually 100 percent for sugar beets and sugarcane to

less than 1 percent for feed grains and hay and forage crops. In the aggregate, however, less than one-fourth of U.S. agricultural output is produced under contractual and vertically intergrated arrangements. In the highly coordinated part of the sector, some commodities are dominated by corporations, some largely by producer cooperatives, and others by a mix of corporations and cooperatives (table 6).

Over the past two decades, farmer cooperatives have

Table 6—Methods of coordinating production of selected agricultural commodities, 1970 estimates

Commodity	Corporate			Producer cooperatives	Open markets
	Vertical integration	Contracts			
		Individual producers	Producer bargaining associations		
	<i>Percent of production</i>	<i>Percent of production</i>	<i>Percent of production</i>	<i>Percent of production</i>	<i>Percent of production</i>
Sugar beets	2	---	98	---	---
Sugarcane	60	23	---	17	---
Fluid grade milk	3	15	---	¹ 80	2
Broilers	7	85	---	5	3
Processing vegetables	10	69	9	7	5
Citrus fruits	30	14	3	38	15
Turkeys	12	42	---	17	29
Potatoes	25	24	13	8	30
Deciduous fruits and nuts	20	---	8	30	42
Eggs	20	20	---	15	45
Fresh market vegetables	30	21	---	5	44

¹ Includes producer bargaining associations.

increased their share of total marketings of farm products from 20 to 26 percent. Gains have been the greatest for dairy products and cotton.

The bargaining cooperative, which negotiates directly with processors on price and other conditions of sale, is a special type of marketing cooperative, increasing in importance. Dairy farmers and sugar beet growers have long used this marketing device but the practice is now being applied to an increasing volume of fruits, vegetables, livestock and poultry for a total value of farm products probably approaching \$1 billion.

The growth in formal coordination between the farming and other sectors of the food and fiber system represents attempts to meet the increasingly specific demands of consumers for high-quality, more uniform food and fiber products at the lowest possible cost.

What About Performance?

Farming, a highly competitive industry, has been so proficient in its performance that production has often exceeded market needs. In addition, the farm sector cannot decisively control or predict one of its major inputs—weather. Virtually no major sector within the U.S. economy has as little control over a major input.

Within this environment, production controls and price support programs have been developed over the years for the farm sector to help adjust production, to increase effective demand to prevent oversupplies, or to do both. Thus, government programs and actions have

had an importance effect on performance of the farm sector.

American farmers have the adaptability and capability to supply markets with an abundance of food and fiber. But, in periods of sharply rising demand and adverse weather, realization of adequate output must wait for production to catch up. To illustrate, during 1962-71, farm output more than met expanding market needs, both at home and abroad. More recently, however, the efficient performance of this sector has been hampered by a combination of domestic and foreign developments, especially those related to energy, international trade, and weather.

Disruptions gained momentum in 1972. Food supplies, reduced by weather, had to meet rising world demand, and there was a heavy flow of U.S. commodities abroad. U.S. commodity prices soared, and transportation facilities proved inadequate. Then, the energy crisis of 1973 further strained both performance of the farming sector and also other sectors of the food and fiber system as supplies of energy-related inputs grew short and prices rose. Thus, with record farm prices and rising processing and distribution costs, food prices rose to unprecedented levels.

Government and industry alike have acted to overcome recent impediments to performance, particularly in the farm sector. Government restrictions on plantings were relaxed for major crops in 1974. As a result, farmers sharply expanded plantings. The energy needs of farmers received high priority to insure that the sector received adequate supplies of fuel. Also, to help

increase transportation services for agriculture, the U.S. Department of Agriculture asked the Interstate Commerce Commission to make additional railroad cars available to haul fertilizer and other farm supplies.

Much concern has been expressed over the future capability of the farming sector to meet food and fiber needs. Besides the possibility of higher energy costs, several prospective developments—including regulations related to the environment and labor—could increase farm production costs. But the farming sector has a long history of achieving productivity gains, and the future holds promise.¹ Today the top 10 percent of producers in the farm sector obtain close to 50 percent more crop yields than the average farmer. Of course, all farmers are not expected to do as well as this top percentage, but over time, average productivity will increase.

In addition, new and improved varieties of crops are being developed by scientists. Insect-resistant plant varieties would reduce the cost of insecticides and moderate environmental problems from chemical residues. However, development will probably require several more years.

A major research and extension effort could possibly greatly expand double cropping. This involves planting a summer crop—such as soybeans, corn, or sorghum—after harvesting a winter or early spring crop, such as wheat, oats, or barley. Currently, 4-5 million acres are being double cropped.

¹ For a detailed discussion of agriculture's capacity to produce, see "American Agriculture—Its Capacity To Produce," *Farm Index*, U.S. Dept. Agr., pp. 8-16, December 1973.

Potential for this cultural method has risen considerably because of recent developments:

- Early maturing varieties of small grains, soybeans, and sorghum
- Minimum or no-till planting equipment that allows the second crop to be planted directly in the old crop stubble
- Greater availability of drying equipment

In livestock production, crossbreeding and artificial insemination of beef cows could result in a 20-percent production increase. Although some farmers are adopting those practices, the major limitations appear to be lack of technical expertise. Multiple birth, or twinning, in beef cattle offers a big potential for increasing efficiency in beef production, and research in this area is encouraging.

Output per man-hour in agriculture is expected to be about 75 percent higher in 1985 than in 1970. While many people think agriculture has about reached the limit in reducing man-hour requirements, this input will likely decline one-fourth by 1985. Agriculture's share of total employment is projected to fall from 4 percent in 1972 to 2.3 percent in 1980 and 1.8 percent by 1985.

Expected continuation of strong world demand for U.S. agricultural products, especially grains and soybeans, will help our productivity because productive capacity can be used more fully.

Finally, Government can continue to assist productivity gains. Government can insure further productivity advances by future support of research and extension.



MARKETING THE NATION'S FOOD AND FIBER

After farmers have converted inputs into outputs, these flow to the third component of the food and fiber system—the product market sector—for processing and marketing.

This sector is the largest part of the food and fiber system, as well as one of the larger business sectors in the national economy. The 600,000 establishments involved in food processing and distribution alone employ over 5 million workers. A relatively small number of large business organizations own and control these establishments.

Combined costs of this sector's domestic marketing activities totaled over \$82 billion in 1973. Food

retailing, including away-from-home eating, made up 52 percent of this total; wholesaling took 14 percent; processing, slightly over 34 percent. The sector also handles tobacco and other nonfood products, for which processing and marketing costs are significant.

Big corporate organizations are commonplace in the sector. Many of them have long ago integrated by combining the processing and marketing functions. And some of these large firms directly engage in farming as well, which assures them of a dependable supply and uniform raw material. Their initiative has been strong in broilers, fruits, and vegetables, for which production activities can be automated.

THE PRODUCT MARKET SECTOR

Markets Here and Abroad

The farm sector produces about nine-tenths of food commodities used domestically. (Of the imported tenth, coffee is the biggest item). In 1973, the product market sector bought farm commodities valued at nearly \$90 billion from the farming sector, which took about 80 percent of 1973 sales of all farm products. The remainder of these sales were destined for a second major outlet, the export market. Exports have become increasingly important to the farming sector (table 7).

During 1962-71, the export market grew nearly 3 percent per year, well above the 2-percent annual growth in the domestic market. During 1972-73, export volume jumped about 40 percent. Sharply higher prices have made the climb in export value more dramatic; fiscal year 1974 sales were more than double those of 2 years earlier.

The domestic market is fairly evenly divided between livestock and crop commodities, while grains and soybeans account for nearly 80 percent of our agricultural exports. This market takes more than one-fourth of farm crop production. For the farm and input sectors, expanding exports have meant more

employment income and purchasing power. Though exports of raw farm products contribute relatively less to employment output value than do products used domestically, the value of output of goods and services added by exports is about 1.3 times their farm value. Finally, export market expansion has benefited the U.S. trade balance.

Pricing Farm Products

For many years, large central markets served as a price-making center for agricultural products, a place where supply and demand forces came together. However, technological change and shifts in location of production and processing, along with reorganization of agricultural industries, have brought new patterns of marketing that do not involve assembling farm products at large central markets. Though the new marketing methods appear to offer advantages in physical efficiency, they create difficulties in establishing prices.

Prices determined in central markets for small portions of total production are often used as bases for pricing most of the output sold through widely dispersed transactions. For example, a retail chain organization

Table 7—Sources and uses of food commodities, 1960-73¹

Year	Sources			Total net utilization	Uses		
	Net production	Imports ²	Stock change ³		Food use	Net non-food use ⁴	Exports ⁵
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>
1960	26.7	3.1	-0.9	28.9	25.1	0.9	2.9
1961	26.5	3.3	-1	29.7	25.6	.9	3.2
1962	26.5	3.5	.3	30.3	26.0	.9	3.4
1963	27.8	3.6	.1	31.5	26.7	1.0	3.8
1964	28.2	3.2	1.3	32.7	27.3	.9	4.5
1965	29.5	3.2	-.2	32.5	27.4	.9	4.2
1966	29.1	3.5	.8	33.4	27.9	1.0	4.5
1967	31.4	3.5	-1.1	33.8	28.8	1.0	4.0
1968	31.5	3.9	-.9	29.5	24.5	1.0	4.0
1969	31.6	3.5	-.5	34.6	29.9	.9	3.8
1970	30.9	3.7	1.1	35.7	30.2	.9	4.6
1971	33.9	3.9	-1.4	36.4	31.0	.9	4.5
1972	32.9	4.0	.6	37.5	31.1	.9	5.5
1973	33.6	4.1	.8	38.5	30.3	1.0	7.2
1974 ⁶	32.9	4.0	1.3	38.2	31.0	1.0	6.2

¹Quantities weighted by constant 1957-59 farm prices. Domestic use allocated on the basis of value of processed products. Includes essentially all commodities having any U.S. food use. ²Includes shipments from U.S. territories. ³Farm (other than live animals), commercial, and Government program

holdings. Negatives indicate stock increases; positives signify withdrawals. ⁴Feed and seed use omitted from total commodities to avoid double counting of use through livestock. ⁵Includes shipments to U.S. territories. ⁶Preliminary. ⁷Less than \$0.05 billion dollars.

in Philadelphia may buy fresh eggs from the Midwest based on a price established from the small volume traded on the New York Mercantile Exchange.

This system of pricing is sometimes questioned. Partly, concern exists because trading at wholesale markets is thin, which suggests the possibility of abuse. But partly, the uneasiness stems from recognition of how difficult it is to set prices in such a widely dispersed market.

But it is no longer economically feasible for all commodities to be physically present when buying and selling occurs. As long as the seller can describe a commodity to the reasonable satisfaction of buyers and terms of delivery, payment, and redress of grievances can be agreed on, a satisfactory exchange can occur. As a matter of fact, the commodity need not be in existence at the exact time that trading occurs.

In today's economy, possibilities are emerging for many kinds of pricing that did not exist before. In large measure, problems of market organization become problems of making such pricing more efficient. Now that communications technology has made such great advances, means might be found to establish unified pricing for a commodity despite decentralized marketing. It may well be necessary to use this technology to provide particular sets of rules, regulations, and services for the conduct of mutually beneficial transactions over a wide area and at low cost. Here, the concept of a central market, initially both useful and feasible, would be replaced by the concept of a unified market. The only real requirement would be that, at any given time, all prices for a product of given form, place, time, and other dimensions would tend to uniformity.

Another complication in present-day transactions is the increasing use of forward production contracts with widely different terms. Generally speaking, contracting is attractive because it allows producers to specialize, to enlarge their scale, and to apply technology. The value of a contract to each party depends on the terms involved; price cannot be interpreted intelligently out of context. But the lack of good price information means that the most competitive price is not always the one used.

Accompanying the increased use of production contracts are greater demands to equalize bargaining power. In particular, production contracts specifying price involve a potential conflict between economically powerful processors or handlers and relatively weak producers. Concerns over prices and other terms of trade specified in contracts cause interest in getting the farmer involved more effectively in the establishment of contract terms.

Futures trading on commodity exchanges is another

important feature of today's market. It makes contract pricing centralized and extremely standardized. The intent is to facilitate rapid change in ownership positions. When trading is thus made easier a wide spectrum of business interests can be accommodated, including those who wish to reduce price uncertainty or to otherwise establish a position in commodities.

Recently, futures trading was extended to more commodities, particularly to livestock and livestock products. Farmers, dealers, and processors now have wider choices in establishing prices. In particular, they can fix prices well in advance of completing production. Still, better understanding of market behavior is needed, including knowledge of how to reduce artificial influences in markets.

Processing

Processors have been among the firms in the food and fiber system most active in formally coordinating farm production and product distribution within their operations. In nearly every line of product activity they have become larger and fewer in number.

These developments are to be expected since the production process consists of more than one stage and mechanisms are needed to coordinate the activities of the contributing stages. In other words, market requirements must be evaluated. And inputs meeting certain specifications must be acquired and assembled—at the right place, at the right time, and in the right quantity—at each stage of the production process. Lastly, the final products must be distributed to geographically dispersed markets in an orderly manner.

Generally, the technical function of processors is to alter the form and composition of raw products. Nearly all food and fiber products flowing into the domestic market are processed in some way after leaving the farm. In the conversion process, processors buy and use many nonfarm inputs, particularly labor and packaging materials. Value added to farm products by the processing industry has been increasing around 5 percent annually. In 1971 it totaled nearly \$28 billion.

Output and Inputs

Well over half the output of the processing industries flows into the consumer sector. For example, based on 1967 data, about 68 percent of the output was purchased directly for consumer use. The remainder was allocated as follows:

- Livestock feed, 4 percent
- Other food processing firms, 17 percent
- Other users, 7 percent.
- Export, Government purchases, and inventory, 4 percent.

Processors, like farmers, depend heavily on inputs from other economic sectors of the economy. In 1967, besides spending 30 cents for raw farm products and 17 cents for inputs from other food processing firms, they also spent 41 cents for other inputs—for a total of 88 cents from each dollar of output. The 41 cents for inputs from other sectors went as follows: labor, 15 cents; glass, metal, paper, and plastic containers, 6 cents; trade and transportation services for purchased inputs, 6 cents; and all other purchased goods and services, 14 cents.

For suppliers of some of these inputs, processors of farm products were the most important customers. In 1967, they purchased 59 percent of the output of the metal container manufacturers, 45 percent of total farm output, 28 percent of the production of paperboard containers and boxes, and 26 percent of the output of glass container manufacturers.

Their significance is further evident from the economic activity generated. In 1967, each dollar of final demand for processed food represented \$2.62 of business generated in the U.S. economy. Food processing accounted for nearly half of this figure. \$1.24; farming was \$0.52 and the rest of the economy, \$0.86.

Structure

Over 23,000 plants employing 1.3 million workers are engaged in food processing or manufacturing activities. Numbers of food processing plants declined nearly a fourth between 1958 and 1967; the sharpest drop occurred in the dairy and baking industries. Average shipments per plant in food manufacturing nearly doubled during the period. Economies of scale in plant operations and distribution likely contributed to the decrease in plant numbers.

In most food processing industries, plants operated by multiunit firms—firms operating more than one plant—account for most of the output. In 1967, such plants accounted for only one-fourth of all plants but three-fourths of value added to farm food products by processors.

The level of concentration varies widely among food manufacturing industries. In 13 of 33 industries, the four largest firms accounted for over 50 percent of their industry's total value of shipments in 1970. In contrast, concentration was 25 percent or less in seven industries. The highest level was found in six industries: cereal, wet-corn milling, flour, beet sugar, cookie and cracker, and cane sugar refining. The least concentration showed up in three industries: sausage and other prepared meats, poultry dressing, and creamery butter. However, four-firm concentration in food processing has not changed appreciably since 1963.

Along with the increasing size of plants and firms, food processing companies have been integrating into a wide range of activities other than farming. In the dairy industry, for instance, some fluid milk processors have begun to operate retail dairy or convenience-food stores to retain a place in the market. Similarly, ice cream manufacturers have established their own outlets through soft-serve ice cream stands and stores that emphasize a quality product at relatively high prices.

As indicated previously, integration of farming and processing activities has been small in total, but quite significant for some individual commodities. About 5 percent of total crop production is estimated to have been produced under vertical integration in 1970, roughly the same as in 1960; the figure is the same for livestock and products.

Contract production by processors exists much more commonly than ownership of production facilities. Nearly a tenth of the output of crops and a third of livestock production are produced under contract. For example, most broilers and about two-fifths of all turkeys are produced under contract with processors and firms with interests in the feed industry. Virtually all production of sugar beets and about three-fourths of vegetables for processing are controlled primarily by processing firms through production contracts.

Also, many firms have sought to broaden their product lines to decrease dependence on a particular commodity and to improve bargaining positions relative to producers. For example, fluid milk processors have added new dairy products and fruit juices and drinks; and major dairy companies have diversified into other food product lines, such as ready-to-eat cereals, pet foods, poultry and eggs, bakery products, and synthetic dairy products. In addition, some companies have diversified into nonfood product lines.

Finally, some food processing companies are integrating all the way forward into the food service and restaurant business, particularly the preparation of nearly ready-to-serve foods for the food service market as well as for retail stores. Functions of these firms may include primary processing of products, such as fruits and vegetables near where the crops are produced, as well as further processing and preparation of meals in central commissaries for the institutional market. Firms in the business of preparing ready-to-serve foods and meals are often referred to as food converters or fabricators.

Determining Prices

Over the past 25 years, processors have changed their competitive practices. Large companies producing highly processed products now rely more on marketing strategies and less on price competition. They anticipate

demand and promote, sell, and distribute manufactured foods. Grocery manufacturers retain large sales organizations and maintain elaborate systems of distribution warehouses to serve retailers better. In addition, manufacturers have given increasing attention to marketing research on both new and existing products. Large grocery manufacturers use a major portion of their ample marketing resources for such promotion as media advertising, distribution of coupons and free samples, cents-off deals, allowances to retailers, premiums, and point-of-purchase material. Most of their promotion funds go into advertising.

Published prices of grocery manufacturers generally do not fluctuate sharply in the short run to reflect changes in market conditions. Price competition usually takes the form of coupons or cents-off deals to consumers and price-bonus case allowances to the trade. Such promotional devices temporarily reduce the retail price. In addition, grocery manufacturers frequently market lines of similar products, at different price levels.

The major grocery manufacturers have grown primarily through internal development, but they also have acquired numerous small firms. Major food manufacturers frequently acquire such firms because they find doing so less costly than developing, introducing, and promoting products on their own. Another reason for diversification through acquisition or internal development is the desire to reduce dependence on segments of the food industry that are the most susceptible to price competition. Grocery manufacturers also seek to apply their marketing and other skills to the acquired firms.

The small manufacturer, competing regionally or locally by processing a private-label brand for a large chain or an innovative product, has retained an important place in the market, however. Although concentration in grocery manufacturing may increase, or at least not decline, the small processor probably will continue to retain an important place in the market. By concentrating on producing private-label products to the specifications of large retail or wholesale organizations, the smaller processors can find a ready market without trying to duplicate the prohibitively expensive marketing strategies of the large diversified grocery manufacturers.

All these strategies, promotional devices, and the like cost money. A breakdown of the food dollar reveals that the cost of inputs used to process farm products and the value added by processing account for around a fifth of total food expenditures by consumers. The most significant change in processing costs however, has been increasing costs for labor. In 1973, these accounted for 42 percent of total processing costs and charges, while 10 years ago, the figure was around 38 percent. Despite higher costs for labor and other items, the food

processing industry has been able to maintain after tax profit levels at around 2.4 percent of sales and 11 percent of stockholder equity. Profits per dollar of sales of food processors usually are about half as large as for all manufacturing industries, largely due to the more rapid rate of turnover for food products. But returns on stockholder equity are nearly the same for food and all manufacturers (fig. 18).

Wholesaling

Although food retailers have integrated extensively into wholesaling during the past several decades, wholesalers continue to market the greatest share of food products. To be sure, the largest wholesaling firms have gained the most in market shares.

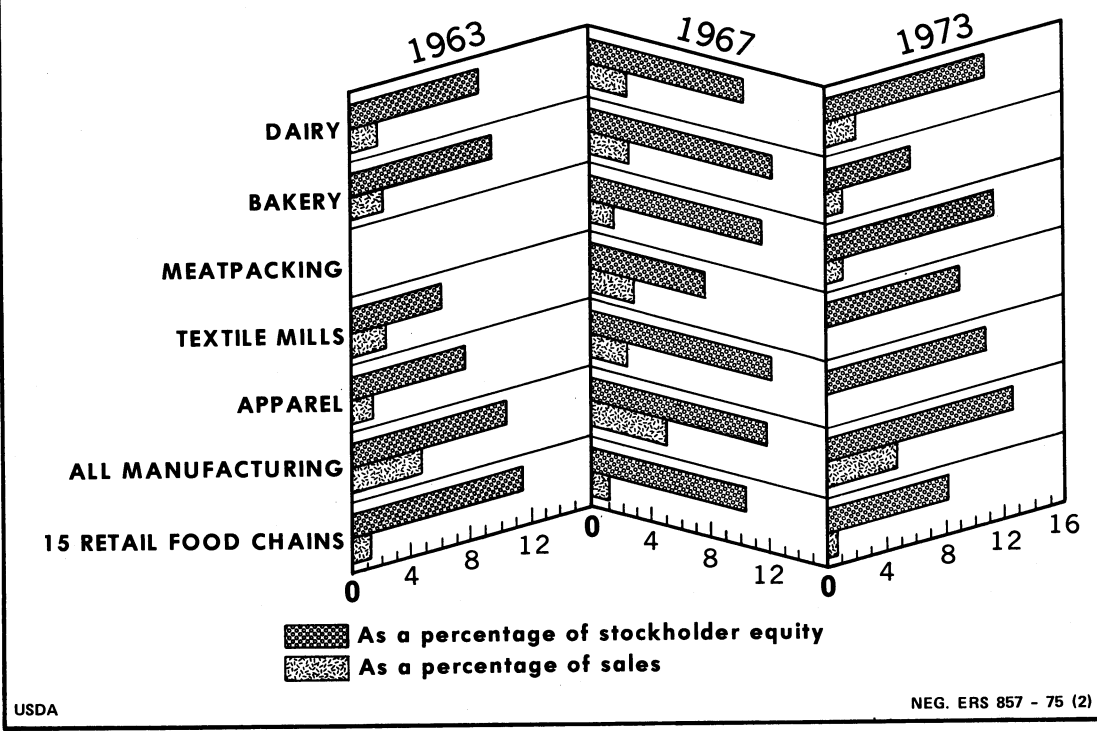
General-line and specialty wholesalers share the market; however, general-line wholesalers—those carrying a general line of grocery items—are increasing their share slightly. Around 1,700 establishments account for about 38 percent of all sales by grocery wholesalers (table 8). Sales have about matched the higher sales of retail grocery stores.

Specialty wholesalers carry a special line of grocery items, such as frozen food, meat and meat products, poultry and poultry products, and fresh fruits and vegetables. They represent about 90 percent of all wholesalers and account for approximately 62 percent of the wholesale grocery sales. They have substantially increased sales to the expanding meals away-from-home market.

The wholesale grocery industry, now dominated by voluntaries and retailer-owned cooperatives, is the major source of supplies and services for the majority of independent supermarkets, convenience stores, and many local chains. Sales of affiliated wholesalers, which have grown much faster than sales of independent wholesalers, have become more concentrated among the largest groups. The eight largest voluntaries currently account for nearly 21 percent of general-line grocery sales and the eight largest retail cooperatives for over 13 percent (table 9).

Sales per wholesale grocery establishment have increased over fivefold since the early 1950's, mainly as a result of improvements in space arrangements and material handling equipment which stimulated the building of new and larger establishments. Also, improvements in motor-trucks and highways extended the distribution areas served by many firms, enabling them to use larger facilities. The decline we noted in the number of wholesale establishments has been moderated somewhat—partly because many have been needed to supply the requirements of the booming institutional food market.

PROFIT RATIOS OF MANUFACTURERS



USDA

NEG. ERS 857 - 75 (2)

Figure 18

Table 8—General-line grocery wholesalers, by number and sales, census years 1954-67 and 1972-73

Type of business	1954	1958	1963	1967	1972	1973
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>
All general-line grocery wholesalers	3,320	2,253	2,530	2,543	¹ 1,990	¹ 1,730
Affiliated	767	673	869	907	784	675
Voluntary	574	N.A.	708	734	580	505
Cooperatives	193	N.A.	161	173	204	170
Nonaffiliated	2,553	1,580	1,661	1,636	1,206	1,055
	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>	<i>Million dollars</i>
All general-line grocery wholesalers	7,354	8,428	11,723	15,548	² 23,153	² 25,847
Affiliated	3,762	5,236	8,270	11,470	17,659	19,573
Voluntary	2,464	N.A.	5,357	7,367	11,523	12,693
Cooperatives	1,298	N.A.	2,913	4,103	6,136	6,880
Nonaffiliated	3,592	3,192	3,453	4,078	5,495	6,273

¹ *Progressive Grocer*, Apr. 1973 and Apr. 1974 for 1972 and 1973 data. ² *Monthly Wholesale Trade*, Dec. 1973. Sales of affiliated and nonaffiliated wholesalers were estimated by using unadjusted data from 1967-73 issues.

Note: N.A.=not available

Source: U.S. Dept. Commerce. *Census of Business*.

Table 9—Sales by general-line grocery wholesales, selected years, 1958-73

Type of business	Share of sales in—					
	1958	1963	1967	1970	1972	1973
	Percent	Percent	Percent	Percent	Percent	Percent
Affiliated:						
Voluntary groups:						
4 largest	7.4	9.7	11.2	11.9	14.1	14.2
8 largest	11.8	13.6	N.A.	18.1	20.3	20.8
All voluntary	38.5	45.7	47.4	47.8	49.8	49.1
Retailer-cooperatives:—						
4 largest	7.9	8.5	10.6	8.4	9.6	9.1
8 largest	10.6	12.4	N.A.	12.5	14.1	13.6
All cooperatives	25.4	24.8	26.4	26.4	26.5	26.6
Nonaffiliated:	36.1	29.5	26.2	25.8	23.7	24.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note: N.A. = not available.

Source: Data for 1958 and 1963 are from National Commission on Food Marketing, *Food Retailer*. Study 7, app. table 17. For 1967, 1970, 1972, and 1973, percentages for all voluntaries, cooperatives, and nonaffiliated groups were estimated from

1967-73 issues of *Monthly Wholesale Trade*. Sales of the largest 4 and largest 8 firms were obtained from *Chain Store Age*, July issues for 1968, 1971, 1973, and 1974. Sales of the largest 8 firms are not available for 1967.

Wholesale grocery firms recorded sales of almost \$26 billion in 1973, 12 percent above those in 1972. Gross margins, increasing from about 5.4 percent in 1962 to roughly 6.2 percent in 1970, remained relatively steady over the past 4 years. Profits after taxes have held steady at around 1 to 1½ percent of sales. Compared with general-line firms, specialty wholesalers have higher gross margins as a percentage of sales because of their relatively larger operating expenses for special equipment, such as refrigeration, and from losses due to spoilage. Independent grocery wholesalers have higher operating margins as a percentage of sales than affiliated grocery wholesalers, largely because they serve smaller volume retailers and institutional customers. For food wholesalers as a group, labor is the largest operating cost, accounting for about half of the gross margin.

Retailing

Retail foodstores, the principal source of food for consumers, represent one of the Nation's largest industries—both in number of establishments and in sales. Foodstore sales amounted to \$106 billion in 1973, more than double the 1958 level (table 10). Foodstores account for about 17 percent of all U.S. retailing establishments, and roughly 20 percent of total retail sales. Grocery stores represent about 75 percent of all foodstores and make over 90 percent of sales, which amounted to over \$98 billion in 1973. Other foodstores,

Table 10—Retail sales of food and grocery stores, selected years 1954-67, 1968-73

Year	Foodstore sales	Grocery store sales	Grocery store sales as share of foodstore sales
	Million dollars	Million dollars	Percent
1954 ¹	39,762	34,421	86.6
1958	49,225	43,696	88.8
1963	57,079	52,566	92.1
1967	70,251	65,074	92.6
1968 ²	72,881	67,925	93.2
1969	75,866	70,955	93.5
1970	86,114	79,756	92.6
1971	89,239	82,793	92.8
1972	95,020	88,340	93.0
1973	105,627	98,294	93.1

¹ Census years data (1954 and 1967) from Bureau of the Census, *Census of Business*, U.S. Dept. Commerce. ² Data for other years from Bureau of Econ. Analysis, *Survey of Current Business*.

such as meat markets, retail bakeries, and dairy product stores, account for about 25 percent of all stores but make less than 10 percent of food sales.

Significant structural changes in foodstore retailing include a trend toward fewer and larger stores, greater

concentration of sales among large firms enhanced by mergers and acquisitions, and growth of convenience foodstores. The decline in stores has occurred among single-store firms, as the number operated by multistore firms has increased and their share of the market has expanded. For example, the market share of firms with 101 or more stores rose from 29 percent to 38 percent during the past 20 years (tables 11 and 12).

Chains have increased their share of total grocery store sales. The market share held by the 20 leaders went from 30 percent in 1954 to over 40 percent in 1969. Most of the growth took place among the fifth to 20th largest firms (table 12). However, during the past 5 years, the market share held by the 20 leaders has remained relatively stable.

To help achieve this process of growth, supermarket

chains actively integrated and coordinated market activities in several ways:

- More specific demands on suppliers for quality, delivery conditions, prices
- Emphasis in their operations on private brands, product differentiation, new product development
- Often, directly dealing with producers to get much of fruits, vegetables, and other nonprocessed food products needed
- Usually, operation of own milk processing plants or contracts with processors to supply private-label milk
- Usually, operating of own warehouses and integration of wholesaling and retailing functions

Increased competition from independent affiliated retailers, however, may hold down future growth in the

Table 11—Shares of total grocery store sales, by size of firm, census years 1954-67; 1970-72

Size of firm	1954 ¹	1958	1963	1967	1970 ²	1971	1972
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Stores:							
1	51.8	47.0	43.1	38.8	38.2	37.4	37.0
2 or 3	4.8	4.8	5.0	5.0	5.2	4.9	4.3
4 or 5	1.6	1.9	1.9	1.8	2.1	2.0	1.9
6-10	2.4	2.4	2.9	3.0	3.0	3.0	3.0
11-25	3.6	3.3	4.2	5.2	5.2	5.2	5.2
26-50	4.0	4.4	3.2	4.1	4.1	4.2	4.3
51-100	2.4	4.0	5.2	6.0	6.0	6.3	6.6
101 or more	29.4	32.2	34.5	36.1	36.2	37.0	37.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Census years 1954-67 from Bureau of the Census, *Census of Business*, U.S. Dept. Commerce.

² Estimates for 1970-72 from *Supermarketing*.

Table 12—Market share of 20 leading grocery chains, selected years, 1954-67; 1969-73

Rank of chains	Share of total grocery store sales in—								
	1954 ¹	1958	1963	1967	1969	1970	1971 ²	1972	1973
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1st-4th	20.9	21.7	20.0	20.0	20.5	20.1	19.9	20.5	20.4
5th-8th	4.5	5.8	6.6	7.2	8.0	8.1	8.5	8.8	8.9
1st-8th	25.4	27.5	26.6	27.2	28.5	28.2	28.3	29.3	29.3
9th-20th	4.5	6.6	7.4	9.8	11.5	11.8	12.8	12.8	11.7
1st-20th	29.9	34.1	34.0	37.0	40.0	40.0	41.2	42.2	41.0

¹ 1954-63 estimates from National Commission on Food Marketing, Organization and Competition in Food Retailing., June 1966; estimates for 1967, 1969, and 1970 were computed from sales of food chains, and total sales of grocery stores reported by Bureau of Census, *Census of Business Retail Trade*

and *Annual Retail Trade Reports*. ² Estimates for 1971 and 1972 based on information from *Progressive Grocer*. Estimates for 1973 based on information from *Moody's Industrial Manual and Progressive Grocer*.

market share of chains. To compete more effectively with chains, many independent grocery store retailers have devised their own form of coordination. They have associated themselves with wholesale suppliers because they can thus take advantage of large-scale buying and merchandising. Some independent retailers have created wholesale units to supply themselves with merchandise. These retailers, along with sponsored voluntary retail groups, are termed affiliated independents. They represent about 33 percent of all grocery stores and 45 percent of grocery store sales. Affiliates' share of the market remained relatively stable during the 1960's. Most of their growth occurred in the 1950's, as increasing numbers of independent stores shifted from unaffiliated to affiliated status. Unaffiliated independent stores represent about 50 percent of all grocery stores but account for less than 10 percent of grocery store sales.

A fast-growing type of foodstore is the convenience store; it offers convenience of location, quick service, and long store hours. Such attributes have enabled these stores to compete, despite somewhat higher margins and prices and a more limited brand selection. They now account for almost 4 percent of total grocery sales.

The mergers and acquisitions already noted have significantly changed the structure of food retailing. For example, without the mergers of the 1950's and early 1960's in grocery retailing, the national market share of the four largest chains would have declined. Also, little increase would have occurred in the share held by the 20 largest food chains. However, the merger pace of the 20 largest food chains has decreased sharply since 1964. Between 1949 and 1964, these chains accounted for nearly 70 percent of sales of all acquired firms. In 1965, acquisitions by the top 20 amounted to only 10 percent of sales of acquired firms, and by 1968, the figure had declined to 6 percent. Much of this dramatic drop is attributed to merger enforcement activity of the Federal Trade Commission, including legal action against several large supermarket chains and identification of type or size of mergers likely to be challenged.

Recent efforts of chains have been directed toward reducing costs, further automating operations, and adopting more mass merchandising methods. At the same time, many retailers have instituted unit pricing and open dating of products to meet consumer demand for fresh products and for information to make price comparisons.

Profit rates (after taxes) of retailers, relatively steady during the 1960's, ranged between 1.1 and 1.3 percent of sales for leading chains. More recently, rising operating expenses have held down profits, which fell to 0.7 percent of sales in 1973. As with other farm product industries, labor has been the largest cost of doing business, representing almost half the retail margin.

New and Growing: Food Away From Home

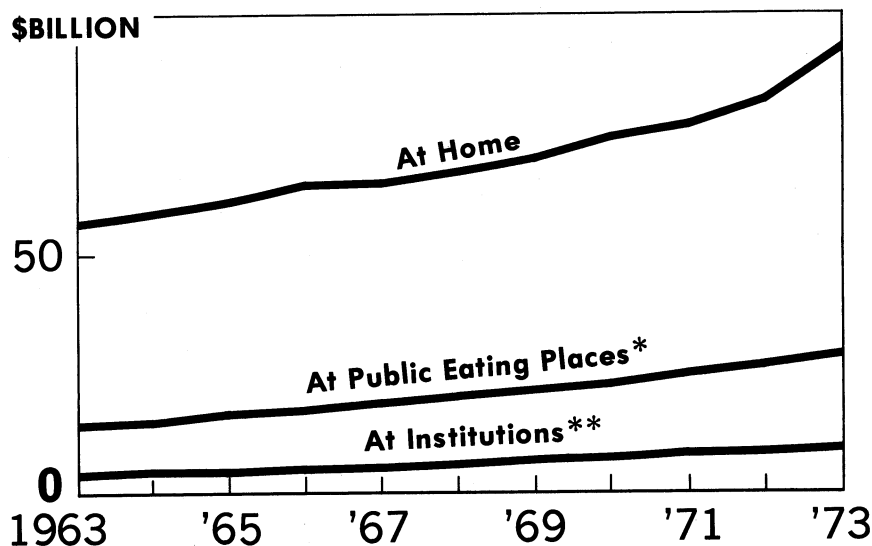
Consumers spent over \$132 billion for U.S. farm foods in 1973. About 70 percent of this was purchased primarily from retail foodstores to eat at home. The remaining 30 percent, people spent on food eaten away from home, including public eating places and institutions (fig. 19). Over the years, consumers have been spending more of their food dollar in this market, as incomes rise and living styles change, as people become more mobile and take more vacations.

Both commercial and institutional parts of the market have been growing. So-called "fast food" establishment—such as those specializing in hamburgers, pizza, fried chicken, fish, and ethnic foods—have increased dramatically in numbers. Some represent fully owned chain outlets but many more are franchised outlets. Although multiunit food firms have been growing in importance, the food service industry is dominated by relatively small, independent establishments. In 1972, single-unit establishments made up 90 percent of all eating places and accounted for 74 percent of sales. In contrast, firms operating 11 or more units, which would include company owned national and regional fast-food establishments, accounted for 7 percent of total establishments and 17 percent of sales in that year (table 13).

All types of away-from-home eating establishments have emphasized the reduction of labor inputs—these accounted for 57 percent of total industry costs in 1972. In fast-food establishments, kitchen labor is greatly reduced by a streamlined menu, and labor out front is replaced by self-service. In many more conventional restaurants, full service is maintained in the dining room but the emphasis on reduced labor requirements in the kitchen is nearly as great as in the fast-food establishments.

These changes are having a marked impact on the suppliers to the away-from-home market. Demand has arisen for a new class of supplier, the fabricator. This type of supplier delivers increasing quantities of food in prepared and semiprepared forms to restaurants or institutions, where the items are served to customers with minimal labor input. Meats are being cut, wrapped, and boxed at the packing plant and sent to the kitchen ready for cooking. The operator can buy steaks, roasts, or hamburger as needed. Other restaurant or institutional operators are going into the business of preparing main courses or complete meals in a fashion analogous to the process used to prepare the frozen TV dinners available in supermarkets. Furnishing complete meals or the main course in a form which requires only heating before serving has become particularly important for "captive" consumers, such as those on airlines and in school lunchrooms and similar establishments.

CONSUMER EXPENDITURES ON U.S. FARM FOODS AT HOME AND AWAY FROM HOME, 1963-73



*INCLUDES RESTAURANTS, CAFETERIAS, SNACK BARS.
 **INCLUDES HOSPITALS, SCHOOLS, COLLEGES, NURSING HOMES.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 859-74 (11) ECONOMIC RESEARCH SERVICE

Figure 19

Table 13—Distribution of eating places by size of firm, census years 1958-67 and 1972

Number of units	Establishments				Sales			
	1958	1963	1967	1972 ¹	1958	1963	1967	1972 ¹
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Single	92.2	90.8	90.4	90.1	82.8	80.4	77.4	73.9
Two or three	3.4	4.0	3.0	1.1	5.8	5.8	5.3	4.7
Four to 10	1.1	1.4	1.6	1.8	2.7	2.9	3.7	4.5
11 or more	3.3	3.8	5.1	7.0	8.8	11.0	13.6	16.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹Preliminary estimate of Econ. Res. Serv., U.S. Dept. Agr.

Source: Bureau of the Census, Census of Business, Retail Trade Single Units and Multiunit, U.S. Dept. Commerce.

How Well Does the Market Perform?

How do we know if the market for farm foods is operating efficiently, meeting needs effectively, and otherwise functioning in a healthy manner? One method is to measure changes in marketing costs. The Economic

Research Service maintains two major statistical series which measure these changes:

- Monthly farm-food market basket statistics
- Annual farm-food marketing bill

Both series, discussed below, provide barometers of changes in at least four areas—retail prices, farm values,

marketing margins, and the farmer's share of the retail dollar spent for foods produced on the Nation's farms.

The Market Basket Measure

Market basket statistics measure changes in the price of marketing services. The "market basket" contains the average quantities of 65 domestic farm-originated foods purchased annually per household in 1960-61 for preparation at home. This sample and the quantity weights are held constant over a period of time to measure changes in prices. The resulting retail cost estimates will be less than what a typical urban family spends each year for food for three reasons:

- Cost of food purchased in restaurants and other eating establishment is not included
- Food expenditures of workers living alone are included
- Only foods originating on U.S. farms are included; fishery products, coffee, bananas, and other imported foods are excluded. (In process is an expansion of the series to cover imports of fish and fibers.)

Retail costs and farm values are estimated monthly for the 65 individual food products in the basket. From these estimates, the retail price spread is derived—an

estimate of the total gross margin received by marketing firms for assembling, processing, transporting and distributing the products in the market basket.

During the past 20 years, marketing spreads widened in all but 2 years (fig. 20). In much of this period, widening farm-retail price spreads accounted for most of the rise in retail prices. Only in recent years has the farm value tended to go up. Long-term trends in these price spreads tend to parallel rather closely movements in the general price level because marketing firms purchase many goods and services from the nonagricultural sector.

The Marketing Bill Measures

The marketing bill is an estimate of total annual charges by marketing firms for transporting, processing, and distributing U.S. farm-originated foods purchased by civilian consumers² in the United States. The bill represents the difference between consumer expenditures and farm value. Consumer expenditures include expenditures for food in retail stores and

² "Civilian" refers to U.S. population residing in the United States. It does not include military purchases of food. For convenience, the word "consumer" refers to civilian consumers only.

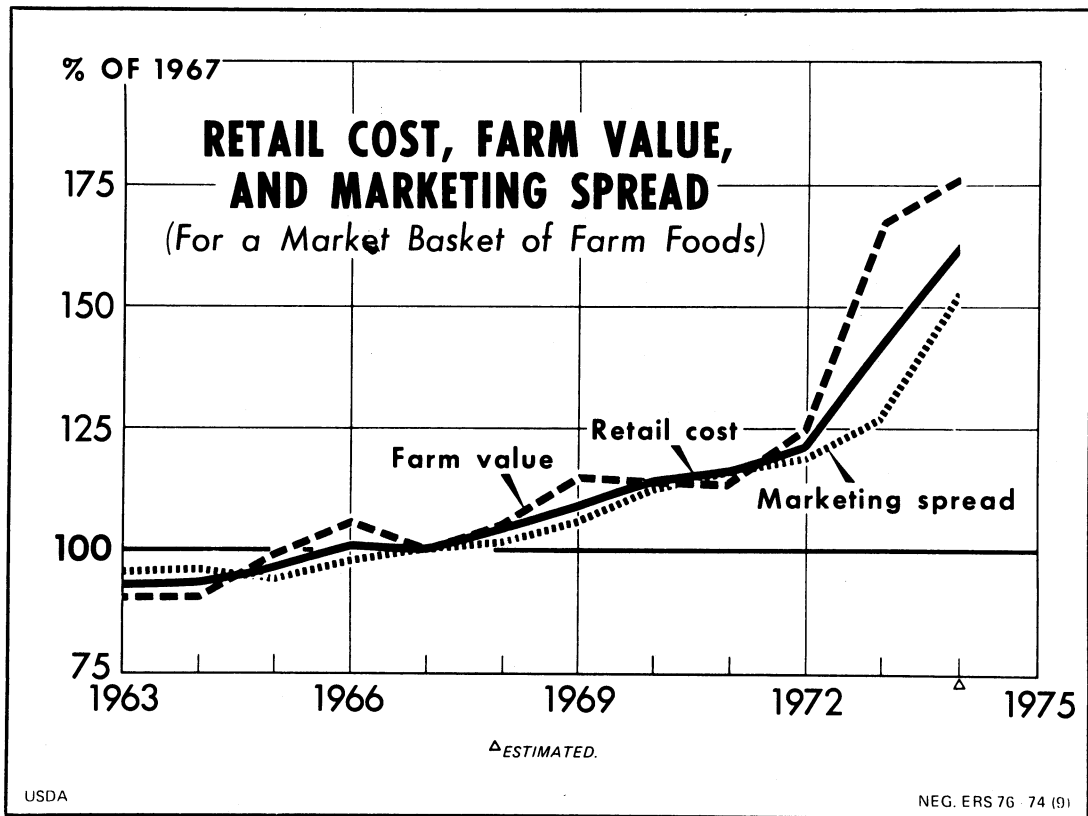


Figure 20

restaurants and other away-from-home eating establishments such as schools, hospitals, and the like. Farm value used is the value at the first point of sale by the farmer for the farm products equivalent to those purchased by consumers. Unlike the market basket statistics, marketing bill data are affected by changes in volume and type of products marketed.

Marketing bill statistics are estimated for 15 major food groups and 4 marketing agencies, and by major cost components such as labor, packaging materials, transportation, corporate profits, and so on. In addition, the data are subdivided into foods consumed at home and away from home.

The \$82 billion cost of marketing farm-originated foods in 1973 rose 5 percent over 1972, the same as the average annual rise of 5 percent during the past decade.. Consumers spent an estimated \$132 billion for these foods, up about 13 percent from 1972. Farm value for

U.S. farm food products totaled about \$50 billion, a 29-percent increase from 1972. Thus, about two-fifths of consumer expenditures went to farmers to cover expenses and provide a return for investment, labor, and management; three-fifths went to firms for assembling, processing, transporting, and distributing food (fig. 21).

Of the various marketing agencies, retailing and eating places accounted for about half the total marketing bill in 1973. Processing took up over a third of total costs, and wholesaling represented about a seventh (fig. 22).

As we look at the cost and profit components of the marketing bill, again we see the hefty share for labor cost—almost half the bill in 1973 (table 14). Direct labor used to market U.S. farm foods cost \$40.3 billion. And increases in this component accounted for two-thirds of the \$4 billion rise in the marketing bill from a year earlier.

Table 14—Components of bill for marketing farm foods, selected years

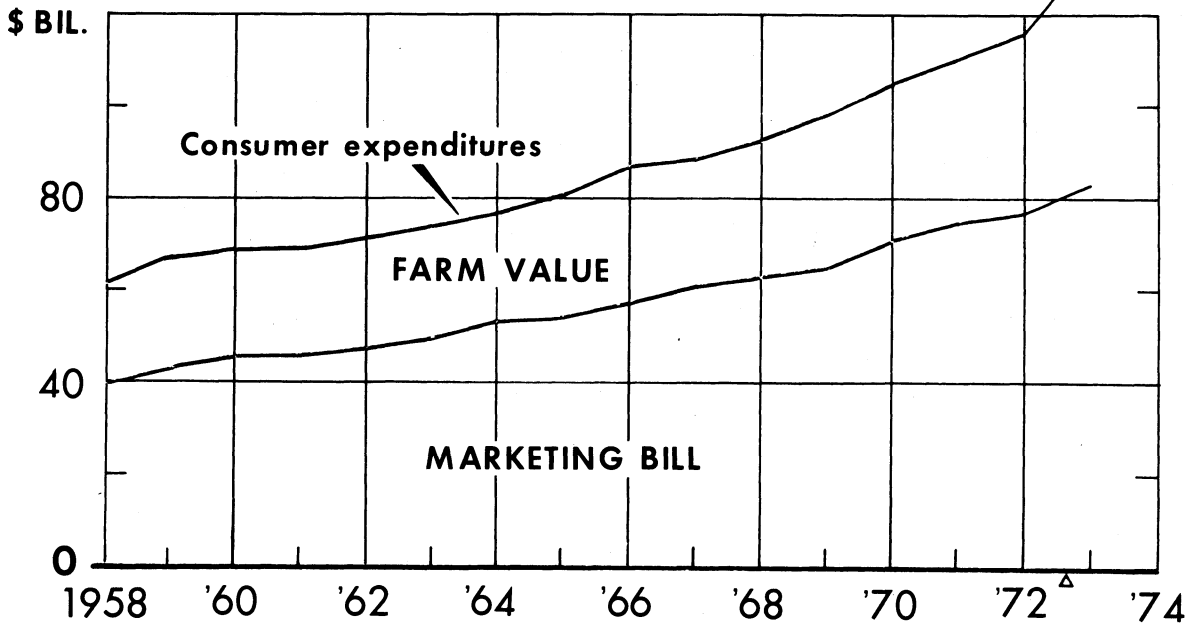
Year	Labor ¹	Packaging material	Rail and truck transportation ²	Corporate profits		Business taxes ³	
				Before taxes	After taxes		
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	
1960	19.7	5.4	4.1	2.1	.9	1.3	
1963	21.3	5.9	4.2	2.4	1.2	1.7	
1967	25.1	7.2	4.3	3.4	1.8	2.3	
1968	28.0	7.8	4.5	3.6	1.8	2.6	
1969	30.4	8.0	4.6	3.6	1.6	2.6	
1970	32.3	8.5	5.2	3.6	1.6	2.9	
1971	34.5	9.0	6.0	3.7	1.7	3.1	
1972	37.6	9.4	6.1	3.5	1.7	3.2	
1973 ⁵	40.3	10.0	6.1	4.6	2.1	3.3	
	Depreciation	Rent (net)	Advertising	Repairs bad debts, contributions	Interest (net)	Other	Total
	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>	<i>Billion dollars</i>
1960	1.5	1.1	1.3	.7	.2	7.2	44.6
1963	1.8	1.4	1.7	.9	.3	8.3	49.9
1967	2.2	1.8	2.0	1.1	.6	9.6	60.4
1968	2.1	2.0	1.8	1.2	.8	9.1	63.5
1969	2.2	2.1	1.9	1.3	.9	7.5	65.1
1970	2.5	2.3	2.0	1.5	1.1	9.3	71.1
1971	2.6	2.4	2.1	1.6	1.2	9.2	75.4
1972	2.8	2.5	2.2	1.7	1.2	8.2	78.4
1973 ⁵	2.9	2.7	2.3	1.7	1.3	7.1	82.3

¹Includes supplements to wages and salaries; also includes imputed earnings of proprietors, partners, and family workers.

²Includes charges for heating and refrigeration; does not include local hauling. ³Includes property, social security, unemployment

insurance, State income, franchise taxes, license fees, and other fees but does not include Federal income tax. ⁴Includes costs such as food service in institutions, utilities, fuel, local for-hire transportation, and water transportation. ⁵Preliminary.

FARM-FOOD MARKETING BILL AND CONSUMER FOOD EXPENDITURES



FOR DOMESTIC FARM FOODS PURCHASED BY U.S. CIVILIAN CONSUMERS FOR CONSUMPTION BOTH AT HOME AND AWAY FROM HOME. Δ PRELIMINARY.

USDA

NEG. ERS 8837 - 74 (9)

Figure 21

Employment in food marketing rose about 22 percent during the past decade as a result of increases in volume of food handled by the marketing system plus gains in services per unit of product. The farm food marketing system employed 5.6 million persons (full-time equivalent basis) in 1973, compared with 4.6 million in 1963. These workers made up about 6 percent of the U.S. civilian labor force in 1963 and 1973. Numbers of persons employed by public eating places rose substantially more during this period than did numbers working in wholesaling and retailing.

Since 1963, employee earnings in food marketing establishments have increased about 5.4 percent annually—closely approximating wage gains for the nonagricultural sector of the economy. However, since 1970, hourly earnings have been rising about 6.5 percent a year. This rise, coupled with higher fringe benefits, has increased hourly labor costs of food marketing firms 80 percent since 1963. Unit labor cost thus went up substantially because gains in labor productivity did not keep pace.

Some growth in labor productivity has resulted from improvements in marketing facilities and equipment. Firms have spent heavily on new plants, warehouses, stores, and other facilities. Expenditures by firms manufacturing food and kindred products almost tripled in the last decade—from \$1.06 billion in 1964 to \$3.03 billion in 1973.

Rising prices of new plant and equipment have eroded some of the cost saving of substituting capital for labor. From 1962 to 1970, prices of new plant and equipment rose about 2.9 percent per year. Since 1970, these prices have increased around 3.7 percent per year. Also such purchases have been made more costly because of higher interest rates, which have advanced recently to record levels.

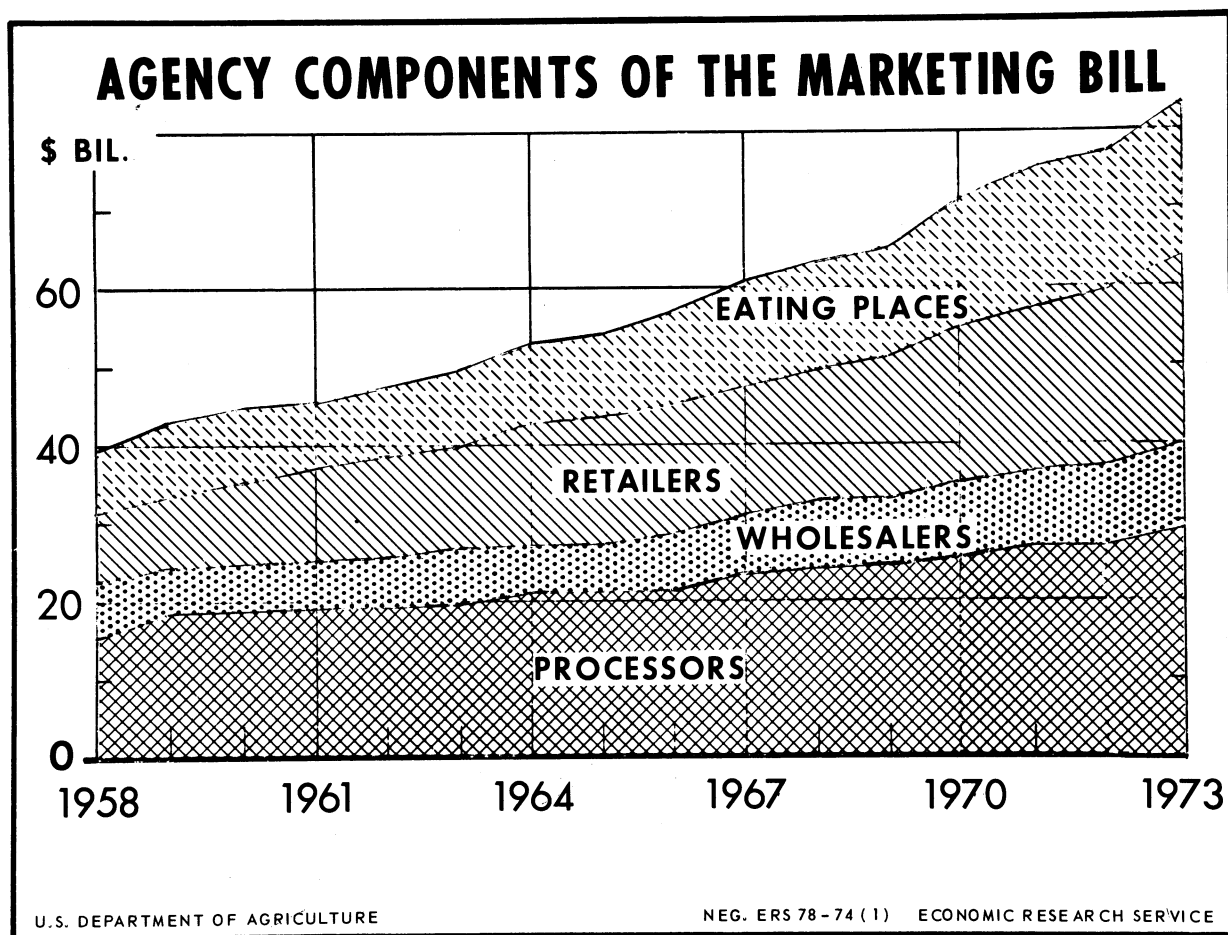


Figure 22

Future Prospects

Packaging materials, another component in the marketing bill, represents the second largest cost for firms marketing farm foods. In 1973, they accounted for 12 percent of the bill, about the same portion as in 1963 (table 14). Food processors, the large users of packaging materials, take over four-fifths of the total used by all food marketing firms. The value of packaging materials for farm-raised foods rose 6 percent in 1973, from \$9.4 billion to \$10.0 billion. This rise resulted from higher prices; there was little change in the quantity of packaging materials used.

Until recent years, prices of these materials remained relatively stable. But supplies have become short and prices have risen sufficiently to affect farm-retail spreads. Tight supplies of two packaging materials particularly made the news in 1973: solid fiber and corrugated shipping boxes and grocery bags. The price of grocery bags increased 14 percent in 1973.

The cost of shipping food by rail and truck has been trending upward but not at as fast a rate as the total bill, representing over 7 percent of the bill in 1973 (table 14). Intracity truck transportation or water and air transportation are not included. Costs have risen rapidly recently because fuel prices are higher and the supply of transportation services is down, stemming from reduced speed limits and fuel restrictions. Also cost of some types of labor has gone up.

Direct energy cost for food marketing firms, excluding transportation, accounted for an estimated 3 percent of the marketing bill in 1973. The wholesale price index for fuels and power gained 23 percent from 1972 to 1973, equal to the entire increase during the decade, 1962-72. Moreover, as oil supplies tightened in the latter part of 1973, energy costs led the rise in the cost of marketing inputs. In the first half of 1974, fuel and power costs continued increasing much faster than costs of other inputs.

In a look at profit components of the marketing bill, we find that total profits have increased over the years because volume of sales has grown. However, corporate profits per sales dollar (before taxes) of retailers, wholesalers, and processors combined fell in 1972, partly because of the Federal Government's economic stabilization programs. In 1973, such profits accounted for \$4.6 billion, or about 3.5 cents of each sales dollar, higher, than in other recent years.

As in the farm sector, the efficient performance of the product market sector has been disrupted in recent years. And like farmers, those who market farm products rely heavily on inputs. Sharply rising prices for energy-related inputs have been reflected in increasing costs for processing and distributing food and fiber products. The farm-retail spread for 1974 may widen one-fifth, more than double any previous annual rise during the past 25 years.

These recent events suggest possible future developments. That is, if input costs continue to rise, food cost will move upward at a much faster rate than in the past, particularly if the product market sector cannot achieve offsetting gains in productivity. Thus, it is critical that research identify impediments to productivity, further develop information to monitor performance, and point to ways for improved future performance.

Some possibilities for improved performance can be identified now. For example, productivity can be increased by better use of known technology. Much of this type of improvement will require improved coordination and cooperation among all segments of the food and fiber system—including Government. In the product market sector, further productivity growth could be achieved by overcoming several impediments:

- Inefficient labor-management practices
- Unreliable, costly transportation services
- Outmoded and excessive product handling between farm and consumer
- Disregard for possible benefits from container standardization
- Deficiencies in the coordination of warehousing and transportation functions

Development and adoption of the Universal Product Code and automatic checkout has allowed some progress in removing the last named impediment.

Other ways to improve productivity of the market sector can be cited. It has been fairly well established that centralized meat cutting can reduce meat marketing costs substantially. Though some firms have adopted this practice, labor-management agreements prevent realization of its full potential for the entire meat marketing subsector. Also, a number of studies have

demonstrated efficiencies that can be gained from using standardized containers and pallets for fruits and vegetables. Adoption would allow automated handling at all points in the distribution system, improved product quality, and savings in both time and labor costs. Yet, despite the evidence, this practice too is far from receiving universal acceptance and application by the industry.

The main job of improving productivity lies within the food and fiber system, but various levels of government can also help solve some of the problems. Government can, for example, continually review rules and regulations that may hinder productivity growth and develop labor and economic policies conducive to productivity growth.



CONSUMERS—THE ULTIMATE CLIENTELE

Thus far we have concentrated on the flow of goods and inputs through three of the sectors in the food and fiber system—farm, inputs, and product market. The fourth sector, consumers, completes the system. And by purchasing its output, they create future demand that continues the flow from the farm sector onward. Both

foreign and domestic sources purchase U.S. food and fiber products. But by far the major user is the American consumer. Domestic households took about four-fifths of the volume of these products in 1973; the remaining fifth went for export, feed, livestock, seed and industrial uses.

CONSUMERS

Expenditures

As their incomes rise and their numbers grow, American consumers have been expanding their consumption of food products. Per capita food use has been gradually rising too, reaching a peak in 1972. However, use dropped in 1973 as food supplies tightened and prices rose sharply.

During 1962-71, the rise in prices paid for farm food commodities was only about 2 percent annually. And the rise in retail food prices, including imported foods and meals eaten away from home, was about 3 percent yearly. In comparison, the Consumer Price Index for all items rose more than 3.5 per year while consumer income per person rose over 6 percent annually. However, in 1972, food costs rose 4 percent and in 1973, 14.5 percent, while consumer income went up nearly 7 and 12 percent, respectively (table 15).

Rising incomes and relatively low food costs also have enabled consumers to make major shifts in their spending patterns. The portion of disposable income spent for personal consumption expenditures (including durables, nondurables, and services) has declined slightly since 1950 because the share going for interest has gone up. But among the expenditures for personal consumption, consumers have been spending increasing amounts on services, such as medical care.

Expenditures for durable goods, such as automobiles and furniture, have remained at about the 1950 level, while the share of spending for nondurables, food and clothing, for example, has dropped significantly—mainly because food costs have dropped (table 16).

Consumers' Concerns

Thus, though expenditures for food have gone up because of rising prices and increasing consumption, spending for services has risen much faster and food's share has declined. Part of the increase in food expenditures has occurred because consumers have been shifting to more expensive foods. Most noticeable is the increase in the consumption of red meats (table 17).

To be responsive, the food and fiber system must both recognize and consider the changing requirements of the

Nation's consumers. "Consumerism," a fairly recent concept and issue, has definite implications. As a concept, it encompasses some generally agreed-upon goals, such as insuring product safety, providing shoppers with adequate, reliable information to make buying decisions, and maintaining product competition.

The forces that stimulate consumerism are numerous. Currently among them, the rapidly advancing cost of food is causing widespread consternation. Although they spend a little short of 16 percent of their total disposable income for food, consumers are considerably interested in what the food system does with this share. Not all of this 16 percent goes to purchase foods produced by U.S. agriculture. Consumer demand for imported foods and fish used up about 1.5 percent.

It is difficult to show how consumer expenditures on imported foods get divided up within the food and fiber system. For domestic goods, however, the allocation can be shown fairly well. For each dollar the consumer spent on foods from domestic agriculture in 1973, about 62 cents went to marketers to assemble, process, and distribute the food. About 38 cents went to farmers to produce the food (fig. 23).

Of the 62 cents going to the marketing system, 31 cents paid the wages and salaries of people directly employed in processing, distributing, and marketing. Purchased materials and services—such as containers, packages, and transportation—cost 20 cents. The remaining 11 cents went to cover business overhead and to capital—for interest, business taxes, depreciation, rent, and corporate profits.

Assuming that costs and returns for producing food products were about the same as for producing all farm commodities, farmers received 38 cents of the food dollar, disposed of as follows: 8 cents for farm operators' management and labor input and hired labor; 16 cents for purchased production materials (feed, fuel, fertilizer and so on) and services, and 14 cents for overhead and capital.

Because the marketing sector is relatively labor intensive, half the consumer's money retained by this part of the food system went for wages and salaries. In contrast, only about one-fifth of the consumer's money went for wages and salaries in the highly mechanized capital-intensive farm sector.

Table 15—Selected economic measures for the Food and Fiber System, compared with consumer income and the Consumer Price Index, annual 1962-73, rate of change 1962-71, 1971-72, and 1972-73

Year	Consumer price index					Farm value of food	Farm-retail spread	Per capita disposable income	
	All items	All items less food	Retail food					Current	Real
			All	At home	Away				
	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Index</i> 1967=100	<i>Dollars</i>	<i>Dollars</i>
1962	90.6	90.8	89.9	91.0	85.4	94.1	92.8	2,056	1,969
1963	91.7	92.0	91.2	92.2	87.3	90.2	95.1	2,138	2,015
1964	92.9	93.2	92.4	93.2	88.9	90.0	95.5	2,283	2,126
1965	94.5	94.5	94.4	95.5	90.9	99.2	93.9	2,436	2,239
1966	97.2	96.7	99.1	100.3	95.1	106.3	97.8	2,604	2,335
1967	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2,749	2,403
1968	104.2	104.4	103.6	103.2	105.2	105.3	102.5	2,945	2,486
1969	109.8	110.1	108.9	108.2	111.6	114.8	105.5	3,130	2,534
1970	116.3	116.7	114.9	113.7	119.9	114.1	113.4	3,376	2,610
1971	121.3	122.1	118.4	116.4	126.1	114.4	116.5	3,605	2,683
1972	125.3	125.8	123.5	121.6	131.1	125.1	118.9	3,843	2,779
1973	113.1	130.7	141.4	141.4	141.4	167.0	126.6	4,295	2,845
Average annual rate of change 1962-1971	3.7	3.7	3.1	2.8	4.4	2.2	2.6	6.4	3.5
Change for 1971-1972 ...	3.3	3.0	4.3	4.5	4.0	9.6	2.1	6.6	3.6
1972-1973 ...	6.2	3.9	14.5	16.3	7.9	33.5	6.5	11.8	2.4

Table 16—Disposition of disposable personal income, 1950, 1955 and 1960-73¹

Year	Dis-posable personal income	Interest paid by consumer	Transfer payments to foreigners ²	Personal savings	Personal consumption expenditures															
					Total	Durable				Nondurable					Services					
						Total	Auto-mobiles and parts	Furniture and household equipment	Other ³	Total	Food	Alcohol-ic beverages	Clothing and shoes	Gasoline and oil	Other ⁴	Total	Hous-ing ⁵	House-hold operation	Trans-portion	Other ⁶
Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1950	100.0	1.2	0.2	6.3	92.3	14.7	6.3	6.8	1.6	47.4	22.2	3.8	9.5	2.6	9.3	30.2	10.3	4.6	3.0	12.3
1955	100.0	1.7	.2	5.7	92.4	14.4	6.7	6.0	1.7	44.8	21.1	3.3	8.4	3.3	8.7	33.2	12.2	5.1	3.0	12.9
1960	100.0	2.1	.1	4.9	92.9	12.9	5.7	5.4	1.8	43.2	20.0	3.0	7.8	3.5	8.9	36.8	13.2	5.7	3.1	14.7
1961	100.0	2.1	.1	5.8	92.0	12.1	5.0	5.3	1.8	42.8	19.8	3.0	7.7	3.4	9.0	37.1	13.4	5.7	2.9	15.1
1962	100.0	2.1	.1	5.6	92.2	12.8	5.7	5.3	1.8	42.2	19.3	2.9	7.7	3.3	8.9	37.1	13.5	5.7	2.9	15.1
1963	100.0	2.2	.1	4.9	92.7	13.3	6.0	5.5	1.9	41.7	18.9	2.9	7.6	3.3	9.0	37.7	13.7	5.7	2.8	15.4
1964	100.0	2.3	.1	6.0	91.6	13.5	5.9	5.7	1.9	40.8	18.4	2.8	7.6	3.2	8.7	37.3	13.5	5.5	2.6	15.5
1965	100.0	2.4	.1	6.0	91.5	14.0	6.4	5.7	1.9	40.4	18.1	2.8	7.6	3.2	8.7	37.1	13.4	5.4	2.7	15.6
1966	100.0	2.4	.1	6.3	91.1	13.8	5.9	5.8	2.1	40.4	18.0	2.7	7.9	3.2	8.7	36.8	13.2	5.3	2.7	15.7
1967	100.0	2.4	.1	7.4	90.1	13.4	5.6	5.7	2.1	39.4	17.2	2.7	7.7	3.2	8.5	37.3	13.1	5.3	2.7	15.2
1968	100.0	2.4	.1	6.7	90.7	14.2	6.3	5.8	2.1	39.1	16.9	2.6	7.8	3.2	8.5	37.5	13.1	5.3	2.6	16.4
1969	100.0	2.5	.1	6.0	91.3	14.3	6.3	5.8	2.1	38.8	16.4	2.6	7.9	3.3	8.5	38.3	13.3	5.3	2.6	17.1
1970	100.0	2.4	.1	8.1	89.3	13.2	5.4	5.7	2.1	38.1	16.2	2.6	7.6	3.2	8.5	38.0	13.1	5.3	2.6	16.9
1971	100.0	2.4	.1	8.1	89.4	13.9	6.2	5.6	2.0	37.4	15.7	2.6	7.6	3.2	8.2	38.2	13.2	5.3	2.7	16.9
1972	100.0	2.5	.1	6.2	91.2	14.7	6.6	6.0	2.1	37.6	15.7	2.5	7.8	3.2	8.4	38.8	13.2	5.5	2.7	17.3
1973	100.0	2.6	.1	6.2	91.1	14.8	6.5	6.2	2.1	38.1	15.7	2.6	7.9	3.3	8.6	38.2	13.0	5.4	2.7	17.1

¹Derived from Personal Income and Outlay data of U.S. Department of Commerce. May not add precisely to totals shown because of rounding. Disposable personal income include wages and salaries, other labor income, proprietors' income, rental income, dividends, interest income, and public or private insurance benefits

less personal contributions for social insurance and personal tax and nontax payments. ²Personal gift of goods or money to foreigners. ³Includes wheel goods, durable toys, sports equipment, boats and pleasure aircraft. ⁴Tobacco products, toilet articles, semidurable house furnishings, paper products, fuel and ice, drugs and

nondurable toys, and sport supplies. ⁵Includes space-rental value of owner-occupied dwellings. ⁶Includes medical care services, clothing and shoe cleaning and repair, barbershop, beauty parlor, admission to spectator amusements, and service furnished without payment by intermediaries.

WHAT THE CONSUMER'S FOOD DOLLAR BOUGHT FROM THE FOOD AND FIBER SYSTEM IN 1973

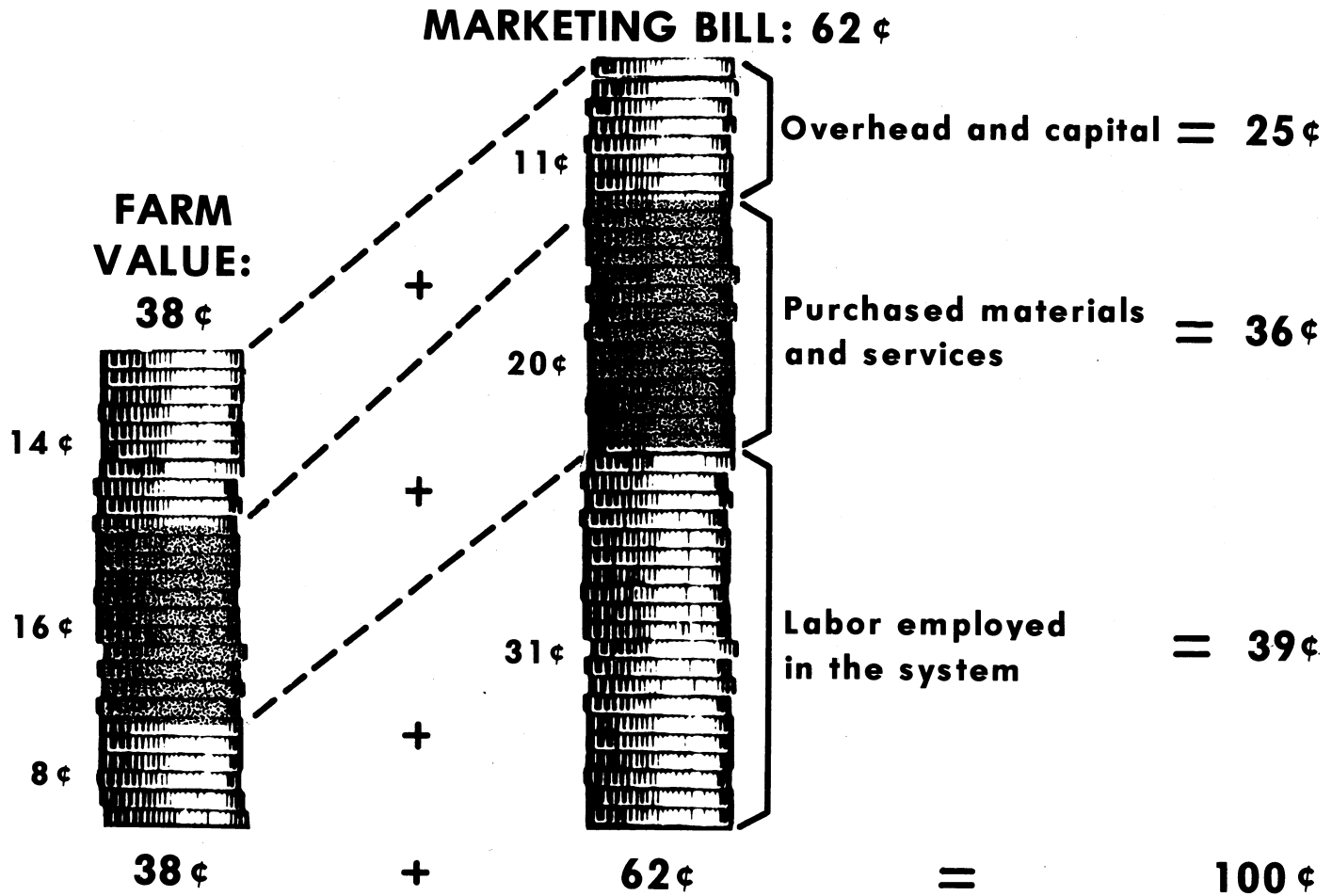


Figure 23

Table 17—Per capita consumption (retail weight equivalent) of all food, 1960-73¹

Year	Meat ²	Poultry	Fish ³	Animal products	Crop products	All foods ⁴
	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>
1960	146.9	34.6	13.2	633	807	1,440
1961	145.4	37.8	13.7	629	799	1,428
1962	147.1	37.4	13.6	628	790	1,418
1963	152.0	37.9	13.7	632	785	1,417
1964	155.7	38.9	13.5	634	784	1,418
1965	148.3	41.3	13.8	628	786	1,414
1966	151.4	44.3	13.9	631	796	1,427
1967	158.3	46.2	13.6	633	793	1,426
1968	162.4	45.8	14.0	638	806	1,444
1969	161.4	47.8	14.2	634	812	1,446
1970	164.6	50.1	14.8	633	814	1,447
1971	170.0	50.3	14.4	638	812	1,450
1972	166.5	52.5	15.3	638	813	1,451
1973 ⁵	154.6	50.5	15.6	619	819	1,449

¹Final consumer products from a combination of primary food groups, such as bakery products, are measured and reported in the form of their primary ingredients, such as flour, shortening, and eggs. Civilian consumption only. ²Includes game and edible offal. ³Includes 2.9 pounds per capita of game fish in 1960; 3.0 pounds thereafter. ⁴Includes spices and herbs. ⁵Preliminary.

Thus in the farm and marketing sectors together, wages and salaries accounted for about 39 cents of the consumer's food dollar, purchased production and marketing materials and services for 36 cents, and overhead and capital for 25 cents.

Other important forces contributing to consumerism are:

- Higher consumer income and educational level
- Barriers to communication of consumers' needs and concerns to the food and fiber system
- Consumers' lack of confidence in advertising, quality, warranties, and product safety
- Indifference and lack of response by industry
- Concern over environmental pollution
- Product proliferation, which makes decisions more difficult

Initially, consumerism focused attention on problem areas but proposed some actions unacceptable to industry. Recently, however, consumer groups and the food and fiber industries have worked more closely in laying out mutually acceptable actions and goals. Within this environment, research has been conducted to test many of the consumer proposals. Research, including

that conducted by the Economic Research Service, has shown what type of information is useful to consumer, what products should be included in various information programs, whether consumers understand and use the information provided, and what costs are incurred by various information programs. Results of ERS research on date labeling have been widely used. For example, legislation proposed in the Congress and the States has been modified from earlier versions to only include products which actually undergo changes over time. At the same time, many food processors and retailers have voluntarily instituted date labeling.

And the Future?

This Nation has long reaped the benefits of an efficient food and fiber system, one that provided an abundance of low-cost, good-quality food products that is unmatched by any other nation. But, as mentioned, recent developments have cast a shadow over the system's capability to continue this performance.

Demand for agricultural products has exploded around the world, reflecting rising incomes and growing populations. Shortages and high prices of energy-related inputs have reduced output. Transportation bottlenecks have hampered movement of products. And the farming sector, historically faced with overabundance and low product prices, feels some uncertainty about its ability to meet expanding food needs. There is every indication that this sector has the potential to produce food and fiber well in excess of domestic needs. But export demand continues to grow. And the effects of weather must be considered. Other factors, especially prospective developments related to energy and labor, point to rising production costs. The farm and product market sectors also will likely face such cost pressures. This combination of factors means that food costs may go up faster than in the past.

However, rising costs may well be offset by gains in productivity—within the entire food and fiber system. Past experience offers us considerable hope. Further research and development of information and technology by Government, university, and industry alike are critically needed to identify and monitor opportunities for improving total system performance—including productivity. Then steps can be taken, through applying research, information, and technology, to assure American consumers that our high-quality food and fiber will continue to be available in abundant supply, at reasonable cost.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101
FIRST CLASS

