A Basebook for Agricultural Adjustment in Iowa

PART III—THE OPPORTUNITIES

—Cooperative Extension Service in Agriculture and Home Economics,

—Agricultural and Home Economics Experiment Station,

—Center for Agricultural Adjustment,

cooperating

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FOREWORD

Many people were puzzled when farm incomes began to drop in 1953. Agriculture had been in trouble before, but, usually, it was not alone with its problems; other parts of the economy were suffering also. In 1953, however, the general national economy was growing, and it has continued to progress since. Agriculture has remained in trouble. Why? Some of the reasons have been reasonably clear. Others have been more complex, and things have occurred which have tended to obscure what was happening as well as its causes.

The first generally recognized symptoms that something was wrong in agriculture became apparent in 1948-1949 following World War II. Some of the clues were there even 20 years before—though almost immediately obscured in a general depression—and again about 10 years later. In this last instance, the entire economy was emerging from a depression. World War II served to overcome the economic problems then—both for agriculture and the nation as a whole. Agriculture's slogan was, "Food will win the war and write the peace," and agriculture's contribution was unprecedented. Patriotic urge plus higher farm prices because of increased demands for food spurred farm production to heights never before achieved.

Demand for American farm products continued unusually high following World War II as the war-torn nations sought to regain their feet. Export demand slumped temporarily in 1947-48—with a larger slump in "food" exports in 1950. American agriculture—geared to the higher production needs—couldn't dampen itself overnight, and the "surplus problem" once again reared its head. Continuation of price supports at or above wartime levels encouraged a continuation of wartime production—"the dollar was there to get" on supported items.

The Korean conflict, like World War II, provided a temporary "solution" and again obscured the over-all agricultural picture. But by 1953, "the farm problem" began to take shape again—surpluses, lower farm prices, lower farm incomes, higher farm costs.

Since then, by pieces and parts, the over-all picture has become more clear—not completely so, there are still gaps where more information is needed. But increasing evidence indicated that agriculture was out of adjustment with the rest of the national economy; resources elsewhere in the economy were earning increasing returns while returns to resources in agriculture were decreasing. Though the national economy as a whole was growing, agriculture was not sharing fully in the fruits of a progressive economy.

The "shocker" came in 1955. Net farm incomes dropped sharply. Hog prices in the Corn Belt, for example, fell to 10 cents a pound in December of 1955.

The farm economy was sagging during a period of a relatively prosperous and growing national economy.

By the fall of 1956, it was apparent that neither the government farm programs which had been operating, the drouth nor other factors in operation were sufficient to counteract, to stabilize or this time even to obscure what was happening in agriculture. The trouble was obvious; all of its causes and complex relationships were not; there was no one factor to be singled out as the culprit, past or present. It was obvious also that agriculture needed help. But what kind of help—not only for the immediate present but also for the future?

Members of the entire Iowa Extension Service staff met in Ames late in 1956 to focus attention on and to discuss the prospects and problems facing agriculture in the years ahead. During the winter and spring of 1957, the Division of Agriculture at Iowa State College conducted a series of seminars on the situation. Staff members of the various departments of the Division presented and discussed the evidence and data available and developed tentative recommendations and conclusions.

Following the series of seminars, the information that had been presented and discussed was considered as a whole by a basebook committee. Those who had presented material at the seminars were asked to revise, to shorten and to update their material in the light of all information presented at the seminars and of any new information available.

The Basebook for Agricultural Adjustment in Iowa thus represents both a synthesis and a summary of the revelant information we now have available as well as the tentative conclusions and recommendations based thereon. Just as this brief foreword cannot give a complete picture of the situation, neither can all three parts of the basebook furnish a complete view; information in some areas is far from complete.

Largely because of this and partly as an outgrowth of the series of seminars, a Center for Agricultural Adjustment has been established within the Division of

Agriculture at Iowa State College to seek and coordinate and to apply and extend both basic and practical information in the areas where present knowledge is inadequate. Meanwhile, the primary purpose of this basebook is to provide as brief but complete a picture as is now possible of: (1) the current situation and its background; (2) the prospects for agriculture in the immediate decades ahead; and (3) alternative possibilities and means for working toward solutions of the problems and for facilitating those adjustments in agriculture that appear to be necessary to assure a healthy agriculture in the years ahead.

Originally this basebook was envisaged primarily as a "handbook" of background information for the Divisional staff in research, resident teaching and extension. It is being made available now, however, to others interested in understanding the problems of and needs for agricultural adjustment. Less technical and detailed presentations are also being made available for more general use.

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PREFACE TO PART III

This is the third of a series of three bulletins summarizing the information presented and discussed during the Division of Agriculture's Agricultural Adjustment Seminar. Part I dealt with the current situation, its background and causes. Part II considered the prospects immediately ahead for agriculture and outlined some of the types of adjustments needed if agriculture is to share fully in the fruits of its own progress and growth and that of the national economy. Part III presents the opportunities for programs and activities that appear to have the greatest promise for bringing balance to the farming industry.

The suggestions generally represent a considerable departure from the kinds of agricultural programs used in the past. It's apparent, for example, that government programs of the past 25 years have not solved agriculture's problems. These programs, which have evolved through our democratic processes, have largely failed to give sufficient recognition to the underlying causes and, accordingly, have tended to treat only symptoms. Thus, there is an important reason that the suggestions contained in this bulletin depart from the past:

Current programs were initiated in the 1930's and later modified to fit war needs. The original programs, however, were created for problems quite different from those now confronting agriculture; they were created within a framework of national depression and food requirements in wartime. Today, the needs are different. Employment and national income are at record levels, and we have had peace for several years.

Information and experience now available suggest that new directions are needed if the existing farm problems are to be overcome. This publication presents the opportunities which, in the light of present knowledge, appear best suited to provide long-run solutions to the problems of agriculture.

The opportunities outlined in Part III are intended for the consideration and appraisal of individuals and groups interested in and concerned with the future of agriculture. While the opportunities presented are those which appear most promising on the basis of the evidence and information now available, it remains for individuals and groups to make their own choices or decisions and to use the democratic processes available to them in accepting or rejecting these opportunities.

Earl O. Heady, Chairman
Agricultural Adjustment
Seminar

John F. Heer, Chairman
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Cooperative Extension Service in Agriculture and Home Economics, Iowa State College of Agriculture and Mechanic Arts and the United States Department of Agriculture cooperating. Floyd Andre, director, Ames, Iowa. Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914.

Have Agricultural Programs Contributed to Long-Run Agricultural Adjustments?

BY G. S. SHEPHERD

HOW CAN WE TELL whether farm programs have accelerated or retarded long-run solutions to income and resource problems?

The best method I know is to estimate what would have happened if no farm programs had been in effect and then measure what has actually happened against this estimate. Accurate estimates of this sort are difficult. A lot of changes—technological developments and other new things—have been going on in agriculture as well as in farm programs. Thus, it is not always clear whether a change in farm prices or production is the result of a farm program or of something else that happened at the same time.

Agriculture resembles a patient suffering from several different diseases at the same time. The two chief economic diseases are (1) the short-run instability of the prices of farm products and (2) the long-run low level of farm incomes. Farm programs, in turn, may be classified into two groups corresponding with these two diseases: (1) the storage programs, designed to stabilize the prices of farm products and (2) acreage controls, the Soil Bank and other programs designed to reduce production and to raise the level of farm incomes.

COST OF THE PROGRAMS

Table 1 shows that the total "realized cost" to the federal government of the programs, since they were initiated in 1933, amounts to about 10 billion dollars. The Commodity Credit Corporation in early 1957 held about 8.6 billion dollars worth of farm products.

The first group of programs—the storage programs—have cost much less than the second group—the production reducing programs. In the case of corn, for example, the "CCC loan purchase and payment costs" were only 227 million dollars of the total cost of 1.3 billion dollars.

EFFECTS OF THE PROGRAMS

Price Variations

Have the storage programs stabilized prices? In general, the storage programs have had some effect in stabilizing market supplies and prices for some farm products.

Figure 1 shows that the quantities of concentrate livestock feed—corn, oats, etc.—fed to livestock are considerably more stable than the production of these feeds. The USDA estimates that the variations in concentrate feeds fed to livestock are now only about half as great as the variations in the production. As far as can be determined, the variations in prices are only about half as great, too. It seems evident that the credit for this amount of stabilization of feed supplies and prices can be given to the government storage programs for feeds; none of the other things that have been happening to agriculture are of the kind that would exert a stabilizing effect.

There is a correlation of about 0.9 between concentrate feeds fed and the production of hogs. So the partial smoothing out of feed supplies must have correspondingly smoothed out hog production and prices also.

This is what farmers wanted the stabilization programs to do—to stabilize feed and livestock prices and production. The stabilization programs have done about half of the job; as programs go, that is a pretty good record.

This partial stabilization helps farmers allocate their production resources more accurately. The reduction of

TABLE 1. REALIZED COST OF AGRICULTURAL PROGRAMS PRIMARILY FOR STABILIZATION OF PRICES AND FARM INCOME, 1932-55. (DISTRIBUTION OF COST SHOWN BY COMMODITY GROUPS.)

Commodity or source of cost	Cost (millions of dollars)	
Basic commodities:		
Corn	$1,319.3	
Cotton	1,602.9	
Peanuts	166.5	
Rice	29.3	
Tobacco	101.8	
Wheat	2,412.9	
TOTAL, basic		$5,632.7
Designated nonbasic commodities:		
Butter	$ 481.3	
Cheese	142.4	
Milk	351.0	
Potatoes	638.4	
Wool	105.7	
Other	14.5	
TOTAL, designated nonbasic		$1,733.3
Other nonbasic commodities:		
Eggs	$ 331.5	
Linseed oil	146.1	
Sugar	310.8*	
Program expense	1,863.3	
TOTAL, other nonbasic		$2,011.5
Interest, misc. cost		$ 442.0
GRAND TOTAL		$9,819.3

* Gain
Source: U. S. Dept. Agr., Office of Budget and Finance.

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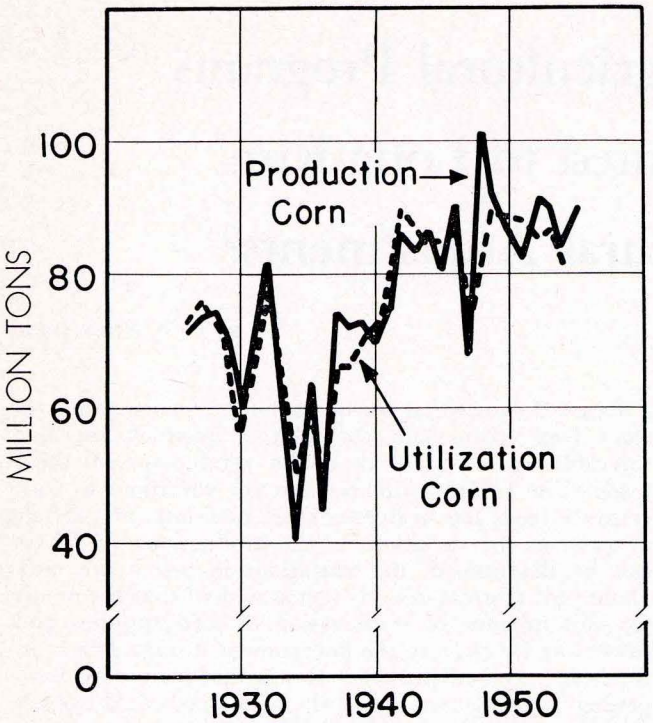

Fig. 1. United States production and utilization of corn by livestock, annually, 1926-55.

the erratic variations in prices which result from unpredictable weather variations makes these prices more reliable guides by which to lay production plans. In other words, the degree of stabilization achieved contributes to long-run solutions to income and resource problems.

Long-Run Level of Prices

The price-stabilization programs have been successful in partially stabilizing agricultural supplies and prices, particularly in the Corn Belt. They have not been successful in another use (or misuse) to which they have been put. The price-support programs have been used, not only to stabilize prices, but also in an attempt to raise the long-run level of prices over a period of years. This has been beyond their powers—even when they were backed up by acreage-control programs designed to reduce production—and this use has retarded long-run solutions to income and resource problems.

Figure 2 shows how the prices of farm products have declined about 20 percent over the past several years, while prices paid by farmers have remained approximately constant. The ratio between the two—the parity ratio—was about 82 at the end of 1956.

The programs have not supported agricultural prices at parity levels. Figure 3 shows one of the reasons why. Total United States farm production has risen a little faster than total population during and since World War II. The acreage reduction programs were not able to keep total agricultural production from expanding faster than population. In the case of most farm products, the price supports stimulated production and reduced consumption, with the result that large stocks accumulated in government hands. Stocks of wheat and cotton are several times larger than needed for stabilization purposes; even stocks of corn are going to be larger by the end of 1957 than the 1 billion bushels considered a good workable reserve level.

The total stocks of farm products now in government hands cost over 8 billion dollars and also cost about 1 million dollars a day for storage charges alone. The stocks have accumulated despite desperate attempts in the past few years to give away free or sell at reduced prices large quantities of surplus products abroad. In most cases, these attempts have added to the woes of foreign agricultural producers of the products. In spite of all of our domestic and foreign programs, fig. 4 shows that farm incomes in the United States over the past few years have been declining while incomes in the rest of the nation have been rising.

As a result of the perversion of the price-stabilizing programs into long-run price-raising programs, farm products have been misallocated to a considerable extent. Large quantities have been diverted into storage rather than into consumption. Two factors of production, land and capital, also have, to a considerable extent, been misallocated—into crops and other products, some of which consumers have refused to buy. Two other factors of production, labor and management (which the programs were designed to benefit), have not benefited but have, to a large degree, been misallocated, too. These misallocations have retarded long-run solutions to farm income and resource problems.

WHAT IS WRONG?

What is wrong with these programs? Why have they cost so much, in terms of money, effort and strains on international relations, and yet failed?

With this question in mind, we can review our experience with farm programs over the past 24 years in some perspective. There have been three stages in the development of these programs:

1. The first stage or step in the programs was to attempt to help farmers with their products just as they were—simply by raising prices. This couldn't and didn't work. Merely raising prices simply reduced consumption and increased production, resulting in the accumulation of surpluses.

2. The second step recognized that merely raising or supporting prices (without doing anything about the supply and demand for farm products) would soon

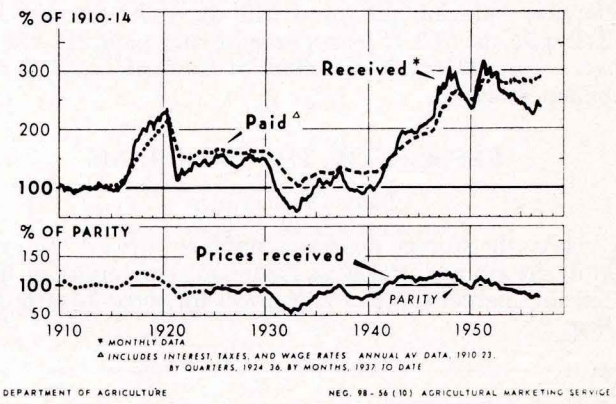

Fig. 2. Prices received and paid by farmers, 1910-56.

cause the price-supporting programs to break down under the weight of accumulated surpluses unsaleable at the higher prices. It became clear that the supply of products had to be adjusted to the demand, the demand to the supply, or both. This was attempted by means of the AAA acreage-reduction program, the Food Stamp, School Lunch and other programs.

3. The third step now is beginning to emerge. For most crops, attempts to reduce the supply by reducing acreage have been ineffective. Farmers simply took the poorest acres out of production, put more fertilizer and other inputs on the reduced acreage and raised about as much as before.

Even had the acreage-reduction programs worked, they would only have benefited acres; where acreage control did work in the case of tobacco, the result was that possession of an acre of tobacco allotment added about $1,500 to the value of a farm. Thus, the increase in the income to tobacco was merely capitalized into the value of the land.

Where Directed?

It is becoming clear that our farm programs have been directed at farm *products*—when they should have been directed at the *factors of production* used to produce those products. Particularly, they should have been directed at the human factor of production, the farmer.

The basic purpose of farm programs is to benefit farmers, *not* acres or products. While the supply of farmers remains high, even if farm incomes rise, farmers will bid the higher incomes away in higher rents or prices for land so that new renters or purchasers are no better off than before. It has become increasingly clear that, to raise farmers' incomes, something must be done about the supply and demand for farmers.

DIFFERENT APPROACH

Raising the incomes of farmers calls for an entirely different approach from stabilizing or raising the prices of farm products. If the objective is to stabilize prices, the way to do it (assuming constant demand) is to stabilize the supply. If the objective is to raise the prices of farm products, the way to do that is to reduce the supply of farm products (if possible).

But if the objective is to raise the incomes of farmers, the supply of farmers must be reduced. And this takes an entirely different kind of a program than a wheat program or a cotton program to reduce the supply and raise the price of wheat or cotton.

The birth rate in agriculture is about 44 percent higher than enough to maintain a stationary population in agriculture. And agriculture doesn't need a stationary population. Technological developments have permitted production per worker in agriculture to increase faster than our population is increasing. Accordingly, there were 13 million workers on farms in the United States in 1920; today there are less than 8 million—a decline of nearly 40 percent since 1920—and the adjustment still is not completed.

The plain facts are that only about half of the boys and girls growing up on farms can expect to remain there. The other half will be able to find better-paying jobs in town. Agriculture raises more than half a million boys and girls a year than it can use. And the surplus production of farmers, thus, becomes a basic agricultural problem. Just as an oversupply of farm products depresses the prices per unit of farm products, the continuous oversupply of farmers depresses income per farmer.

In 1955 the average per capita net income on farms was about $900. If, however, there had been the same population on farms in 1955 as there was in 1950, average per capita net income would have been reduced to $800 from the same total farm income.

What would happen if a farm program succeeded in increasing total farm income, say, 10 percent? Would this increase per capita farm income 10 percent also?

If the increase took place suddenly at one stroke—so that the larger income would be distributed among the same farm population as before—per capita farm income would increase 10 percent. And this seems to have been the basis on which farm income-increasing programs have been conceived and applied in the past.

It is not, however, realistic. The example is used here for illustration only and to make a contrast to the actual facts of the case. It is clear that no farm program is likely to increase farm income by 10 percent at one stroke before anyone on the farm can react to it. By the time the increase has been accomplished, farmers will have begun to take it into account. Within a year or two, boys growing up on the farm would be decid-

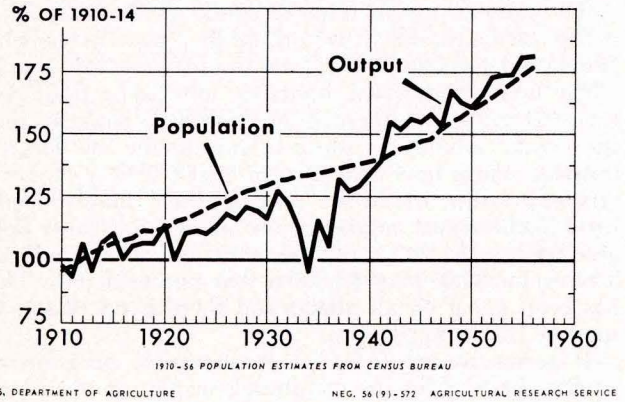

Fig. 3. Percentage changes in United States population and agricultural output from 1910-14 through 1956.

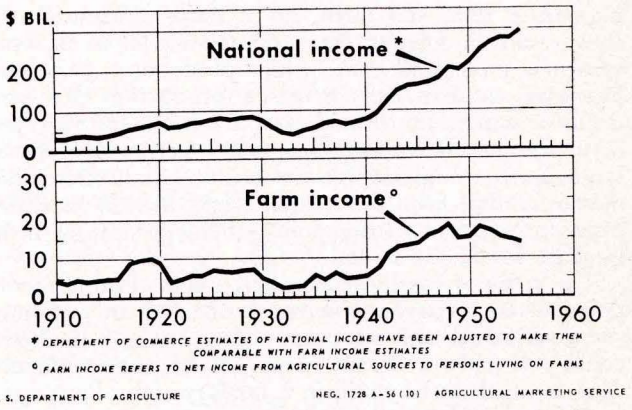

Fig. 4. Changes in national income and farm income, 1910-55.

ing that farming isn't so bad after all. And the normal net migration of more than half a million or more people off farms per year, resulting chiefly from the high birth rate on farms, would slow down. The farm population would be larger than it would have been with the original 10-percent-lower farm income, and per capita farm income would be at about the same level as before.

"Move" Them Off Farms?

The movement of persons off farms does not involve the question sometimes asked: "Where are you going to put them?" In the United States, nobody is going to put anybody anywhere, but the pathway for farm boys and girls who decide for themselves that they can do better in urban jobs should be made as smooth and open as possible.

"Farm boys and girls" are mentioned deliberately. By all odds—from an economic, sociological and psychological point of view—the easiest and most sensible time for a farm-raised boy or girl to move off the farm is before becoming established in farming. A family which has spent a number of years in farming has its investment and interests to hold it there. In addition, the farm operator's lack of training and experience with nonfarm jobs reduces the returns he can expect in urban employment. But the boy or girl in high school has free choice in choosing a vocation before investing any money, training or experience.

The solution is to bring the whole problem of the continuing surplus of farm boys and girls to the attention of farm boys and girls early in their high school careers; to keep them posted on the kinds of nonfarm jobs and careers available; to provide them with the opportunity to choose training for nonfarm jobs as well as for farm jobs. Those who do decide they want to move to a nonfarm job may thus have the opportunity to get the kind of training needed for that job before applying for it. This would avoid some of the economic friction which retards farmers already established in farming from moving into nonfarm jobs.

Is Free Mobility Enough?

There is a question whether this continuing exodus of farmers would raise per capita farm incomes to equality with nonfarm incomes. Couldn't the smaller number of farmers left on the farm, necessarily farming larger units per farm, do it more efficiently and thus result in greater overproduction? There is some evidence indicating that, while production per farm increases as farm size increases, production per acre declines somewhat through less intensive farming per acre. But in many cases, the greater efficiency of the larger units would involve the use of output-increasing methods; total farm production might increase and depress farm prices to the point where per capita farm incomes would still be low.

The price of corn, for example, might decline to the point where even an efficient farmer of an optimum size corn farm, with optimum equipment and methods, could not make a decent living—or at least could not earn as much as he could in a nonfarm job. Per capita farm incomes then would still be low.

If this happened, however, it appears that the farm exodus would continue to the point where total agricultural production would be reduced, not by each farm producing less under its existing organization, but by a good many farms reorganizing their production. The owners of the least profitable farms, particularly, would reorganize their farms on a more extensive, rather than intensive, production basis.

The resulting reduction in total agricultural production would proceed until it raised farm prices enough to bring agricultural incomes into line with incomes for equal ability in other lines. All of this would be a serious undertaking for those who reorganized their farms. But if an industry is continuously overproducing, it seems to make more sense to reduce production through reorganizing the marginal units into more efficient elements than to reduce production by reducing the efficiency of all units below their optimum operating scale.

REORGANIZATION PROBLEMS

The brief analysis above might give the impression of wholesale reorganization in agriculture all up and down the line. Actually, any reorganization would proceed slowly, piecemeal, at the margins here and there. Even so, reorganization problems would probably entail hardships at particular points. If so, these adjustments would be appropriate problems for government agricultural programs to deal with. Compensation for costs or losses incurred in reorganization in the direction of more extensive production could be provided. This would, in a sense, reduce agricultural production once and for all, rather than having to pay for it afresh each year.

A major part of the reorganization would take place among the farms at the low end of the farm income scale. Most of the low farm incomes are found among that 50 percent of the United States farmers who are on small uneconomic units producing only 10 percent of the total farm production. If all of the reorganization took place here, a million of these farmers could leave their farms and still reduce total farm production very little.

Would their numbers be so large before reducing total production appreciably that their tremendous exodus would be more than the nonfarm economy could absorb? Would it constitute a major problem in itself—in addition to the problems of those remaining on the farm?

The answer, again, is to be found in the individual nature of the exodus; it would not be a mass movement. Individual farm boys and girls would leave farms only when better individual nonfarm jobs were there for them to get. And there is no reason to suppose that the exodus would be confined only to the low-income farmers. Farm boys able to earn $5,000 a year on good efficient farms would be leaving their family farms for $10,000-a-year nonfarm jobs along with farm boys able to earn $1,000 a year on the farm who would be leaving for $2,000- or $3,000-a-year nonfarm jobs. This has been going on all along, and there is no reason to suppose that it might stop.

It seems to me that the fundamental program of paving the way for the continuing surplus of farm boys and girls off farms would solve the low farm income problem and keep it solved.

Do or Can Current Farm Programs Contribute to Agricultural Adjustment?

BY WALLACE E. OGG

AMERICAN AGRICULTURE is out of balance with the rest of the economy. Returns to manpower and other resources in agriculture have been declining. But returns to manpower and other resources elsewhere in the economy have been rising.

Lack of economic balance isn't unique to agriculture. Forces that create imbalance are constantly at work in any industry in a progressive and developing society. For any industry to remain reasonably well in balance, it's necessary that constant adjustment take place in response to changing conditions. Substantial adjustment has taken place in agriculture—but not enough. Evidence of lack of balance in agriculture is apparent in two major segments of the industry.

1. *Individual farms*: There is an uneconomic combination of labor, capital and land on many farms. This has resulted largely from the failure to properly substitute capital—particularly in the form of machinery and power—for labor and from not putting new developments in agricultural technology into effective use. On these individual farms, the adjustment calls for a recombination of labor, capital and land resources. In the typical farm family situation, more land per farm is needed so labor can be productively employed. Oftener than not, on an individual farm, more capital will also be needed. In total, this would mean larger family farms, using relatively more land and capital per family.

2. *Total agricultural production*: The total output of American agriculture is too large to return satisfactory or equilibrium prices and income. The size of this excess production hasn't been, and probably can't be, stated in exact quantity terms. A number of estimates indicate something like 5 percent too much is being produced in total to bring equilibrium prices and income. Thus, the amount of production adjustment needed isn't certain. But the direction of the needed adjustment is clear. Less total capital and labor are needed in American agriculture as well as more extensive use of land.

While in some cases it might appear to be so, adjustments to these two sources of imbalance are not necessarily inconsistent. In this appraisal, government programs which help restore balance in either or both of the above situations will be considered positive contributions to agricultural adjustment.

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THE PROGRAMS

The various government programs for agriculture have and have had different, and sometimes conflicting, objectives. Government programs may be roughly classified into four categories:

1. Programs to promote economic progress in agriculture;
2. Programs to raise prices and incomes;
3. Programs to keep agriculture in balance and to promote adjustment; and
4. Programs to promote conservation.

Programs to promote progress usually increase output. This is true for programs which discover and extend technical innovations and for those which provide income assistance for new capital investments. Increasing farm output reduces prices and individual family incomes (assuming stable demand) unless adjustments in the use of resources and production go hand in hand with the adoption of technology or the new capital investments.

Programs to raise prices and incomes often are based on the assumption that farm income has declined because of forces such as monopoly in the rest of the economy—forces which create economic injustice for agriculture. The programs are to compensate for such injustice. If, however, the price and income declines are the result of too much output, the price and income programs may impede adjustment.

Other programs, likewise, may be diverted from their original purpose or work at cross purposes as conditions change.

A BASIS FOR APPRAISAL

The American public has placed a high value on economic progress. The public not only wants progress but, through our government, has been willing to make public investments in agriculture to get it. To have a sensible economic rationale or logic, this public investment should be made on the basis of the economic principle of equimarginal returns: Each additional million dollars should be invested such that the additional returns in the form of economic progress are as high or higher in this use than in any other public investment for economic progress.

Progress stems primarily from technological innovations which increase the productivity of our natural resources, capital and manpower. But, for the full bene-

fits from progress, it's also necessary that these resources be reallocated in a way consistent with the new technology. To gain the full benefits, technological innovations must be accompanied by adjustments to the innovations. It is often assumed that, as technological innovations are discovered and adopted, adjustments automatically follow. This is not always true.

The presentations in this basebook do not suggest that technological innovations or investment in them should be stopped. Rather, they have been saying that the innovations in agriculture have proceeded so rapidly that it now appears that the marginal returns from public investment to promote adjustment are likely somewhat higher than they are from public investment in technological innovations. And, that public investments should be reallocated in the direction of adjustment.

Programs to support farm income by payments, price supports or production controls don't fit neatly into this logic. In an economic climate of dynamic progress as that in the United States, progress presses hard on individual farmers for adjustment—especially when the normal adjustment problems are confounded with a decline in demand from business recession or a sharp curtailment in export demand following a war. In such circumstances, the Congress has said that progress presses too hard, and price supports or income supplements are ways of relieving the pressure.

As Professor Shepherd has pointed out, the price-support method is an awkward instrument for this purpose. Outright income supplements would be less cumbersome. He also pointed out that income support tends to reduce the incentive for adjustment. This is probably true. But it is most serious if the program operates directly to attract additional resources into production when output is already too great. While price supports have supported incomes, they have done so by taking large quantities of farm products off the market and piling them up in government stocks. Both storage and surplus disposal are so expensive that production controls are being attempted as a way out.

In considering the government programs in agriculture, this appraisal will consider them in the light of the following questions:

From what we know or can guess about the marginal returns from public investment, can continued investment in these programs be justified? Do they contribute to progress by promoting technological innovations with a high marginal contribution to economic progress? Do they contribute to or impede adjustments which, at this time, seem to have an even higher contribution to make to economic progress? Do they support income in a way that seriously impedes adjustment?

Research and Extension

In the fiscal year 1956, the federal government and the states spent approximately 248 million dollars for agricultural and home economics research and extension work.[1] Most of this was spent for research to develop technological innovations or to extend them. Historically the marginal returns on this kind of investment in terms of progress have been very high. The public has strongly approved this kind of investment as indicated by the congressional hearings on appropriations and the consistent rise in the appropriations. Appropriations for research and extension have rarely met with severe criticism.

While the marginal returns in progress have generally been high, the exact timing of the impact of research can't be predicted. Research is an on-going program. Basic research may take a number of years to complete. There is little flexibility in the timing of the impact of the technological innovations made possible by research.

There's considerable uncertainty about supply and demand conditions in the future (when the fruits of research become available). So the short-run changes in the marginal returns from research have to be largely ignored. The justification for investment must be based on estimates of the marginal returns over a longer period of time. The public decision has been that this is a worthwhile investment.

The increases in output made possible by technological innovations, however, are not an unmixed blessing. The price elasticity of demand for farm products is sufficiently low that sharp increases in output place severe pressure on income. If adjustment is not made, the lower prices paid by consumers for farm products represent a transfer of income from farmers to consumers rather than a reflection of the full gains from output at lower cost to farmers.

To the extent that there is flexibility in using research and extension resources for speeding up the adoption of new technology on the one hand and adjusting to the technology on the other, the present situation seems to call for reallocation of some resources to promote or at least facilitate adjustment in agriculture. In practice, there is probably little flexibility in the uses of resources devoted to basic research. But considerable flexibility appears possible in the use of resources devoted to applied research and extension.

Researchers doing applied research in soils, crops and livestock, for example, might study output relationships to make it possible to predict output responses to both control programs and price changes. An extension specialist, as another example, may advise on technology suited to intensive production on a given limited acreage of land—or he may also extend information for extensive production either on farms with sharply expanded acreages or on part-time farms where labor is sharply limited.

The extension farm and home development programs could emphasize the study of family goals and opportunities in farming, part-time farming and nonfarm work. If, on the other hand, the programs emphasized only increased output on individual farms, with no other adjustment, they would aggravate the supply-price problems.

The youth program could contribute to adjustment by vocational counseling and counseling for additional education. Many farm boys and girls having the intellectual capacity for college education aren't going to college. Thus, they seriously limit their choice of opportunities—especially for nonfarm employment.

Public policy education can contribute to adjustment in at least two ways. It can alert people to the nature

[1]U.S. Budget Bureau. The budget of the United States, 1957-58. p. 326. 1957; Federal Extension Service. Helping people to help themselves. 1956 Report. U. S. Dept. Agr. 1957.

of the problem and to the need for adjustment. And it can help them understand the consequences of alternative policy programs so that public policies may be chosen that are consistent with agricultural adjustment.

The Agricultural Conservation Program

This program has a double objective. It attempts to increase farm income and, at the same time, to increase the adoption of soil-conservation practices. The way the program works, the increase in income is in the form of a cost-sharing grant for performing some soil-conservation practice. The payment is roughly half of the cost of the practice. Soil conservation is defined rather liberally. The money appropriated is distributed to provide a rough sort of equality on a geographic basis —whether or not there are serious soil-erosion hazards.

Thus, the program becomes an income subsidy in the form of capital investment on land. It can be called soil conservation inasmuch as it is an investment in land to maintain its future productivity. A narrower definition—which permitted payment only for soil-erosion control to stop the kind of soil resources loss that's nearly irreversible once it has occurred—would have meant distribution of funds only where this sort of soil erosion was a problem. It wouldn't have permitted fund distribution with rough equality between rural geographic districts.

Through the program, the government has made a substantial investment of new capital in agriculture. And, to get this subsidy in the form of additional investment, it was necessary for the farmer to match the grant with an equal or slightly larger investment. The program, used to improve farm income, has operated to increase total capital in agriculture, to increase output, and it has seriously impeded adjustment.

From 1951 (when surplus government stocks first started to accumulate) through 1956, the total cost of the ACP has been 1.4 billion dollars. The total spent in 1955 in the "regular" agricultural conservation program was 169.4 million dollars. Payments may be grouped according to those which definitely increase output but make a limited contribution to erosion control and those which may increase output but are primarily for erosion control (see table 1).

Within the framework of our appraisal and taking the objectives of soil-erosion control and increasing farm income as given, it would seem more logical: (1) to spend only the amount on ACP that can be clearly justified as preventing soil erosion and (2) perhaps to reallocate the balance of the funds reasonably equitably between geographic districts to some other income-raising program that wouldn't so seriously impede agricultural adjustment.

TABLE 1. PERCENTAGE OF 1955 REGULAR ACP PAYMENTS BY PRACTICES.

Practices	Percent of total	
Practices which primarily increase output:		
Liming, fertilizer and seeding	59.6	
Drainage and irrigation	13.1	
Water facilities for livestock	7.7	
Weed and shrub control	3.1	
SUBTOTAL		83.5
Practices which primarily control erosion:		
Strip cropping and contouring	1.4	
Terraces, sod waterways and structures	5.4	
Temporary protection from soil erosion	5.1	
SUBTOTAL		11.9
Other payments	4.6	
TOTAL		100

Source: Agricultural Conservation Program Service. The agriculture conservation program, 1955. U. S. Dept. Agr. 1956.

Reclamation

There are some estimates and statistics on the federal government's new investments in irrigation given in the 1956 report of the Secretary of the Interior.[2] During 1951-55—in which the government removed about 12 billion dollars worth of farm commodities from the open market—the Bureau of Reclamation brought 1,184,575 acres of new land under irrigation.

The report estimates that, at going market prices, the total output of agricultural products from all reclamation project lands has increased 4.2 billion dollars from 1950 through 1955. Part of this increase would be accounted for by the 1.2 million additional acres and part by increased yields for all reclamation land. This estimation method uses market prices as a measure of the increased output and ignores any price effects this increased output may have had. (Adding 1 billion dollars worth of output per year would mean increasing output roughly 3 percent. Assuming the price elasticity of demand to be about –0.3, this program may well have depressed prices for agricultural products about 10 percent.) The added output is equal to about one-third of the total value of accumulated stocks of agricultural products.

One phase of this program merits special attention. Since World War II, 2,394 new farm units have been created out of the desert. Farm families have been encouraged to move out and experience some of the rigors of frontier life. Sagebrush has had to be cleared, land leveled, buildings built and irrigation farming learned before income could begin. To create these new farms called for a coordinated effort by the Reclamation Service, the Farmers Home Administration, the Soil Conservation Service and the land-grant colleges.

In the present situation, the economic inconsistency of this particular program is obvious. Why bring new land under irrigation and increase agricultural output as long as output is greater than needs and while the government is already engaged in production control?

But the problem isn't that simple, and politics are involved, too. One area stands to gain, even if farm prices decline. Over the years, reclamation has been looked upon as a program to develop the West and assumes that development of the West is in the national interest. Most of the irrigation projects are parts of multipurpose projects for power, flood control, industrial uses and sometimes navigation. Irrigation is often a by-product and only part of a complex of ends used to justify a multipurpose project.

But the fact remains that government expenditure to increase output hardly seems justified when the government is simultaneously engaged in costly programs to curtail output through production control. Adding families to agriculture in one area means that more farmers in other areas must leave agriculture to restore a balance. Even if the project might be justified on higher marginal returns on the irrigated project, the human difficulties involved in the adjustment process required seem to discourage new investment at this time.

[2]The Secretary of the Interior. 1956 Annual Report. U. S. Dept. Int. 1956.

Range Improvement of Forest Service Grazing Land

The magnitude of this government program is less spectacular than either the ACP or reclamation programs. But the direction of its effect on agricultural adjustment is just as clear.

In 1955 the Forest Service[3] reseeded 54,152 acres of its rangeland. Part of this was on land which the Service rents as livestock range; part was on land that is furnished free. The total rangeland so treated through 1955 is 604,742 acres. This reseeding is reported to have increased the carrying capacity of the rangeland treated from 2 to 20 times. The Service estimates that 3 million acres still "need" reseeding and that 2.8 million acres "need" weed control treatment which will increase carrying capacity 3 to 5 times on treated rangeland.

The only stated objective for this program is "to maintain the highest productivity of the best quality forage that the range is capable of producing." In the present situation, it seems only reasonable that the government discontinue these range renovation programs. If the renovation is economically feasible for ranchers using the range, some system might be developed to permit private firms to be able to improve the range and to be protected from losing the benefits.

Farmers Home Administration

The FHA has, in the past, followed policies that appear to have encouraged people to stay on small, uneconomic farm units or have encouraged them to occupy such units. The FHA has made loans to many of the new farmers on the newly irrigated reclamation farms already mentioned. Many of the policies of the FHA appear to have impeded adjustment. The organization has often been under congressional scrutiny and has, oftener than not, been pressed in the direction of impeding adjustment because of the fear that the organization might help farmers get "too big" and jeopardize the "family-size farm."

In the 1956 fiscal year, FHA completed 86,000 loans totaling over 162 million dollars.[4] A recent report claimed an increase in output on borrower farms of 55 percent in a period of 4 years. But this may be positive action toward a better balanced agriculture. Ordinarily, the farms assisted with loans are small units with a serious imbalance of too much labor and too little capital and land. If the loans provide added capital, the individual farm would be making positive progress toward better balance. And, if the so-called farm enlargement loans also make possible the control of larger acreages, the individual increase in output doesn't necessarily mean an increase in aggregate output.

What could make the work of the FHA more consistent with positive agricultural adjustment? FHA loans have long been made only to borrowers unable to borrow from regular private lending agencies. A further stipulation could be made that loans could be made only to promote adjustment or "farm enlargement" except in emergency cases such as drouth relief.

Since counseling has always been an important part of FHA work, it could be made a powerful tool to aid in farm adjustment—particularly if coordinated with the educational efforts of the Extension Service. Borrowers' goals and resources could be more carefully appraised in consultation with the loan supervisor to consider if opportunities to achieve family goals seem better in full-time farming, part-time farming or nonfarm employment.

To make sure that no basis existed for a charge that the loan program was being used to coerce people to leave farming, and to further increase mobility, FHA might be authorized not only to make farm enlargement loans but also to make farm adjustment loans. These could be made to families in the transition from farming to part-time farming or to nonfarm employment.

The Soil Bank

The stated objectives of the Soil Bank are to raise farm income and to curtail production. Curtailing production can be for the purpose of raising farm prices or to make it possible for the government to work off its surplus stocks. With current deep concern over the stocks, the latter is probably the prime objective in curtailing output for the time being.

But beyond these short-run objectives, it's conceivable that the Soil Bank might be changed to make at least a limited contribution to agricultural adjustment. In its present (1957) form, it can make some contribution to raising farm income—especially for farmers in serious difficulty because of drouth. But it will make little impact on output and almost no contribution to the adjustment problem.

When written into law in 1956, there was so much concern and preoccupation with the output of "basic" crops and surplus stocks that the fundamental objective of general production control was neglected. The bill was so written that a higher price is paid to get a small additional reduction in acreage of wheat, cotton and corn beyond the reduction required to comply with the acreage allotments. The price was high, but not quite high enough to achieve this.

The plan almost ignored general control—particularly for feed crops and with a still less adequate payment for the conservation reserve. The conservation reserve had several limitations to participation—such as the time the contract was to run and, in the case of corn, participation in voluntary acreage allotments as a prerequisite to participation in the conservation reserve.

Most of the money appropriated for the Soil Bank will probably be spent. It will help income, but it won't reduce output very much unless the basic law is revised.

What changes might be made to make the Soil Bank an effective short-run emergency program in controlling over-all output?

It has been estimated[5] that some 30 to 50 million acres of cropland would have to be completely retired from production to significantly shrink the aggregate output of agriculture. If wheat and cotton acreage allotment and price-support programs were left as they are, with the idea that they've just about brought wheat

[3]Forest Services. Report of the Chief of the Forest Services, 1955. U. S. Dept. Agr. 1956.

[4]Farmers Home Administration. Report of the Administrator, 1956. U. S. Dept. Agr. 1956.

[5]J. Carroll Bottum. The soil bank approach. Farm Policy Forum. Vol. 9., No. 1:20. 1956.

and cotton supply and demand into balance at the support price, then Soil Bank funds might all be used to retire other cropland from production. With Soil Bank funds, and with perhaps 200 million dollars added from funds now being used in ACP, 35 to 50 million acres could almost certainly be attracted into retirement in the Soil Bank. And, if price support for feed grains—including corn and possibly livestock—was conditioned on participation, this would also tend to increase participation.

These changes do not, however, assure that the Soil Bank would make a permanent contribution to agricultural adjustment. If it could also assist in retiring land unsuited by productivity for crops to grassland, it would make a more permanent contribution. And, if in addition, participation of whole farms were encouraged, this would encourage retirement of some farms (those at the so-called marginal fringe) from crops to grass and might eventually encourage some recombination of farms in the better land areas.

Planning Social Change and Agricultural Adjustment

BY VIRGIL L. HURLBURT[1]

FOR MANY YEARS the great bulk of public action in agricultural adjustment has been thought of and conducted as "agricultural" programs. These agricultural programs have operated mainly within the agricultural part of the total economy. By and large the separate programs, such as commodity price support, conservation, disaster relief and emergency loans, as well as the continuing activities in vocational agricultural education, research and extension were designed to deal with the problems of agriculture by actions on the part of individuals within the farm population and the agricultural agencies. Time and experience have demonstrated that something more is needed.

One explanation for the difference between the kinds and rates of adjustments that are underway and those needed to deal effectively with existing problems is that many of the adjustment programs are established and operate independently of others. Often there seems to be little working relation between one program and another—even though they should be closely tied together. Quite realistically, we do not have one over-all program of agricultural adjustment. We do not have one agricultural policy. Instead, we have a set of policies and a host of programs.

PERSPECTIVE IN AGRICULTURAL ADJUSTMENT

One requirement for faster progress in dealing with problems of agricultural adjustment is that the problems be viewed in larger perspective. Treatment in terms of individual commodities is not enough; this is illustrated by the known fact that a reduction in supply of corn can be nullified by an increase in supply of other feed grains. No single program can stand alone. No program can be expected to accomplish its purposes unless people understand both it and its relationships with other programs. The problems of agriculture cannot be solved within agriculture alone. These problems are nationwide and worldwide. Cause-effect relations between agriculture and the rest of the economy may require the development of programs that are geared to each other and to national and international situations.

The larger perspective, in which individual, group and public actions are brought together requires more effort and emphasis on public planning. The situation requires more specific decisions about goals of achievement, and then more careful choices of effective means of achieving goals. Public planning in this sense is deciding what to do and then organizing to get it done.

Although adjustment must necessarily be carried out through specific programs, there is always the danger of getting lost in detail. At the other extreme is the danger of being too general. Of the two, the greater evil is getting lost in detail. What is good for the individual or the firm is not necessarily good for the industry or the nation. Many farmers produce only small quantities of products, whether corn, cotton or wheat. For each individually, the solution is to produce more. But if all farmers produce more, then all are affected by the resulting decrease in prices. Some of the details in agricultural adjustments are at cross purposes. Tangible solutions can come only through people working together, both privately and in organized public actions, to the end that the actions taken will give the results wanted.

Additional emphasis on public planning to deal effectively with the problems of adjustment requires (1) distinction between short-run and long-run situations in both problem and program aspects and (2) full consideration of the relations between agriculture and national and international economies. In the long run, education to change prevailing points of view on particulars (value judgments) is the main facet of attack on problems. This strong reliance on education is in keeping with the American tradition. In the larger definition, it is education that lays the groundwork for effecting the movements of people in and out of agriculture and for making all adjustments. In the short-run, however, many forms of aid, inducement and implementation are required. For example, direct income payments may prove to be one of the short-run and continuing requirements to bolster farm income. If so, the level of payments will need to be determined in terms of the long-time supply-demand relations, so that the short-run inducements will not interfere needlessly with the long-run accomplishments.

Another illustration is in terms of operating an employment service. One function the employment agency performs is in bringing people and jobs together. Off-farm job information and training can encourage farm

[1]The views expressed are those of the author and do not necessarily represent the official position of the Farm Economics Research Division, Agricultural Research Service or the U. S. Department of Agriculture.

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operators to change employment and young people to choose occupations other than farming. But, over the longer run is the question of *which* occupations. How can temporary gluts and shortages in particular fields of employment be avoided?

Effective operation of an expanded employment service will require a regular and continuing program of public works—in which government itself creates job opportunities. In addition is the requirement for reserve programs—a shelf of public works—to be used when and where the need arises, to prevent unemployment of any substantial portion of the working population. We as a people have already made the decision—as expressed in actions on a number of fronts—that the responsibility for preventing depression and run-away inflation is a proper and necessary function of government.

Inasmuch as the problems of agriculture cannot be solved within agriculture alone, it follows automatically that (a) specific programs for agriculture need to be fitted to the national and international situations and (b) additional nonagricultural programs are needed to deal with the problems of adjustment. As illustration, think for a moment about the free trade between nations. Granted, the problems are many. They are local, national and international, whether posed in terms of national defense or protection of established levels of living. Today there is not too much wheat in the world—people are going hungry. Yet, there is too much wheat in the United States to move at prices that will clear the market and provide wheat growers with "desirable" levels of living.

Some agricultural products, now surplus in the United States, have been moved into world trade channels, mainly by the federal government absorbing the difference between domestic and world prices. We can continue to do this, if we are willing to pay the costs and to suffer the consequences in international relations.

Problems of food and agriculture have been one of the chief areas of interest by the United Nations. But part of the reason that there are areas of famine and areas of feast is that methods have not been worked out between nations for the exchange of goods on terms favorable to both. Reciprocal trade agreements are a short-run step in the long-run adjustment process involving planning and action among governments.

IMPLEMENTING THE PLANNING PROCESS

Many of the things that will need to be done to deal effectively with the problems of agricultural adjustment either (a) are contrary to established value judgments or (b) require sacrifice on the part of some group. There is still much to learn about how social value judgments are formed, or changed. It is evident that the conclusions arrived at by logical analysis often differ from ideas held by belief. As illustration, take the 19th Amendment. Exercise of the right to vote was determined by belief. Vote by men was traditional. Logical analysis had something to do with the change. We existed as a nation for about 145 years before women were granted the right to vote. I mention this as an example because equality before the law is stated and generally accepted as one of our social objectives and because franchise for men only was purely and simply a social value judgment which took some time to overcome.

Application of scientific knowledge must overcome the opposition of established beliefs. I shall not try to solve the philosophical problem of whether science can provide all of the answers, or try to outline the function of value judgments in society. My only purpose in mentioning the subject is to express the thought that our value judgments are learned. And inasmuch as they are learned, subsequent generations can learn ones not now extant.

Which values are to be changed, and by what means, raises many questions for the educational processes. Decisions about them are part and parcel of the whole process of social change. One can note, for example, that through time technicians have had influence on eating habits, health treatments, farming practices, etc. Yet, the individual still believes in the church of his preference, chooses his friends through his tastes and theirs and continues to profess belief in monogamy. A world without value judgments would be most uninteresting. One in which value judgments could not be questioned, subjected to consequence analysis and changed through time would be utterly impossible.

Some of the same types of motivations—desire for continuity, location in one place and in a chosen line of work—exist for the people employed by public agencies, educational and otherwise, as are found among people who want to farm. Continuity for the professional activity depends upon continuity of the program. Once a government program is put in operation, there are vested interests involved for individuals and for the agency. Federal programs are frequently criticized on this score by state and local groups. It is less obvious that the same principle applies generally—to specialists in teaching or research, as well as to those who build dams, drain land or store corn.

The only "answer" I can see is to make more decisions on the basis of "determined criteria." This means subjecting each proposal to consequence analysis and choosing on the basis of the results obtainable from the efforts involved. The selection thereby is not necessarily an either-or proposition. Usually it will involve *some* of each of any two proposals that apparently are competitive; for example, continuing research in technical innovations *and* continuing attention to problems of adjustment.

One of the curious paradoxes, long characteristic of our culture and developing further each day, is that so many people make their living as specialists but must be generalists to live as citizens. Our schools train economists, agronomists, botanists, entomologists, animal husbandrymen, veterinarians and home economists, to name only a few. Each of these is subdivided into as many as a dozen subdisciplines. In agricultural economics a graduate student has a choice of at least half a dozen particularized areas of specialty. But this detailed special training does not necessarily equip the individual with a background of knowledge with which he can cast intelligent vote on the important social issues of his time.

The specialized individual is dependent on the recommendations of other specialists for a great variety of decisions he is required to make. I think this holds

for any decision involving concerted public action—whether that action concerns the type of control measures to protect Los Angeles from flood or the content of agricultural adjustment. And it applies in the farming community. In a few instances, individuals and groups are willing to take the recommendation of the specialist; medical doctors and automobile mechanics have fair success in the acceptance of their diagnoses. In other areas, particularly in the social sciences, the record is clouded. This may be because a little knowledge is dangerous, and each has some, or because each has ideas as to the best answer. As the old cliche has it, everyone is an economist.

In the short run, and moving from where we are today, program initiation and development often takes the form of a campaign to put it across. The school lunch, the food stamp, a highway rerouting or the Soil Bank may be cited as examples of programs explained by the agency responsible. There are also instances of programs developing slowly over a period of years, almost evolving through discussions at the grass roots—consolidation of school districts, for example. In the longer run, there is need for change in the content of the program-development process, particularly in the general education processes behind development, so that there is less need for the short-run, campaigning type of action. One requirement in program development to deal with the continuous processes of adjustment to change is a better informed citizenry.

All this points to the need for more training in the behavioral sciences, in grade schools, high schools and through adult education and extension—for everyone, including technicians. Especially noticeable is the need for much additional research in social psychology. We need to get at and understand *how* value judgments are formed and the relation of value judgments to social action.

Part of the problem in agricultural adjustment is the tremendous number of variables involved. In the analysis process, whole thought areas or important variables are either disregarded or held constant. For example, an analyst studying farm leasing practices confines himself to selected economic facets. And necessarily so, as a method of analysis. All other variables are held temporarily constant. Unfortunately, some of the variables so held constant are seldom subjected to study, and partly because one variable—the human equation—involves whole fields of study in itself.

The apparent paradox of specialist versus generalist has a solution. On the one hand is the need for further specialization so that the given area of study is treated systematically. On the other hand is the need for specialists in different areas working together as teams. And in between is the need for each specialist to know more than the details of his own field. The latter applies equally well, and more importantly in terms of social action, to decisions by laymen. Individuals need more knowledge over a wide range of subjects, and they need to work more with other individuals, both laymen and specialists, in group efforts. We can recognize the need for more people becoming familiar with the nature of the problems of adjustment. Doing so means more knowledge, more information and the replacement of more and more "conclusions by belief" with conclusions arrived at by consequence analysis.

Concerning the target of knowledge three possibilities appear: (1) Develop more open forum discussions—seminars for technicians—and directed talk sessions for laymen. This in itself is a positive program of action. (2) Consciously return more responsibility to the family for guidance of children in selecting the electives in school and for training as citizens. Not all of the values to be learned can be left to the school and the church. (3) Put more of the work of the technician into popular form, in papers, journals and magazines that are read. Too many research results are buried in technical bulletins and professional journals and are read only by fellow scientists.

Programs implement policy. Policy involves decisions as to what to do, and how to do it. Policies are supposedly made by ordinary people, in the long run. It is usually the emergency, disaster or temporary program that is put into effect without being subjected to thorough discussion and choice by majority opinion.

Economic change is manmade. The process of change itself is subject to control through the decisions we make. Program development and administration is a reflection of the choices people make in the process of adjustment—choices on both goals and methods.

POSSIBLE ACCOMPLISHMENTS

If the problems of agricultural adjustment are approached and handled in broad perspective, as a part of the processes of national and international social change, what might be some of the accomplishments? In simple outline form, they might include these:

(1) Fewer instances of stored surplus commodities lasting over a period of years.
(2) Smaller and fewer annual appropriations to move goods into foreign trade channels.
(3) More movement of goods among nations.
(4) Less friction and disturbance in bringing people, jobs and resources together to produce the kinds of goods and services actually needed and wanted.

How Does Social Change Occur?

BY GEORGE M. BEAL

THE NEIGHBORHOOD, community, county, state and general society in which we live is constantly undergoing social change. The question is not whether there will be change. The question is, in what direction will change take place, how rapidly will it take place, and how can it be directed so that there will be the greatest individual and societal rewards with the least financial and social costs? The agricultural sector of our society is presently undergoing most dramatic changes. Whether people choose to attempt to stop, slow down, speed up or redirect this change, an understanding of the principles inherent in social action is important to those involved in influencing the social change.

As man lives in this changing society he is pressed to make decisions and act on the basis of those decisions. A number of these decisions and actions can be made and carried out by the individual or within the family. However, the individual moves to group decision making and action when he feels that his own needs or the needs of groups that are important to him can best be met by group action. This paper is concerned with the kind of decision making and action that is brought about by individuals acting together through groups—appraising problems, analyzing resources, determining group goals and carrying out relevant group actions in relation to the goals.

In many cases the most effective way, and sometimes the only way, that directed social change can be brought about is through group action. For example, the adjustment of our basic institutions of education, government and religion are usually brought about through some form of group action. Group action is often involved in deciding to bring in or increase industry in a community. If an attempt is made to enlarge, improve or curtail social, recreational or cultural arts services in an area, some kind of group action is involved. If there is a desire to improve farm marketing or procuring systems or services, group action is frequently involved. The role of *group* action in social change, including agricultural change, is evident.

Here are examples of some of the kinds of groups through which social change or adjustment might be brought about:

Institutional groups: Some group actions take place through the more rigidified group structure of existing institutions. Government, education, religion and the economic institutions are in this catagory.

Special-interest groups: A realistic appraisal of community action leads to the conclusion that most social action is brought about by formally organized special-interest groups. Farm organizations, chambers of commerce, parent-teachers associations, civic and fraternal service organizations—commercial or community clubs, leagues of women voters, etc.—are examples of formal special-interest groups. New special-interest groups may be needed to deal with the many kinds of social changes that are desired.

Informal groups: Much social action takes place through informal group activity. Many communities have made adjustment to social problems without ever formalizing their organizational structure. They have not set up a formal group structure with an organization that has a name, a set of objectives, constitution, set of officers, structured activities or formal membership. Rather, they have gone about the solution of their problems on a more informal basis.

Agency groups: Most private or government agencies have as a part of their structure organized local groups that have rights and responsibilities related to the functioning of the agency. For example, the Cooperative Extension Service, the Soil Conservation Service and the Farm Credit Administration are examples of farm oriented agencies that have local organized groups with specified responsibilities and authority for certain decisions and actions.

Combinations: It is obvious that there may be many combinations of these groups involved in any social action program. For instance, there exist in Iowa many coordinating councils made up of representatives from the various agencies, special-interest groups and institutions. For any new social action program, there may be formed a new action group involving many of the above categories of groups and many groups from within each category. The term "social systems" is often used, and will be used in this paper, to refer to these various social groupings in a local area.

Most of us could provide examples of what a given social action group accomplished with certain kinds of organizational structure and procedures. We believe we could account for the reasons certain attempts succeeded while others failed. However, if the discussion included a complete account of any one action program, it would be easy to get lost in the many details inherent in even one program.

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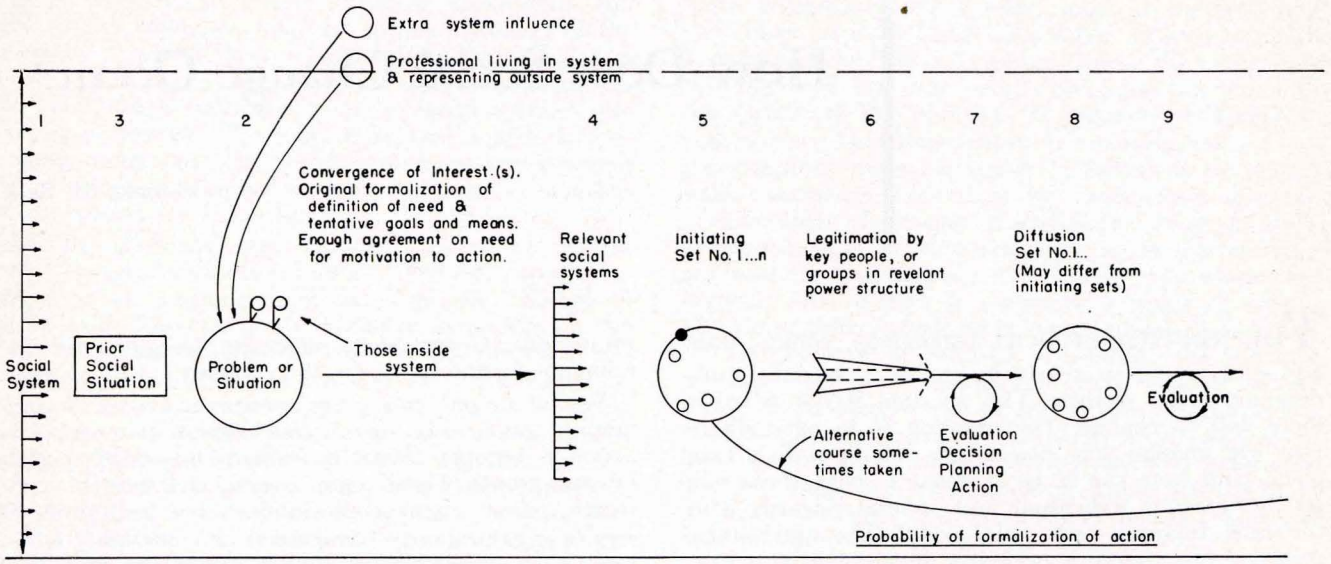
FIGURE 1

A CONSTRUCT OF SOCIAL ACTION - Part I

(Fall 1952. Revised 1954, 1955, 1956)



A. Research and continuing analysis of situation—social and physical.
B. Finding and/or setting up social situations out of which leadership and social action may take place.
C. Finding and mobilizing community and extracommunity resources. One way of thinking of individual or group resources is in terms of: need, interest, morality, success, access, reciprocal obligation, time, legendry, subject matter skills, skills of organization and skills of communication.
D. Social action may be stopped or reoriented at any place on the continuum.

The construct presented here is a conceptualization of the present author that has evolved out of participation in and analysis of community action and reading and discussion with action people and sociologists. In terms of actual documentation the following works have been knowingly drawn upon: (1) Beal, George M. How to get community acceptance and participation for an activity in tuberculosis control. Paper presented to National Tuberculosis Association. Washington, D. C. April 1950. (2) Beal, George M. Organizing for social change. Iowa extension social science refresher course. Iowa Extension Service, Ames. January 1950. (3) Brown, Ida Stewart. Working toward goals. Adult Education 1:13-20. 1952. (4) Green, James W. and Mayo, Selz C. A framework for research in the actions of community groups. Social Forces 31: 320-327. 1953. (5) Holland, John. Mass Communication Seminar. (Personal notes taken from Holland presentation.) Iowa State College, Ames. May 1952. (6) Miller, Paul. Community health action. Michigan State College Press, East Lansing. 1953. (7) Miller, Paul. Decision making within community organization. Rural Soc. 17: 153-161. 1952. (8) National Education Association, National Training Laboratory in Group Development. Bul. No. 3. National Education Association, Washington, D. C. 1948. (9) Sanders, Irwin T. Making good communities better. University of Kentucky Press, Lexington. 1950. (10) Sociology 660, Seminar in social action, Iowa State College. Seminar members: John Harp, Don Koontz, Leroy Moore, Mohiey Nasrat, Everett Rogers and Maurice Voland. 1955.

This difficulty can be at least partially overcome if the discussion is kept at a slightly higher level of abstraction in the analysis and projection of social action. If the discussion is kept at a given level of abstraction, it should be possible to determine certain organizational and action principles that apply regardless of the time, place or type of action program. This paper is an attempt to discuss social action at that level.[1]

It is believed that the model or construct to be discussed provides an adequate framework for the analysis of social action or within which social action may be planned. It can be of real help to those who are trying to make changes requiring group action. It may be revised to fit specific programs. In some cases, certain stages may be skipped or telescoped together. In other cases the program may have to be moved back several stages and a more detailed or new approach made if progress is to be made.

Quite often progress in social action can be attained without fulfilling all of the requirements of this model. However, from the point of view of logic, research[2] and experience with social action programs, the author believes that proper use of this model increases the chances of reaching the social action desired more effectively.

Time and space do not allow a complete presentation and discussion of the model.[3] Figure 1 is a skeleton outline of the model or plan for social action. Each of the stages or steps which usually occur in a social action program are shown. The stages are presented in a logical time and sequence framework. Each stage is numbered across the top of the outline—1, 2, 3, 4, 5, 6, 7, 8. . . A more detailed discussion of each stage follows. The numbers appearing at the beginning of the paragraphs refer to the same numbered stage on the skeleton outline (fig. 1). The first stages are discussed in more detail because these stages seem to be the least understood and are the stages at which mistakes are most often made.

Many important considerations in social action programs do not fit neatly into the stage by stage discussion given here. They run through all the stages of social action. The more important of these considerations are listed across the bottom of the skeleton outline (fig. 1) under the points A, B, C and D. These points are later discussed in more detail.

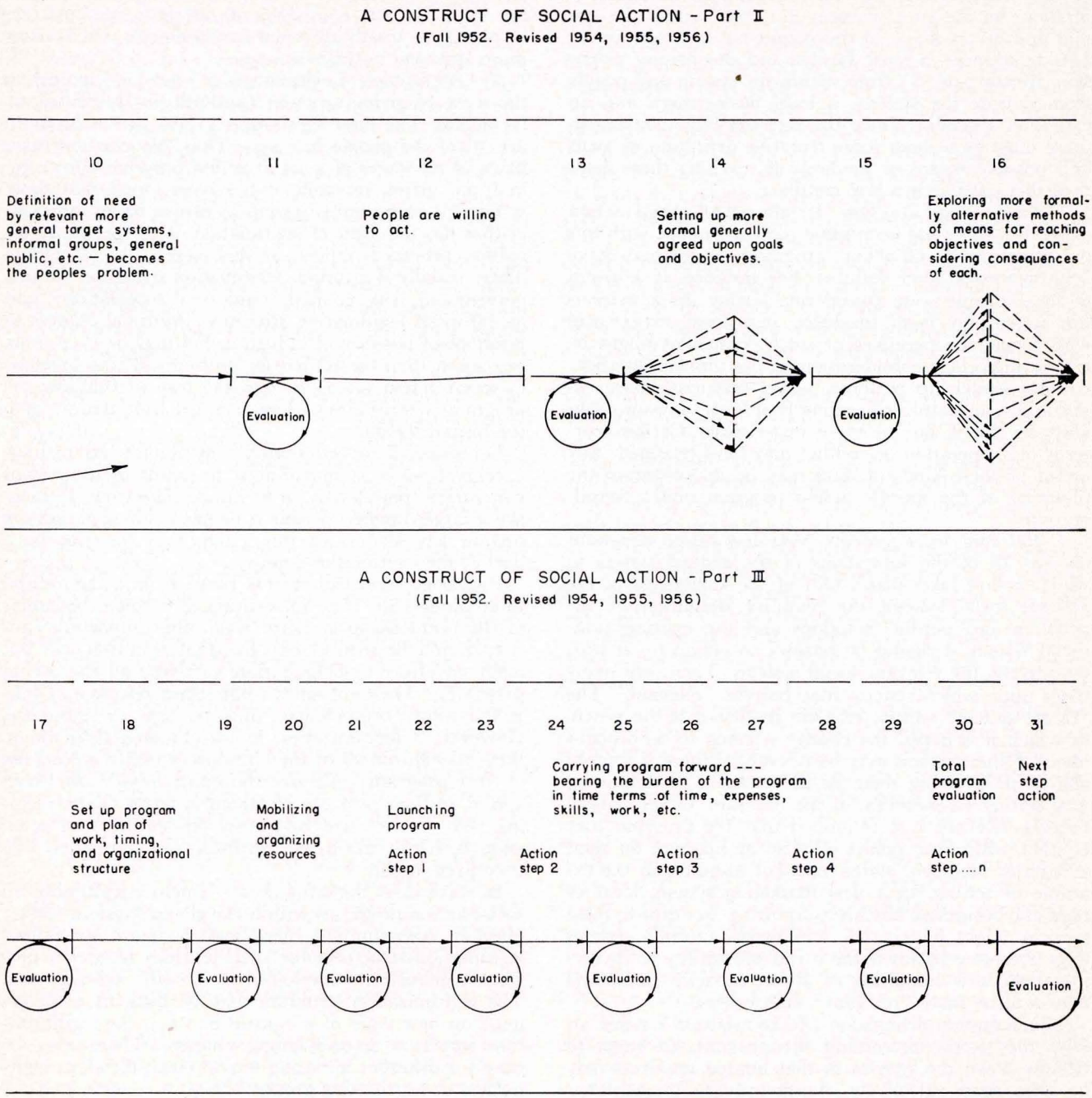
Some readers have suggested that the greatest understanding of this model can be obtained by first reading

[1]The construct of social action is based on certain assumptions:
(1) In most cases there are a complex of functions that must be performed in the successful and efficient conception and implementation of an action program.
(2) These functions can be logically integrated into a flow of actions or a process from the inception of an idea to final implementation, reorientation or dropping of the action program.
(3) For the purpose of analyzing or planning an action program, this process can be broken down into meaningful stages or steps.

[2]See especially: Miller, Paul. Community health action. Michigan State College Press, East Lansing. 1953; and Green, James and Mayo, Selz. A framework for research in the actions of community groups. Social Forces. May, 1953.

[3]For more complete discussion of the construct see: American Association of Land-Grant Colleges, George Beal and Joe Bohlen. The group process, instructor's guide, communication training program. National Project in Agricultural Communications. East Lansing. 1956.

FIGURE 1 (continued)



through the skeleton outline (fig. 1) and then referring back to it as each numbered and lettered paragraph is read in the text.

1. The social system. All social action takes place within the context of social systems. For instance, the general system within which the local county Extension Service program is carried out includes the *county* as a social system. There are also extra-county systems which are important; e.g., Extension Service system at the state and national level and its many component parts. In the same sense, the main social system for other action programs may be the community, several counties, or perhaps economic areas or regions. If one is to try to carry on social action intelligently, there must be an understanding of the general social system within which action will take place—such things as unique characteristics of the system, the power structure, formal and informal groups, institutions, locality groups, social stratification and the interrelation of these.

2. Convergence of interest. All social action begins when the interest and definition of need on the part of two or more people converge and are brought together. These interests may be alike or complementary to each other. Usually, the original convergence of interest on a problem involves only a few people. Members of the convergence set may be made up of many different kinds of people. In the case of the Extension Service for example, convergence might come: (1) totally from with-

in the social system—several local people discussing a problem on the street corner; (2) from within the system and others living in the system but representing an outside agency—a local farmer and the county extension director; or (3) from within the system and people from outside the system—a local businessman and an extension specialist. Once the interests have converged, there must be at least some tentative definition of goals and possible means or methods of reaching these goals if further social action is to continue.

3. Prior social situation. In almost all social action programs, there has been some past experience with this or similar kinds of action programs. Some may have been successes, some failures. For instance, if a group of local people were considering setting up a marketing system for farm products, past local experiences with farmer cooperatives or stock companies might be a very important consideration in the present situation. Certain leadership patterns, power relations, roles, expectations and attitudes among people and groups probably developed out of these experiences. Certain patterns of cooperation or conflict may have emerged. Any or all of these kinds of data may be important to the planning of the specific action program under consideration.

4. Relevant social systems. Very few action programs involve all of the subsystems of the general system in which action takes place. Out of the knowledge of the general social system, the tentative definition of the problem and possible solutions and the existing prior social system, it should be possible to delineate, at least tentatively, the relevant social systems. There are many bases upon which systems may become "relevant." The "target system" will be relevant in that it is the system in which it is hoped the change is going to be brought about. Other systems may be relevant if there is a probability of involving them in the problem of definition, goal setting or execution of the program. Other systems become relevant if it is judged that the program may conflict with their points of view or impinge on their programs, members, status, etc. For instance, in the example of setting up a new marketing system, local or regional businesses already purporting to furnish these services might have to be considered. Outside systems may become relevant if there is a probability of involving them in a consulting or action capacity. Some systems will be more "relevant" than others.

The tentative delineation of the *relevant* systems allows the people promoting the program to begin to narrow down the systems so that limited resources may be used more effectively. As the program progresses, certain systems may drop out of the "relevant" classification, others may have to be added.

5. Initiating set (s) 1, 2 . . . n. At this stage the tentative definition and need of the problem and goals have emerged, and the next step is to initiate limited action. Action envisaged at this stage is of the "sounding board," information-gathering and legitimation nature. There usually emerge a small group or groups of people who attempt to involve other individuals or groups of people in the action process. There may be only one initiating set. More often there are several or many initiating sets. For instance, a key local farmer seeing the need for part-time work and several local businessmen who are aware of business falling off might initiate action to get industry into a community. Initiation may take place very rapidly, or take months or years. The reason for initiating sets composed of different combinations of people or totally different initiating sets will become more apparent in the next stage.

6. Legitimation. Legitimation is used here mainly in the sense of giving sanction (authority or justification) for action. The final legitimizers in any action program are all of the people involved. Thus, legitimation takes place at all stages of a social action program. However, in social action research, it has been found that there is a much more limited group of people or an individual that has the right of legitimation. This specific legitimation process is crucial at this stage of social action. There usually is a formal legitimation structure (county government, city council, ministerial association) and an informal legitimation structure (informal leaders in positions of power and influence that may be even more important than the formal legitimizers). Those involved in social action often fall into the trap of thinking the program is legitimized when they get legitimation from the formal structure.

For example, a community may find it has to have a central water system if it is to maintain its present community population or to interest industry. If there are a large number of retired people in the community, certain key leaders of this group may have to be a part of the legitimation group.

Reactions from legitimizers range from a flat refusal to go along with ideas to wanting to become the center of the promotional activity. One other important caution should be mentioned: Legitimizers often will put forth no effort to help initiate or carry on the action program. They are not an important resource of subject matter, competence, time, energy or influence. However, if legitimization is not obtained from them, they may throw all of their resources into the blocking of the program. An oversimplified reason for such action on their part can be stated in terms of their feeling that if they are by-passed on legitimation often enough, they cease to be legitimizers, a status and role they prize highly.

In some cases the same power structure legitimizes all social action programs within the general system. More often in communities, there may be more specialized legitimation structures for specific kinds of action programs—industrial development, health, schools, etc. The legitimization structure may be difficult to determine on new types of programs or when the legitimization structure is undergoing change. There may be need for different initiating sets to reach different legitimizers or legitimizing groups.

7. Evaluation. (Also all odd numbered stages between 7 and 29). These stages are placed in the construct to emphasize the importance of constant evaluation of actions taken, projecting forward to immediate, intermediate and ultimate goals, exploring alternative means, choosing the means, planning in relation to the means and ends and acting in relation to these decisions. This type of reconsideration is implicit in good democratic discussion, planning and action. This concept allows for redirecting or even stopping social action at any point along the construct. For instance, the goals, scope, timing, strategy and relative emphasis on various facets of action programs are often changed to some degree as they go through the legitimation stage. Of course, these same changes may take place at any stage. It should be

emphasized that there is not only evaluation of goal attainment (how far have we progressed?) but of the process being used (how did we try to do it, what methods were used, how were our human relations and strategy?). In some cases social action is slowed or stopped on the assumption that goals are wrong or unattainable. The real problem may be that there may not have been enough involvement of the people; the right people had not been involved or the methods chosen were not appropriate. Objective evaluation and planning should provide a sounder basis for "next steps."

8. Diffusion set (s) 1, 2 . . . n. Thus far the problem, the recognized need and the motivation to do something about the problem has been agreed upon by only a small group of people. Sometimes it is assumed that this is all that is necessary. However, to motivate other individuals and relevant systems to participation and action, they too must have felt a need and be willing to act. At this stage, there is a need for people who can provide the kinds of resources needed (time, communication skills, organizational skills, access to many people or groups, prestige, etc.) to give opportunity for the relevant more general social systems to express felt needs in relation to the problem. The people who do this job are called the diffusion sets. It is obvious that there may be need for many different combinations of people or completely different sets to accomplish this job.

10. General definition of need. This is the stage at which the opportunity is given, or the attempt is made, to promote the definition of the need on the part of the relevant more general target systems. This is the stage where the problem is really taken to the great number of people for discussion. It is hoped that, at this stage, the problem (of community adjustment to increasing or decreasing population, for example) will really become a need felt by the people making up the relevant systems or publics. There are many different techniques that can be used to determine or secure the definition of need by the relevant systems. One of the most common means is basic education through mass media, neighbor, community or larger group meetings, and door to door canvasses. Other common means of giving people an opportunity for defining felt needs are through surveys, demonstrations, tours and information from other groups that have tackled similar problems, capitalizing on or creating crisis situations, channeling complaints into action, etc.

12. People decide to act. This stage is often integrated with the general definition of the need. It is indicated here as a separate stage to emphasize the importance of getting not only tacit agreement that the problem exists, but also a commitment from the people to action in relation to the problem. It is not enough for people to recognize that their churches have too many members because of the large number of people moving into their growing community. They must be *willing* to *do something* about it.

14. Formalizing goals and objectives. After the relevant systems agree that a problem really exists and are "committed" to action in relation to it, objectives, goals or targets must be set up and formalized by the relevant systems or subgroups to whom this authority has been delegated. Social action programs often skip setting goals. They move from a general definition of the problem to solutions—to means and methods. For instance, in school reorganization the action becomes bogged down in arguments over local control, school location in relation to local business, before goals are set in relation to what the function of the school is, what kind of a school and school program the people want. Setting proper goals will usually involve general and specific goals and immediate, intermediate and long-time goals.

16. Decision on means. Once goals are set, there comes the problem of exploring alternative means or methods that might be used to reach those goals. An attempt has been made to illustrate in the outline of the construct that there is usually greater difficulty in agreeing on means than on goals. From the range of means available, a decision has to be made on which one or ones will be used to attain the goals. In the case of inefficient local cooperatives, many alternatives may be considered—(1) increase the efficiency of existing cooperatives, (2) enlarge membership and volume of local cooperatives or (3) consolidate local cooperatives with other nearby cooperatives. In some action programs, the stages from general definition of need to decision on means are loosely combined. One way of getting people to define a situation as a problem and be motivated to action is to suggest a solution or solutions, including goals and means, to the problem.

18. Set up the plan of work. Within the framework of decided upon goals and general means, a specific series of actions that must be taken to attain the goals must be planned and set out formally or informally. Organization structure, designation of responsibilities, planning of specific activities, timing, etc. are all part of this stage.

20. Mobilizing and organizing resources. Within the framework of the plan of work, attention must be given to obtaining and organizing the resources to carry out the program. It is recognized that for a program to reach this point, there has been much mobilization and organizing of resources. However, this stage refers specifically to the mobilization and organization of resources related to the carrying out of the formal plan of work. In many cases subject matter, skill and financial resources available from outside the community are not recognized and used.

22, 24 . . . n. Carrying out the action program. In accordance with the plan of work, the program actually has to be carried out step by step.

30. Final evaluation. This stage involves a more general approach to over-all evaluation of the entire action program. Results must be evaluated in relation to stated objectives. Concern should be given, not only to those areas where stated goals were not satisfactorily attained, but also to recognition and satisfaction with those goals that were successfully accomplished. In addition to evaluating goal attainment, evaluation should also be made of what is called process. By process is meant how the program was carried out—committee systems, human relations skills, conflicts, group relations developed, problems encountered, etc.

31. Continuation. Out of the final evaluation usually evolves "next steps," in terms of goals not satisfactorily accomplished, intermediate goals already decided upon or extension of actions consistent with long-time goals.

The following is a brief discussion of some of the basic considerations that run through all of the "stages." These main considerations are designated by A, B, C

and D across the bottom of the skeleton outline of the construct.

A. Research and continued analysis. It should be obvious that research and continued analysis must be made at all stages. The type of research, the kinds of facts and information needed and the depth of the research will vary with the stages and with the kind of program. Certain information is necessary upon which to base a sound decision that a problem even exists. Different kinds of information and facts may be needed to convince the different relevant legitimizers. Before the program is taken to the more general relevant systems, a great deal of sound information and facts are needed. It is important to note that when the relevant systems are involved in gathering and analyzing data, they seem to put greater credence in the data and in the conclusions drawn from the data, and they are more highly motivated to act to do something about the problem.

B. Finding and mobilizing resources. At every stage there is need for finding and mobilizing the resources needed for next steps. From the point of view of *social resources,* there has been listed on the outline (fig. 1) under B some of the kinds of resources that individuals and groups possess that may be of use in an action program. For example, the resource of *access* is especially important at the legitimation stage. Often the original initiating set does not have direct *access* to the legitimation structure. This may dictate the inclusion of some of the initiating sets, people or groups that do have access to the legitimation structure.

At the general definition of need stage, there may be people (newspaper editors or key people in communication networks such as a local postmaster in a rural community) or groups (through their meetings and committees) that have *access* to large segments of the relevant systems. Such people or groups may become a part of the diffusion sets. Other people (such as the county extension director) may have *access* to outside resources needed for the action program. Thus, at various stages in the program an analysis of people and groups in terms of the resource of *access* is an important aspect of any action program. A similar case could be made for each of the other resources of needs, interest, respect, morality, etc., listed under B on the outline.

C. Finding or setting up social situations out of which leadership and social action may evolve. This concept is implicit in the discussion of all of the stages. Two additional comments might be made. (1) For many programs the leadership structure is already in existence. Local people in many cases know who the best people would be to organize, to be resource people, to represent them, to legitimize, etc. (2) For those programs that are relatively new and quite different from past experiences, social situations can be set up, out of which a leadership structure will become evident.

D. Social action may be stopped or reoriented at any stage. The self-evidence of this statement should be obvious from the previous discussion.

Social change and social action is constantly with us. It is a part of the dynamic society in which we live. The decision that individuals and groups in our society face is what direction and with what speed we wish it to take place. Planned social action is not an easy task. It involves carefully thought out goals and methods, study and analysis, broad individual and group involvement and careful detailed planning. However, it can be a tremendously dynamic, motivational and rewarding experience. If those who are involved in the planning and execution of social action programs keep the construct presented here consciously in mind, they will be more effective and efficient in directing social action toward their chosen goals.

Positive Adjustment to Change —Local Organizational Effort

BY V. H. NIELSEN

THE PROBLEM of adjustment in agriculture is concerned primarily with farming and with related social changes. There is, however, an important parallel in some of the agricultural marketing industries. A good example is dairy marketing. The primary objective of cooperative milk processing and dairy products manufacturing is to provide the highest possible returns to the participating dairy farmers. Generally speaking, this objective is reached by obtaining the highest product prices in the market and by operating efficiently at low cost. This requires continuous observance and application of technological and economic advances.

THE CASE OF THE COOPERATIVE

Cooperative marketing and purchasing have been valuable instruments of farmers throughout the world in their struggle to attain economic equality with other segments of the society. Though cooperative enterprizes are built on special principles, they are still subject to the same influences of technology, market competition, managerial skill and economies of scale which govern corporate and private businesses. Despite these obvious qualifications a number of farmers' cooperative marketing firms continue to function with relative indifference to economic and technological changes. This inertia has served to augment the farmers' disadvantage in an expanding economy. While the phenomenon applies to many types of farmers' cooperatives it is illustrated particularly well by those which are engaged in dairy processing and marketing.

RESOURCE SITUATION IN DAIRY MARKETING

Many Iowa creameries were established 50 to 60 years ago at a time when poor roads and transportation facilities dictated the need for local plants which tended to remain small. The manufacturing in these plants was based largely on butter from farm-separated cream while the skimmilk was fed to livestock. In other sections of the United States dairy processing has tended to be concentrated in larger, diversified plants manufacturing a number of products.

Despite research and experience which show that small creameries necessarily operate with high unit costs, the small local plants in Iowa have persisted (table 1), and the shift toward more economic units has been slow. This hesitancy to adjust to changing conditions is due partly to lack of interest among producer-members and partly to local pride and to pressure from other businesses to maintain the creamery for the sake of the "community."

By the same token many plant operators have, for understandable personal reasons, shown determination to keep small plants operating despite obvious evidence of their inadequacies as processing and marketing units. Consequently, a fierce and sometimes destructive competition has developed among creameries for the available milk and butterfat volume. In some areas as many as 6 to 12 plants are handling a volume of milk that might be processed more economically in one plant. Costly overlapping of cream and milk routes add to the inefficiency, and the struggle for volume has led to procurement and fiscal policies which have provided no reserves for replacement and improvement of plant facilities.

In recent years, changes in livestock feeding practices and a favorable support price for nonfat dry milk have complicated this situation by creating a need for added facilities to process whole milk rather than cream in many of these plants. Furthermore, the competition among the plants has fostered misrepresentations to the producers concerning the quality requirements for raw milk. This, together with the inadequate technology in many of the small plants, has caused the manufacture of substandard products, lower product prices and reduced returns to the producer. During 1956 many producers in Iowa received 15-25 cents less per 100 pounds of milk than they might have received from products of higher quality.

In addition to these losses we might add those which come from not taking advantage of the economies of scale of the large plants. The differences in butter man-

TABLE 1. DISTRIBUTION OF BUTTER MANUFACTURING PLANTS IN IOWA BY SIZE GROUPS.

Pounds of butter made	Number of plants 1949	1955
Under 200,000	125	108
200,001- 400,000	129	91
400,001- 600,000	49	33
600,001- 800,000	20	22
800,001-1,000,000	18	16
1,000,001-1,200,000	14	9
1,200,001-1,400,000	9	12
More than 1,400,000	26	26
Total	390	317

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TABLE 2. VOLUME OF OUTPUT AND MANUFACTURING COSTS OF BULK BUTTER IN 13 SAMPLE PLANTS.*

Plant	Volume of bulk butter manufactured (pounds)	Cost per pound to manufacture bulk butter (cents)
A†	173,000	8.10
B†	302,000	4.62
C†	320,000	4.77
D†	374,000	4.49
E	552,000	4.71
F†	624,000	3.30
G	861,000	4.01
H†	892,000	3.91
I†	1,144,000	4.00
J	1,970,000	3.40
K	2,042,000	3.00
L	2,896,000	2.40
M	2,958,000	2.44

* From: Frazer, J. R., Nielsen, V. H. and Nord, J. D. The cost of manufacturing butter. Iowa Agr. Exp. Sta. Res. Bul. 389. 1952.
† Indicates one-churn plants.

ufacturing cost are illustrated in table 2 for plants which handle farm-separated cream only and in table 3 for plants which receive whole milk.

The increased marketing of whole milk for manufacturing purposes has also emphasized the importance of efficiency in the operation of milk drying plants. The influence of volume on the cost of making nonfat dry milk is illustrated in table 4.

THE MEANING OF READJUSTMENT

An examination of the cost figures in tables 2 through 4 should reveal a distinct advantage of the large volume plants. Assuming efficient and careful management these plants are able to save 10-25 cents per 100 pounds of milk in manufacturing cost and can consequently return that much more to their members. Another advantage of the large scale plant is the greater ease with which it can be made flexible to manufacture several products and meet changing conditions in the market. The larger volume of products made is a factor in maintaining uniformity of product quality. This, in turn, is a basic requirement of developing and holding remunerative markets.

These considerations suggest that reorganization of many of the small local creameries into fewer but large scale plants would be a desirable adjustment for the dairy industry in Iowa. The net results of this adjustment should be increased returns to dairy farmers for milk and greater stability in marketing.

Fortunately, a number of reorganizations of creamery associations have already taken place, thanks to the vision and leadership within these groups. In a number of instances this adjustment is still blocked by inertia and by other interests of local groups. Much of this resistance to change stems from community motives which have little relationship to the fundamental objectives of the cooperative dairy marketing firm; namely, to provide an outlet for milk and milk products with the highest possible return. Often this resistance to change is strengthened by the fact that the cooperative is financed partly through loans from local businessmen who are not members. Thus the farmer-members are encouraged to continue an uneconomic operation. The most frequent objection to creamery consolidation is that those communities will suffer where plants are closed. In reality most communities would benefit from an adjustment of dairy marketing that would result in larger, though fewer, plants since the expected higher returns to the dairy farmers should increase their purchasing power. With modern transportation facilities the actual location of a creamery or milk plant may have little influence on the town in which the farmer-patrons spend their income.

The number of dairy processing plants needed to process the present and potential milk production in Iowa cannot be determined accurately by a theoretical consideration of the optimum volume of manufacturing given products and the milk available. In making the adjustment in the number of plants needed, several factors such as density of milk production in a certain area, nearness of market, transportation facilities for the finished product, availability of water and factory sites, problems of waste disposal, effect of leadership and management will rightfully assert themselves. It is possible, indeed, that these factors alone in due time would bring about the change. In the long run the adjustment can be effected with less hardship and on an economically sound basis if it takes place as the result of rational planning rather than as the result of destructive competitive processes.

TABLE 3. UNIT COSTS IN FOUR WHOLE MILK PLANTS.*

Item	Plant I 500,000 pounds	Plant II 1,000,000 pounds	Plant III 1,500,000 pounds	Plant IV 2,000,000 pounds
	(cents per cwt. of milk)			
Labor	13.85	11.29	10.21	9.16
Fuel	2.98	2.34	2.13	2.02
Power	1.92	1.92	1.92	1.92
Materials used in processing	0.22	0.22	0.22	0.22
Packaging materials	0.98	0.98	0.98	0.98
Building cost	2.95	1.69	1.30	1.00
Equipment cost	11.20	7.50	5.77	4.84
Insurance	0.78	0.50	0.38	0.32
Taxes	2.05	1.32	1.02	0.85
Payroll taxes	0.28	0.23	0.20	0.18
General plant supplies	1.48	1.48	1.48	1.48
Office supplies	0.20	0.20	0.20	0.20
General administrative expense	1.23	0.93	0.83	0.78
Total	40.12	30.60	26.64	23.95

* From: Frazer, J. R., Nielsen, V. H. and Ladd, G. W. Manufacturing costs: Whole milk creameries. Iowa Agr. Exp. Sta. Special Report 17. 1956.

TABLE 4. PROCESSING COSTS PER HUNDREDWEIGHT OF NONFAT DRY MILK FOR THREE EQUIPMENT AND LABOR ORGANIZATIONS.*

Volume	Equipment combination		
Pounds of nonfat dry milk per year	500 pounds per hour	650 pounds per hour	750 pounds per hour
	(cents per pound nonfat dry milk)		
938,200	7.64	.....	.....
1,875,600	5.93	5.90	.....
2,679,500	5.30	5.28	.....
2,817,600	.....	5.21	5.48
3,174,700	.....	5.08	5.20
3,767,500	.....	.....	5.04

* From: Kolmer, Lee. Spray drying costs in low-volume milk plants. Unpublished Ph.D. thesis. Iowa State College Library, Ames, Iowa. 1954.

The Role of Education in Promoting Adjustment

BY ROBERT R. PINCHES AND L. J. BODENSTEINER

EDUCATORS APPROACHING the problem of agricultural adjustment must keep in mind three points: (1) the general nature of the problem and its educational implications, (2) the role of education and the educator and (3) the nature of the groups which need to be involved in the educational process.

The problems of agricultural adjustment are complex, partly because of the diversity of groups—both within and outside of agriculture—which are involved in the adjustment processes. Education, to be effective, must work with people in many segments of the economy—differing age groups on the farm, differing tenure classes, credit sources and the general nonfarm public.

STATEMENT OF THE PROBLEM

As a starting point for defining the problem faced by educators, we refer to a statement made by Heady:[1] "As we invest in technical improvements for agriculture, we need to invest in services which maintain or restore balance in both the resource and income structure of the economy. Two things are needed: (1) We need research, education and programs which aid in increasing economic efficiency for farmers remaining in the industry. Agriculture is a competitive industry. It will continue to be so, and farming can be conducted profitably only by those who have proper abilities, skills and capital. As in the past, we need to maintain a flow of information to operators who will or should remain in farming. We need to properly train youth who will take their place. (2) We need to intensify a parallel effort which helps agriculture adjust in numbers of farms, quantity of labor and general resource structure."

An additional facet of the problem was brought out by Kaldor:[2] "A highly progressive economy will be one in which rates of technical progress and increases in the quantity and quality of resources are high. Inevitably, this will mean a high rate of maladjustment creation. If economic balance is to be maintained, it will also mean a high rate of resource adjustment or adaptation."

[1] Heady, Earl O. Paper presented to the Agricultural Adjustment Seminar. Series of seminars conducted at Iowa State College. 1957.
[2] Kaldor, D. R., ibid.

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A statement by Ball[3] stresses the inter-relationships of the problem: "Because there is at this time a greater awareness of the effects of the maladjustment on agriculture than of its causes, there may be a tendency to expect to find and to look for a solution only within agriculture. This will not suffice. Agriculture does not operate in isolation, but as a part of the whole. The problem of its adjustment is not exclusively internal, or exclusively external, but some of both."

A highly progressive economy will require well trained farmers if they are to contribute effectively to the expanding general economy and to share fully in the benefits of it. Resource adaptation responding to agricultural maladjustment indicates less intensive use of land, labor and capital in the agricultural industry.

Technology in agriculture has led to the substitution of capital for labor and at the same time has increased output; labor has been released or become underemployed in terms of earnings. Also, the increased output has depressed prices and farm incomes. Consequently, the same resources return less in agriculture than in other parts of the economy.

THE ROLE OF EDUCATION AS IT PERTAINS TO THE PROBLEM

As indicated above, education has various roles to play relative to the adjustment problem in agriculture On the one hand, it helps the individual (or family) decide whether farming or some other occupation is more suitable for his circumstances. On the other hand, it helps those who choose to farm decide how to be productive and useful as individuals and as farm families. In a broader field, education helps people in community development and adjustment and in the expansion of economic and social opportunity. These latter problems will not be treated in this paper.

The basic assumption is that education can contribute to agricultural and rural community adjustment through providing information on which individuals can more logically base their own decisions. It implies that individuals will make rational choices based on the facts and that the aggregate of the many individual decisions will assist adjustment in a positive manner.

The role of education in the process of agricultural adjustment is basic in a free society. Unless the people involved understand the nature of the problem, progress toward a solution will be slow and costly.

[3] Ball, A. Gordon, ibid.

In supplying the educational needs of the various groups that have a stake in the adjustment of agriculture, two important steps are necessary: First, it is necessary to provide the basic information to fully understand the nature of the problem. Second, it is necessary to provide information on the nature of the needed adjustments.

Education will need to furnish answers to many questions in the minds of people as they approach specific stages of adjustment. Only after the necessary information has been made available and is understood can people make intelligent choices with regard to their alternatives.

The task of education extends beyond people directly employed in agriculture. Understanding of the problem and the acceptance of a solution to the problem needs to be nationwide. Since the problem is national in scope, nationwide agreement is necessary in developing an effective educational program.

The role of education is to extend *facts,* not panaceas. Specifically, in agricultural and community adjustment, education should provide the tools with which individuals, families, groups and communities can make their own decisions. This is not a passive role. Educators must approach this task with the idea that the work is not done until the majority of those concerned have the facts and have made rational decisions based on a combination of the facts *and* their own value systems.

"Shotgun" educational efforts directed at the "average" farm operator is a trap into which we must not fall. As a minimum, we must recognize the stages in the family life cycle of farm operators, tenure classes and types of farm investors. If the goal is to present pertinent facts on which sound decision-making can rest, then the situation in which the individual finds himself determines the scope of facts needed and the appropriate channels for disseminating the information. The banker faced with the question of increasing or reducing loans to farmers needs different facts than the high-school-age farm boy faced with the decision to enter farming or another occupation. Information channels which are effective for one are not necessarily suited to the needs of the other.

One of the jobs of the educators is that of identifying the specific subgroups to be reached and the critical points where decision-making takes place. The job includes necessary attention to the educational and informational channels suitable for reaching those needing specific types of information. The land-grant colleges are in a strategic position to serve many educational and informational channels because of the past history of close work with diverse groups and organizations. Major educational resources must be used so that this education is applied before additional human and capital resources are committed to agriculture if education is to be helpful in bringing necessary adjustment in the agricultural industry.

THE FAMILY AND FARM CYCLE

The operating family of a farm often is not free of parental influence. The nature of the cycle where the parents turn over the business to the children presents a situation where more than one generation takes part in management. As time passes, the younger generation assumes a greater role. But during the period of transition, both the parents and the young family have the feelings, values and goals of the other to consider when making decisions pertaining to the farm and its operation.

The nature of the *farming cycle* as it is tied to the *family cycle* often presents problems. Disagreements may arise in father and son partnerships on the question of expansion, risk and new methods of production. These differences are primarily due to differences in goals that may be traced to differences in age between father and son. In time, a farm operator passes through the entire cycle of youth to retiring farmer and, possibly, landlord, and it is necessary to consider this cycle in addition to the specific subgroups in agriculture listed below.

SPECIFIC SUBGROUPS AND THEIR MAJOR ALTERNATIVES

1. *High-school-age farm young people,* both boys and girls. This group has many choices to make. They need facts and help in the decision-making process as they decide whether to: (a) make farming their major vocation, (b) leave farming permanently or (c) leave farming to accumulate capital for later farm entry.

2. *Out-of-high-school, single young men engaged in farming.* This includes young men engaging primarily in the farming operation controlled by the parents, those who are doing some farming on their own and those working as hired hands. Three basic choices are open to them: (a) to leave farming for better alternatives, (b) to move into a definite partnership arrangement with the farm operator, usually a parent with whom they are working or (c) to move into independent operation as manager, tenant or owner-operator. Selection of any of these alternatives affects the family. Failure of the young man and the family to face the alternatives critically and at an early stage may lead to individual failure and retarded occupational adjustment.

3. *Hired farm workers,* including particularly those who have grown up in farming and have little nonfarm experience. Hired farm workers in modern times have little opportunity to climb the agricultural ladder through accumulation of capital. Though this alternative is still possible, two others are more likely: (a) a decision to leave farming for better paying alternatives or (b) a decision to remain a farm worker because of preference or lack of other skills.

4. *Young married couples* devoting their major efforts to establishment in agriculture. Many young couples have already committed themselves and their resources to gaining a toe-hold in farming. When they have committed themselves unwisely, the application of education is helpful in "picking up the pieces" and making a new adjustment—perhaps, actual exit from farming. A more effective time for education in these cases would have been before the commitment was made.

5. *Part-time farmers.* Part-time farmers face a complex set of questions as they choose between the alternatives of deciding to continue as part-time farmers, deciding to move into full-time farming or deciding to

move out of farming entirely when the opportunity presents itself.

6. *Established managers and tenants* devoting their primary effort to farming and receiving the major portion of their income from farming. Tenants use their management abilities and capital resources in cooperation with a farm owner. The decision to stay in farming or to leave for other alternatives must be made on the management ability of the individual and the availability of agricultural resources which can be used to maximum efficiency. Since the goal of many tenants is to accumulate capital resources to become owner-operators, the feasibility of this goal needs to be carefully appraised.

7. *Active owner-operators.* Active owner-operators are the least mobile of the subgroups and will normally decide to leave farming and sell agricultural resources only as a last resort. A few owner-operators are in a position to leave farming for other alternatives and still retain their investment in agriculture. However, the most likely decision alternatives are: (a) to intensify by adding additional resources in farming operations or (b) to shift to a less intensive type of farming over a larger acreage using approximately the same resources.

8. *Operators moving toward retirement.* One alternative for these people is bringing in a partner or additional labor and maintaining the past scale of operation of their farming unit. Another is to gradually reduce the intensity of their farming operations. A third alternative is to sell the farm and other agricultural resources.

9. *Retired farmers* retaining an investment in agriculture. Retired farmers have the choice of leaving their investment in agriculture or selling some or all of the agricultural resources to other investors or operators.

10. *Landlords*—(a) families owning agricultural property as the result of inheritance or (b) nonfarm investors in agricultural resources including individuals, loaning agencies, farm supply and service industries extending credit. Owners of family estates have the opportunity to continue operation of the farm unit by securing a tenant, to sell to another owner, or to sell to those who will combine this unit with other land. Nonfarm investors in agricultural resources have the choice of retaining or increasing their investment in agriculture or of reducing their investment and shifting to other industries.

11. *General public.* People closely associated with the farm community, trade communities, church groups, school districts and urban areas all have a stake in the adjustment of agriculture to economic change. All have a role in contributing to the climate and atmosphere that promote the necessary adjustment.

The major directions of possible adjustments for each subgroup and individuals within the subgroups fall into four general catagories. One direction is to move toward a combination of land and capital that will lead to more efficient production of the farming unit. Essentially this is in the nature of expanding the farming business to bring about a more effective use of labor. Such expansion may be desirable for some individual operators, but large numbers of operators shifting in this direction would be contrary to the over-all adjustment needed.

A second alternative is to move out of agriculture and decrease the labor resource in agriculture. The capital and land resources would then be recombined into other farming units.

A third alternative is to use the given resources of a farming unit more intensively—to improve efficiency through vertical expansion or specialized production. This type of adjustment may possibly improve the income of the individual firm or farmer but does not fall within the framework of total adjustment of agriculture as an industry. A broad adoption of this type of adjustment would tend to expand agricultural output.

A fourth alternative is to use the total agricultural resources less intensively. The key to this type of adjustment is tied to alternatives one and two. A new combination of resources—land, labor and capital—would permit a more efficient production. The adjustment is a substitution of the expensive resource, labor (in terms of alternative costs or earning opportunity outside of agriculture), for more land and capital in the farming unit. With this type of adjustment, total production need not increase, or may actually decrease, while the income of the individual farm may increase as a result of lower production costs.

The basic adjustment directions applied to all farmers and farm investors is that new entry of operators and capital resources leads to an intensification of the agricultural industry while exit and reduction of capital resources, if carried far enough, leads to less intensification.

Selection of a proper alternative for the individual and for segments of the farm population needs to be made in the light of the facts of the situation. Education in decision-making can make its most effective contribution to agricultural adjustment only before shifts are made. After resources—human and otherwise—have been committed, education in some cases can help reduce the loss from faulty decisions or help improve returns if the decisions were in a logical direction. Figure 1 indicates some points where the application of education might be effective in the agricultural adjustment process.

IMPACTS OF ADJUSTMENT ON DIFFERENT SUBGROUPS

Farm Youth

Farm youths are the most mobile members of the farm families. In recent years, a large proportion of the farm youth has found it necessary to seek other employment opportunities. The farm youth often analyzes his future in farming from the standpoint of interest, available capital and available farms and to a lesser extent from the standpoint of alternative opportunities and comparative returns. These young people need a more complete picture of the alternative opportunities both in farming and in nonagricultural pursuits.

The environment and educational facilities available to farm youth tend to emphasize training in agriculture and neglect training in other occupations. Therefore, because of the high costs and limited opportunities in farming, these young people "drift" into other kinds of employment.

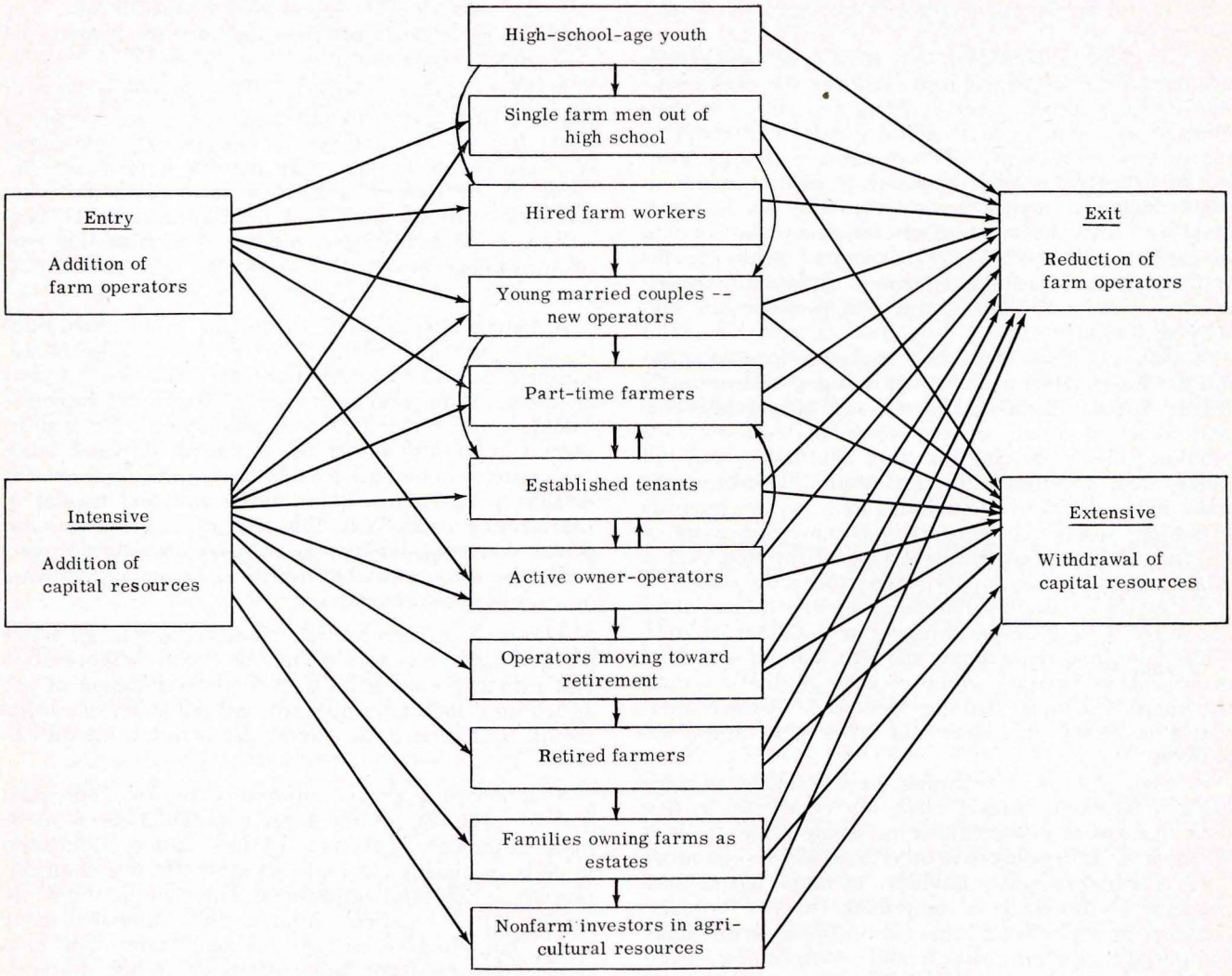

Fig. 1. Points of application of education to effect agricultural adjustment.

Efforts on the part of the educational agencies to help direct the farm youth have been neglected. The Extension Service, through 4-H and other youth activities, has attempted to present the adjustment problem to these young people. However, Extension reaches only a small percentage of this group at high school age and beyond. Most of the farm youth attend high schools too small to offer many vocational training opportunities other than in agriculture and home economics. Consequently, they find themselves poorly prepared to make the adjustment into other occupations. Training opportunities that provide a broader insight and knowledge of occupations other than farming are not available at present for the farm youth in most Iowa high schools.

The adjustment of the labor force in agriculture becomes increasingly difficult with age. With further developments in technology, the need for maintaining a more flexible labor force in agriculture is essential to meet adjustment needs. Efforts need to be made in the area of education to inform young people of the nature of the adjustment problem and to extend occupational guidance.

Similarly, the nonfarm youth often finds that his opportunities are not in the small rural community in which he grows up. He is essentially faced with the same kind of problem facing the farm youth. His educational opportunities are the same as those of the farm youth since they normally attend the same schools.

Hired Farm Workers

This group is made up of seasonal, temporary and full-time farm workers. The number of hired farm workers has steadily declined over the last 20 years—indicating a gradual adjustment of this group. The migration of these workers has been aided by two factors: (1) Wages outside of agriculture have improved, and off-farm opportunities have been available. (2) The cost to move into other employment for these people is not high since they have fewer ties to discourage a change of job. The farm worker is no longer an important step leading to farm operator and farm owner.

The more permanent and year-around hired farm worker today is also less important as a part of the labor force in agriculture than in the past. The higher rate at which machinery has displaced labor on farms has reduced the need for hired help. Because of the

high degree of mobility of farm labor, this group has made adjustment by seeking other employment. The origin of the farm labor group is through the surplus of the farm population. Obstacles to the flow of farm workers to other occupations include lack of off-farm skills and lack of knowledge of employment opportunities. In the area of training for skills and in the area of understanding the resource adjustment problem of agriculture, education has a role.

Beginning Farmers

Beginning farmers have one thing in common—the fact that they have started to farm. In many respects they differ greatly. The amount and kind of resources, credit, skills and management ability they possess are at different levels. Their basic difficulty is in the process of evaluating their resources in terms of reasonable income expectations. It is difficult for them to judge the value of new technology and to determine how new production methods fit into their farming business.

Many beginning operators have had vocational agriculture and some have also had "GI" training. They have been exposed to many new farming ideas and often are ready to discard the old method for a new method without recognizing the costs or impact the new method would have on their particular farm business. This willingness for change is partly because of their age, partly because presently new farming ideas are being rapidly adopted, and also partly because they have been recently exposed to classroom discussions on new ideas.

The role of education is to help these young families understand the impact that an innovation on the farm or in the home has on their farming business. The Extension Service is giving help in the area of resource allocation, decision-making and management. This is being carried out through the Farm and Home Development Program. Further expansion in the area of resource evaluation, income expectations and alternative opportunities in view of family goals and values is needed for beginning farmers to help them along the road to better management.

Many of these young farmers find themselves on small, low-producing units that provide a substandard income and often a declining net worth. It may be difficult for them to accept failure as farmers. But, because of the size of the unit and underemployment of resources, these young families need to seriously consider alternatives. Beginning farm families often are not deeply rooted in their communities, and the cost of migrating out of agriculture may not be as great for them as for longer established farm families.

Part-Time Farmers

This is not a new group in our farm population, its numbers are growing as more farmers shift to part-time operation as their own particular solution to the income problem in agriculture. Part-time farmers are not a major force in terms of farm production, nor is this group likely to indicate special interests politically or socially. Often this group is less integrated in community life than others. However, the task of seeking full employment of their resources is a problem. Not all part-time farmers have the same set of problems. In general, this group may be divided into three situations:

(1) A forced situation—where the farming income must be supplemented to provide a living income. Often this is due to the lack of farming resources, lack of skills in farming and lack of skills and knowledge of alternatives. The meager farm income is a means of providing family income security.

(2) Intermediate, part-time farmer—where the family supplements the farming income in anticipation of gaining capital and experience, with the objective of assuming a full-time farming operation. In this case, the family has established a goal and is attempting to achieve it in ways consistent with their costs. Through the combination of off-farm employment and part-time farming, income is expanded to a point where the family goal "full-time farmer" may be realized. This family may, however, lack knowledge of possible alternatives in achieving their family goals. Again, the price of security and the cost that is placed on uncertainty may be tied to the choices that this family has made.

(3) Part-time farming by choice—this may be a situation where alternative costs or opportunities have been carefully considered. It may offer the kind of family living, recreation and income that is desired. The small farming business may offer full employment of the family resources; much of the farming may be carried on by the wife and children while the husband has off-farm employment. Management can have family participation. With effective employment of resources and sound management, a combination of part-time farming and off-farm employment can provide a satisfactory family income.

The need for off-farm employment develops primarily because the resources of the farm business are limited and/or out of balance and, consequently, productivity is not sufficient to provide the desired income for living. A small or unproductive farm has too little land and capital relative to labor and, as a result, part of the labor is underemployed. Adjustments are necessary to bring resources into balance. In the case of the small farm, the employment of labor in off-farm occupations constitutes an adjustment. In a society with a high rate of economic progress, the rate of technical change is also high. The high rate of technical change involves changes in resource combinations. Therefore, problems of adjustment in an industry are tied to changes in production methods. Education at all levels has the responsibility to explain the nature of the forces that create these resource adjustment problems.

Underemployed Farm Operators

Technological change has been one of the main forces that has made many farm operators underemployed. This group has the most difficult problem in making the necessary adjustment to become fully employed or to improve their income. Often these farmers are lacking in capital, size of unit, skills and management ability. Some are difficult to reach through present educational facilities. The Extension Service, through community contact and individual counsel, can help the underemployed farm family analyze the nature of its income problem. There may be alternatives for these

families, but often the alternatives are not within the cost range that the family is willing to risk.

The underemployed farm operator may not understand the nature of the forces that cause his limited income. He may blame prices or other outside forces and not recognize his real problem. Often the age of these operators contributes to their unwillingness to expand operations and try other occupations. Off-farm employment is one way for many underemployed farm operators to increase their incomes. The extent of the opportunity depends on the location of the farm and available employment.

Full-Time Farmer

It is assumed that this group of farm operators is presently fully employed. There is still a great deal of latitude among individual farms in the intensity with which the various resources are used. These operators use sufficient resources which, under "normal" price situations, return a generally satisfactory income. But under present price situations even these farms are not earning a "normal" return. It is, however, assumed that in the aggregate these units have a combination of land and capital consistent with the year-round labor supply to maintain full employment of all resources.

This group of farm operators dominates the economic output of agriculture. They are also an important influence in their community, socially and politically. Many of the farm leaders are of this group.

This group of farmers has employed new technology and has made necessary resource adjustments in their own businesses. They represent the most up-to-date farmers of the day. Their fund of knowledge, skills and management ability is, in part, responsible for their progress. This group is also easiest to reach with new ideas through various communication media. Education directed toward these farmers would likely meet with approval and lend to understanding of the adjustment problem facing agriculture. Logically, the effect of the leadership this group can give will help create a climate that will speed up adjustment.

Landlords

Owners of farming units are directly tied to the problem of adjustment in agriculture. As a group, they maintain a voice in the use of the resources—namely, land and improvement—that they own and control. They can make a sizable contribution to adjustment providing they understand the nature of the problem.

Landlords need to recognize (1) that the smaller farm units often need to be consolidated into larger units, (2) that changes in technology may call for a new combination of the production factors—land, labor and capital—and (3) that the costs of and returns to resources also change with changes in technology. Changes in leasing arrangements are necessary in many cases to permit a distribution of income based more nearly on resource contribution. Since nearly half of the farmland in Iowa is rented under lease arrangements, landlords are in a key position to help agriculture in the problem of adjustment.

EDUCATION OF THE GENERAL PUBLIC

The American agricultural economy is an integral part of the whole of the nation's economy. Society as a whole stands to gain or lose by the types of decisions made by farmers and farm investors. Farm people as a group are still a major political force in controlling their own destiny. They also command major physical and economic resources. In addition to the facts that they need to make sound individual decisions, they need facts on which to base sound group and community decisions.

Nonfarm people in rural communities and the small town service centers are dependent on the vigor of the agricultural economy and on the size of the farm population. Facts stemming from potential agricultural adjustment are of prime importance in community adjustment and planning.

Urban people as consumers and taxpayers have a stake in what course is followed in agricultural adjustment. In addition, as industrial and commercial aggregates, urban areas need to prepare for additional residents and employees.

The sum of these needs is that education of the general public must go hand in hand with educational efforts directed to specific subgroups within agriculture as an industry.

How Education, Testing, Counseling and Placement Can Contribute

BY I. W. ARTHUR

THE PRESSURE FOR adjustment in agriculture is forcing more and more rural people to revise their plans for the future. There is a much higher birth rate on farms than is needed to replace the farm people who retire, leave agriculture or die. In only a few farming areas can the excess young people be absorbed locally on farms or otherwise since most of the growth in job opportunities in America takes place in urban areas.

The problem is being intensified by the consolidation of farms. This reflects the increased capacity of the average farm family to operate a larger unit by using modern machinery and technology. Rather rapidly now, many smaller farms are being combined with larger farms. This may result in a more efficient unit, but it reduces the number of farms available for beginners.

In areas where off-farm employment is readily available, part of the adjustment occurs as an increase in part-time farmers. This permits the family to stay on the small farm while the husband or wife works elsewhere to supplement the farm income. This also means a good deal of change; but for them, moving to a new location is not involved.

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In some rural areas, industrial growth is under way. This helps to relieve the pressure of surplus farm people. But it results in a rapid change in the number of people employed in various occupations. Here, the problem is mainly one of internal adjustment within the community, and relatively little out-migration results.

Changes of these general kinds are taking place in nearly all farming areas in the United States. Iowa is no exception. These changes greatly increase the need for additional help for young farm people in testing, counseling, training and placement so individuals and families can consider alternative occupations. Then, if they do make a change, they may have a better opportunity of finding a productive and satisfactory place in the changing economic and social situation.

Approximately 2 million young people have entered the American labor force each year in recent years. Of these, between 60 and 70 percent have graduated from high school and 12 to 15 percent have graduated from college. Of those who failed to finish high school the rural areas furnished more than their proportional share of the total.

Tables 1 and 2 give rather striking evidence that (1) a relatively very low percentage of farm children who graduate from high school go on to college and (2) a

TABLE 1. THE RELATION BETWEEN FATHER'S OCCUPATION AND PROBABILITY THAT A HIGH SCHOOL GRADUATE WILL ENTER COLLEGE AND THAT A COLLEGE ENTRANT WILL GRADUATE.

Father's occupation	Percentage of high school graduates who enter college	Percentage of college entrants who graduate from college	Percentage of high school graduates who also graduate from college
Professional and semiprofessional	67	60	40
Managerial	50	55	28
White collar—clerical, sales, service	48	57	27
Farmer	24	44	11
Factory, craftsmen, unskilled, etc.	26	58	15

Source: Estimate made by the Commission on Human Resources and Advanced Training appointed by the Conference Board of Associated Research Councils.
Wolfle, Dael. America's resources of specialized talent. Harper and Bros., New York. 1954. p. 160.

TABLE 2. ESTIMATED DISTRIBUTION OF COLLEGE GRADUATES CLASSIFIED BY OCCUPATION OF FATHER.

Father's occupation	Distribution of 1,000 children	Percentage of each group graduating from college	Percentage among college graduates
Professional and semiprofessional	65	43	22
Managerial	128	19	19
White collar—clerical, sales, service	158	15	19
Farm	162	6	8
Skilled, unskilled, factory, etc.	487	8	31
Total	1,000		100

Source: The distribution of children was taken from Bureau of the Census report P-20 No. 32, December 4, 1950, Children and youth: 1950, which gives the distribution of children under the age of 18 by occupation of the employed head of the household. The other figures are quite tentative estimates of the Commission on Human Resources and Advanced Training.
Wolfle, Dael. America's resources of specialized talent. Harper and Bros., New York. 1954. p. 162.

TABLE 3. CLASSIFICATION OF HIGH SCHOOL GRADUATES BY GRADES AND INTELLIGENCE, AND BY COLLEGE ATTENDANCE.

Intelligence test score of 1,000 high school students	High school grades			
	399 with better grades		601 with lower grades	
Upper 387 high school graduates in intelligence test	270 in this group	137 enter college (113 graduate) 133 do not go to college	117 in this group	40 enter college (26 graduate) 77 do not go to college
Lower 613 high school graduates in intelligence test	129 in this group	55 enter college (31 graduate) 74 do not go to college	484 in this group	117 enter college (41 graduate) 367 do not go to college

Source: Estimates made by the Commission on Human Resources and Advanced Training.
Wolfle, Dael. America's resources of specialized talent. Harper and Bros., New York. 1954. p. 176.

relatively high percentage of those who do go to college drop out of college before graduation.

Table 3 takes a high school graduating class in the United States of 1¼ million people and converts them to a size of 1,000 students instead of the actual 1¼ million size. These 1,000 students were then divided into four groups according to the grades earned in high school and the intelligence test scores made. It is evident that many of these students didn't get started in the right direction. Table 3 indicates the need for testing and guidance work to be done by high schools, colleges, universities, employment services, the armed services and various industrial personnel departments. Improved testing and counseling could be an important contribution in cutting down wasted effort and misplaced people by helping young people discover their talents and guiding them into the areas where they have the best prospect of making their greatest contribution for themselves and to society.

If the professional testing, guidance and counseling groups were encouraged and better financed, they could more effectively aid young people to discover their talents and to find the best place for and use of these talents. This field of work is growing in volume and in competence. It can be extremely important in the long-run solution of the immediate problem of farm people in finding good opportunities for their young people both on and off the farm.

Unfortunately, the supply of trained individuals who can do competent work of this kind is inadequate. However, the work in this area being done now by large corporations, colleges, secondary schools and the Federal Employment Service is expanding. For example, almost all of the offices of the U. S. Employment Service have a qualified university graduate who does testing and counseling work for the applicants applying for employment and for high school students in the area.

JOB OPPORTUNITIES

To be most useful the guidance work must be based not only on current job opportunities, but also needs forecasts as to the future job outlook in different fields of work.

Looking backward, the following changes took place in the American labor force from 1940 to 1950: employment in clerical and kindred work increased 55 percent; craftsmen increased 49 percent; professional workers up 39 percent; operatives increased 35 percent; managers and officials increased 34 percent; straight sales workers up 29 percent; service workers, except for households, increased 28 percent; laborers up 8 percent; farmers and farm managers decreased 13 percent; farm laborers and foremen decreased 17 percent; and private household workers decreased 30 percent. Specific data on different occupations for Iowa and the United States are given in table 4.

LOOKING AHEAD

Looking forward in the next 20 years the number of Americans gainfully employed will increase by around 21 million people according to the Bureau of Labor Statistics. In September, 1956, 66.8 million workers were employed in the United States. How will this increase in the labor force of 21 million people be distributed among the major job classification areas over the next 20 years? For young people to make their plans wisely this type of information is greatly needed.

TABLE 4. EMPLOYED PERSONS BY MAJOR OCCUPATION GROUP, FOR IOWA AND THE UNITED STATES, 1950.*

Major occupation group	Iowa 1950 (thousands)	United States 1950 (millions)
Total employed†	1,002.2	55.8
White collar workers		
Professional, technical and kindred workers	77.1	4.9
Managers, officials and proprietors	84.0	5.0
Clerical and kindred workers	98.3	6.8
Sales workers	71.0	3.7
Manual workers		
Craftsmen, foremen and kindred workers	115.6	7.6
Operatives and kindred workers	132.0	11.1
Laborers, except farm and mine	52.6	3.3
Service workers		
Private household workers	16.7	1.5
Service workers, except private household	67.9	4.1
Farm workers		
Farmers and farm managers	199.1	4.5
Farm laborers and foremen	82.6	2.5

Source: U.S. Bureau of the Census, Release Series PC-7, No. 2. and P-B15.
* Data for 1950 based on sample and therefore subject to sampling variability.
† Includes employed persons who do not report occupation.

The Bureau estimates that in the next 20 years professional and technical personnel will increase around 75 percent, craftsmen by 45 percent, operatives by 38 percent, service personnel by 27 percent, proprietors by 14 percent, and the demand for laborers is expected to decrease by 25 percent.

VOCATIONAL TRAINING

Trades and Industries

Since a low percentage of rural youth attend college, their need for training in various trades and industrial vocations seems urgent. For example, while 299 of the Iowa high schools have vocational agriculture and 214 have vocational home economics, only 28 had trades and industries training and only 22 had training in distributive education.

Of the 28,112 graduating from Iowa high schools in 1956, less than 20 percent enrolled in institutions of higher learning. Some 80 percent entered employment or the armed services. The need for training of these people in various trades and industries is obvious. Yet there is only one technical high school in Iowa, and those few Iowa schools offering trade and industrial training can do so only on a very restricted basis.

Area Vocational Schools

Since the building, equipping and staffing of a trade or industrial school is too expensive for most rural communities to undertake, more attention has recently been paid to the development of area vocational schools. A number of such schools are now in existence, and apparently they are increasing in number.

The states of California and New York have made the most use of this plan although several states in the Midwest have participated in a modest way. Iowa for example, has one technical high school which serves the city of Des Moines. Minnesota has six area vocational schools and two more are expected to be built in the near future. The first of these was built in Mankato in 1941, and the last one was built in Austin in 1955.

Early in 1957 a bill (S. 1298) was introduced to the Congress, which proposed a sharp increase in appropriation of $5 million the first year, $7.5 million the second year and $10 million the third year for such training. There is a possibility that this type of educational work may be expanded. It is understood that these schools do *not* offer academic work which can be successfully transferred to a regular college or university.

Vocational Agriculture

As our school districts become larger, there may be prospects for consolidating at least a part of the vocational agriculture work in some of the larger schools. The suggestion is made that more attention be paid to the possibility of making more use of the cooperative work experience system in vocational agricultural training. This might be done in a number of ways.

For example, a number of the business firms around a county seat town which serves agriculture might be invited to consider using a student part-time so that his school work in agriculture could be supplemented with actual experience in the trades and industries which serve farmers in the local community. While the vocational agriculture teacher may not, at present, be in a position to extend much service and industrial training to the student in a particular trade, what the student learns in his agriculture courses can have some applications to the trades and industries serving farmers.

Smith-Hughes Vocational Law

The first paragraph of the basic Smith-Hughes Vocational Law of 1917 gave equal emphasis to training in "trades and industries" and training in "agriculture." The trades and industry section of the basic 1917 law might now be emphasized more in Iowa and in other rural areas.

Some combination of the vocational agriculture training with the types of training available in the area school also might be useful in work experience training for high school students. School consolidation might also free some of the time of vocational agriculture teachers to devote to young farmers who did not have this opportunity before.

While a part of the farm boys need training so they can be better prepared to return to farming, others may train to enter the agricultural businesses serving farmers locally. On the whole, many rural boys must plan to move out of the community in which they were born in order to find a satisfactory occupation and income. It is here that the area schools, the colleges and the universities can be helpful. The training of apprentices can also help. In January 1957, the Iowa Bureau of Labor reported that the apprentice system in Iowa was training a total of 1,622 persons in 77 different occupations.

THE EMPLOYMENT SERVICE

The Wagner Act of 1933 established the U. S. Employment Service as a bureau in the Department of Labor. During the war, the federal government nationalized the state employment offices under the War Manpower Commission. After the war the state and local employment offices were again returned to state control. But there is strong federal supervision and influence. There are now 1,745 state employment offices in the United States and 2,200 points of itinerant staff call.

The Iowa Employment Service has 35 offices with approximately five points of itinerant call out from each office. In 1955 there were 127,000 job placements from these offices, of which 79,000 were nonfarm and 48,000 were workers in agriculture. The greatest number of placements in the U. S. Employment Service is the placing of unskilled people, service people, sales, clerical and farm help.

Many large employers prefer to run their own employment service and if possible secure new workers who are friends of workers whom the firm now employs. Some workers tend to avoid the employment service because of the belief that it is tied up with relief and charity and for other reasons. (The U. S. Employment Service is under special obligation to take care of veterans and the handicapped.) The employment service was criticized earlier for emphasizing mainly local jobs for local people. In fact, it ran into op-

position in trying to transfer people from one state to another during the war. Also it was criticized for simply taking people with their present condition of knowledge and training and attempting to get them jobs locally without doing much to counsel or test them. More recently a testing, counseling and guidance service is being made available under state and national supervision.

Criticism has also been made of the Employment Service in that there is not too much attempt to help with the out-movement of young farm people from rural areas. If a person has had farm experience, the natural thing is to try to get him a farm job in local territory. While the Employment Service cannot extend training, it might advise rural young people as to the kinds of training available and what kinds of training they should try to get and the trends that are going on in the job market.

Iowa rural young people are not sufficiently acquainted with this service. Possibly the service has not had the means of making itself sufficiently known to rural young people. Here is a place where the 4-H and vocational agriculture leaders might well work to expand the knowledge of rural youth about this type of testing and counseling available to them locally.

It is possible that the Employment Service itself should develop a program especially designed to expedite the out-movement of rural youth.

The Employment Service has a school service program which consists of testing high school graduates, particularly those who do not intend to go to college. At Ames, for example, when a student drops out of high school the school counselors there immediately suggest that he go to the Employment Service for testing and counseling in addition to the testing and counseling he was given in school.

There are many other employment services in addition, to the United States Employment Service—including private employment companies, many of which deal with specialized trades or common labor. Many unions have their own employment services and so do many large employers. The want ads of the newspapers are important and also trade papers. But these are not so important in dealing with the problem which confronts us. Studies by the Minnesota Manpower Commission and by Lloyd Reynolds of Yale indicate that relatives and friends are still the most important influence on young people in selecting their vocations and in securing specific jobs.

MOBILITY COMPENSATION

Experiences during the war and since have indicated that where a specific job was promised and particularly where some financial help on transportation was available, worker mobility was greatly increased. This gives rise to the question as to what could be done in peace time to assist with the training and transfer of young people who must move out of overcrowded occupations. One suggestion along this line has been entitled "Homesteads in Reverse." It proposes that young people who must leave unpromising areas be made the beneficiaries of government payments to assist in such transfer provided they stay in the new location at least 3 years. This, obviously, is a rather drastic program and may have been offered more for the purpose of pointing up a problem than in giving a solution.

This raises the question as to whether or not it would be wise public policy for the United States to embark upon a more aggressive public program to educate particularly the brightest of our youth.

While many of the colleges, universities, foundations and businesses are offering scholarships, the supply is still very limited in proportion to the number of able young folks who are not attending college. This certainly is an area that deserves study and consideration. A popular program that includes elements of mobility compensation is the aid offered by the G.I. educational programs. Experience with this post-war training apparently was very successful, especially in the colleges. A comprehensive program of public scholarships might be made available that continues the essential features of the G.I. educational program in helping able young people gain an adequate education.

SOCIAL SECURITY

The extension of the Federal Social Security program to include farm operators in 1954 and its expansion to cover more farm people in 1956 may affect the movement of older people off farms. So far, no studies are available which would indicate whether farmers receiving Social Security retirement payments tend to move off the farm at age 65 or whether, with the additional income, they reorganize their farms so as to involve less work and depend on Social Security to augment their income while they continue to live on the farm.

FULL EMPLOYMENT

Full employment in the United States is a prerequisite for proper economic adjustment. It is a necessary and very helpful prerequisite to making satisfactory rural adjustments. However, by itself, full employment alone has not been adequate to bring about the economic and social adjustments needed in our society. We have had practically full employment in the United States since 1942. This has helped the out-movement of surplus farm people. But maladjustment in farming continues to exist alongside reasonably full employment in the industrial and service trades in America.

MEASURES TO EXPEDITE MOBILITY OF FARM YOUTH

Research on the following topics could be expanded by the foundations, universities, learned societies and appropriate government agencies:

Differences in intellectual capacities and natural aptitudes of our population;

Means to improve testing, counseling and guidance procedures;

Discovery of the talents, abilities and resources specifically required for success in the various occupations;

Analysis of probable expanding and contracting areas of employment opportunities on an occupational and geographical basis;

Methods of relating, combining and using information of these types.

Vocational agriculture and 4-H leaders could:

Help in expanding the knowledge of rural youth about alternative opportunities both within and outside of farming;
Acquaint rural youth with testing, counseling, guidance, training and placement services available to them;
Use care in doing this so as not to influence away from farming those whose best opportunities are in farming.

Rural areas could cooperate in sharply expanding types of vocational education which have been neglected in the past:

This would include trades and industries, sales, service, distributive industries, nursing and other fields;
Area schools could be developed with state and federal help to train young people for various trades and industries.

The teaching of vocational agriculture in high schools could be modified in several ways as school districts become larger and as area vocational schools become available. For example:

More use could be made of the "work-experience" system to learn trades and services which serve farmers or handle farm products going to market.
There could be some consolidation of work, especially in the junior and senior years where numbers have become progressively smaller.

Support for the Federal-State Employment Service could be increased for building special programs to encourage out-movement of people stranded in shrinking or stagnant areas of the economy.

A comprehensive but rigorous public scholarship program could be developed by making grants-in-aid to going concerns such as the National Merit Scholarship Foundation or state and private colleges and universities.

The land-grant college system should place increased emphasis on the social sciences if this system is to make important contributions to the solution of the most urgent farm problems of the present and future.

Iowa's Potential as an Industrial State

BY CLARK C. BLOOM

EVEN WITH a reasonably prosperous and fully employed national economy over the coming two decades, it is likely that the agricultural sector of the Iowa economy will (1) occupy fewer workers working fewer hours on fewer farms and (2) originate income only at levels established, on the average, in the years since World War II. Iowa's growth in job opportunities, growth in population and growth in aggregate income, therefore, depend upon growth in the nonagricultural sectors of the Iowa economy. Manufacturing (industrial) activities loom large among these important nonagricultural sectors. It is toward these manufacturing activities that many Iowans look to obtain a growth earnestly held to be desirable.

DATA ON MANUFACTURING GROWTH

Before the magnitude and nature of the contributions of Iowa's manufacturing component to the future of the state can be appraised, it seems desirable to look at its past contribution. Such a look is the purpose of this section.

Iowa's Growth

Iowa has experienced a substantial manufacturing growth as indicated by table 1. Since the turn of the century, manufacturing employment within the state has more than tripled. Over the same period, manufacturing workers per thousand of population have risen from 22 to 61. Value added by manufacture has risen from $47 million to $1,219 million—a substantial increase even after account is taken of the rise of approximately three and a half times in the price level.

Iowa's manufacturing growth has been particularly rapid in the years since 1939. In the 15 years from 1939 to 1954, Iowans have found manufacturing employment rising by more than four-fifths, workers per thousand population up three-fourths and value added by manufacture up five times while prices just more than doubled.

Iowa's Growth Compared With the Nation's

Table 2 presents Iowa's share of total United States employment in manufacturing activities and in value added by manufacture. The most striking fact disclosed by this table is Iowa's rather constant share of the national total. For more than half a century, approximately 1 percent of the nation's manufacturing employees have found jobs in Iowa, and they have added about 1 percent to the value of manufactured products produced. By and large, therefore, Iowa's manufacturing has grown with the nation's.

Table 2 also indicates that manufacturing employment has risen more rapidly in Iowa than in the nation from the 1930's to, and through, the decade since World War II. In this period, Iowa's share in total manufac-

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TABLE 1. GROWTH IN MANUFACTURING IN IOWA, 1899-1954.

Year	All manufacturing employees	All manufacturing employees per 1,000 persons	Value added by manufacture (thousands)
1899	49,579	22	$ 47,092
1909	73,037	33	88,531
1919	98,470	41	221,757
1929	97,414	40	323,820
1939	88,054	35	243,390
1947	140,397	56	671,008
1954	162,705	61	1,235,965

Source: "All manufacturing employees" and "Value added by manufacture" taken from U. S. Bureau of the Census, U. S. Census of Manufactures: 1954, State Bulletin, MC-114; Iowa table 2 (subject to comparability limits there described). "All manufacturing employees per 1,000 persons" derived from "All manufacturing employees" and population figures reported by the U. S. Bureau of the Census and presented in various issues of the Statistical Abstract of the United States.

TABLE 2. ALL MANUFACTURING EMPLOYMENT IN IOWA AND VALUE ADDED BY MANUFACTURE IN IOWA, EACH AS A PERCENT OF THE UNITED STATES TOTAL, 1899-1955.

Year	All manufacturing employees, Iowa as a percent of the nation		Value added by manufacture, Iowa as a percent of the nation
	Bureau of the Census	Bureau of Labor Statistics	
1899	1.02	.....	1.01
1909	1.04	.....	1.08
1919	1.00	.....	0.93
1929	1.01	.....	1.06
1935	0.83	.....	0.95
1937	0.84	.....	0.94
1939	0.92	.....	0.99
1947	0.98	0.98	0.90
1949	1.01	1.02	1.06
1950	0.99	1.00	1.03
1951	1.00	1.05	1.00
1952	0.99	1.05	1.02
1953	0.97	1.00	0.97
1954	1.04	1.01	1.06
1955	n.a.*	1.01	n.a.*

* n.a.=Not available.

Source: "All manufacturing employees, Iowa as a percent of the nation, Bureau of the Census" and "Value added by manufacture, Iowa as a percent of the nation," computed from figures compiled by the U. S. Bureau of the Census and presented in various U. S. Census of Manufactures publications and in the Annual Survey of Manufacturers volumes. "All manufacturing employees, Iowa as a percent of the nation, Bureau of Labor Statistics," computed from figures compiled by the U. S. Bureau of Labor Statistics and presented in various issues of the Monthly Labor Review.

turing employment rose again to levels experienced early in the century.

Table 3 indicates that industrial employment occupies a smaller share of Iowa's people than is the case for the nation as a whole. It also indicates, however, that manufacturing employment is growing in relative importance more rapidly in Iowa than in the nation.

Iowa's Manufacturing Growth and Population

While the pace of manufacturing growth in Iowa has equalled, or exceeded, that of the nation, its population has grown only slowly. From 1900 to 1954, population in Iowa has grown about 20 percent. For the nation as a whole, it more than doubled. Why, if manufacturing growth has been rapid in Iowa, has not population growth been equally so?

The answer lies in two facts: (1) Manufacturing has been, in terms of employment, a much smaller component of the Iowa economy than has agriculture. (2) The number of persons engaged in agriculture has been declining. Thus, in Iowa, a growing employment in a relatively small manufacturing component has been offset by diminishing employment in a relatively large agricultural component—and total job opportunities and population have not grown very rapidly. In more highly industrialized areas, where manufacturing has been a relatively more important part of the economy and agriculture less important, gains in the important manufacturing sector have been but little offset by declines in the smaller agricultural component. In these areas, total job opportunities and population have grown rapidly.

Growth in the Relative Importance of Manufacturing in Iowa

Manufacturing employment and income produced have been rising sharply in Iowa since the 1930's. Agricultural employment has been declining over the same period, and income produced has been growing more slowly than in manufacturing. Thus, Iowa is finding its manufacturing component growing in relative importance. Indeed, not only has manufacturing employment per thousand population gone up from 35 to 61 from 1939 to 1954, but income produced in manufacturing has also come to sometimes exceed that produced in agriculture.[1] This income is produced in manufacturing with an average annual employment of about 170,000 persons while persons working on the farm vary seasonally from 200,000 to 340,000, many of them working only part-time.

THE COMPOSITION OF MANUFACTURING ACTIVITY IN IOWA

A Point of View

Economists see particular manufacturing establishments as coming into being or expanding at a particular location or, conversely, as disappearing or contracting at a particular location, as the result of basic forces which cause an activity to be more profitable—or to yield a larger return on investment—at one location rather than another. In this view, manufacturing activities have come into being in Iowa, have persisted and grown in Iowa, will continue to exist and to expand in Iowa, *only* in the measure that Iowa provides a location which yields a satisfactory return to business owners.

TABLE 3. ALL MANUFACTURING EMPLOYEES PER THOUSAND POPULATION, IOWA AND THE NATION, 1899-1954.

Year	All manufacturing employees per 1,000 population	
	Iowa	U.S.
1899	22	65
1909	33	78
1919	41	94
1929	40	79
1939	35	73
1947	56	100
1954	61	100

Source: Manufacturing employment figures from U. S. Bureau of the Census, Census of Manufactures: 1954. Population figures as reported by the U. S. Bureau of the Census and presented in various issues of the Statistical Abstract of the United States.

If this view is correct—and it is herein assumed so—then future manufacturing growth in Iowa depends fundamentally upon the growth of profit opportunities. Such opportunities will bloom with changed market conditions—expanded demand and higher prices for Iowa's products, increased supplies and lower prices for inputs used by Iowa firms, new products which can be most profitably produced in Iowa, new techniques most cheaply available in Iowa, and the like. In this view, then, manufacturing (industrial) development does not take place primarily because someone wills it so or because a group organizes for it. Development occurs when market conditions indicate it to be profitable—or when businessmen become aware of profitable opportunities previously ignored. Individuals, groups or legislatures must therefore recognize that they initiate and facilitate change only as they influence market conditions or increase knowledge of favorable alternatives provided by the market place.

Under these circumstances, state agencies and community development groups are likely to be most successful when they do the following: (1) take a hard-headed, objective look at price-cost relationships in each conceivable industry to discover in which industries, either now known or which can be developed through research, profits higher than elsewhere available can be earned in the given state or community; (2) make known these industrial types to businessmen, or potential businessmen; (3) make certain that their state or community puts no unnecessary bars in the way of realization of profitable opportunities through inadequate provision of governmental services (e.g., education, streets and highways, water, sewage, recreational facilities or zoning regulations), through inadequate or capricious legislation and law enforcement, or through grossly unfavorable and unwise tax structures; (4) make certain that sites are available at going rates for businesses with a satisfactory profit potential; (5) exert pressure to make certain that all nongovernmental institutions develop and change to meet the needs of expanding industrialization—this will be particularly important with respect to financial institutions under both changed and expanded pressures; and (6) take an experimental attitude which allows courses of action and attitudes to be frequently changed as changing conditions merit them.

Industries now existing and prospering in Iowa because of favorable price-cost relationships are found in several categories discussed below. This discussion al-

[1] Iowa Business Digest. November 1956. pp. 3-4, 6-7.

lows the isolation of those factors which up to now have seemingly given rise to manufacturing development in the state.

Manufacturing Based on Iowa Raw Materials

Some manufacturing activity takes place at a particular location because an important raw material is available there and because this material is more expensive to ship before fabrication than is the product into which it is fabricated. Iowa possesses substantial manufacturing activity of this type, based on agricultural products, gypsum and stone for cement.

Industries based on agricultural raw materials and which yield a product for regional, national and international markets (as well as for local markets) include (1) the meat products industry—particularly pork dressing and processing, (2) the vegetable and animal oils industry—particularly soybean oil mills, (3) the canning and preserving industry, (4) cereal preparations firms, (5) corn products producers, (6) the liquid, frozen and dried egg industry and (7) the producers of creamery butter. Approximately one-fourth of Iowa's manufacturing employment will usually be found in these, and similar, industrial classifications. About 70 percent of the workers in these categories will be found in the meat products industry.

Industries based on minerals found in Iowa and which yield a product for regional markets (as well as for local markets) include (1) the gypsum products industry and (2) the hydraulic cement industry. Less than 2 percent of Iowa's industrial employment will characteristically be found in these two categories.

Manufacturing as Part of the Chicago Industrial Complex

Much manufacturing activity in the United States, particularly that part which uses iron and steel or products made thereof, is found in the Great Lakes and Middle Atlantic states. It is in these states that manufacturing employment looms largest. It is in these states that increases in manufacturing employment since 1939 have loomed largest as a share of present population. These are the heavily populated, highly urbanized, industrial states. Iowa is reasonably close to the western edge of this industrial belt. Specifically, it is reasonably close to the Chicago industrial complex.

A heavily populated, highly urbanized, rapidly growing industrial area has certain important characteristics: (1) a higher level of money wage rates because of a relatively short supply of labor and the need to attract labor from outlying areas as well as in response to higher living costs; (2) a higher level of site costs as the result of heavy competition; (3) a higher level of local transport (assembly) costs with increasing urban congestion; and (4) a generally higher state and local tax burden as more and better governmental services are required under circumstances in which they are necessarily more expensively rendered. All these characteristics raise business costs and offset the metropolitan advantages of nearness to many suppliers and to major markets, both industrial and for consumer goods. These characteristics push *some* manufacturing out of the central industrial centers into the hinterlands. For Iowa, this means a push from the Chicago area into (largely eastern) Iowa.

Industries that have pushed out, or are pushing out, of the Chicago industrial complex fall predominantly into four groups. The first group includes industries drawing raw materials, supplies and components from the center of the industrial complex and shipping finished products back again to this center for sale or for further fabrication. Because industries of this type draw their inputs *out* of and ship their products *back into* the same centers, transport costs must be low, a small share of total costs, if the industry is to profitably push out of the center. At the same time, labor costs as a share of total costs are likely to be high so that lower wage rates (or greater productivity per man-hour) can reduce labor costs more than enough to offset the higher transport costs. Examples of industries of this type are certain parts of the electrical machinery industry, the valves and fittings industry, the publishers of periodicals and the producers of scientific instruments.

Industries pushed out, or pushing out, of the industrial complex include secondly those industries which sell their products in markets southwest of Chicago—perhaps importantly in Iowa but also in states to the south and west of Iowa. With equal wage, site and tax costs, these industries might well prefer to locate near suppliers of inputs in the center and to take advantage of lower transport costs for the single product rather than the many inputs which make it up. On the other hand, higher wage, site, tax and local assembly costs in the major industrial complex push them out toward markets as far as necessary to attain lower costs—but not so far as to lose supplier contacts or to necessitate substantial back-hauls of products to customers. Industries of this kind include the tractors and farm machinery industry, the producers of pumps, the firms producing construction machinery, the rubber products industry, the producers of work clothing and many others. The portion of the nation's industry in each of these classifications in Iowa need not be large since only that portion of the nation's industry serving a regional market southwest of the Great Lakes will be likely to be found in Iowa.

Third, industries outside the Chicago complex and in Iowa will include those selling their products in major Great Lakes and eastern markets but using predominantly inputs from the Far West and the Southwest. If wage, site and tax costs were equal, these industries might prefer to locate near their customers in the population centers in order to maintain closer contacts with them as well as to take advantage of lower transport costs for the finished product rather than for the bulky raw material. However, higher wage, site, tax and local assembly costs in the center push them toward raw material suppliers as far as necessary to get lower costs but not so far as to lose completely customer contacts or to unduly raise the total of transport costs. Industries here include the millwork industry, the household furniture and wood office furniture industries and perhaps even the aluminum rolling and drawing industry.

Fourth, and last, in Iowa will be found those firms with origins in Iowa who enjoy a strong market position in national markets and who offset higher transport costs (because they are not in either supplier or market centers) by lower wage, site and tax costs. Producers of washing machines, refrigeration machinery and fountain pens will be found in this category.

Industry pushed out, or pushing out, of major industrial concentrations to the east of Iowa employed in 1954 perhaps 45 percent of all manufacturing employees in the state. Furthermore, industry of this type has been growing, and will likely continue to grow, at the most rapid rate. It is also interesting to note that this industry is moving predominantly into southeast Iowa, a fact which accounts for the rapid industrial growth in this part of the state as compared with the remainder of Iowa.

Manufacturing Serving Exclusively Local Needs

The industrial categories just dealt with all ship substantial portions of their products to markets outside of the state. While employment in these categories makes up more than 70 percent of manufacturing employment in Iowa, there remains almost 30 percent of the total of manufacturing employees who produce almost exclusively for local buyers. These employees, and their employers, may serve farmers, other manufacturers or consumers generally. These activities may use local inputs as well as serve a local market, but many process foreign inputs into products for domestic use.

Some local manufacturing activity meets the input needs of the Iowa farmer. Manufacturers serving the farmer produce (1) feeds, (2) specialized apparel, (3) special cleaning preparations and insecticides, (4) drainage tile, (5) hand tools and (6) other special products.

Another portion of Iowa's manufacturers producing for domestic use sells products to still other Iowa manufacturers. Manufacturers in Iowa so disposing of their products include (1) paperboard box producers, (2) primary metal fabricators, (3) producers of metal-working machinery and (4) producers of special industry machinery—particularly for the food products industry. Much of the product of such producers is, of course, actually exported from the state as a part of the fabricated product of the purchaser. To the extent that this is the case, the persons producing this product might properly be included among those producing a product for export.

Finally, of course, there are a large number of diverse industries producing products for final consumption locally. Important manufactured products produced locally and consumed locally include (1) fluid milk, (2) bread and other bakery products, (3) soft drinks, (4) ice cream, (5) newspapers and other printed items, (6) prepared meats and many other items.

IOWA'S MANUFACTURING IN THE PERIOD AHEAD

The Export Industries

Future employment in Iowa's manufacturing enterprises producing a product for export depends upon four factors: (1) aggregate (national) activity within each of those industrial categories represented in Iowa; (2) changes in Iowa's share of activity within each category; (3) product definition and development; and (4) developments with respect to output per man-hour and the length of the work-week.

In wholesale meat packing, for example, (1) volume will expand only modestly for the nation as a whole, (2) Iowa can expect an expanding share of this volume in hog and cattle slaughter, (3) product development will require an expanded number of processing operations (pre-packaging, pre-cooking and/or freezing), but (4) output per man-hour will continue to rise more rapidly than hours worked per week decline. The result is likely to be only slowly expanding employment within this industrial category.

Activities in which Iowa participates as part of the Chicago industrial complex, to take a further example, will expand not only with the complex itself but, it is likely, even more rapidly as expanding activity at the center pushes costs there differentially even higher.

Required here is an industry by industry analysis of prospects. Studies containing such analyses, however, are simply not available for each industry. Preliminary studies of this type nonetheless suggest that Iowa's manufacturing growth will probably moderately exceed that for the nation as a consequence of an anticipated quickening "spill-out" from the Chicago industrial complex.

The Local Industries

Future employment in Iowa's manufacturing enterprises producing a product for local agricultural, industrial, or final consumption depends upon five factors: (1) the number of potential customers; (2) the tastes (needs, or desires) of these customers; (3) the income of these customers; (4) output per man-hour and the length of the work-week; and (5) product definition and development.

Again, an industry by industry analysis of prospects is required. Preliminary studies, however, suggest the following interesting observations: (1) Slow population growth will dampen the growth of production for final consumption, a dampening which will be partly offset by growing income per person. (2) Increasing farm specialization will greatly enhance the importance of feed producers and other producers of specialized farm inputs. (3) A growing complexity of industrial operations pushing out from Chicago will demand an expansion of satellite plants producing in Iowa for the use of other Iowa manufacturers.

MISCELLANEOUS OBSERVATIONS

1. Some manufacturing industries in Iowa are declining. The declines are not only relative, but absolute as well. These declines must be set against gains in other industries. Furthermore, it must be recognized that in some instances the declines are the consequences of industrial gains which push up wage, site and tax costs and force the departure of marginal firms and industries.

2. Iowa can expect growth in industries attracted by plentiful female labor or seasonally available male workers at relatively low wage rates.

3. The shift of population westward (to the Southwest and to the Pacific Coast states) does *not* particularly benefit Iowa. It is population growth in the market areas actually served by Iowa firms that is important for Iowans—and not many significant Iowa industries find markets in the Far West.

4. Industrial development in Iowa will mean a shift in population from rural to urban areas. It is unlikely

that manufacturing development will be such as to allow farm people to be primarily farmers who work only part-time in industry. Indeed, the rapid industrial development of southeast Iowa, as a consequence of the push-out of industry from the Great Lakes area, while the development of the rest of the state lags relatively, certainly means that farmers elsewhere than in the southeast part of the state will have to leave farming to get industrial jobs. Therefore, the social problems revolving around rural-urban shifts will be with us even though the implied population movement is more frequently entirely *within* Iowa rather than *from* Iowa.

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Earl O. Heady, Chm.

BASEBOOK COMMITTEE

Charles E. Donhowe
Carol A. Kuetemeyer
Laurel D. Loftsgard
Carl C. Malone
Wallace E. Ogg
John F. Heer, Chm.