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PROBLEM RECOGNITION in AGRICULTURE

Managerial

Adjustment

Opportunities



**AGRICULTURAL EXPERIMENT STATION
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IMPLICATIONS OF THE STUDY

Farm management is difficult! Profitable management requires successful adjustment to change. Identification of the problems that evolve from change is the first step in satisfactory adjustment. Changes in agriculture and general economic environment are expected to occur as fast or at a faster rate in the future. As these changes occur, greater risks and uncertainties will be characteristic and adjustment requirements will be more exacting. Inability to recognize problems created by these changes will continue to preclude satisfactory adjustment.

Characteristics of older farmers revealed by this study indicate difficulty in carrying out public programs designed to help low income farmers. Census data show the average age of farm operators in Alabama increased from 43 years in 1930 to 50 years in 1954. Comparatively fewer young men are entering farming and many young and middle-aged farmers are leaving the farm to seek employment in related or other fields. Older farmers are the ones who are most stable. Since younger farmers, in general, recognize opportunities for greater income either on or off the farm, older farmers are the ones who need help.

Government programs, such as the Soil Bank, are not as beneficial to older farmers as younger farmers. Younger farmers can put their land in the conservation reserve, get an off-farm job, and receive income from two sources. Older farmers have more difficulty getting other work, so if government payments are not equivalent to the income received from farming, older farmers benefit less from such programs. The only alternative remaining for older farmers, other than direct income payments is to do a better job of farming. However, they are the farmers most reluctant to keep records, make plans, borrow money, keep up with price information, and make other changes necessary to increase income. The problem of older farmers makes it difficult to set up and carry out government programs.

More capital may move to agriculture from sources not prev-

iously interested in farming since it was found that farmers with little or no farm background do a good job of farming and recognize more ways of increasing income. Non-farmers with capital who recognize ways to profitably employ their capital in farming may become a new source of competition to the life-time farmers and exert great influence on methods of farming in the future. Evidence that this implication is realistic is the recent movement of capital into contract farming from non-farm owners who see opportunities for economic gain as contractors.

Apprehension of credit risks, revealed in the findings of this study, imply that more and more farmers will move to off-farm work and become part-time farmers. High capital requirements of modern farming are causing and will continue to cause farmers unwilling to accept credit risks to seek off-farm income to get the capital needed by the farm operation or to accept some scheme for the transfer of risks to others. When farmers become accustomed to working on a salary basis, they establish periodic financial commitments for such things as appliances, home improvements, and automobiles and will not return to farming as a sole source of income. Thus, apprehension of credit risks may increase mobility as far as the shift to more part-time farmers is concerned.

Public institutions, if they are to be of service to farm people, must become familiar with the principles of problem recognition. Researchers and educators must redirect their efforts toward helping farm families and farm managers to better understand the significance of changes and the opportunities and requirements associated with those changes.

The findings of this study focus attention upon the changes in Alabama agriculture. Tremendous changes – seemingly daring – will need to be made by agencies and organizations supporting agriculture if adequate human and non-human resource adjustments are to be achieved.

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PROBLEM RECOGNITION in AGRICULTURE

Managerial Adjustment Opportunities¹

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FARMERS operate their businesses in an environment of risk and uncertainty. This situation arises from the farmers' lack of knowledge regarding experienced and expected price, technological, natural, human, and institutional changes. Such changes have brought about the need for adjustments, not only in farm business organizations but in traditions and patterns of economic thinking.

There is evidence that adjustment to changes has not been as successful in the Southeast as in other regions. The greatest area of concentration of farmers with low incomes and low living standards is located in the Southeastern States. The need to determine the causes of this situation is a pressing one. A thorough diagnosis is needed before a satisfactory cure can be prescribed.

Management of farm businesses by farmers in the Southeast has been complicated by price and technological changes that have been characteristic in other areas. In addition, shifts in the profitableness and comparative advantage in the production

¹Data for this bulletin resulted from Alabama Hatch Project No. 115, "An Economic Analysis of Farm and Home Managerial Opportunities and Adjustments in Alabama Agriculture." For a more detailed analysis of the material in this bulletin see: John E. Lee, Jr., "An Empirical Study of the Problem Recognition Step in Managerial Adjustment." The Alabama Polytechnic Institute, 1958 (unpublished M.S. thesis).

This reference includes details as to the appropriate statistical significance tests to which the data herein reported were subjected. These details were omitted in the reports of general results that follow.

The authors gratefully acknowledge the assistance and cooperation given by S. R. Doughty, A.P.I. Agricultural Extension Service. Also without the full cooperation of Extension Service county personnel and the 254 families interviewed, this study could not have been completed.

* Resigned.

of various commodities have created problems that logically require managerial adjustment through deliberate decision-making and action. The facilitation of orderly mental adjustments and in turn satisfactory business adjustments in the organization and operation of more profitable farms offer a great challenge.

Examination of some of the forces underlying the difficulties in making adjustments provides a background for further efforts in the area of management. Also, it gives a better understanding of why farmers do not always follow what scientists consider deliberate patterns in choice-making. Analysis of related empirical data is meaningful in terms of better farm management, new avenues of approach in economic education, and greater ease and success in implementation of public agricultural endeavors.

Current problem-solving activities of professional agriculturists proceed largely from the assumption that problems are given. No major research efforts have treated the importance of problem recognition as a definite step in managerial adjustment. Further exploration into this and related possibilities is prerequisite to the effective employment of the choice-making framework.

THE FRAMEWORK FOR ADJUSTMENT

Research primarily concerned with the place of problem recognition in managerial adjustment has been limited. Some work concerned with the human factors influencing problem recognition has been done in recent years. The writings of early economists and much of the recent work have dealt with subjects that were directly or indirectly of interest to the topic. Usually the subjects were by-products of or incidental to original research objectives.

Contemporary economists, who have gained recognition for their work in the area of decision-making, have suggested that certain orderly steps constitute a problem-solving or adjustment process. The efforts of Glenn L. Johnson and associates represent a step forward in the development of a general problem-solving technique for use by farm business managers.² However,

² Glenn L. Johnson and Cecil B. Haver, *Decision-Making Principles in Farm Management*, Kentucky Agricultural Experiment Station, Bulletin 593. (Lexington, Kentucky: University of Kentucky, January, 1953), pp. 1-11; and Glenn L. Johnson, *Managerial Concepts for Agriculturists*, Kentucky, Agricultural Experiment Station, Bulletin 619. (Lexington, Kentucky: University of Kentucky, July, 1954), pp. 5-10.

they assume the problem as given or well defined. This assumption may not be valid insofar as farmers may encounter significant difficulty in recognizing problems or in expressing felt needs as problems. If problems are not given (they will *not* be in actual situations) or if farmers fail to recognize their problems, analysis of alternative solutions or effort at decision-making is premature.

The Adjustment Environment

Change is the dominant characteristic of the environment in a competitive society. Environmental forces, like water, seek an equilibrium level. Until that level is reached there will be changes and expectations of changes. Since a static state is not foreseeable, managers must equip themselves to make satisfactory adjustment to change.

Static society requires no adjustment. Society in such a situation must be free from the disturbances caused by progress or change. In this hypothetical situation no changes would occur, outcomes would not be known, no risks and uncertainties would be created, and management would have no function. Knight writes that to realize the static state we would have to eliminate five kinds of change which are constantly in progress: (1) population is increasing, (2) capital is increasing, (3) methods of production are improving, (4) forms of industrial establishments are changing, and (5) wants of consumers are multiplying.³ Such a static state exists in theory only.

Static conditions become dynamic when time is realized as a factor. A dynamic situation might be described as a flow of infinitely short static situations. Some changes are foreseen; some are not. A function of management is to make decisions, to adjust, and to accept the consequences of that adjustment; this function is relative to those changes that are unforeseen and to those outcomes that are not known.

Although society is dynamic by nature, for research purposes and for purposes of simplicity, certain variables must be held constant; i.e., a partial static state must be created or supposed if the relationships of certain variables to conditions existing around them are to be studied. In a dynamic study, the effect

³ Frank H. Knight, *Risk, Uncertainty, and Profit*, (London: School of Economics and Political Science, 1937, Reprint Number 16), p. 33.

of change in moving from one (non-existent) partially static period to another is followed.

Risks and uncertainties arise from imperfect knowledge regarding experience or expected changes. Knowledge regarding a change or knowledge concerning the outcome of a contemplated action may be perfect, imperfect, or completely non-existent. Since managers have at least some but questionably ever perfect knowledge regarding change, they operate in an environment characterized by some degree of imperfect knowledge.

The further actual knowledge diverges from a perfect knowledge situation the more difficult decision-making becomes. When knowledge is perfect, no difficulty is encountered in making decisions. When there is absolutely no knowledge, realization that a change has taken place does not exist, no problems are recognized, and management has no function relative to the change that occurred. Only in imperfect knowledge situations does management serve a purpose in adjusting to change. Thus, in designing an analytical framework for adjustment to change, the perfect knowledge and the no knowledge situations can be discarded, Figure 1.

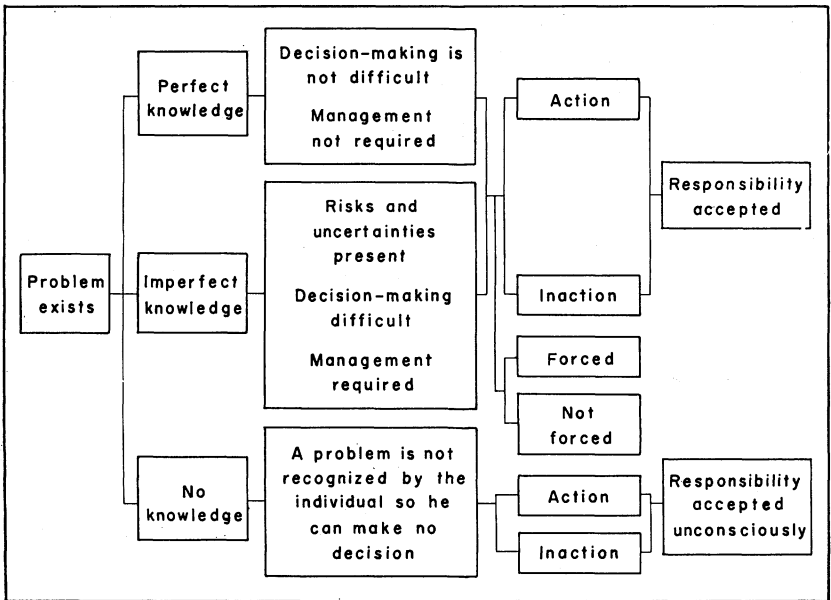


Figure 1. Influence of knowledge regarding experienced or expected change on the decision-making process.

Risk has been defined as that portion of uncertainty that in the aggregate is measurable and the outcome of which in the aggregate can be predicted. Managers tend to act in low-risk situations, but as perfectness of knowledge relative to the outcome of change decreases, reluctance to accept responsibility for action increases.

Reluctance to accept responsibility for action varies with the state of knowledge, with the nature of the action, and among individuals, Figure 2. At a given degree of knowledge (point K) individual managers (Entrepreneur A and Entrepreneur B) may exhibit variation in willingness to accept responsibility for action.

In situations characterized by imperfect knowledge, the manager's knowledge may be: (1) adequate to act as though it were perfect; (2) adequate to cause the manager to take the risk (provided certain insurance measures are taken) although not sure of the outcome; (3) just sufficient to tempt but not to cause action; and (4) too imperfect for action other than forced action. Only in the first and second cases is knowledge sufficient for deliberate action or inaction based upon a decision reached through the decision-making process.

Certain human and social characteristics influence states of knowledge and in turn the ability to recognize problems and alternative solutions. Important among these are age, formal education, background and experience, stage in the family cycle, and net worth of individuals. The contribution these charac-

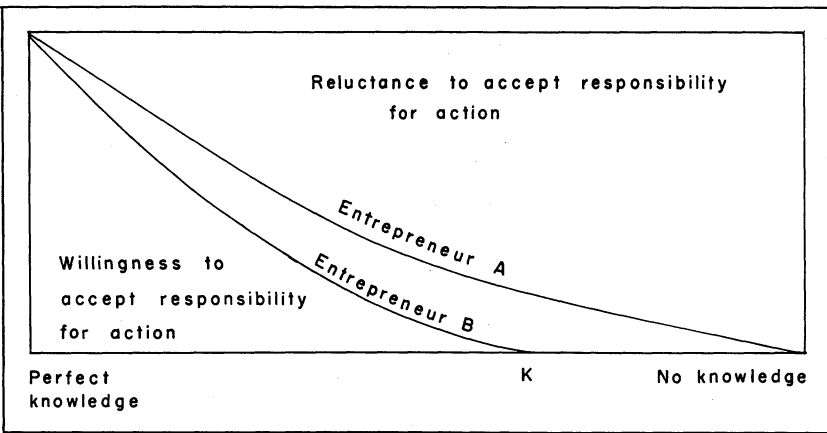


Figure 2. Entrepreneurial willingness to accept responsibility for action in imperfect knowledge situations.

teristics and forces make to the adjustment environment must be recognized.

Developing A Framework For Adjustment

The need has been evidenced for a dynamic framework within which satisfactory adjustments to change can be made. The problem-solving process suggested by Johnson and others serves as an effective core of this framework. Johnson either assumes the problem as given⁴ or ignores it completely⁵ and lists observation as the first step in the process. However, John Dewey writes that the first three steps in any reasoning process are: (1) a felt difficulty, (2) its location and definition, and (3) suggestion of possible solution.⁶ His second step, defining the felt difficulty, is important and represents the flaw in problem-solving processes currently advanced by many professional agriculturists. Steps to facilitate orderly thinking in the definition of felt difficulties need to be outlined.

Since problems may not be recognized as knowledge approaches a high degree of imperfection and since many farmers often have very little knowledge concerning changes, problem recognition deserves consideration as a logical step prior to the observation step.⁷

Problem recognition

A clearly defined problem is one of the prerequisites for sound thinking. It is necessary before the problem-solving process can be successfully employed. A clear definition of the problem is one thing that managers must have to give meaning to the adjustment concept. Problem recognition is the key to adjustment. It is a point from which to proceed, and a definite phase in the adjustment framework.

Difficulties arise from risks and uncertainties created by change.

⁴ Johnson, op.cit., pp. 8-12.

⁵ Johnson and Haver, op.cit., pp. 7-13.

⁶ John Dewey, *How We Think*, (New York: D. C. Heath and Company, 1933), p. 107.

⁷ E. D. Chastain, "An Empirical Study of the Decision-Making Process in Farm Management," Unpublished doctoral dissertation, Purdue University, Lafayette, Indiana, 1956; and E. D. Chastain and Joseph H. Yeager, *Farm Management Concepts and Principles with Application to Southern Agriculture*, Auburn, Alabama, 1958 (Multilithed text). Problem recognition is incorporated in the "choice-making" framework advanced in these works.

Although difficulties may be felt by the manager, they may at the same time be vague and difficult to identify as a problem. The following steps are offered as a meaningful, organized process of defining problems from felt difficulties:

(1) *A difficulty is felt.* A felt difficulty may appear as a perplexity, a bafflement, or a need for which established habits and ready knowledge offer no escape or means of adjustment.⁸ Expenses are found to exceed income; a person is ill; a farm business that looks sound on the surface fails to be profitable; or a tractor will not start. Not always will the felt difficulty itself be so easily identifiable. A manager may just have a vague, uneasy feeling that things are not as they should be.

(2) *Knowledge and information relative to the felt difficulty is gathered, organized, and observed.* This second step is important. A mechanic seeking to find why a tractor will not start asks the owner for information regarding the vehicle's failure. Information overlooked may contain the key to the identification of the problem. Organization of the information and knowledge of the difficulty pave the way for orderly thinking.

(3) *Alternative definitions of the problem are recognized.* Knowledge, reference groups, and other forces influence the ability of the individual to recognize alternative definitions of the problem. The mechanic looking at the evidence and information might recognize a dozen or more possibilities why the tractor would fail to start. A less experienced observer may recognize only the possibility that the carburetor needs adjusting.

(4) *Alternative definitions are analyzed in the light of the information observed.* The possibility that a dead battery caused the tractor not to start might be discarded when it is learned that the motor responds to pressure on the starter button. On the other hand, the alternative possibility that the tractor was out of gas may be explored further when it is noted that the fuel gauge registers "empty." Further exploration is a part of the analysis.

(5) *A decision is made or a definition decided upon.* The person feeling the difficulty must decide what he thinks is the problem. This step is in some respects the most critical of all. The expert tractor mechanic must locate the reason for the

⁸ Howard L. Kingsley, *The Nature and Conditions of Learning* (New York; Prentice-Hall Company, 1946), p. 372.

tractor's failure to start before attempting to make repairs. The physician must correctly diagnose the illness before he considers the type of treatment to be given. When the conditions of a problematic situation are not adequately analyzed and when the problem is not definitely ascertained, false assumptions are frequently made. False assumptions with respect to the problem often preclude a successful outcome of one's efforts to determine his difficulty. The good manager makes every effort to avoid them. Emotional reactions and a biased point of view are obstacles to clear thinking. They operate against an adequate understanding of the problem.

(6) *The manager deciding what the problem is accepts the consequences of his decision and proceeds.* The person who makes the decision as to the definition of the problem should be prepared to accept the consequences of his choice. Failure to study the situation carefully and to analyze all the significant facts is likely to lead to disastrous results or an unsuccessful attempt at adjustment. Correct solutions to the wrong problems result in incomplete adjustment.

It may be argued that definition of difficulty is as essential to success of the proposed problem recognition process as is recognition of problems to the success of the decision-making process.

Observation

Once a clear understanding of the problem has been established, observation of conditions surrounding the problem is the first step towards its solution. For simplicity, this step should be divided into two parts: (1) the gathering and observation of facts and information relative to the problem, and (2) the recognition of alternative solutions from this information. All the forces mentioned earlier, plus the degree of knowledge surrounding the problem and the nature of the problem itself, influence the ability of the manager to recognize alternative solutions. From data assembled by observation, recall, or imagination, inferences are made. Here the manager passes beyond the facts at hand and ventures a guess, a supposition, or an hypothesis. The good manager is both courageous and cautious in taking this step. For him, it is not a random guess or a wild supposition, but on inference based on an analysis of available information. For the manager, the suggestion of an alternative is not the end of his thinking. The alternative must be evaluated

and tested by the development of its implications in the light of knowledge and managerial experience.

Analysis of alternatives

After possible solutions to the problems at hand have been recognized, the manager evaluates each according to his code of satisfaction or sense of values. The manager actually has imperfect knowledge as to the outcome of the proposed alternatives. A solution using the possibilities for reaching the desired end may be discarded in favor of a weaker solution if the outcome of the latter is more certain than that of the former.

The manager must evaluate each suggestion before accepting or rejecting it. When through the process of inductive and deductive reasoning an alternative is found lacking, it is discarded and evaluation of others is continued. Sometimes, if no completely satisfactory alternative is found, choice becomes a matter of selecting the "least undesirable" rather than the "most desirable." A good manager must be able to see the defects of a poor suggestion, and to recognize a good alternative when it appears. Extensive knowledge of the problem field contributes to recognition of alternatives and to the use of good judgment with respect to suggestions.

Occasionally after alternatives have been analyzed, the manager may decide he has insufficient information for making a decision, so he goes back to the observation step for new knowledge regarding the alternatives. Experimentation may produce new insight to the problem and make possible a decision that previously was baffling.

Decision-making

Making the decision terminates the decision-making process. This is prerequisite to further action and the completion of the adjustment process. The problem is solved when a satisfactory solution is definitely accepted. Such acceptance comes only after analysis reveals that the suggestion meets conditions required by the problem and when all other alternatives suggested are found to be wanting, less desirable, or more undesirable. Here the law of opportunity costs may be employed as a choice indicator. Deliberate decision-making involves selection of the alternative with the least opportunity cost.

Action

Action taken by the manager may be guided by habit, instinct, or reasoning. Unless the reasoning serves as a guide to action little is to be gained by going through the decision-making process. Action itself is the completion of the adjustment process. If the problem has been defined correctly and the right decisions concerning solutions to that problem have been made, the ensuing implementing action will bring satisfactory adjustment and relief from the felt difficulty.

In the case of imperfect knowledge regarding a problem, the manager may decide (1) to take immediate action, (2) to delay or defer action for purposes of strategy, learning, timeliness, or for other reasons, or (3) to be inactive.

Acceptance of responsibility

Any person assuming the tasks of management must be willing to accept responsibility, both social and economic, for any actions taken or decisions made. Behavior that is unsuccessful economically may also lead to social difficulty. The farmer who makes unwise business decisions must also bear the responsibility for family problems that arise from lack of income. Too, managers must bear responsibility for behavior that leads to economic success but which is not sanctioned by society.

Importance of Problem Recognition

The chain of adjustment is no stronger than its weakest link. Problem recognition is one of these links. If the problem is not properly defined or truly recognized, then the rest of the chain, the problem-solving process, may be mis-directed. Until that link is made as strong as the others, all efforts toward successful adjustment will be futile, just as the curative efforts of a physician are futile when he has diagnosed a case of appendicitis as indigestion.

Awareness on the part of the farm business manager of problems and opportunities that exist is essential to a meaningful adjustment to a changing agricultural economy. Likewise, problem recognition is essential to a realization of opportunities for greater farm profits.

The Four Tasks of Management

Farmers confronted with a felt difficulty must define the

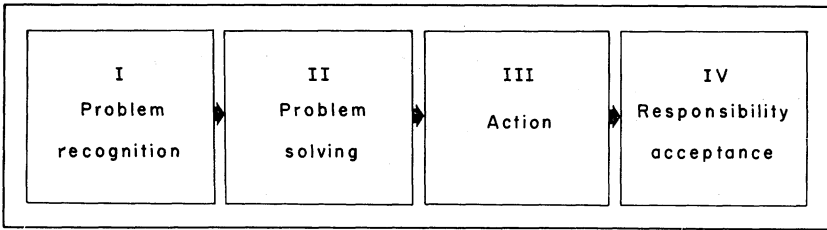


Figure 3. The four basic areas of concern in managerial adjustment.

problem, decide on a solution, and complete the action. In addition, farmers must exhibit willingness to accept responsibility for action before such action can take place. These tasks constitute the four areas of concern in agricultural adjustment, Figure 3.

A summary of the adjustment framework outlined is presented in diagram form in Figure 4. The consecutive steps in the adjustment process, beginning with change which necessitates the adjustment, constitute the core of the diagram.

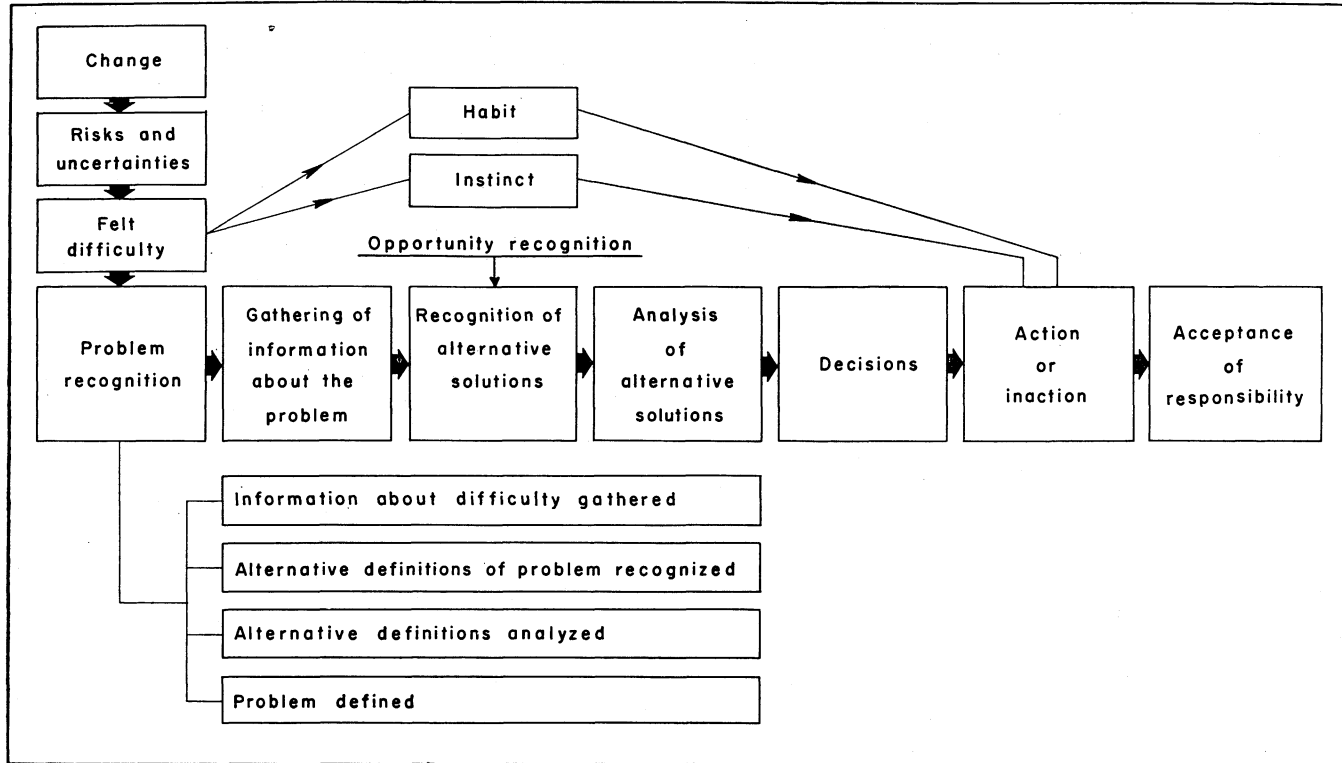


Figure 4. A model of the basic adjustment concept.

RECOGNITION OF OPPORTUNITIES AND PROBLEMS

The preceding discussion of adjustment principles indicated that the recognition by farmers of the problems confronting them is an important step in successful adjustment to changes. To test this hypothesis, empirical data were obtained from a population that consisted of farm families participating in intensive Farm and Home Development activities in Alabama.

Farm and Home Development (FHD) refers to special endeavors by the Extension Services and the United States Department of Agriculture to stimulate better farming and better living through better management of the farm and home as a unit. This is done through the educational efforts of Extension Service agents working with farm families on an intensive basis. FHD activities center on assisting individual farm families to use a systematic problem-solving procedure to attain their own goals which bring an enriched and more satisfying life.⁹

Intensive FHD efforts were begun in 20 counties in Alabama in September 1954, with eight counties added in 1955 and four counties added in 1956.

In 1957, two full years after FHD efforts were begun, data were collected from a sample of FHD agents and farm families for a study of management practices in Alabama. In each of eight farming areas of Alabama,¹⁰ two counties were selected at random from those that had active FHD programs. Within each area, 32 participating families who had 1955 and 1956 farm business records on file in the State Extension Office were selected by a random method. From this sample a total of 252 usable family interviews were recorded. Figure 5 shows the location of the 16 counties selected for the study and indicates the extent to which special agents were employed for FHD work.

Primary data for the study were obtained by trained enumerators using questionnaires designed to reveal information regarding the adjustment opportunities and experiences of the farm families and the nature of the thought processes involved. Farm

⁹ Ben T. Lanham, Jr., et al., *The Role of Farm Management Research Workers in Initiating and Executing A Farm and Home Development Program on A State Basis*, Southern Regional Farm Management Research Committee, Report, January 1955.

¹⁰ Ben T. Lanham, Jr., et al, *Alabama Agriculture—Its Characteristics and Farming Areas*, Agricultural Experiment Station, Bulletin 286 (Auburn, Alabama: The Alabama Polytechnic Institute, May, 1953), p. 3.

business records relating to the progress of individual families included in the sample were made available by the State Extension Office.

Many types and sizes of family farm operations were represented in the sample. FHD activities in Alabama are not restricted to any particular type or size family farm operation, and the population studied was probably similar to the family farm population of Alabama.

Certain hypothesis implied in the preceding section will be tested in the following pages. They are: (1) farmers often fail to recognize the problems that confront them in their business endeavors; (2) satisfactory, deliberate adjustment to change is impossible if the basic problems are unrecognized; and (3) certain forces and individual characteristics influence the ability of farmers to recognize stresses and difficulties and to express those felt difficulties as problems.

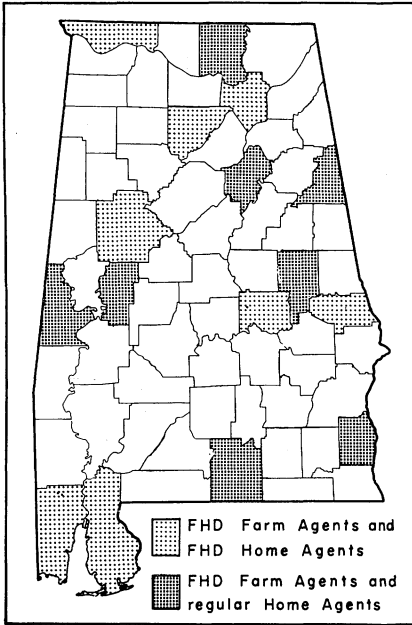


Figure 5. Location of the 16 counties selected for the study and the extent special agents were employed for Farm and Home Development work.

Characteristics of the Population

Age

The average age of the 252 farmers interviewed was 47 years. Only 23 per cent of the farmers were less than 40 years of age; whereas, 30 per cent were 50 years of age or older. Only 2 per cent were less than 30 years old, while 9 per cent were 60 years or older.

Education

The average number of years of formal education for farmers in the sample was 9.9, or approximately a tenth grade education.

Several operators had as little as 3 years of formal schooling while 16 respondents had college degrees. Generally, younger farmers had a higher number of years of formal education.

Farm background

Fifty-one per cent of the farmers in the sample had been on the farm all their lives. Others had spent varying lengths of time or stages in their lives off the farm. Seventeen farmers indicated they had had no farm experience or background until they started farming for a living.

Organized agricultural training

High school vocational agriculture, 4-H Club, and veteran's on-the-farm training were the three sources of organized agricultural training most frequently named by respondents. The sample indicated that 26 per cent had taken high school vocational agriculture courses, 21 per cent had had veteran's training, and 15 per cent had been members of the 4-H Club. Fifty-three per cent of the farmers interviewed had received no organized training in agriculture.

The farmers who had the least number of years of formal education were also the ones who had the least organized training in agriculture. This can be attributed to the fact that much agricultural training, through such media as vocational agriculture or college, is obtained as a part of formal education.

Off-farm income

Over half the families in the sample had off-farm income. It was estimated from the sample that 25 per cent of the families cooperating in FHD activities got half or less than half of their income from the farm. Numerous cases were encountered in which the man farmed full time and the wife or some other member of the family had an off-farm job.

Dependents

Over half of the farmers were married with 2 to 6 children varying in age from 5 years to 18 years. Other stages in the family cycle were also represented, and the number of dependents for some families went as high as 8.

Size of farms

Farms operated by families participating in Alabama FHD activities ranged in size from 20 to 3,180 acres. The mean number of total acres per farm was 294 acres. The average number of acres of open land was 174.

A more meaningful measure of business size is the number of productive man work units included in the farm operation. Productive man work units on the sample farms ranged from a low of 82 to a high of 3,711. The average number of productive man work units per farm for the sample was 512. The number of productive man work units on 30 per cent of the farms was below 300, the number often considered necessary for the employment of one man equivalent.

Net worth

Net worth of 8 per cent of the families in the sample was less than \$10,000 and 2.7 per cent were worth over \$100,000 each. Seventy per cent of the families had a net worth that fell in one of the four \$10,000 class intervals from \$10,000 to \$50,000. Average net worth for the sample was \$33,000. Twenty-three per cent of the families were debt free or had no liabilities.

Agricultural agencies providing assistance

The agricultural agency other than the Extension Service most often listed as a source of assistance by farmers was the Soil Conservation Service. Sixty-nine per cent of the FHD farmers received assistance and advice from that Service. Local vocational agriculture teachers were next, while National Farm Loan Association (Federal Land Bank), Farmers Home Administration, and Production Credit Association were mentioned less frequently in that order.

Opportunities and Problems Recognized by Farmers

Income opportunities

Families interviewed were asked if they recognized opportunities for making more money. Specifically the question was: "At present prices, could you make more money from your farm than you are now making?" A positive reply accompanied by some evidence that the respondent really saw a way to make more money was considered as indication in part that oppor-

tunities were recognized. Those who indicated they saw no opportunities to make more money represented 40 per cent of the sample. Fifteen per cent of these could give no reason why they thought they could not make more money. Forty-one per cent of these farmers failing to recognize greater income opportunities said their farms were already being operated in the most profitable manner possible. They were unable to give any evidence to support nor did data in their business records support such an assertion. Being unable to see how they could improve their farm businesses is indicative that they were unable to recognize the basic problems from which such opportunities arise.

A significantly larger proportion of respondents below 40 years of age said they could make more money from their farms at prevailing prices than did those 40 years of age and older. Approximately 74 per cent of the respondents below 40 years of age, 53 per cent of those from 40 to 50 years of age, and 58 per cent of those 50 years of age and older said they could make more money, Table 1.

When the respondents who said they could make more money were asked how they thought they could do so, the two most frequent answers were interpreted to be: (1) increase the efficiency of the farm business operation, and (2) increase the size or volume of business. Increasing volume and increasing efficiency are generally accepted by farm economists as means of increasing farm income.

When farmers were asked why they did not make the adjustments referred to in the preceding paragraph, 28 per cent of the farmers below 40 years of age indicated they were apprehensive of assuming debt risks; 46 per cent of the same group said they were then in the process of making the adjustments. Of the farmers over 50 years of age who recognized means of making more money, only 20 per cent said they were in the

TABLE 1. OPPORTUNITIES TO MAKE MORE MONEY IN RELATION TO AGE OF 252 FARMERS COOPERATING IN FARM AND HOME DEVELOPMENT ACTIVITIES, 16 ALABAMA COUNTIES, 1957

Age of farmers	Farmers who recognized opportunities to make more money	
	Number	Per cent
Below 40 years	43	74
40 to 49.9 years	62	53
50 years and older	45	58
All ages	150	60

process of making or planning adjustments necessary for greater income; 44 per cent indicated apprehension of assuming the risks of borrowing money. Younger farmers, who see opportunities for increasing returns, make the necessary adjustments more readily than do older farmers and are less apprehensive of assuming the risks of credit.

As the number of years of formal education increased, the awareness on the part of farmers of opportunities to make more money increased. Fifty per cent of the farmers with less than 10 years of formal education said they could make more money from their farms at prices prevailing at the time of the interview. Of the farmers with 10 years or more of formal education, 67 per cent answered "yes" when asked if they could see ways to make more money.

Organized agricultural training of the respondents was found to be independent of awareness of opportunities to make more money. Over half the respondents had no training of this type. Organized agricultural training did not significantly reduce the apprehension of assuming the risks of credit necessary to make changes that would have increased farm income.

Credit use opportunities

Of the 252 respondents, 185 used some type of credit during 1956. Current operating loans for periods of 1 year or less, intermediate type loans which included installment buying of production goods, and loans for long-time investments were the 3 types of credit employed. Current operating loans, used by 80 per cent of the respondents who borrowed money in 1956, were by far the most popular type of credit. About 27 per cent of the respondents used intermediate type credit and 21 per cent borrowed money for long-time investments.

All except 3 of the 67 respondents who did not borrow money in 1956 said they had borrowed money prior to that year. Of these, 41 per cent had borrowed money for operating capital, 53 per cent had used intermediate type credit, and 62 per cent had borrowed for long-time investments. About 78 per cent of those who had borrowed money on a long-time basis prior to 1956 had used that money to buy a farm. Many of these original farm debts were still unpaid on January 1, 1957.

Farmers appeared more willing to borrow operating capital on a short-time basis. Returns from the use of a "crop loan"

were fairly obvious, barring some unexpected disaster, and it was easier for managers to see how they would repay the loan. Apparently, farmers felt that risks increased as the time length of the loan increased because over longer periods of time more changes occur that cannot be predicted.

Many farmers felt that successful farmers were those who owned clear titles to their farm and were debt free. To obtain a long-term loan was to commit themselves to having something bad "hanging over their heads" for a long period of time until that "thing" could be "paid off." The thinking of some farmers was aligned with economic tradition and traditional reference groups so as to give a morally "bad" connotation to the idea of owing money. Such thinking may be a problem within itself and may tend to blind farmers to opportunities afforded by use of credit.

For many farmers, capital is the limiting resource in the development of more profitable businesses. Farmers who thought of such credit only as something to be paid back were obviously partially unaware of doorways to economic progress that may have been opened by its use. Many farmers in the sample did not make adjustments that would increase farm income because they were fearful of borrowing the capital needed to make the adjustments. Some even said they would wait until they could make the adjustments with farm savings so they would not have to borrow money and pay interest on it. Apprehension of assuming risks of credit, especially intermediate and long-term credit, may have been indicative of a failure to recognize basic opportunities and problems.

Neither age, formal education, farm background, source of income, nor family status was found to be related to the percentage of farmers who borrowed money on a short-time basis for current operations. However, the percentage of farmers who used credit for longer periods of time increased as age decreased, as educational level increased, and as off-farm experience on the part of farmers was evidenced, Table 2.

The high rate of intermediate type loans obtained by younger farmers may be at least partially explained by the fact that they were often still in the process of establishing their business operations. They lacked the cash to buy production goods such as machinery, brood cows, or poultry houses, all of which required loans of more than 1 year's duration but which were not usually

TABLE 2. TYPE OF CREDIT USED IN 1956 IN RELATION TO AGE, NUMBER OF YEARS OF FORMAL EDUCATION AND FARM BACKGROUND OF 252 FARMERS COOPERATING IN FARM AND HOME DEVELOPMENT ACTIVITIES, 16 ALABAMA COUNTIES, 1957

Characteristics of farmers	Type of credit used		
	Current operating loan	Intermediate type loan	Long-time investment
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Age			
Below 40	72	46	28
40 to 49.9	83	24	17
50 and above	85	15	21
Formal education			
Less than 10 years	64	12	13
10 years through 12 years	55	24	16
13 years and above	88	32	24
Farm background			
All life on farm	84	15	16
All childhood but not all life on farm	77	32	26
None of childhood on farm	86	71	29
All farmers	80	27	21

long-time investments. Older farmers on the other hand had accumulated at least part of these capital goods. Younger farmers may have been more apt to borrow money for longer periods of time because they had more time to pay the debt, family responsibilities were less, and if they had nothing to begin with they had little to lose, financially speaking, if adverse circumstances had been encountered. If they were to farm at all they had to have the necessary resources so they resorted to credit to obtain them. Older farmers who had spent years building up a farm and getting it paid for may have been more reluctant to risk losing all of or part of what they had so laboriously accumulated for a new tractor or for better cows for the dairy herd. Indications are that they preferred to "do without" until savings accumulated and they were able to pay cash for what they bought.

Unwillingness to assume the risks of credit, especially intermediate or long-time credit, may have denoted lack of appreciation of opportunities for strengthening the capital resources of farm businesses. Farmers failing to recognize such possibilities probably failed to recognize the opportunities afforded by the use of credit.

Problems identified by farmers and agents

Can farmers really recognize the problems present in the operation of their businesses? This question was posed to the FHD Agents. One agent stated rather firmly that most of the farmers fail to recognize their real problems. He cited as an example a group of Grade A dairymen who had inadequate resources for dairy animals or for an efficient dairy operation, but who had not recognized this until the agent pointed it out. In several cases cited, problems and opportunities evident to the agents were not evident to the farmers.

Several FHD Agents in counties included in the study specifically stated that their main problem in working with farm families was the difficulty encountered in getting farmers to recognize their own problems and opportunities. One agent said there was “. . . a lack of recognition of problems without some assistance. . . . Once the problem is suggested it is readily seen by the family.”

When farmers and their families were asked what their problems were, almost 10 per cent said they had no problems in the operation of either their farm or their home. In some cases, farmers who did mention specific problems as being of major importance may have recognized only minor problems while they overlooked basic weaknesses in their farm operations. Twenty per cent of the farmers said their main problem was, “Prices paid too high and prices received too low and ends just don't meet.” If they realized that the basic problem or difficulty behind this was one of adjusting management to changing conditions they did not so indicate.

Thirteen per cent of the farmers named as their major problem a shortage of labor, and another 6 per cent indicated a shortage of workers with proper qualifications was their chief problem. However, for 74 per cent of the farms whose managers stressed a labor *shortage*, the number of productive man work unit per man equivalent¹¹ was below what is normally considered efficient utilization of labor. These data suggested for many farmers the real need was not for more labor but rather for better management of that labor already available.

¹¹ Productive man work units per man equivalent, a measure of labor efficiency, is determined by dividing an estimate of the days of productive work on the farm under typical conditions by the number of man equivalents used in the business.

Many of the respondents who mentioned lack of capital as their major problem may have been unwilling to assume the risk of borrowing money. One FHD Agent's discussion with Production Credit Association officials revealed that credit was "there for the asking" for specific farmers who had said lack of credit was their main problem.

Of 13 farmers who said they did not have enough land for sufficient income or to expand operations, 8 were engaged in extensive production rather than intensive. Although more land may have been needed, in several cases new enterprises could have been selected that would have more profitably utilized the land available until capital resources were strengthened.

One respondent's thought-provoking comment is evidence that he was aware of a very real problem. He stated that he grew up on a small subsistence type farm and that his greatest problem lay in the difficulty to adjust mentally from subsistence thinking to the high-risk environment of present-day commercial agriculture. He recognized the retarding forces that make it hard to break away from established patterns of economic thought.

Price opportunities

Fifty-two per cent of the FHD farmers said they kept up with price changes and outlook and 14 per cent said they did not. The remaining 34 per cent indicated that they only kept up with the prices of things they had to sell. They were not interested in price and outlook conditions in enterprises other than the ones in which they were presently occupied; therefore, it is only logical to conclude they were partially oblivious to opportunities that may have been afforded by alternative enterprises.

About 66 per cent of the farmers in the sample made use of price information, Table 3. Of these, 67 per cent thought of using such information only in terms of marketing. Only 9 per cent of those who kept up with price information responded by adjusting the size or type of their enterprises. This is in accordance with the contention made by some economists that technological uncertainty is less than price uncertainty; therefore, farmers weigh technology more than prices in planning their production.¹² It is evident that many farmers did not visualize the use

¹² O. H. Brownlee and Walter Gainer, *Farmers' Price Anticipations and the Role of Uncertainty in Farm Planning*, Journal of Farm Economics, XXXI, No. 2, May 1949, 266-275.

TABLE 3. USE MADE OF PRICE INFORMATION BY 252 FARMERS COOPERATING IN FARM AND HOME DEVELOPMENT ACTIVITIES, 16 ALABAMA COUNTIES, 1957

Uses made of price information	Percentage of farmers	
	<i>Per cent</i>	<i>Per cent</i>
Information used for advantageous marketing of specified commodities	34	
Information used for advantageous marketing of unspecified commodities	10	
Information used for advantageous marketing and purchasing	11	
Information used for advantageous farm purchasing	3	
Information used to decide to enlarge or decrease size of enterprise and/or add or withdraw enterprises	8	
Managers kept up with and made use of price information		66
Did not use information because of lack of confidence in it	2	
Did not use information because of government controls	4	
Use of information not ascertained	14	
Managers kept up with price information, but made no use of it		20
Manager did not keep up with price information	14	14
Total	100	100

of price information in planning production. Farmers appeared more likely to think of prices in terms of product prices or prices received rather than resource prices or prices paid for things they had to buy.

Some farmers in the sample insisted that it was useless for them to keep up with experienced or expected price changes. Several said they could do nothing about prices and saw no logic in keeping up with them. Others said that the government controlled the prices of the products they sold or that their crops or livestock had to be sold when in prime condition or when harvested regardless of price. It is evident that these farmers did not recognize the planning possibilities afforded by knowledge of existing and expected input and output price conditions. Lack of knowledge of price outlook may result in farmers holding on to unprofitable enterprises while bypassing others that would more profitably utilize the same resources.

More than 22 per cent of the farmers who kept up with prices did not indicate that they used that information. It is doubtful

that any farmer could have such information without it influencing his behavior. However, the very fact that some managers denied making use of price knowledge in the operation of their farm businesses denoted unawareness of opportunities that lie in the use of such data.

The percentage of managers who made use of price information increased as age of managers decreased, and as the number of years of formal education, formal agricultural training, off-farm background, size of farms, and net worth increased, Table 4. As the stage in the family cycle progressed, the percentage of managers who made use of price data decreased.

TABLE 4. USES MADE OF PRICE INFORMATION IN RELATION TO AGE, FORMAL EDUCATION, FARM BACKGROUND, SIZE OF FARM, AND NET WORTH OF FARMERS COOPERATING IN FARM AND HOME DEVELOPMENT ACTIVITIES, 16 ALABAMA COUNTIES, 1957

Characteristics of farmers	Farmers kept up with and made use of price infor- mation	Farmers kept up with price information but made no use of it	Farmers did not keep up with price information
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Age			
Below 40 years	80	16	4
40 to 49.9 years	67	17	16
50 years and above	60	27	13
Formal education			
Less than 10 years	58	25	17
10 years through 12 years	73	15	12
13 years and above	82	18	0
Organized agricultural training	75	16	9
No organized agricultural training	60	24	16
Farm background			
All life on farm	61	22	17
All childhood but not all life on farm	68	23	9
None of childhood on farm	88	12	0
Acres of open land			
Below 51	60	21	19
51 to 151	64	26	10
151 to 501	72	20	8
501 and above	86	7	7
Net Worth			
Below \$10,000	60	10	30
\$10,000 to \$20,000	60	20	20
\$20,000 to \$30,000	68	21	11
\$30,000 to \$40,000	57	26	17
\$40,000 to \$50,000	74	22	4
\$50,000 and above	85	13	2
Total	66	20	14

Mobility and off-farm opportunities

Farmers who recognized off-farm employment opportunities have an additional alternative solution to their income problems. The employment of rural people by industries that hire unskilled workers will undoubtedly do much to solve low income farm problems. Fifty-nine per cent of the farmers indicated that if they stopped depending upon farming as a way of making a living they would experience difficulty in getting off-farm employment that would afford as high a standard of living as their present status.

Seventy-eight per cent of the farmers who indicated difficulty listed age or lack of training or a combination of the two as reasons. The ages of farmers who said they were too old ranged from 35 to 72 years. Lack of education was also given by young and old alike as a reason for recognition of difficulty in foreseeing employment opportunities.

Most of the employment opportunities envisioned by the farmers in the sample were with industry. Twenty-eight of those visualizing employment opportunities said they could go into teaching or public work. Local opportunities were most evident, since 85 per cent of those who said they could get satisfactory jobs indicated such work would be within the county in which they lived or in adjoining counties. Nearly 87 per cent said the work they could get would be within 40 miles or commuting distance of their home.

The respondents who said they did not recognize opportunities for off-farm employment were implying that they were destined to remain on the farm for the rest of their lives. This indicates that comparatively young and healthy farmers who fail to recognize off-farm employment possibilities as an alternative solution to their low income problems might also fail to recognize opportunities for improvement within the farm business.

Difficulty in getting off-farm work increased as age of farmers increased and decreased as the years of formal education increased, Table 5. This suggests that the younger and the more educated farmers are more likely to avail themselves of opportunities off the farm. It may also indicate that since opportunities exist elsewhere for these farmers, they may be less likely to become farm operators unless they feel that the income oppor-

TABLE 5. DIFFICULTY RECOGNIZED IN GETTING SATISFACTORY OFF-FARM WORK IN RELATION TO AGE, NUMBER OF YEARS OF FORMAL EDUCATION, ORGANIZED AGRICULTURAL TRAINING, AND FARM BACKGROUND OF 252 FARMERS COOPERATING IN FARM AND HOME DEVELOPMENT ACTIVITIES, 16 ALABAMA COUNTIES, 1957

Characteristics of farmers	Difficulty recognized in getting off-farm work	
	No difficulty foreseen	No opportunities foreseen
	<i>Per cent</i>	<i>Per cent</i>
Age		
Below 40 years	71	29
40 to 49.9 years	32	68
50 years and above	27	73
Formal education		
Under 4 years	0	100
4 through 6 years	10	90
7 through 9 years	25	75
10 through 12 years	46	54
13 through 15 years	56	44
16 and above	94	6
Organized agricultural training	50	50
No organized agricultural training	29	71
Farm background		
All life on the farm	30	70
All childhood but not all life on farm	46	54
None of childhood on the farm	65	35
Total	39	61

tunities on the farm would be as good or better than from an off-farm job.

A larger percentage of farmers who had not been raised on a farm recognized opportunities for off-farm employment more readily than those who had spent all their lives on the farm. As off-farm experience increased, the farmers in the sample recognized less difficulty in getting other work. Farmers who had spent all of their lives on the farm were more likely to stay on the farm.

Adoption of approved farm practices

Systematic testing of soil for nutrient needs is universally approved as a desirable farm practice. Farmers cooperating in FHD activities were questioned as to whether they had tested their soil and about the use made of resulting recommendations. This question was advanced on the supposition that farmers who fail to have their soil tested and follow the recommendations overlook opportunities to increase income by increasing yields.

About 55 per cent of the farmers had samples of all their soil tested in recent years (within 3 years prior to time of interview); 17 per cent had samples of a part of their soil tested recently; and 28 per cent had none of their soil tested. Of the 177 farmers having samples of all or part of their soil tested, 70 per cent followed all fertilizer recommendations, and 27 per cent partially followed recommendations. Thus, less than 39 per cent of all farmers included in the sample had their soil tested and used fertilizers recommended as a result of the tests. Less than 3 per cent of farmers completely disregarded all fertilizer recommendations following soil tests.

Whether farmers had soil samples tested was found to be independent of their age. Neither was use made of fertilizer recommendations based on soil tests found to be related to age of farmers. Whether farmers had their soil tested and uses made of resulting recommendations were found to be independent of formal education and organized agricultural training.

High school vocational agriculture teachers and county 4-H Club leaders often endeavor to impress farm boys and girls with the merits or advantages of recommended farm practices. It is the hope of these educators that the farm youth will take ideas they encounter home to their parents who run the family farm. If the youths did this it appears that more farmers with children 10 to 18 years of age at home would make use of soil testing than farmers in other stages of the family cycle. However, there was little relationship between the stage in the family cycle and the percentage of farmers who had their soil tested.

Long- and short-time plans and farm business records

Although long-time planning is a part of Farm and Home Development, only 30 per cent of the farmers in the sample had long-time organization plans on paper. Another 5 per cent had partial plans. Thus, nearly two-thirds of the farmers failed to indicate awareness of opportunities for increasing income or for increasing the long-run success of their businesses that might be revealed through long-range planning.

Only 15 per cent of the farmers made short-time plans on paper. Another 62 per cent made plans in their mind only, and 18 per cent said they made some plans on paper and some in their minds. Human memories are not infallible and plans unwritten may often be plans forgotten. In addition, plans on

paper are usually more concrete or exact, whereas, mental plans rarely are precise enough to be critically analyzed.

Improvement of the farm business begins with careful analysis of current operations. Accurate farm records are essential to such analyses. However, there were indications that many of the FHD farmers did not keep records or at least did not keep records complete enough for business analysis. About 16 per cent of the respondents said they kept no records at all. Roughly the same percentage said they kept records such as they were, but made no use of them or used them only when computing income taxes. The remainder of the farmers, 70 per cent of the total number, said they kept records that they studied for the purpose of improving their income. Although some families did not appreciate the value of farm records and accounts, it appeared that participation in FHD activities had increased the awareness of opportunities revealed by systematic and careful analyses of such records.

More farmers under 40 years of age made long-time and short-time organization plans on paper and kept complete farm records than was true for older farmers. The percentage of farmers in the sample who made plans and kept complete records increased as the number of years of formal education and the length of off-farm background increased, Table 6. A higher percentage

TABLE 6. PERCENTAGE OF 252 FHD FARMERS WHO MADE LONG-TIME ORGANIZATION PLANS, WHO MADE SHORT-TIME PLANS ON PAPER, AND WHO KEPT RECORDS FOR USE IN DECISION-MAKING IN RELATION TO AGE, FORMAL EDUCATION AND FARM BACKGROUND, 16 ALABAMA COUNTIES, 1957.

Characteristics of farmers	Farmers who made long-time organization plans	Farmers who made short-time plans on paper	Farmers who analyzed records for decision-making
	<i>Per cent</i>	<i>Per cent</i>	<i>Per cent</i>
Age			
Below 40 years	47	24	78
40 to 49.9 years	24	10	67
50 years and older	27	17	68
Formal education			
Less than 10 years	23	12	63
10 years through 12 years	33	14	75
13 years and above	44	26	76
Farm background			
All life on farm	26	10	64
All childhood but not all life on the farm	34	19	76
None of childhood on farm	35	29	76
Total	30	15	70

of those farmers with organized agricultural training in their background made long-time plans on paper. As net worth increased, a higher percentage of the sample farmers kept records on their farm operation.

It is understandable that farmers nearing retirement age would be less prone to make long-range plans than would younger farmers. However, farmers between the ages of 40 and 50 years are usually 10 to 20 or more years away from retirement; therefore, reluctance on their part to make long-range plans is more difficult to understand. Possibly after farmers reach middle age and have been farming for a long time the operation becomes routine and they see no need for planning. When this happens and farmers cease seeking better ways to run their farms, problems may go unrecognized and opportunities be foregone.

SUMMARY

Empirical data presented support inclusion of problem recognition as a definite step in adjustment. It has been shown that farmers often experience difficulty in recognizing problems and opportunities peculiar to their individual operations. Since the recognition of problems is prerequisite to their solution, and since such solutions are essential to satisfactory adjustment, one can but conclude that satisfactory adjustment by farmers to a changing agricultural environment has been retarded by failure to recognize problems.

In relation to the hypotheses originally presented, it is specifically concluded that:

- (1) Farmers do experience difficulty in recognizing the problems and opportunities relevant to their business endeavors;
- (2) Adjustment has been retarded because of the difficulty experienced on the part of farmers in recognizing problems; and
- (3) Certain conditions and individual characteristics are related to the ability of farm managers to recognize problems and opportunities.

The last conclusion, relative to individual characteristics of farmers that influence ability to recognize problems, is supported by the following:

- (1) That age influenced ability of farmers to recognize problems or that ability to adjust receded as age of farmers increased, since, as age of farmers in the sample increased —

(a) the percentage who recognized opportunities for increasing income decreased,

(b) the percentage who used intermediate type credit and long-time credit decreased,

(c) the percentage who saw opportunities for off-farm employment decreased, and

(d) the proportion who made plans and kept farm business records for purposes of analysis decreased.

(2) That ability of farmers to recognize problems increased with an increase in number of years of formal education, since, as level of formal education of farmers increased —

(a) the percentage who recognized farm income opportunities increased,

(b) the percentage who used intermediate type credit and long-time credit increased,

(c) the percentage who made use of price information increased,

(d) difficulty recognized in getting off-farm employment decreased, and

(e) the percentage who made plans and kept records for analysis increased.

(3) That ability of farmers to recognize problems and opportunities increased as off-farm experience and background increased, since those farmers who had not been raised on a farm —

(a) were more likely to use intermediate and long-term credit,

(b) made more use of price outlook information,

(c) recognized less difficulty in getting off-farm work, and

(d) were more likely to make plans on paper and keep records for purpose of analysis.

(4) That ability of farmers to recognize problems decreased as stage in the family cycle progressed, since, as stage in the cycle progressed —

(a) the percentage of managers who made use of price information decreased, and

(b) the difficulty recognized in getting off-farm work increased.

(5) That ability of farmers to recognize problems increased

because of organized agricultural training, since, of those farmers who had received training of an organized nature —

(a) a higher percentage kept up with and made use of price information,

(b) the percentage who recognized difficulty in getting off-farm employment was lower,

(c) a higher percentage had tested samples of all their soil for fertilizer needs and followed all fertilizer recommendations, and

(d) a higher percentage had made long-time organization plans than was true for those with no formal agricultural training.

