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Extension Education for Guiding Adjustments

THE growing interest in economic growth as a subject of emphasis is quite encouraging. This conference should be a landmark in the progress toward a better understanding of how economic forces can be harnessed for more rapid economic growth. Perhaps now more emphasis will be placed on ideas and less on mechanics and the vernacular. Those of us charged with taking technical education to farm families deeply appreciate an effort to crystallize some guiding principles and suggest some hypotheses which may later be the essence of active educational programs.

The selection of this topic by the conference committee implies that extension education can materially affect the adjustment process. As the major education arm of the United States Department of Agriculture and as one education arm of the colleges of agriculture and experiment stations of the land-grant colleges and universities, it holds a unique position. It is supplied the discoveries of the laboratory, the test plot, and the researcher's analysis for interpretation to farm families. It is recognized as one of the most important forces for attaining orderly adjustments on farms. Through its leadership agricultural progress is guided by technical science. It also serves as a stabilizer by regulating the extent of adjustments.

I

The format for this conference indicates the problem for this paper: Given the assumption that, over the next several decades, economic growth as reflected by the gross national product will be unusually great, how can extension education most effectively help farm families adjust resource use so that agriculture is most advantageously geared to the prospective economic growth? The problem may be stated another way: If the gross national product increases over the next 20 years two to three hundred billion dollars, what kind of an educational program should be conducted by extension to help maximize the position and contribution of agriculture? This indeed is a question of tremendous magnitude and perhaps one of the most important problems facing agricultural educators today. To my knowledge no one has been bold enough to establish positive educational programs based on such a long-run projection.

From the agenda for this conference and the instructions to participants, three important assumptions are obvious:

1. That agriculture, at this particular time, is not attuned with the rest of the economy. I presume this will be explained by the other conference participants.
2. The adjustments that must be made by agriculture in the future are expected to be tremendous in scope. Such an assumption is clearly logical in view of the events that have occurred over the past several years and the anticipated events of the future.
3. Economic growth in agriculture will come from intensified efforts for a more efficient agriculture rather than from the usual concept of increasing the total capital investment. The emphasis of this conference on concentrating existing capital into fewer hands and transferring resources to other products and out of agriculture, is in sharp contrast with the approach that would attempt to attract more capital to agriculture. This implied assumption is of significant interest and is probably one of the most important of the conference.

All three assumptions are of significant importance to anyone concerned with agriculture.

II

A projection to 1975 by evaluating trends and setting up acceptable assumptions establishes the framework within which agriculture must operate. The most salient projections to 1975 include:

1. An increase in gross national product of 50 to 75 percent.
2. An increase in total population by approximately 25 percent.
3. A decrease in farm population, perhaps as much as 10 percent.
4. An increase in farm income resulting from a 25-30 percent increase in farm output.
5. An increase in production per farm worker because farm population is estimated to decline and the total population is estimated to increase. This may amount to as much as 40 percent increase per worker by 1975.

The needed adjustments in agriculture may be classified into three main categories:

1. Increased production per worker in agriculture. This can occur through: (a) increasing the span of control over resources, and (b) increasing the productivity per unit of production.
2. Shifts in agricultural resource use between agricultural products and between agricultural and nonagricultural uses. As demand changes and new production patterns emerge, these shifts will be necessary.
3. Cost-decreasing actions on the part of individual farmers. Cost reduction will continue to be important, in fact necessary, if efficiency of farming is to keep pace with other expected adjustments.

Extension, in fulfilling the role as the leader of thought among farmers, would have no particular problem in designing educational programs if those concerned with over-all future policy direction in

agriculture could reach general agreement. Disagreement regarding the future direction, or unwillingness to estimate future probabilities, or lack of confidence in predicted future events, have been obstacles to the development of such educational programs.

Given a statement as presented by Rex F. Daly in Agricultural Economics Research in July, 1956, entitled "The Long Run Demand for Farm Products," extension has a concrete set of expectations for use as a guide in the design and execution of an educational program. I believe it would be a fair statement that even the most renowned agriculturists fear that the plateau of farm prices for the past several years may be only a repeat of the similar period from 1926 to 1929, and everyone knows what followed after that. With this fear, coupled with the knowledge of man's inability to include all of the forces in his predictions, very few experienced agricultural directors would lead their extension workers very far from a known base. They would prefer, and logically so, to follow a set of basic principles which will keep their programs essentially in the areas of current importance. Perhaps we have enough confidence in our expectations now to develop a more concrete educational program.

III

The consequences of some areas of circumstance, as well as accepted procedure or philosophies, need reviewing. Such a task is as much the responsibility of the researcher and the professor as it is that of extension. In fact, the best results will probably come from their joint efforts.

1. For the last four decades at least, except for the war years and a short period afterwards, agricultural processes have been restrained by the gloom of overproduction. The continual pressure to depress prices has forced extension to face its task from a defensive position. Only during the war years were farmers encouraged to release the check-rein on production and actually use the whip to increase production. During World War I and II the resulting response was phenomenal. Both periods of unrestrained production-increasing effort were of relatively short duration. We have no record to show what agriculture could produce if production needs were great enough over a long enough period to encourage a significant inflow of capital to the total agricultural plant. To emphasize the point, consider that the present emphasis is on reduction of cost without corresponding increase in output. Such an environment restrains the forces of production. While such efforts are beneficial for society, the educational process is more difficult. In spite of this situation the demand for extension services in most counties greatly exceeds the supply. Current agricultural programs aimed at conserving today's production potential for tomorrow suggests that this situation will continue for some time. This means extension education programs must be more finite and selective in the points of emphasis.

2. Planning is generally done on a short-run basis in the absence of expectations, projected far enough to be called long run. Also farmer interest is mostly in short-run considerations as reflected by attendance at meetings, participation in program activities, and discussions of issues. Under such conditions the exogenous factors of production receive very little attention in the formulation of economic guidelines. Held constant are such important factors as values, tastes, social, cultural, and political forces, as well as the interdependence between agriculture and industry. In addition to the exogenous group, the endogenous items classed as fixed costs are minimized. With our agricultural leadership willing to make and accept long-run projections, greater consideration can be given in education programs to long-time objectives. This is certainly a desirable objective. Under short-run considerations, it is difficult to convince producers that increasing output of those products with a price elasticity of less than 1.0 can decrease income.

A typical rural community, in which the problem is to maximize the individual farm family's satisfaction, is composed of the social institutions and the mores, all of which have an important influence on values held by the family. An economic study of communities would show a minimum number of families to justify different institutions such as churches, schools, stores, health services, and the like. In areas where the population greatly exceeds the resource potential, poor institutions and poor services persist; the answer in the long run is usually an inflow of capital to provide employment or an outflow of labor to other markets. On the other hand, large-scale units with few people present the problem of high costs per family for acceptable institutions. Such considerations as these are of importance when the economist considers resource use. Furthermore, the economist can utilize his economic tools to assist with some of the problems of this sort.

The idea of an educational program designed to include more endogenous long-run factors for agriculture and also the exogenous factors is an exciting one.

3. Economic analyses and theoretical constructions for the farmer begin with the assumption that the entrepreneur in the farm firm is guided by economic motives of production. Perhaps it has to be this way, but the fact remains that the home (consumption unit) is an integral part of the production-economic unit. The fact that the house, its surroundings, and other esthetic factors are capitalized in farm value indicates the "one-ness" of the unit. Coupled with the integrated capital unit is an interdependent decision-making unit in which the consumption unit considerations are interlaced in production unit decisions. In addition to the economic considerations of production and consumption, are social considerations. Therefore, a complete and unified extension program deals with both economic and social considerations. This is the way a farm family must face its problems. If decision-making, as viewed by extension, began with a balance sheet that recognized allocation of total income to the home as well as to the farm, our educational

program concerning adjustments would be more realistic. Farm and home development as devoted to particular families has brought this need clearly to the fore.

4. Traditionally, farm management researchers have viewed the agricultural problem as if they were standing in the farmer's shoes and looking out of his eyes. From an economic growth point of view, i.e., where the total economy is growing and developing, this means that they take the pieces and fit them together, cutting and fitting as they go, to get the total picture. I would like to propose as a thesis that there is equal, and perhaps in some instances, more merit to the method of first visualizing the total picture and then determining the adjustment process needed to obtain the pieces to make the total picture. This may be the best way to achieve major adjustments such as reclamation of land over a broad area, developing a valley plan, building up run-down areas, or settling the dust in Oklahoma.

IV

We are dealing with the problems of an extension education program that will facilitate adjustments in agriculture under conditions of rapid economic growth. Extension does not ask for assistance in method or approaches. However, it is in need of the subject matter ideas possessed by you. Not only is the subject matter needed but also an interpretation of its value in particular uses. The thought running through my mind is, "If we in extension could convince you that the extension program is in reality your program and through it your conclusions can be converted into accomplishment, perhaps you would join us in putting all this information into a workable program."

Up to this point I have tried to show the strong interrelationships between extension education programs and your concepts. If you agree, let us get to the business of developing education programs jointly.

Extension programs are not designed with the objective of forcing the inefficient out of farming in order to achieve scale economies. Extension is interested, however, in programs which will guide farm families to higher planes of living even if it means significant changes in who controls the resources.

At present, four major program activities of extension demonstrate its concerted effort to meet the problems of rural people in a rapidly changing world. One of these is Program Projection. This is a program development procedure whereby local committees under the leadership and guidance of specialists, county extension workers, and local leaders study the possibilities for agricultural development in their county within an assumed framework as set forth in Rex Daly's article. Such information is interpreted in the light of their own county situations, and the most important problems for the development of the county's resources are recognized and specific goals established. Out of this process develops a program of action conducted mostly by local people in fitting their county into a growing and changing society.

Another activity is Farm and Home Development, wherein the farm family inventories its total resources, ascertains the productivity of these resources, approximates the expected progress, and develops a plan of action. All of this is done under the guidance of trained personnel with facts provided by the researcher.

A third activity is the Rural Development Program. All of the agricultural agencies, in cooperation with other interested groups and organizations, are making an effort to persuade agriculture, industry, education, and the social community to join their resources and capabilities to make possible sufficient opportunity for a respectable per capita income either in or outside the community. The greatest need in the Rural Development Program is a set of principles pertaining to economic development. This conference can, and I hope will, provide significant assistance for this program.

The fourth of the activities is the policy education meetings held in cooperation with the general farm organizations to bring to farm people the very important realization that they are now a minority group and that their future depends on intelligent action, beginning with the idea that agriculture, as such, is an integral part of the total economy.

These four major activities (and there are many others) indicate that a respectable framework for extension education already exists. The problem confronting extension administration is to obtain the needed substance for successful action.

V

Agricultural economists can provide brilliant yeoman service to our rural friends. I am sure the Cooperative Extension Service stands ready to receive its assistance.

In pursuing the task of developing an extension education program, one of the greatest obstacles is the inability of colleagues, other professional workers, and local leaders to comprehend the basic relationships which undergird the whole area of economic use of resources.

The need is clear. Economists need somehow to provide agricultural workers and local leaders with an understanding of the basic ideas of economics. If this were established as an objective of this group, I know that success would come within a few years. We hurt "deep down" when we know of the valuable and basic information held by agricultural economists and yet see that it does not get into the operational framework of more minds. Perhaps excessive time is devoted to the mechanization of economic techniques and glamorization of selected principles.

As a proposal for your consideration, suppose emphasis were placed on explaining the basic ideas of resource use to a group of local leaders. High priority should be given to diminishing returns, evaluation of alternative choices, principles of substitution, elasticity, risk and uncertainty, and other concepts.

General farm organizations have expressed a sincere interest in leadership development. Consider the preparation of a basic economic

education series that would assist local leaders and even 4-H youngsters, to speak intelligently for agriculture. Basic subjects might include: farm policy, foreign policy, rural-industrial relationships, community structure and its institutions, consumer influence, management principles, problem solving, and others. Getting such information to local leaders would be no problem, as the farm organization leaders would be quick to support it.

As a final suggestion for strengthening the extension educational program for teaching sound approaches in resource adjustment, I would like to urge more departments of agricultural economics to develop study programs that produce extension specialists.

DIRECTOR NESIUS' paper has stimulated us to think in terms of a 1975 model of the Agricultural Extension Service with particular reference to extension education in production and in agricultural economics.

Rather than consider individual points of emphasis and perhaps of differences, we have tried some elementary projection concerning the future role of extension education. These projections are obviously colored by and extended from the analysis made in the discussion of technological research (see discussion of Harald Jensen paper). The comments here are in a large measure a synthesis of the thoughts of Purdue colleagues and particular recognition is given to contributions of Professor J. C. Bottum, J. B. Kohlmeyer, N. S. Hadley, and J. E. Losey. The discussion, likewise, draws upon ideas concerning the diffusion process as analyzed by George M. Beal and Joe M. Bohlen, Iowa State College.¹

These comments are presented more as hypotheses to stimulate discussion than as proven propositions.

First, considerable evidence seems to exist that the innovators or early adopters may be by-passing traditional extension educators for their information on technological research. Many of them apparently are going directly to the researchers themselves, to technical publications, and to the technical people employed by the firms that supply production factors. These innovators appear willing to incur considerable learning costs to obtain wanted information directly from the primary source.

Second, it may well be that the share of time which farm people devote to learning about production is declining relative to the costs they incur to obtain greater understanding of group, social, and institutional problems. Many avenues exist for learning about production techniques, innovations. In these farmers probably have considerable confidence. Reference is made to the suppliers of production factors ranging from the irrigation equipment engineer to the feed company's animal nutritionist. On the other hand, there may be relatively fewer sources in which the farmer has confidence for learning about group,

¹North Central Regional Publication No. 1, "How farm people accept new ideas." Special Report No. 15, Iowa Agr. Ext. Serv., Nov. 1955.

social, and institutional problems. Therefore, our farm people may be turning increasingly to agricultural agencies and especially the land-grant college for assistance in understanding group, social, and institutional problems as contrasted with production problems.

Third, in the area of production, leading farmers seem to be placing their emphasis more on acquisition of managerial skills than on the acquisition of technical production skills. As we shift more and more functions from farm to city and factory, the successful farm producer becomes more of a manager and less of a production artisan or husbandryman. Once the use of many production skills becomes widespread producers do not have to be retaught each generation by professional educators. Dad may do the job.

We may further note that if substantial amounts of capital flow into farm production from nonfarm sources even through partial integration vertically, with this capital is likely to flow some of the production management.

If the above are at least in part true, what is the impact on extension education as we have known it?

If more of agriculture follows the pattern of fruit and vegetable production and the poultry enterprise and becomes in part vertically integrated, perhaps the integrating firms rather than the land-grant colleges will assume most of the responsibility for educating producers. Educators, fieldmen, and line or staff managers with the integrating firms are likely to go directly to the researchers for their technological information, thus by-passing the public extension worker in production. Or we may develop more joint extension-research specialists to service the managers employed by integrating firms.

If more capital is concentrated into each farm and if an increasing share of total agricultural production is in the hands of the innovators, these people, too, are likely to by-pass the traditional extension worker in their quest for production knowledge. Administratively and financially it seems improbable that we can train and make available in each county a farm and home development agent qualified to do a top job of management with our innovators.

Probably a substantial number of farm producers will remain in the lower end of the spectrum as late adopters. If we accept the Beal and Bohlen analysis, the diffusion process reaches these late adopters by way of their neighbors who are the innovators and community adoption leaders. Apparently these late adopters are not directly touched by the extension service as such, perhaps not even by the unit farm planning agents. (If the Beal and Bohlen analysis is correct, it is interesting to speculate on the long-run consequences of expanded farm and home development work. With whom are we really expecting the farm and home development agents to work — with the innovators, the late adopters, or with the group somewhere in between?)

Clearly we are likely to have developments in all the above directions. But these hypotheses might be advanced:

1. The need for extension specialists in production may decline.

Certainly, social values attached to the small farms plus service work to the "non-commercial" producers will keep extension active in this area for many years to come. Were probable accomplishment to be measured according to an efficiency yardstick, however, we would probably say, "Place your scarce research and education dollars on the technological researchers to whom the innovators come in their quest for knowledge." This gives major educational emphasis to serving the innovators and community adoption leaders. Here there may be relatively less room for the traditional extension person between the researcher and the farm or other producer. We may bring the innovators to special conferences at the university or district level, recognize them, and cater to them as a special group to lessen the work load of individual conferences.

2. The extension economist's role may become more nearly that of a broad social scientist working with the total problems of people. This suggests less emphasis on production skills. It increases the need for training people to integrate knowledge and improve understanding. Clearly, farmers' problems are greatly broadened in this generation. As Nesius has pointed out, farm people probably need to learn more about the social, production, and consumption adjustments which are taking place and are likely to take place in the future in the highly integrated economy in which we live.

3. To serve the needs of our real farm leaders, extension may offer advanced courses in economics, management, and social sciences. Instead of emphasizing technical education, we may shift to a broader educational base. Instead of offering a community one or two meetings a year in a particular area, we may well offer advanced courses in adult education on a weekly or more frequent basis. These courses may well be taught at a college or at a graduate credit level. And these rural leaders may well take these courses for college credit. Understanding of the inner workings of our dynamic economic system is not easily acquired in an occasional meeting. Orderly, consecutive, progressive adult education programs that build sequentially may well be in the picture. If so, this calls for a meeting of minds in educational institutions concerning the role of the Agricultural Extension Service and Adult or Continuing Education divisions. Certainly our extension specialists can well do much of the advanced educational work outlined here.

This analysis suggests that in extension education we have frequently attempted to serve the masses with a more or less standardized educational package. We have often presented the same freshman level work year after year. Since we have seldom built our offerings sequentially so that once the freshman work was mastered sophomore and junior level courses were offered, some farmers have gone directly to the research and to other information sources for the more advanced work. With improvement in transportation, communication, and farmer appreciation of his ability to use the telephone or seek out his own information from the source, the trend toward going to the source of the information probably will not be reversed.

On the other hand, most professions and socio-economic groups in this country appear to have an increasing awareness of, and interest in, adult education. The integration and synthesis of new and developing technology into new systems of production offers a challenging educational job to the production economist. Even here, however, this role may be more effectively accomplished if we give the manager of the farm unit more basic training in analytical processes so that he may determine for himself, in his situation, the consequences of alternative courses of action. This probably calls for junior, senior, and graduate school levels of instruction. And to this same group, the more advanced instruction in analysis of how our social and economic system works and how it changes has substantial appeal. This implies relative reduction of extension education resources in teaching production skills and facts, and suggests relative increase in advanced, broad-based extension educational work. As we think of what we are attempting to accomplish in such important activities as program projection, rural development, and agricultural policy, the contribution of broad-based education in the fundamentals of the economics and the social sciences could be of major proportions. Herein may lie extension's most powerful tool for guiding adjustment.