

CHAPTER 5

Farm production inputs; their productivity; size of surpluses; prospect for future balance of production and consumption.

The Nation's Present and Future Supply of Farm Products

JAMES T. BONNEN

Michigan State University

PRODUCTION ON U.S. FARMS in the 1960's is characterized by far more complex organization than even a decade or two ago. U.S. society and its agriculture have changed dramatically. Farming is still experiencing a revolution in its technology and organization for which there appears to be no previous parallel in scope or speed. The self-sufficient family farm of the nineteenth century is being transformed into a commercial family farm so highly specialized that in many cases it produces only one product.

This technological and organizational transformation has greatly reduced the total labor requirements in U.S. farming and caused a vast expansion in many other re-

source needs. The minimum size of the total resources necessary for an efficient farm unit has grown greatly and continues to do so. This great growth in minimum capital needs may yet force major changes in the legal and organizational form of the typical U.S. farm. An increasing proportion of the resources used in farming are purchased from the nonfarm sector. This is due in part to the creation of completely new capital items (e.g., various pieces of machinery and equipment, insecticides, herbicides, and commercial inorganic fertilizers) but also to the substitution of nonfarm for farm produced power. Tractors, gasoline, oil, and electrical power equipment displaced and released for other uses the land, labor, and capital used to produce horses and mules and their feed.

All this has made farming far more dependent on the nation's commercial and industrial markets. No one commercial farm has a large enough share of the market to influence the price in the market by changing its production. But increasingly commercial farmers are forced to deal across markets with buyers and sellers many of whom, unlike the commercial farmer, exercise considerable market power.

It is in the nature of farming that production responds slowly to price change. Farming is not a continuous production process like many industries but is tied to biological growth and to the seasons of the year. Once the farmer has committed his resources in a particular season (after weather has had its way), production — for all practical purposes — is determined. No subsequent change in price during the growing season can have much effect on the total national production. Over two or more production periods the production of individual commodities is more responsive to price, although total farm production is still fairly unresponsive. It is far easier to transfer land, capital, and other resources from the production of one farm commodity to another than it is to expel resources from farming entirely or to draw new resources into farm production.

It is also true that a rise in prices pulls resources into farming more easily than resources may be squeezed out by the same percentage decline in prices. This phenomenon has long been observed.¹ Recent analysis of mobility of capital invested in farming and changes in use of resources accompanying downward price movements indicates very great if not insurmountable problems in squeezing out surplus resources through lower farm prices.² These characteristics of farm production make present income and surplus problems more difficult. New organizational forms and new technology have piled up products faster than farmers' capacity to adjust to such change. The net result has been overproduction, depressed incomes, and an apparent chronic imbalance between production and the consumption of many farm products.

FARM PRODUCTION, RESOURCE USE, AND PRODUCTIVITY

Production Outstrips Population Growth

Total farm production doubled between the end of the first World War and 1960. It has increased about 30 percent since the end of the second World War, with most of this, a 23 percent increase, coming in the decade following 1950. Over this decade U.S. population has grown from 151 to 180 million people, an increase of 19 percent. Thus farm production grew steadily though slowly during the three decades previous to World War II and then expanded far more rapidly during and after the war. Farm production has grown at a spectacular rate since 1950, even outstripping an unprecedented growth in population (Figure 5.1).

During the early 1950's crop production grew fairly slowly compared to the bounding expansion in the production of livestock and livestock products. However, during

¹ John K. Galbraith and John D. Black, "Maintenance of Agricultural Production During Depression: The Explanations Reviewed," *Journal of Political Economy* 46:305-23, 1938.

² Glenn L. Johnson, "Supply Function — Some Facts and Notions," in *Agricultural Adjustment Problems in a Growing Economy*, (by E. O. Heady, et al.), Iowa State University Press, Ames, 1958, pp. 74-93.

TABLE 5.1
INDEX OF PRODUCTION OF FARM PRODUCTS, 1910-1959*
(1947-49 = 100)

Commodity groups	1910	1920	1930	1940	1950	1958	1959†
Crops.....	69	83	76	85	97	118	118
Feed grains.....	90	100	73	85	104	135	142
Hay and forage.....	74	92	75	105	106	122	115
Food grains.....	52	70	72	67	83	117	93
Vegetables.....	56	68	79	88	102	108	103
Fruits and nuts.....	53	73	75	96	101	109	117
Sugar crops.....	80	107	88	109	117	122	135
Cotton.....	82	94	98	88	70	80	103
Tobacco.....	55	73	81	72	101	86	89
Oil crops.....	9	15	23	56	115	180	161
Livestock and livestock products.....	60	64	78	87	107	124	130
Meat animals.....	66	68	78	89	109	124	134
Dairy products.....	58	65	84	92	101	111	111
Poultry and eggs.....	47	49	65	70	111	145	150
Total farm production.....	61	70	72	82	101	124	126

* "Changes in Farm Production and Efficiency: A Summary Report," *Statistical Bulletin 233*, USDA, Washington, D.C., July 1960.

† Preliminary.

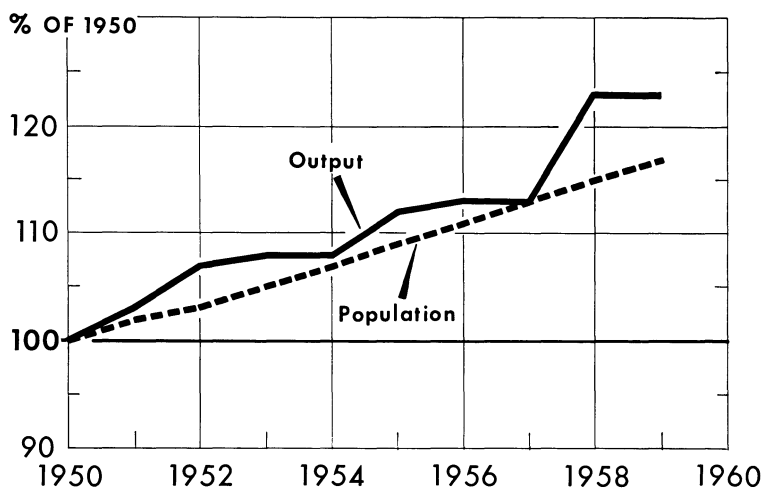
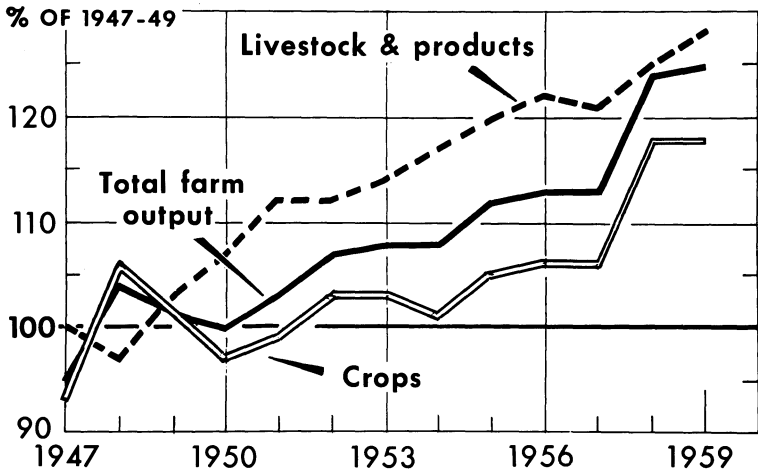


Fig. 5.1 — U.S. population and farm output.



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Fig. 5.2 — Farm output in the United States.

the latter half of the decade of the 1950's the growth of livestock production slowed and crop production expanded more rapidly than the production of livestock and livestock products. Over the decade as a whole, livestock and livestock products have expanded somewhat more than crop production (Figure 5.2).

The greatest post-World War II increases in the production of individual farm commodities have been in soybeans, poultry meat, sugar beets, corn, beef, and rice (Figure 5.3). More modest increases have occurred in the production of citrus fruit, other fruits, and eggs. Cotton production has varied greatly but there is no upward trend. Potato production levels are also about at the same level as in the immediate post-World War II years. The levels of production have actually declined for wheat, peanuts, and tobacco. It should be noted there is no general correlation between increases in production and commodities with surplus difficulties.

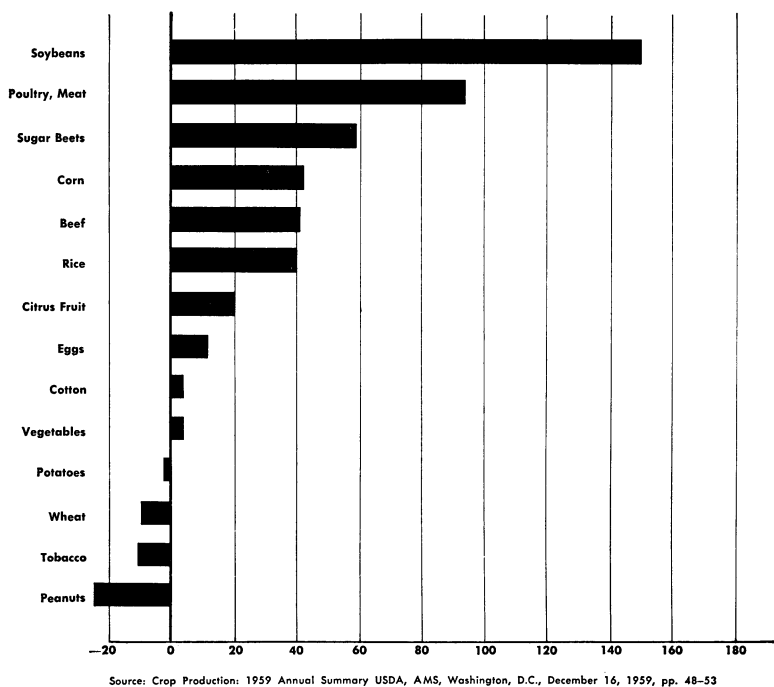
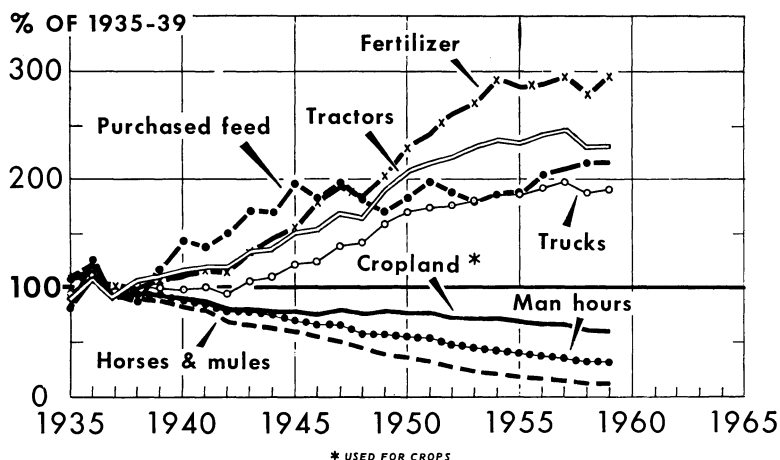


Fig. 5.3 — The percentage of change in production for U.S. farm commodities, 1947-49 to 1959.

Labor Used on U.S. Farms Cut One-Half

The revolution in farm organization and technology has had profound effects upon the nature of some of the resources going into farming and the mixture of these resources used today as compared even with a generation ago (Figure 5.4). The total amount of labor used in farm production has been reduced by more than half, or from around 24 billion man-hours in 1920 to 11 billion man-hours in 1959. Most of this decline has occurred since 1940 when 20.5 billion man-hours of labor were still being used in farming.



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Fig. 5.4—Selected resources used per unit of U.S. farm output.

Since 1920 the farm population has declined by slightly more than 11 million people, or 35 percent. To offset farm population growth and accomplish this reduction in population, better than 26 million people migrated from farms over the period since 1920. Eighteen million of these people migrated after 1940. Since 1940 farming has experienced some of the highest rates of migration in its history, yet in the judgment of many economists there is still more labor in farming today than is currently needed.

The opportunity to move labor resources out of farming are not likely to be as good in the 1960's and 1970's as they were in the forties and fifties. Since 1930, the number of persons annually reaching eighteen years of age has varied between 2 and 2.5 million persons. Thus the number entering the labor force each year has not grown as the economy has expanded. Migration from farms has been the main source of labor needed to fill the many new nonfarm jobs created by growth. However, a sharp rise in the annual

number of new entrants to the labor force has begun. As Karl Brandt points out in Chapter 2, by 1965 the number of persons annually reaching eighteen years of age will have risen to 3.8 million. By 1975 there will be more than 4 million per year.

The potential farm migrant obviously faces greater competition for nonfarm jobs in the years ahead. It will be a competition in which the farm person typically is handicapped by a lower level of education just when automation in industry and commerce is forcing higher average requirements of education and training.

In addition to the new technologies, improved quality of farm labor and management made the transformation of farming possible. Although still lagging behind the urban population in education, farm people today are obtaining more training and education than they ever have. In 1957 about 43 percent of all farm people between 25 and 34 years of age had finished high school and between 2 and 3 percent had finished college. For the U.S. population as a whole, including farm people, 58 percent of this same age group had finished high school and 10 percent had finished college.³

One of the more unique aspects of farming, and one which underlies some of its more difficult problems, is the fact that labor, management, and even equity ownership of a typical family farm is combined in the same individual. Thus as the quality of farm labor has been improved through training and education so too has management. As with total farm labor, the number of farms, have been reduced particularly rapidly since World War II. In 1940 there were 6.4 million farms by census definition. These had declined to around 4.6 million by 1959, of which probably no more than 2 million were truly commercial family farms.

The total land area in farms changed hardly at all since

³ Bureau of the Census, *Current Population Reports*, Washington, D.C., Series P-20. No. 77.

1935. Total cropland has not varied significantly from 400 million acres since 1920. Actual acres of cropland harvested has been reduced some since World War II (Figure 5.5). For a time the area of open and wooded pasture appeared to be growing slowly, but by 1960 it did not seem to be expanding. We have continued our attempts to improve the quality of the land we do use. In addition to major river basin and other land development investments, individual farmers are improving their land through investment in such things as drainage, terracing, leveling, and primary and supplemental irrigation. In 1940 only 18 million acres of U.S. farmland were irrigated. By 1959 about 32 million acres were under irrigation. Two-thirds of this acreage is in the West.

Increased fertilizer applications continue to expand the capacity of the land on which it has been applied. Fertilizer use has expanded particularly rapidly in the post-World War II years. In 1920 one million tons of plant

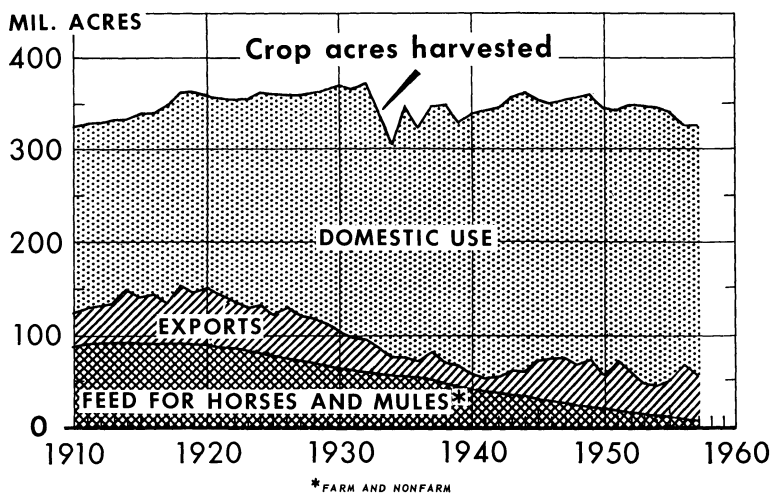


Fig. 5.5 — Uses of harvested U.S. cropland.

nutrients were used in agriculture. By 1959 fertilizer use had grown more than sixfold to about 6.5 million tons of plant nutrients annually. The use of lime on farms expanded almost ninefold between 1920 and 1959. In the early 1960's we were using over 22 million tons annually.

Power and Equipment Transform U.S. Farms

At the time of World War I the source of power for the U.S. farm was for all practical purposes limited to human and animal power. The U.S. farm in the 1960's is powered only to an insignificant extent by horses and mules and by less than half the annual human (man-hour) labor used during World War I; but the farm now uses billions of kilowatts in electrical energy and millions of deisel and gas powered combustion engines. In contrast to a peak inventory of more than 26 million horses and mules during World War I, we now have only 3 million horses and mules on farms.

In 1935, when statistics on farm use of electrical energy were first gathered, only 11 percent of all U.S. farms were using electrical power supplied by central generating stations. Today more than 95 percent of all our farms have such power. Over the same period the total amount of electrical power used annually on farms has risen from 1.7 to well over 22 billion kilowatt hours. The average amount of energy consumed per farm has tripled in the post-World War II years.

Tractors were introduced on farms during the first decade of this century. By 1920 U.S. farmers were operating a quarter of a million tractors. By 1940 this had increased sixfold to 1.5 million tractors. In 1960 there were 4.75 million tractors on U.S. farms.

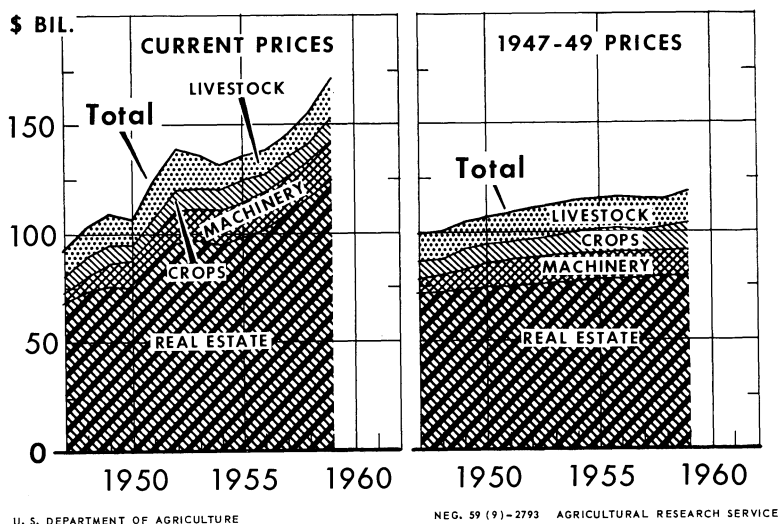
The automobile and the motor truck began to appear on U.S. farms soon after 1900. By 1960 there were 3 million trucks on farms, twice the number of 1945 and about three times the number on farms just before World War II. There were a million automobiles on U.S. farms

by the end of World War I. The number of automobiles grew steadily until World War II; since that time the farm auto inventory has remained at a level of around four and a quarter million automobiles.

The development of the internal combustion engine fostered many new forms of farming equipment. To mention only a few of them, U.S. farmers in the 1960's are using over a million grain combines, three-quarters of a million corn pickers, well over half a million pickup balers, and a quarter of a million field forage harvesters. Almost three-quarters of a million U.S. farms are equipped with milking machines. Seventy-five percent or more of all of this equipment inventory has appeared on the American farm scene since 1940.

This technical and organizational transformation greatly increased the minimum set of physical assets necessary to organize an efficient farm. We have no direct way of measuring this, but changes in actual assets give some indication. During the 1950's the total value of physical assets in farming (measured in 1947-49 dollars) increased about 15 percent (Figure 5.6). This represents an increase in the average value of real assets per farm worker of 55 to 60 percent. Since there has been something like a 19 percent decline in the number of farms (census definition) over the decade of the 1950's, the statistics indicate an average increase in assets per farm of about 40 percent. However, both the increase in assets per farm and assets per worker probably overstate the case considerably.

The reduction in number of farms and farm workers during the fifties came predominantly from the less productive U.S. farms which typically control very few assets. Even if all their assets were redistributed to the remaining farms very little would be added to the average stock of assets of remaining farms. Dropping farms that have few assets from the computation of an asset average leaves the unjustified impression that assets held by the rest have risen. It is more likely that the increase in real assets per



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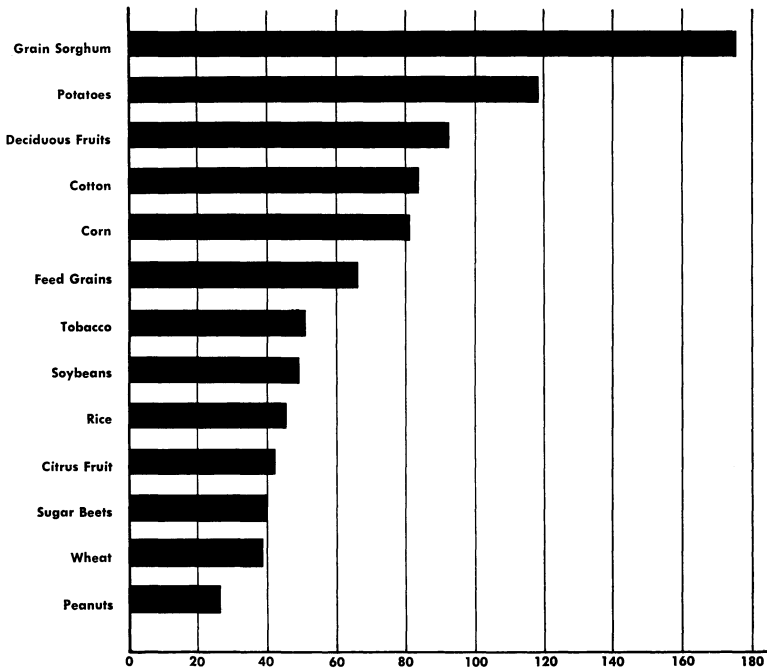
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Fig. 5.6 — Value of physical farm assets in the United States.

farm is more nearly the same as the increase in total assets in farming. One might assume that real assets per farm have grown no more than 25 percent over the decade and that real assets per worker have grown perhaps as much as 30 to 35 percent over the same period. Since economic conditions and technology have affected different types of farms quite differently, the increase in assets varies greatly between types of farms. However, on all types of farms, the amount of resources necessary for an efficient farm has grown greatly and continues to do so.

Productivity

Farm productivity in the United States has risen at an unprecedented rate since the midthirties. Crop yields have grown at a magnificent pace (Figure 5.7). This has been particularly true of grain sorghums, potatoes, cotton, fruit, and corn. The USDA over-all index of crop production per acre indicates a 40 percent increase from 1940 to 1959.



Source: Crop Production: 1959 Annual Summary USDA, Washington, D.C., December 16, 1959, pp. 46-47
 Crop Production: 1956 Annual Summary USDA, Washington, D.C., December 17, 1956, pp. 40-41

Fig. 5.7 — The percentages of increases in U.S. crop yields, 1940-59.

Livestock production per unit of breeding stock increased 36 percent over the same period. For each unit of resources used (land, labor, and capital combined), farm production rose 47 percent from 1940 to 1959.

When productivity is expressed in terms of labor used in farming the result is quite different — and much higher. Total farm production per man-hour of labor rose 185 percent between 1940 and 1960. The increase has been much less per man-hour for livestock and livestock products (about 89 percent) contrasted with crop production per man-hour which increased 203 percent since 1940.

These increases in farm productivity have profound

meaning for the U.S. society. One requirement for transforming an agrarian society into one predominantly industrial is the marked decline in the proportion of the total labor force needed to produce food for the society. The classical Industrial Revolution began in this country in the middle decades of the last century. By 1875 no more than half of the U.S. labor force was employed in farming. By the turn of the century the proportion of our total labor force in farming had declined to about one-third, and by 1920 it was down to one-fourth of the total labor force. By 1960 only 8 percent of our total labor force was engaged in farming, and the outlook points toward a further decline.

What this has meant to our economy in changes and increased capacity is perhaps easiest seen by contrasting our present situation with that of the Soviet Union. With a total labor force in 1959 of almost 115 million persons, as contrasted to slightly more than 72 million in the United States, Russia faces labor shortages which by their own admission severely hamper the continued rapid economic growth of the Soviet Union. The Soviet Union uses 40 to 50 percent of their total labor force just to produce their food. The Soviet Union in 1959 also had better than a million more men in their armed forces than we had in ours. Soviet labor force statistics are uncertain figures at best; but it is probable that the Soviet Union has available for industrial, commercial, and service type employment fewer workers than are available to the United States from a far smaller total labor force. This is the result primarily of a vast difference in farm productivity between the two nations.

The Soviet Union would probably be happier living with the surplus problem which is associated with our rapid increases in farm output and productivity than with the shortages and limitations to further economic growth which their far lower farm productivity has forced upon them.

THE SIZE OF THE SURPLUS

How large were the U.S. farm surpluses as we entered the 1960's? How big an adjustment would be involved in the elimination of the flow of surplus commodities? Before attempting an answer to these questions, an important distinction should be made between a *stock* of commodities on hand at any one point in time and the *flow* of commodities produced over a period of years.

When one is concerned with the impact of surplus upon the price of a commodity at any given point in time, it is the existing *stock* of that commodity in commercial and government hands that has the important economic impact. Expectations about the approaching harvest are, of course, of increasing importance the closer one gets to harvest time.

On the other hand, when someone speaks of adjusting the farm organization and its resources used in farming in order to eliminate or reduce surpluses and to raise farm incomes, he should be concerned with the *flow* of excess production over time. The longer the period of time under consideration the more important become the flows of commodities being produced.

Carryover Stocks

Three commodities, wheat, cotton, and corn, constituted the bulk of surplus stocks in 1960. In 1952, during the Korean War, carryover stocks were at either exceedingly low levels (cotton and wheat) or at very reasonable levels (corn). By 1956 carryover stocks clearly had grown to excessive levels and have remained so since. (See Chapter 4, Figure 4.12.)

In the summer and fall of 1960 the carryover consisted of 1.3 billion bushels of wheat, 7.6 million bales of cotton, and 1.9 billion bushels of corn. This represents 130 percent of a full year's consumption and export needs for

wheat, almost 60 percent of a full year's needs for cotton and around 60 percent of a full year's requirements for corn. What portion of these supplies are in surplus?

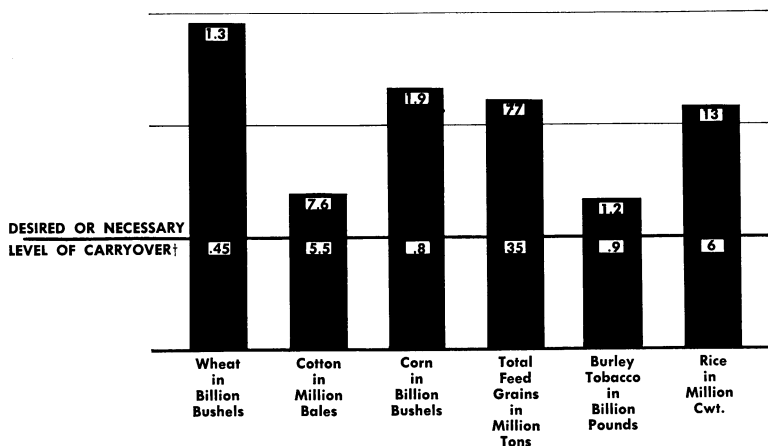
Besides annual domestic consumption and export requirements, additional supplies are needed as protection against the uncertainties of the world, particularly war and crop failure. How much of a hedge should we have against the hazards of an uncertain world? Professor M. R. Benedict of the University of California provides one answer to this complicated and difficult question. It is his judgment that we should probably maintain carryovers of around 800 million bushels of corn, 400 to 500 million bushels of wheat, and 5 to 6 million bales of cotton.⁴ Somewhat similar estimates were made in a USDA study of reserve levels for storable products. Both the USDA study and that of Benedict take into consideration yield variation, demand variability, "pipeline needs," war contingency reserves, and storage costs.⁵

We had a carryover of 1.5 billion bushels of corn on October 1, 1959. Production was so great during the 1959-60 crop year that the carryover jumped to 1.9 billion bushels of corn by October, 1960. Thus carryover grew from 45 percent of a total year's usual requirements for domestic consumption and export to around 60 percent of a year's requirements. Benedict estimates that we need carryover stocks of only one quarter of a total year's consumption and export needs. Well over half of our current carryover stocks are surplus.

In July 1960, the carryover of wheat into the 1960-61 crop year was over 130 percent of an average year's con-

⁴ M. R. Benedict, "Current Imbalance of Supply and Demand for Farm Products," *Policy for Commercial Agriculture: Its Relation to Economic Growth and Stability*, Joint Economic Committee, 85th Congress, 1st Session, Washington, D.C., 1957.

⁵ Karl Fox and O. V. Wells, "Reserve Levels for Storable Products: A Study of Factors Relating to the Determination of Reserve Levels for Storable Farm Products," *Senate Document No. 130*, 82nd Congress, 2nd Session, Washington, D.C., 1952.



*Current carryover data from USDA Commodity Situation reports

†See footnotes 4 and 5 to text

Fig. 5.8 — Carryover into the 1960–61 crop year of U.S. farm commodities as compared to the “desired” or “necessary” level of carryover.

sumption and export requirements or slightly less than 1.3 billion bushels. According to Benedict, 40 to 50 percent of a year’s requirements approximate the “desired” or necessary level of carryover. By this standard, two-thirds of our present carryover stock is surplus. By July, 1961 the crop year carryover for wheat is expected to reach 1.5 billion bushels.

Benedict considers 5 to 6 million bales of cotton the “desired” level of carryover. We actually had 7.6 million bales at the end of the crop year on August 1, 1960. Thus, well over a third of the carryover was surplus stock. Cotton carryover stocks have declined steadily since the peak of 14.5 million bales in August, 1956.

In general, one-third of the cotton carryover, more than half of the corn carryover, and two-thirds of the wheat carryover are clearly in excess of current needs and may be

described as surplus. These three commodities account for 85 to 90 percent of the Commodity Credit Corporation investment in inventory.

Other commodities also exhibit excess carryovers. What has been said about corn holds true for feed grains in general. This is partly because corn constitutes the bulk of all feed grain supplies. Also as allotments have limited the acreages of many other crops, barley, oat, and grain sorghum production has been increased.

An all-time record for feed grain, 67.7 million tons, was carried into the 1959-60 crop year on October 1, 1959. The carryover rose to 77 million tons by October, 1960. As with corn, this is better than twice the carryover that can be justified. There is every indication that the increasing carryover trend will continue.

Stocks of rice became excessive in 1955 and rose to a peak in 1956 of 35 million hundredweight — six to seven times larger than what might be described as reasonable or “desirable.” The carryover of rice from the 1959-60 crop year was 13 million hundredweight, still two to three times a normal level. Carryover level for rice is expected to decline to around 9 million hundredweight by August, 1961.

Tobacco stocks have been very large in recent years but in 1960 seemed to be adjusting slowly downward as the industry accepted increasingly stringent acreage limitations. Due to the nature of the curing process, the tobacco industry has a normal carryover of around a one and one-half to two years supply of tobacco. In 1960 the carryover of flue-cured tobacco was within this range. Burley tobacco carryover, however, amounted to just under a two and one-quarter year supply — clearly too large.

Except for cotton and tobacco, well over half the carryover maintained in these commodities is in excess of the nation's needs. This means that at least two-thirds of the Commodity Credit Corporation holdings of farm commodities

and perhaps as much as three-quarters is pure surplus stock under 1960 conditions.

Stocks, however, are not the most important dimension of the surplus. The really crucial element over the long run is the existence of a continuing annual production in excess of regular commercial consumption and exports. If there were no flow of excess production to be faced, carryover stocks, even much larger than those of 1960, would mean little more than some few years of inconvenience and cost to farmers and society.

The Annual Flow of Surplus Production

The relationship between production and consumption of farm products today is out of balance, and chronic, not temporary, over-production plagues U.S. farmers.⁶ How large is the imbalance between U.S. farm production and consumption? Research by Dale E. Hathaway and John F. Stollsteimer indicates that from the Korean War through 1956, 8.7 percent of the total U.S. farm production was in excess of what the commercial market handled at prevailing commercial market prices.⁷ Statistics in the Commodity Credit Corporation monthly "Report of Financial Condition and Operations" indicate that the 8.7 percent annual imbalance has not declined. Very rough calculations indicate that Commodity Credit Corporation gross removals from the market averaged over 9 percent of all farm production in the 1957-58 crop year and close to 11 percent of all farm production in the 1958-59 crop year. No more recent data are available at this writing.

The degree of imbalance between production and con-

⁶ James T. Bonnen, "American Agriculture in 1965," *Policy for Commercial Agriculture: Its Relation to Economic Growth and Stability*, Joint Economic Committee, 85th Congress, 1st Session, Washington, D.C., 1957, pp. 145-56.

⁷ Dale E. Hathaway and John F. Stollsteimer, "The Impact of Price Support Programs Upon the Available Supplies of Farm Products, 1948-56," *Tech. Bul. No. 277*, Mich. Agr. Exp. Sta., East Lansing, May 1960.

TABLE 5.2

ANNUAL FLOW OF SURPLUS PRODUCTION AS A PERCENT OF TOTAL PRODUCTION
FOR VARIOUS FARM COMMODITIES*

Commodity	Crop marketing year					1952-56 Av.
	1952	1953	1954	1955	1956	
Food grains†	27.7	38.5	44.0	36.4	19.4	33.1
Feed grains‡	9.2	12.3	10.7	11.7	10.4	10.9
Cotton	11.0	28.4	11.8	41.0	27.6	24.1
Tobacco	5.2	4.2	9.4	3.5	6.4	5.7
Dairy products	0.2	6.8	6.1	3.1	3.5	4.0
Oilseeds§	4.2	11.6	7.1	2.1	12.1	7.6
All farm products	6.3	10.8	8.8	9.6	7.5	8.7

* The figures in this table are computed by dividing annual gross CCC removals by the index of farm production for the various commodities over their relevant marketing years. The data for the table come from Dale E. Hathaway and John F. Stollsteimer *op. cit.*

† Food grains include wheat, rye, and rice, but only wheat and rice are of any significance.

‡ Feed grains include corn, oats, barley, and grain sorghums.

§ Oilseeds include peanuts, flaxseed, and soybeans.

sumption differs greatly among farm products. The largest annual surplus flow occurred in food grains, cotton, and feed grains, in that order (Table 5.2).

Between mid-1952 and mid-1957, the Commodity Credit Corporation, on the average, took off the commercial market each year 33 percent of all wheat and other food grains. In short, at prevailing commercial market prices, we have been producing 50 percent more food grains (primarily wheat) each year than the market will handle at those prices.

Each year on the average between mid-1952 and mid-1957, 24 percent of all the cotton produced went to the Commodity Credit Corporation. In other words, we have been producing almost one-third more cotton each year than the commercial markets can handle at prevailing prices. Much of what went into the Commodity Credit Corporation was disposed of at less than market price and the rest added to carryover.

Over the same period, corn and other feed grains moved into or through Commodity Credit Corporation hands to the extent of about 11 percent of the volume produced.

Over the same period, the volume of tobacco moving into or through Commodity Credit Corporation hands each year equaled 5.7 percent of all the tobacco produced.

Significant amounts of butter, cheese, and powdered dry milk have been purchased by the Commodity Credit Corporation over the past few years. Between mid-1952 and mid-1957 this flow of Commodity Credit Corporation purchases averaged 4 percent of the total volume of milk produced on the farm.

The best indication we have of the economic imbalance between production and consumption is the annual flow of production going to the Commodity Credit Corporation. This volume of Commodity Credit Corporation purchases divided by total farm production provides a measure of the relative size of the annual flow of farm products which commercial markets cannot (or at least do not) handle at prevailing commercial prices. Between mid-1952 and mid-1957 the total flow of farm products going into or through the Commodity Credit Corporation averaged 8.7 percent of total farm production. This is the best measure we have of the relative size of the annual economic surplus.

We have been able to dispose of much of this annual flow of surplus production through extraordinary governmental measures. Over the period of the 1952 through 1956 crop years, Hathaway and Stollsteimer's figures indicate that well over half the commodities taken off the market by the Commodity Credit Corporation were eventually used primarily abroad through extensive export subsidy, free donation, and barter, and to a lesser extent at home in domestic school lunch and welfare program distributions of food.

To be specific, 1.5 percent of annual production was disposed of here at home and 3.4 percent of annual production was disposed of abroad by the Commodity Credit Corporation. As a result of these disposal programs only 3.7

percent of annual farm output has been added to Commodity Credit Corporation stocks each year. Extraordinary efforts such as these do not reduce the basic imbalance. They only absorb temporarily a portion of the flow of farm commodities.

Most of these emergency programs show some sign of becoming permanent features of our foreign aid and domestic social investment and welfare policies. If this happens the volume of commodities handled in such programs will certainly cease to be considered part of an economic surplus.

THE FUTURE BALANCE BETWEEN PRODUCTION AND CONSUMPTION

Is this fundamental imbalance between production and consumption likely to widen or grow smaller by 1965 or by 1975?

Many things condition long run changes in the production and consumption of farm products. Population increase is the largest single factor in the growth of consumption. In 1959 U.S. population stood at 177 million persons. By mid-1960 it was about 180 million. The Bureau of the Census has projected total population to be 196 million persons by 1965, a 9 percent increase in population over 1959.⁸ The post-World War II evidence of trend is inconclusive but increases in per capita consumption could add 1 to 2 percent to consumption by 1965. Thus, total food consumption should increase at a minimum 10 percent and most probably about 12 percent between 1959 and 1965. Total food consumption could increase by as much as 14 percent by 1965 under the most favorable of conditions.⁹

Estimates of the impact of organizational and tech-

⁸ Meyer Zitter and Jacob S. Siegel, "Illustrative Projections of the Population of the United States, by Age and Sex, 1960 to 1980," *Current Population Reports*, U.S. Bureau of the Census, Series P-25, No. 187, November 1958. This is the census projection Series II which assumes a continuation of the 1955-57 level of fertility.

⁹ See the discussion in Chapter 4.

nological change on farm production have been constructed.¹⁰ These estimates indicate that, using the same amount of resources (i.e., land, capital, livestock inventory) U. S. farmers could easily produce 15 percent more by 1965. Implied here is a potential increase in our excess production flow by 1965 to around 13 to 14 percent of total farm production per year. Of course, some rather drastic things, both political and economic, very likely would happen before an annual imbalance got that large. But this is a good indication of the pressures to which the farmer, and U.S. agriculture generally, is likely to be subjected during the 1960's.

Consider the specific cases of three major surplus crops: wheat, cotton, and corn. Despite the increase in population, total domestic wheat consumption and export requirements should remain near present levels or possibly decline slightly. Yet it is expected that by 1965, as a result of yield increases, we shall be able to produce 5 to 10 percent more wheat on present acreage.¹¹

Total annual cotton requirements for 1965 will remain near the present level of 12.5 to 13 million bales. The expected yield increase in cotton production comes to around 18 percent, lifting average U. S. cotton yields to more than a bale of cotton per acre by 1965. Naturally, when this is combined with existing overcapacity, one can see that continuing pressure will be placed on the human and other resources engaged in the production of cotton.

Substantial increases in livestock inventories are expected by 1965. This should be the most rapidly expanding major sector of farm production. As a result, 10 to 12 percent more feed grains will be needed by 1965. However, we overproduced by about that much in 1960, and feed grain

¹⁰ James T. Bonnen, "American Agriculture in 1965," *Policy for Commercial Agriculture in Its Relation to Economic Growth and Stability*, Joint Economic Committee, 85th Congress, 1st Session, Washington, D.C., 1957, pp. 145-56.

¹¹ James T. Bonnen, *op. cit.* The data on specific commodities in the following paragraphs are from this same source.

yields can be expected to increase another 5 to 10 percent by 1965. Thus, the imbalance between production and consumption in feed grains will continue.

By 1965, total milk consumption is expected to be 5 to 8 percent over 1959. Milk production per cow should increase at least 10 percent. With an average annual imbalance between production and consumption of milk of around 4 percent per year, this will add significantly to the economic pressure on the average dairy farmer.

In none of the major farm commodities in surplus in 1960 will the pressure of excess capacity lessen before 1965. Our capacity to produce will continue to grow more rapidly than consumption, thus potentially enlarging the present imbalance and increasing the resulting flow of surplus production.

A study by R. P. Christensen, S. E. Johnson, and R. V. Baumann of the USDA elaborates much the same conclusions for wheat, feed, and livestock relationships over the period of 1960 to 1965.¹² Although he discusses primarily the growth of demand, a study by Rex Daly also implies about the same conclusion for 1965.¹³

The prospect for a lessening of the pressures of excess capacity by 1975 appear only a little better than for 1965. Naturally, analysis and conclusions for 1975 are subject to far more uncertainty than those for 1965. A number of analyses have been published for 1975.¹⁴ Census projections of population indicate a population of 235 million persons by 1975, an increase of 33 percent over 1959. Total consumption of farm products, under the most reasonable as-

¹² R. P. Christensen, S. E. Johnson, and R. V. Baumann, "Production Prospects for Wheat, Feed, and Livestock: 1960-65," ARS 43-115, USDA, Washington, D.C., December 1959.

¹³ Rex F. Daly, "Prospective Domestic Demands for Food and Fiber," *Policy for Commercial Agriculture: Its Relation to Economic Growth and Stability*, Joint Economic Committee, 85th Congress, 1st Session, Washington, D.C., 1957, pp. 108-18.

¹⁴ See References for writings by Barton, Daly, and Rogers.

sumptions, should increase between 35 to 40 percent from 1959 to 1975. Yet in many cases the yields of individual commodities are still expected to rise faster than the growth in the consumption of the commodity.

The imbalance of production and consumption of farm products could be eliminated under certain conditions which are not now anticipated or considered in most projections. Any war, even on a localized scale such as the Korean War, would turn our surplus flows and stocks into real assets. Domestic social investment and welfare programs on a larger scale and put on a permanent policy basis could add appreciably to domestic consumption of farm products. Of even greater potential would be a serious and sustained program of economic aid on an unprecedented scale for the underdeveloped nations of the free world. It is easy to see a major role in such an effort for food and fiber products from U.S. farms. Many major shifts in public policy such as these could close the surplus gap appreciably, but they would have to be major changes. Also, sustained droughts of a widespread nature, such as those of the 1930's, could temporarily halt the additions to surplus stocks and perhaps even reduce present carryover stocks.

Barring the calamity of war, or a sustained general drought, or drastic changes in public policy, by 1965 or 1975, surplus production of some degree is likely to be a continuous and prominent feature of U.S. farming. Going into the 1960's, well over half the carryover stocks were pure surplus. Each year about 9 percent of all farm production goes to the Commodity Credit Corporation. About 60 percent of this surplus flow is eventually disposed of by being given away or sold at well below commercial market prices. The most reasonable expectation is that the annual flow of surplus production will grow larger. Clearly the pressures on the returns earned by people and resources in farming will become more intense over the years ahead.

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