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GETTING NEW TECHNOLOGY ADOPTED IN THE FOOD INDUSTRY

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Examines the effectiveness of the Demonstration Store Technique as a method to aid in the extension of research results.

Introduction

Several decades ago, a fellow New Englander made the following statement about the utilization of research: "The typical agricultural economist is not a promoter; he is a researcher or an educator. His creed is 'give people the facts and they will know what to do'. There is nothing wrong with facts, nor with analysis, nor with education, but economic ideas must be promoted if there is to be any action. Many sound ideas are buried in research reports and are dormant because they have never been successfully promoted."

"Economics research and education do, of course, bring about a gradual improvement in public understanding of issues and of alternative ways of dealing with it. But, before major changes are made, someone, or some group, usually must promote a specific program."

"Agricultural economists have paid too little attention to these promotional activities. Promotion of the wrong things can do great harm; promotion of the right things is necessary for progress in marketing--as in other fields. Economists have, perhaps, been too ready to confine themselves to armchair discourses on promotion and development work when the real need is to study actual programs and to measure their economic effects."(1)

Although the writer is talking about agricultural economists certainly the same could be said for scientists in other disciplines. I'm sure that just as many sound ideas are buried in research reports that are collecting dust in the files of engineers, physical scientists and social scientists.

Food Industry Facing Productivity Crisis

The food industry has been challenged by a statement made by Gordon Bloom regarding the need for improving the performance of the food distribution industry. Bloom stated "the American food industry is facing a productivity crisis. The simple facts are that the rate of our expected improvement in manhour output in the years ahead is quite unlikely to be sufficient to keep pace with the size of anticipated wage adjustments, with or without an income policy. The result is likely to be a continuing escalation in operating costs, declining margins, higher food prices, and a rising tide of public criticism with respect to industry performance." (2)

Overcoming Resistance to Change

In getting research applied generally a change is required and as all of us know change is rarely welcomed under any circumstances. The reasons, of course, are obvious the older existing system that is faced by change has vested interests protected by existing laws and property rights. Individuals also resist change and are concerned about what change will do to them.

Several years ago at an Extension staff conference a behavioral science professor had this to say about change. (3)

"To achieve change in human thought and behavior is the fundamental task of all education."

Three Levels of Change

Society is affected by two kinds of change: unplanned change caused by acts of God, man and nature, which are unexpected and often destructive; and planned change caused by the plans and behavior of man.

Changes by or in people take place at three levels:

1. Knowledge change.
2. Skills change.
3. Attitude change.

Knowledge change by itself does not provide sufficient force to generate long lasting change and behavior. Skill change is more difficult to achieve, for once it is changed it is more enduring because people will seldom revert to an old way if they can do it better the new way. The most difficult change to achieve is attitude change. It represents a fundamental change in behavior. Attitude change takes time and it also takes considerable skill in working with people to bring about change in attitude.

Unfortunately, most of those that I have worked with in industry and government either do not recognize or are not concerned about the time needed to bring about attitude change nor are they aware of the required skill for working with people to bring about changes in attitude.

Why People Resist Change

Research studies indicate that rather than resisting change, people actually enjoy change...its relation to the desire for new experience and self-fulfillment; but what they tend to resist is the methods used by those attempting to bring about change.

In general, people resist change:

1. When the suggested change is general and ambiguous.
2. When the people to make change are not involved in the processes of deciding about the change to be made.
3. When the request or emphasis is to change because of the personal wish of some person or out of loyalty to someone.
4. When the change agent ignores group norms.
5. When communication is poor and people aren't kept informed.
6. When they are not sure that they can agree with the new.
7. When excessive physiological, emotional, or financial pressures are present for continuing current behavior.
8. When people are satisfied with what they have.

How to Overcome Resistance to Change

Resistance to change on the other hand can usually be overcome by:

1. Involving appropriate people in the diagnosis and planning not merely in the execution of plans; then keep summarizing progress or accomplishments.
2. Building in a real two-way communications procedure...leveling with everyone.
3. Procuring commitment to the same goal to get the job done.
4. Working within group norms and values as they are first found.
5. Making changes that count...don't emphasize the unimportant.
6. Develop an atmosphere of trust among the people that are involved.

How Agricultural Firms Utilize Research

Today's American agriculture is characterized by its rapidly changing technology. New crops, practices, and techniques have been developed in an increasing number by research agencies. Society has benefited from these research findings, but only to the degree that they have been extended to and utilized by the representatives of the agricultural industry. Much research has been done in recent years to determine the nature of the process by which new ideas and practices are diffused from their source of origin to ultimate studies that was conducted in a Central Iowa community. (4)

In this study it was found that operators pass through a five stage adoption process as they accepted new practices. The first stage in the adoption process is the awareness stage when an individual first learns of the existence of the new idea, followed by the information stage when he is motivated by his curiosity to seek additional information; the application stage is when he becomes concerned with applying the new practice to his own situation; the trial stage is when he tries out the new practice in his situation; and the adoption stage is when the decision is made to continue or discontinue use of the new practice.

The adopters were classified into five categories: innovators, early adopters, early majority, late majority, and laggards. The innovators are the first to use new practices and the laggards are the last.

Certain sources of information are more important at some stages in the adoption process than at other stages. Specifically, (a) mass media sources are most important at the awareness stage, (b) informal sources (neighbors, friends, and relatives) are most important at the application stage, (c) commercial sources play the most important role at the trial stage, and (d) agricultural (outside) agencies are most important at the awareness stage and decrease in importance through the later stages.

The most important source of information at the adoption stage is the results obtained from the trial of the new practice.

Dr. Seaman A. Knapp (1833-1911), "Father of Extension Work", had this insight back in 1903 when he utilized the demonstration plot on Walter Porter's farm in Terrell, Texas...to show that marked financial advantage will accrue if better methods are followed. Dr. Knapp provided all of the agents a policy statement with his saying: "What a man hears, he may doubt; what he sees, he may possibly doubt; but what he does himself, he cannot doubt".

Demonstration Store Program

Some 15 years ago through the combined efforts of Extension and ARS research specialists in the USDA a demonstration store technique was introduced. This technique had been utilized effectively by the Extension Service since its introduction by Seaman A. Knapp in 1903 as an effective method for getting better practices adopted. This concept utilized the result demonstration principle in which improvements based on research results are established in one store of a firm, or group of stores, and extended by various means to other stores within the firm. The demonstration store becomes the point of focus for the firm-wide or group-wide program. It simply is an educational vehicle to aid in the diffusion of research results to the entire firm or group of stores. The demonstration store program is the total educational effort with the cooperating firm or group using the demonstration store as a vehicle to aid in the extension of the research results within the firm or group.

The demonstration store program is generally divided into the five following sections:

1. Approach - Time and effort spent from the time the firm was first considered as one in which to establish a demonstration program to the time when the formal study of the situation started.

2. The study of the situation and formulation of recommendations - This involves such things as a description of the existing organization of the firm, a detailed analysis of present operational procedures, preparation of recommended improvements based on the latest available research and upon sound economic and merchandising principles.

3. A presentation of recommendation - This involves the time and effort spent in the presentation of the analysis and recommendations to top management of the firm.

4. Follow-up in the demonstration store - This represents all the time and effort spent with the firm from the time of the presentation of recommendations until the demonstration is established.

5. Extension of recommendation to other stores - This represents all the time and effort spent in extending recommendations which the firm wishes to adopt from the demonstration store to other stores in the firm.

Demonstration Store Success

The demonstration store approach was utilized by Extension food retailing specialists in many States to introduce and secure adoption of the results of various food retailing research projects. Early efforts were limited to food store departments such as produce, meat, groceries and frozen foods. These early demonstrations applied under actual store operating conditions the results of USDA research studies such as: The Checkout Operation in Self-Service Retail Food Stores; Improved Methods of Handling Groceries; Receiving, Blocking and Cutting Meats; Improved Handling of Frozen Foods; Improved Methods of Trimming Produce. These and many similar studies from the USDA, Land-Grant Universities and industry groups gave the demonstration store the research support needed to overcome earlier criticisms of the program... "that it had little scientific facts and a lot of folklore."

In more recent years, demonstration stores have concentrated on the total store operations including the all-important

management decisions. A recent demonstration store in a southwestern State covered: personal and business goals, performance of management, responding to customer demands, advertising and promotion programs, personnel evaluation, store facilities, financial decisions, departmental operations, controls and total store sanitation.

The demonstration store has an added advantage of providing an excellent training device to provide a conceptual insight into the supermarket operation.

An example of the impact that the demonstration store can have on the food distribution industry, is the Falley centralized meat operation. The Falley Company of Topeka, Kansas, pioneered the Nation's first central meat facility designed and built solely for the purpose of supplying completely processed retail fresh and smoke meat cuts to retail food stores. The plant layout and management operations were based primarily on the application of research derived from a USDA study of centralized processing of fresh meat for retail food stores. The planning, designing and installation of equipment in this demonstration firm was a joint effort of the USDA along with the representatives of Kansas Extension Service, Kansas State Board of Agriculture, and the Associated Grocers of Kansas City.

The impact that this demonstration will have on the food industry can be judged by the remarks of Arthur Norris, Vice President of Stop and Shop Stores, Boston, Massachusetts. Norris told the Supermarket News that the 160 store chain's new \$15 million central meat cutting and preparation plant has made Stop and Shop a leader in meat to consumers...and we never had that image before. In planning the plant, Stop and Shop wanted to provide customers with three things that have been next to impossible to supply; availability of a full variety of meat from Monday morning to Saturday night, uniformity of product, and uniformity of eating quality. At present, close to half a million pounds of meat are processed a day. Half a million pounds of hamburger are processed in a five day week.

In discussing quality control, Norris stated bacteria control in fresh meat had been non-existent. There are no standards set for it and meat coming in is normally full of bacteria. We felt that the best technique for our purpose would be the technique used in surgical rooms to prevent bacterial contamination. This meant a plant built of plastic and stainless steel.

Although some processing is still being done at the retail store level from the knife-ready and sub-primal cuts, it can be assumed that in the near future all processing will be done at the central plant for the retail food stores.

Another example of the use of the demonstration store is that of Project Consumer Concern. The objective of the demonstration store aspect of this project is to aid store operators to implement a program of procurement, cleanliness and careful handling that will assure all food products reach the table of their customers in a satisfactory manner. The demonstration store phase of this project places emphasis on a total supermarket sanitation program and is based upon research done by the USDA and Land-Grant Universities with emphasis on the Missouri, New Mexico, and New Jersey studies to extend shelf life of fresh meats.

Providing the leadership for Project Consumer Concern is a joint USDA-NARGUS committee while additional counseling and guidance has been provided by food wholesalers and suppliers, supermarket owners, managers, department heads, and employees; city, State, and Federal regulatory agencies; Federal, State, and university research and Extension groups; equipment manufacturers; private and public sanitarians; public and private pest control operators, and private and public representatives of the seafood industry.

A progress report was presented to the Food Distribution Research Society and to 400 owner-operators of supermarkets from 40 States at the NARGUS mid-winter meeting. At both of these meetings, the concept of handling foods in the distribution system "so that safe, wholesome foods would reach the tables of consumers" was well received. NARGUS is now in the process of making

available to the supermarket industry products of this program that include guides for a total store sanitation program. Plans for coordinating this program with regulatory groups, suppliers, equipment manufacturers, sanitarians, researchers, educational groups are also underway. The Cooperative Extension Service is developing two other phases of this program...a consumer education and a 4-H youth program.

Keys to Success in Getting Research Utilized

A study of the demonstration store technique was made by Ohio State University. (5)

Some of the highlights of this research study were: one of the keys to success in using the demonstration store technique is to find the people in the firm who make the decision and to involve these people in all aspects of the program. Since successful completion of a demonstration store program can involve changes in operating policy and the expenditure of considerable sums of money, the decisionmaker is the person that the Extension representative must involve in the work from the start of the program.

A thorough study of the formal and informal organization structure of the firm will help the Extension representative to find the decisionmaker and to understand lines of communication in the firm.

Another important finding of this study was the need of the decisionmaker to select a liaison man in the firm to work closely with the program. The key to the selection of a liaison man is to find a person in the firm who understands educational work, yet has enough line authority to carry through on changes in operating policy and expenditures of funds as they are needed.

The authors in summarizing the keys to success with the demonstration store technique for getting research utilized listed the following:

1. Work with decisionmakers

2. Establish understanding from program's beginning.
3. Select liaison man wisely.
4. Select demonstration store wisely.
5. Search entire firm for problems.
6. Involve firm personnel in work.
7. Keep communication channels open.
8. Establish regular follow-up system.
9. Train firm personnel well.
10. Evaluate thoroughly and often.

Six-Step Program for Getting Research Utilized

At about the same time that our demonstration stores were being introduced, one of our industry cooperators introduced a six-step program for getting research utilized in his firm. (6)

This program included:

1. Research - Operations analysis to determine needed changes; developing new methods; simplifying existing procedures, etc.
2. Policy Formulation - Considering alternative methods and firming up official policy; writing up the policy in official communications.
3. Introduction - Meetings with all levels of organization to acquaint all with objectives, emphasize importance and clarify new procedures.
4. Installation - Two installation assistants assigned to adequate time in each store assisting with actual conversion of facilities, train in new methods, etc., with each store at liberty to install as much of new procedures as possible on own initiative.
5. Follow-Through - Follow-up by regular line organization, field

supervisors, store managers, etc., on progress of program.

6. Feed-Back and Continuation - Follow-up meetings with supervisors to discuss attending problems, explore opportunities for extension or refinement; training in principles and other managerial problems, ordering, scheduling, effective supervision, etc.

In discussing his six-step program the originator stated that the particular installation plan adopted by any company is not the most important consideration. The mechanics of how to get the job done has to be worked out to suit the needs of each organization. "How it is done is not as important as recognizing the full implications, and especially that the problem basically is one of attitude rather than technique."

Challenge Ahead

I would like to summarize by saying that the American Food Distribution Industry is going to be facing in the years ahead an escalation in operating costs, declining margins, higher food prices, and a rising tide of public and government criticism with respect to industry performance.

President Nixon and the Administration in Washington are saying that the Nation must find the means to assure that in this decade the remarkable technology that took Americans to the moon can be applied to reaching our goals here on earth.

The Administration plans to give emphasis on producing practical applications for research dollars that the Government disburses in the period ahead and they look to industry to shoulder much of the burden of management and financing of the projects for development. They are also looking at a wide range of incentives to encourage industrial participation and backing.

I see this as providing a great opportunity for individual firms and industry groups to help define the problems that need researching and to make their needs known to the various research institutions...

those located in the States as well as in the Federal agencies. I also challenge all users of research to develop within your own organizations and industries the capacity to utilize research results...to become early adopters and not laggards. It is time to go back and look at some of the fundamentals for getting research applied and utilized. Certainly the demonstration store and the six-step procedures that have been discussed offer sound guidance for those that wish to maximize the benefit of research.

In bringing about change, all of us who have been trained in the various sciences or "school of experiences" need to keep in mind that these changes must be brought about by people. I would like to close with this statement of belief that if adopted will make a major contribution to getting innovations utilized:

"I believe in people and in their willingness and desire to do a good job; I acknowledge they have brains, are creative, and are anxious to have their job mean more than just a way to make a living; I will listen to them sincerely and make a real effort to understand them; I dedicate myself to aid each person within my employ to develop and utilize his talents to the fullest extent; in short I recognize and respect people as human beings."

Literature Cited

- (1) Waugh, F. V., Readings on Agricultural Marketing, Page 437, Iowa State College Press.
- (2) Bloom, G. F., Improving the Performance of the Food Distribution Industry, Food Distribution Research Society's Twelfth Annual Meeting, Philadelphia, Pennsylvania - 1971.
- (3) Lippitt, Gordon L., Purdue University, Extension Staff Conference - 1967.
- (4) Beal, G. M., Rogers, E. M., The Adoption of Two Farm Practices in a Central Iowa Community - Special Report No. 26, Iowa State University - 1960.
- (5) Cain, J. L., Ezzell, A. B., Vandemark, V. A., Use of the Demonstration Store Technique in Retail Food Firms, Co-operative Extension Service, Ohio State University.
- (6) Brindle, Tod, Installing the New Produce Procedures, USDA-National American Wholesale Grocer's Meeting, St. Louis - 1957.