

AGRICULTURE IN A CHANGING ENVIRONMENT

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In a February issue of the Wall Street Journal, there was an article entitled, "Fading Farm Bloc." This article discussed the shift in political power of recent years resulting in declining power for agriculture in Congress. This is, of course, a function of agriculture's changing position in the economy and the rise of new and more pressing challenge out of that change.

Total gross farm income in the U.S. exceeded \$47 billion in 1968 but accounted for less than 6 percent of the total gross national product. Farm population in 1968 represented 5.3 percent of the total population and was only 1/3 the farm population of 1940. The number of farms has declined from nearly 6 million in 1945 to just over 3 million in 1968.

Farm Inputs and Production Changing

Farm inputs have been changing significantly as has production. The farm labor force in 1968 was less than half the level of 1950, mechanical power and machinery was up by about 1/3, and fertilizer and liming material inputs were increased by over 3 times in the past 20 years. Total estimated physical inputs have only risen about 10 percent since 1950, while output has climbed over 40 percent, indicating the increasing efficiency of production (see Figs. 1 and 2).

Output has had similar interesting changes. Cattle numbers have risen to unprecedented heights of over 109 million with heavy emphasis on production of beef while dairy herd numbers continue to decline. Increased productivity has permitted consumption of beef per capita to rise to 109 pounds from about 65 pounds in the early 1950's. Corn production is nearly double the levels prior to 1940 with yields increased about 2 1/2 times. Wheat yields are nearly double the pre-World War II levels, and cotton yields are more than double.

Capital Requirements High

As farm numbers and farm labor have declined, capital inputs and farm size have increased significantly. Farms with sales exceeding \$40,000 were 2.9 percent of the total in 1960 and accounted for one-third of the cash receipts from farming. In 1968, there were 6.4 percent in this category, and they accounted for nearly one-half of the total cash receipts. Commercial farms (farms with gross sales exceeding \$2500) had an estimated average value for the 48 states of \$100,400 in 1968, up from \$74,400 in 1964. In Arizona the 1968 value was placed at \$556,900. U.S. farmland values rose by 70 percent in the last decade.

Market Competition Increasing

Synthetics and other product inno-

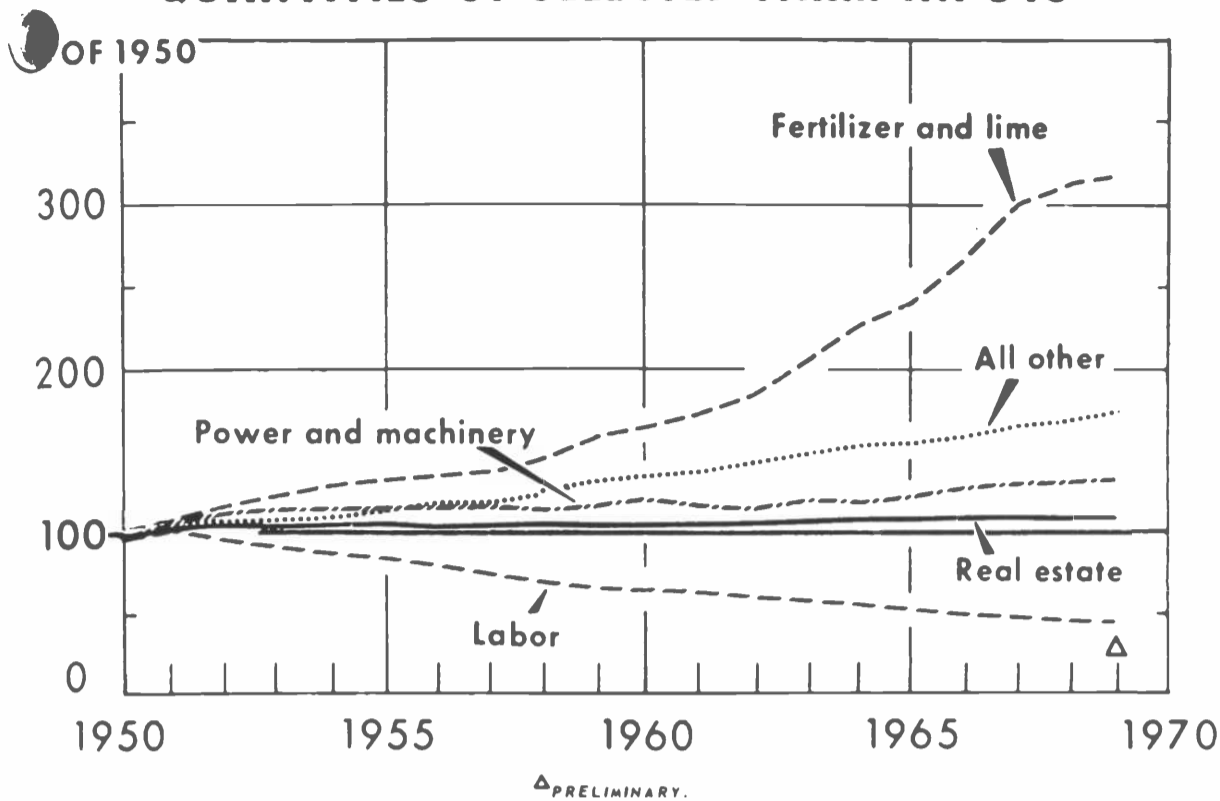
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ventions are a constant threat to traditional producers and are likely to increase in the future. Positive approaches through product improvement, lowered costs, etc., will be needed to meet the challenge. At the same time, it must also be recognized that major changes in consumer demand in domestic markets will come only in the form of product quality and service. Significant increases in per capita consumption can no longer be expected and, if a drive to control population expansion is successful, growth from this source will also decline.

World markets have continued to expand, but competition worldwide is increasing as production grows in other areas. Europe is faced with growing surpluses and severe resource adjustment problems associated with technological advancements there. Production in many developing countries of the world has been increasing with the result that their deficits are not only being met, but surpluses are being produced for export.

What is the significance of all of these developments, and where do we seem to be heading? The economy in general is in a state of relative affluence in terms of traditional goods and services. Consumers now spend only about 16-17 percent of their incomes on food, and much of that goes for services. The high levels of technology and potential for future developments have removed the threat

Figure 1
QUANTITIES OF SELECTED FARM INPUTS



of famine in the immediate future for much of the world. There are still immense problems of production, but those of distribution tend now to be more limiting than production.

The developed countries such as the U.S. continue to face problems of oversupply in agriculture, but the recognition that there are two major and distinct problems in agriculture has begun the shift in emphasis on programs. The poor in the rural sector are being looked upon as a problem of welfare and development in a national sense and not part of the commercial agriculture problem. The commercial agriculture is growing into a state of organization which is losing its traditional public identity and sympathy.

New Approaches Necessary

Commercial agriculture will have to face up to the new circumstances. Capital requirements are becoming too great for traditional means of formation. Thus, the entry of the large corporate firm and other means of public finance. At the same time, the need to develop a bargaining position, to reduce processing and distribution costs, and to meet consumer demands are resulting in various means being developed to create market ties, through integration, contracts, etc.

The new forms of farm and market

organization will not only require new sources of capital but new skills, both in technical and management fields. As the firm grows, it will become more independent of public forms of assistance in management and in research needs. As a result, a new focus needs to be developed with respect to the use of public resources in agriculture. Research will still be required to develop fundamental basic ideas to be applied by the commercial units. However, research will more and more

need to be focused on the social and welfare problems, both of the rural and urban "misfits" which have resulted from years of change in agriculture. At the same time, environmental problems, resulting from the mass production technological era in both agriculture and industry, must be met. To do this will undoubtedly require further drastic changes in organization and methods of production.

Extension and teaching at all levels must recognize the changes in society and take on a new role to meet the needs in this new environment. As the commercial farmer takes over, the focus must be on education to provide the have-nots of our society with the means to cope with the changes. For those who are not have-nots, there are also significant problems of adjustment, and it should be accepted as the role of educational institutions in general to prepare all people to adapt and meet change with minimum friction. Education at all levels must also play a role in trying to create conditions for improvement in the environment and quality of life in general.

Finally, I believe we do have a broader role to play in the world in general. We must be prepared to export our ingenuity to other lands so that they may share in the abundance which is technically possible by developing their own skills and physical resources.

Figure 2
TOTAL FARM OUTPUT AND INPUTS

