SUCCESSFUL INDUSTRIAL EDUCATION-OBJECTIVES & METHODS*

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In discussing the topic "Successful Industrial Education-Objectives and Methods," I feel it necessary for us to first review some of the basic philosophy relating to meat extension work. Then, by using results from a recent survey of meats extension specialists, we will look at objectives and methods currently used in meat extension programs. Since a number of you participated in this survey, I'd like to take this opportunity to thank you for your cooperation.

Historically, meats work grew out of an Animal Husbandry background with efforts toward carcass shows, meat cutting demonstrations, and carcass composition studies. However, more recently meats teaching, research and extension programs have adopted a broader view with work in areas of product utilization, marketing and consumer education.

Basically there are four main factors conditioning the way institutions develop their extension programs. These are:

1. Research and teaching base available.

2. Attitude and philosophy of supervisors.

3. Individual's orientation--background and training.

4. Pressure from clientele audience.

Let's look at these factors a little more closely. One main function of extension is to get research findings out to the people. Naturally, if only production type meats research is being conducted at the University, the extension program doesn't have a broad home base. However, extension is not limited to the home base as it can and should draw upon research from other sources.

Probably the strongest factor in determining the type extension program is the attitude and philosophy of the supervisors. This, coupled with the individual's orientation and willingness to adapt to new areas, can limit the type program available. If the immediate supervisor has a broad understanding of meats extension work and the specialist is willing to get involved in new areas, background and training are not the limiting factors. My own case is a good example. I have a strong production type background, but through the encouragement of my immediate supervisor, we have had a fairly successful product utilization-consumer education extension program at Auburn.

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Certainly clientele pressure can become a problem when you have a well accepted program and want to change emphasis. If you are starting from scratch, however, the only pressures you have are determining needs and getting industry interested in your program.

Two major difficulties in industrial education are problem identification and proper motivation to do something about the problem (Christian, 1973). Surveys indicate that at least fifty-one percent of industry doesn't want a lot of help from anyone. They want to run their own business (Christian, 1966), so we must work to get them involved.

Determining industry's needs is an important first step toward developing an effective educational program. There are two basic kinds of needs. They are: "felt needs" and "unfelt needs." Felt needs are those needs that arise in industry because of new regulatory action or some common crisis. Industry is in a state of readiness. They're looking for help, or at least the industry leaders are. Examples of several recent felt needs are plant and employee safety, energy crisis, nutritional labeling, nitrite-nitrate usage and others. It's easy to get interest for programs in these areas if you act while the problems are "hot."

The other type need, "unfelt needs," relates to those factors that a plant isn't required to do in order to operate. Quality control programs, upgrading management personnel and carcass merit marketing are examples. Here the specialist has to use imagination and creativity to 'create a desire' for his program.

How can one go about establishing himself in these areas of "unfelt needs?" This gets us into an area where we can really test to see if we have a successful industrial educational program. Here we are talking about a total program concept. You don't just respond to calls like a fire fighter, but instead, develop a complete program to fit a specific need.

First, you must determine the sub-structure of the state meat industry. This will enable you to identify the key leaders. Becoming involved in state trade associations gives you an opportunity to meet these leaders. Next, you must get out in the plants and talk with those leaders. This will help you to identify a specific problem area. Then you can conduct a case study in one of the plants. The case study will do four things. One, it will allow you to develop your client's confidence in your work. Second, it will allow you to test your procedures in a practical situation. Third, you can teach several techniques or procedures to the meat plant personnel. And, finally, it will give you some data for use in a short-course or publication.

After you have conducted the case study, you can take this information back and have a statewide shortcourse for a specific segment of the industry. A publication and trade magazine article can serve as a final step in this total program approach to successful industrial education.

Two examples from our meats extension program at Auburn may help illustrate this better. Soon after the passage of the Occupational and Safety and Health Act, the red meat and poultry processors felt a need for assistance in complying with this act. We visited several key plants, and after talking with management determined several ways that we could help. First, some handout material was made available to assist in explaining the new law. Then, a series of twelve Key Man Development Safety Shortcourses were held throughout the state to train supervisors in the field of safety. Interest and participation levels were real high indicating a 'felt' need in this area. I might add that the team approach, which we'll discuss later, was used involving the Extension Meats Specialist, Poultry Marketing Specialist and Safety Engineer.

Our work in the area of quality control grew out of an important, but "unfelt" need for assistance in this area. From discussions at trade association meetings, it became obvious that our state's meat packers needed to do a better job of controlling product quality. This was especially true after the passage of regulations limiting fat content in sausage products. An in-plant quality control lab was established in one of the key leader's plant. Data was collected and several statewide shortcourses were held on this subject. An extension publication was printed outlining steps for establishing a quality control lab. Follow-up articles in national trade magazines also proved to be useful. These articles let others see what we are doing and also helped build confidence in our program with the state's industry.

Let's review these five steps that are involved in developing a total industrial education program with the meat industry. The important thing is that these steps work.

1. Identify key industry leaders.

2. Identify problem areas ("felt" and "unfelt" needs).

3. Conduct a case study on problem.

4. Have statewide shortcourse on problem.

5. Follow up with publication and trade magazine article.

Industrial education is an area where the team approach is mandatory. Certainly you will agree the meat industry is too complex for any one person to be competent in all areas. The team approach allows the meats specialist to combine a variety of backgrounds, training and experiences in developing programs for a number of areas (Terrell, 1968). The University of Georgia has a very effective example of the team approach in their meat plant analysis work. The meat specialist, industrial engineer and agribusiness economist all work together to provide a complete resource unit for the meat packer.

What kind of a person does it take to be a meats extension specialist? He must have the technical ability but be willing to work as a catalyst. He must be able to communicate with the sausage foreman and plant manager. He must be a self starter--one that will go out and find the problem instead of waiting for the problem to find him. He also must be a continuous planner--doesn't wait until one program has run its course before another is planned.

Earlier, I mentioned a survey that was made of meats extension specialists from throughout the country. Approximately 40 questionnaires were mailed out and thirty-one persons responded. By taking a general look at the results from this questionnaire, we can get a good cross section of opinions concerning objectives of industrial education and methods that can be used.

The question was asked, "What in your opinion should the two major objectives of industrial education programs be?" The two objectives most often mentioned were, providing industry with the latest technology and a broad scientific base and teaching them how to help themselves. This agrees with a statement made by Lewis Norwood at last year's RMC, "Extension in its educational role, interprets, disseminates and encourages practical use of knowledge. It transmits information from researchers to people. But it's also an agency for change, a catalyst for individual group action." (Norwood, 1973).

In an attempt to get an idea on what type methods are currently being used in industrial education programs the following question was asked, "What methods have you used in educational programs with the meat industry during the past 24 months?" As you would expect, there was a wide range of methods mentioned. Shortcourses, individual consultation and talks at association meetings were mentioned most frequently. Use of newsletters, radio and TV, publications and trade magazine articles were also used by a number of people. Other methods mentioned less frequently were tours, serving as secretary for trade association, technical advisor to regulatory agencies, and new product shows.

The response to the question, "Which method do you feel was (a) the most successful, (b) the least successful?", suggests that methods involving personal contact and actual demonstrations were most rewarding. Shortcourses that included demonstrations, in-plant studies and individual consultation were mentioned most often as being most successful. Newsletters, other written information and radio were often listed as least successful. This obviously is not a new finding since Dr. Seaman A. Knapp, "Father of Extension Work" said in 1903 that "What a man hears, he doubts, what he sees, he may possibly doubt, but what he does himself, he cannot doubt." (Norwood, 1973).

An interesting comment about the most successful method came from one person who serves as a technical advisor to regulatory agencies. This role allowed a small percentage of time to result in programs that benefitted the entire industry since he had an opportunity to have an input into policy making decisions.

Since one method that is successful for one segment of the industry may not be successful for another, the question "What has been your most successful technique for (a) training meat plant managers, (b) training line personnel?" was asked. There was no general agreement on methods to train management. Shortcourses and individual consultation were mentioned most frequently.

However, basically everyone that had experience with training line personnel agreed that methods involving audience participation such as in-plant training and shortcourses with demonstrations were most effective. An interesting point was made concerning area shortcourses for line personnel. Area shortcourses on specific subjects allowed line personnel to attend without management which gave them a chance for free interchange and discussion. Another type shortcourse was mentioned by two university staff members that proved very successful in training meat plant personnel. This shortcourse was actually a ten-week training session for employees of one plant taught on a consulting basis. The course allows time for a broad subject area to be extensively covered.

Two questions were asked to give some insight into what lies ahead in industrial education. The first question was "Looking to the future, what two program areas should be included in extension educational efforts with the meat industry?" Replies to this question support the earlier statement that meats work is progressing to the product utilization, consumer education area. Program areas such as quality control, sanitation, consumer education and new processing techniques were most frequently mentioned. Waste disposal, bacterial standards, personnel management and food safety were also mentioned by several persons as future program areas for industrial education.

The last question was, "In your opinion, what new techniques can be used to more effectively reach your meat industry clientele?" A list of the suggestions should stimulate some ideas. Suggestions include: Get more meat graduates in the industry, update industry personnel, provide more good visuals, use video tapes, work through organized trade groups, hold indepth workshops with individual companies, increase efforts in consumer education, provide more vocational-type training programs such as training meat cutters, and conduct individual consultations with plant management.

An additional comment was made that should be mentioned. Since we have talked about shortcourses, consumer education programs and conferences, we will need good speakers for these programs. What about establishing a "manpower pool" that would catalog resource people who are capable and willing to speak on various subjects? This would give more people an opportunity to become involved and also assist persons in planning programs. Maybe an AMSA committee could serve as a clearing house for this manpower pool.

Let's briefly look at the other side involved in industrial education--the meat industry itself. A similar questionnaire was sent to meat industry management. Basically they agreed with university personnel that educational programs involving direct participation and demonstrations were most rewarding. One plant manager replied, "The shortcourse with small, informal problem discussion groups gave us an opportunity to share practical experiences concerning similar problems." Another said that the least successful program was a "boring, day-long seminar given by people who do not have any first-hand knowledge of actual work situations and talk above the level of the audience."

In reply to the question relating to new techniques that can be used to more effectively reach meat industry clientele, one plant manager suggested that we advertise shortcourses in trade magazines and state department newsletters. Another suggested developing cassette-slide presentations and video tape demonstrations that could be used by industry personnel. Several felt that workshop topics should be more specific and planned for a particular segment of the industry. This would allow indepth discussion on a special problem area.

Industry also has a responsibility in successful industrial education. It should make concerted efforts to take advantage of extension's educational programs by participating through attendance and suggestions for program topics. Top management needs to be open to new ideas and technology, and to look toward extension for information.

The extension specialist must remember that there are other groups--suppliers, trade associations, private consultants--that are all trying to provide educational programs for the meat industry. He must work with these other groups--using them to assist with programs, etc. The extension specialist's role is that of a catalyst--to bring the problem, and the people who can solve it, together.

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Question: I have a question for you. Dr. Powell, how do you relate to the research activities in your Institution? I believe that Auburn Extension is still separate from the department. Do you relate closely to research? Do you help advise on problems to help research people?

W. E. Powell: At Auburn, Extension is separate. Any time you have a short course, you have to involve the facilities on campuses. We at Auburn have a very close working relationship with research and teaching, with reciprocation and suggestions both ways. We try to make a policy in Extension, at least I do, when we go out into plants to take the research counterpart with us on occasion, so they cannot only get what I bring back but get some first-half information with the goings on in industry. Research people of the meat staff assist when they (shortcourses) are not on campus by participating on the programs and here again I think is a real excellent form of reporting back and forth on various problems. A vital part of an Extension program will be the research counterpart.

D. H. Kropf: What are some examples of individual involvement of things that really worked for you to have these plant people do? You said this was very important that they do something themselves and they can't doubt it. What are some examples?

W. E. Powell: An example would be in some of our work in Quality Control (Bob Terrell got this program off the ground when he was at Auburn). We select in this case one particular plant that is interested in establishing a Quality Control Program and instead of just going out and giving them instructions or information on how to do it, we actually sit down and go through some processing with them, especially when you get into a new area or some new type of equipment and that sort of thing like running an analysis for the Quality Control to go through the procedure of showing the person how to utilize this. When we come in, we try at Auburn to get them involved in a demonstration of its own sausage manufacture, on grading or whatever. We try to always have informal sessions so that we can give them the lecture type with a demonstration, but then let them come down and do it themselves.

D. H. Kropf: Let's say that you were planning a short course on curing at your Institution, to be not over two days in length. What kind of activities would you plan for these people to participate in where they could actually do the work and then how would you evaluate the outcome of some of the things that you have tried to do with them in the way of effect on product quality for instance?

W. E. Powell: Did you say on curing?

D. H. Kropf: Yes. Let me say this when we are on curing. I happen to know a colleague of mine is planning something like this. We would like your advice.

W. E. Powell: One particular short course where we would perform product evaluation and we were going to talk about meat curing, we encouraged the plants to bring in a product, in fact they sent in two products, a fresh-type product and a cured type product a week prior to the course, and we ran some analyses, did some taste panel work and this sort of thing on the product and then when they got to Auburn, we had some of their products and some additional products that we made during the program and let them evaluate it. This gave them an input into an interest in discussion of appearance or some of the acceptability factors. This is just one example.

We have a problem in our state, and I suspect other states, in that right now we have just a few regional type packers. We have no major packer in this state. So, when we have a short course, we try to have a specific audience or at least when we have a meeting involving the total meat industry, to have segments that would be of interest to the small locker-type operator. They are all in one trade association, so the trade association likes to have a meeting at Auburn.

R. J. Epley: Our next speaker is Dr. Dave Schafer from Kansas State. Dave received his B.S. from the University of Minnesota, his M.S. from South Dakota State University and his Ph.D. from Kansas State University. Dave remained on the staff at Kansas State as Extension Specialist, Meats. The title of Dave's presentation will be, "Work Study and Internship Programs."