

survey of key instructional variables done in 1984. These emphasized maximum communication skills, self-management, and expanded course exposure in agriculture is needed in the future. These objectives were cross-referenced between agribusiness employers and a sampling of employment listings for verification. Both formal speaking and experimental instruction in sales methods are needed. The linkage with speaking organizations such as Toastmasters will be emphasized. (2) The price will be in the high range compared to both shorter and less costly AVTI programs. Formal instruction in the classroom with the resident student is the primary focus, with parttime students attending off-campus courses. The enrollment in sales minicourses has the potential to increase due to a shift in industry training methods. (3) Promotion would be handled through agricultural magazines (*The Farmer*), special booths and displays at county fairs, and Farmfest, high school visits, radio and TV advertisements, and direct mail to high potential students.

### Selected Promotional Mix

The following promotional mix is favored for the Ag Sales and Marketing major. In the traditional student market, contacts from the Prospective Student Information Program, college fairs, contacts with local business groups, in particular sales-related, alumni contacts, direct mailings to interested parties, and selected radio, newspaper, and television advertisements will be used over a yearly schedule to gain the attention of prospective students. These activities were selected because they represent an effective means of communicating with the market segment.

The nontraditional student market would appear to have a profile as follows: an older student, possessing a degree of work experience, having more developed goals, seeking a higher level of a job offering independence, more demanding of course content, requiring a more flexible schedule, and with more self-sufficiency financially. The major influence in this group is the experience of friends and acquaintances.

The nontraditional student market is reachable through promotion by a different set of communication alternatives. Contact by direct mail, radio advertisements, contacts in ag extension, manpower security, and other offices including business firms located in proximity to the college would be the most effective means to speaking to this market segment. Point of sales displays in area business, over cable networks, and in shopping malls should become part of this promotional plan. A plan of promotional activities is carried out and evaluated over the period of one year.

### Evaluation of Marketing Plan

The market audit is the accepted industry method of market evaluation. This concept of re-evaluating environments, strategies, and the market mix which was chosen. At this point, detailed analysis has been accomplished with regard to the promotional plan.

This will be expanded in the future. Focus groups and surveys will be utilized to evaluate other aspects of the marketing plan. It is generally concluded that the basic plan has succeeded in increasing enrollment.

### Summary

A marketing plan for a major within a program has been assembled based upon research conducted during a recent study leave. The plan is developed from an analysis of general environment facing the college as a whole to specific goals and objectives dealing with the existing major. As part of the plan, target market variables are identified and defined with regard to both traditional and nontraditional student profiles. Strategies for growth are selected, as well as a general positioning strategy with respect to competitive institutions. Lastly, a market mix which addresses the product, pricing, promotion, and delivery (distribution) is proposed with accompanying methods of evaluation.

### Bibliography

1. Betts, S. and Newcomb, L.H., *NACTA Journal* 30 (4): pp. 14-17.
2. Coombs, Phillip, *The World Education Crisis*, 1986.
3. Branson, R.F. and Norvall, D.G., *Introduction to Agricultural Marketing*, McGraw-Hill, pp. 299-321, pp. 417-426.
4. Druexhammer, D.C. and Key, J.D., *NACTA Journal* 30 (4): pp. 29-31.
5. Kotler, Phillip and Fox, K., *Strategic Marketing for Education*, Southwestern Press, 1986, pp. 75-81, pp. 83-91, pp. 145-154.
6. Mollet, Jeff and Leslie, E.K., *NACTA Journal*, 30 (3): pp. 26-29.
7. Murphy, E., "Market or Perish," *Sales and Marketing Management*, May 13, 1985, pp. 50-53.
8. *Prospective Student Information Plan*, University of Minnesota Technical College, Waseca; 1984.
9. Schuster, C. and Castantino, P., *NACTA Journal*, 30 (3): pp. 4-8.

## CASE STUDY

### Real Food Industry Product Development Problems Provide Learning Opportunities

William F. Stoll

#### Introduction

Students majoring in Food Industry and Technology at the University of Minnesota, Waseca receive an Associate in Applied Science degree. They are prepared to enter industry in a number of technical positions including new product development technologist.

New Product Development is one of the courses required for a degree in Food Industry and Technology at UMW. In the food industry, new product

Stoll is instructing in Food Industry and Technology at the University of Minnesota Technical College, Waseca, MN 56093.

development requires a multi-disciplinary approach for successful development of new products. Every facet of a company structure is interfaced by this activity. The systems required to accomplish this include the product development area, production, marketing, sales, quality control, financial personnel, and so on. It requires formulation of the product as well as developing manufacturing procedures, packaging, and marketing plans. The class in new food product development offers an excellent opportunity for the students to gain an understanding of the over-all structure of the food company.

### Method

In 1985, I began teaching the New Food Product Development class utilizing the concept of a company structure and the reporting responsibilities of the product development technologists within that structure. Vice Presidents were selected from the various disciplines within the University of Minnesota, trying to match as closely as possible the discipline with the role that the individual would play in the mock company. For instance, the Vice President of Personnel was selected from the counseling area, and the Vice President of Marketing from the ag marketing area. Other officers selected included Vice Presidents of Customer Service, Production, and Quality Control. These individuals were briefed in their appropriate roles as to what was expected of them. Each was to think and act as a company Vice President asking hard questions of the students, causing them to defend their positions and explain their development efforts. This mock company was given the name "UMW Enterprises, Inc."

The mock company officials were asked to meet on two different occasions. In the first meeting at the beginning of the quarter the students presented their product concept and development plans to the individuals in the mock company. In the second meeting, at the conclusion of the quarter, the student teams presented the new product and the strategy surrounding the new product, including specifications, manufacturing procedures, costs, and a prototype model of the new product. Again, the individuals in the mock company were asked to place themselves in the role of corporate executives asking hard questions, and causing the students to justify their positions and defend their product.

Students in new product development were organized into teams of three. In the beginning of the class the students were given instruction in creativity and its role in new product development, i.e. guidelines as to what constitutes a new food product. Then they were instructed to spend time brainstorming and evaluating ideas to come up with a new product concept. They were challenged to conduct market research, to justify their product decision, and to establish a reason for the new product and how the product would be positioned in the market place.

The students then began development activity. They searched out formulations of products which had similar characteristics, as a starting point. They then selected appropriate ingredients and developed formulations with optimum levels of these ingredients. They were cautioned about using ingredients selected from the local food market, as often these do have the same specifications as ingredients which are industrially available. They were encouraged to contact companies which specialized in food ingredients to obtain samples as well as product specifications and recommended applications. Formulations were developed using metric weights. This made the conversion of the formula to percentage quantities more effective and less prone to error. At the same time students were developing products, they were accumulating cost information which needed to be included in their final report.

Members of the team were responsible for the planning of the projects so they could achieve the desired results in the allowed time. The pressures of time are a common problem in industry and the development of new products. Students developed a concept of project planning and the need to *integrate* all of the activities within a company to bring about the introduction of a new product.

In the presentation of their reports to the executives of the mock company, the students were advised to present themselves in a professional manner. They were advised to wear "dress-up" clothes. At the meeting they stood before the executives of the company presenting their projects, just as they would if they were employed in a position of this nature in the industry.

In 1986, I again taught this class utilizing the concept, but modifying the approach to selection of the projects in which the students were involved. Prior to the beginning of the course, I contacted a number of small food companies located in Southern Minnesota and asked if the company would have any development projects that students might work on in the new product development class. As a result of this inquiry, three individual projects were identified. Representatives of each of the companies met with the student teams to discuss their development needs. They maintained contact with the teams throughout the quarter, attending each of the meetings of the mock company to evaluate progress.

The projects which were conducted were a taco flavored mini doughnut, a dehydrated tomato sauce, and a miniature "Monte Cristo" sandwich. These products were successfully developed by the respective teams.

There were benefits as a result of this approach which extended beyond the class. The company involved with the mini doughnut projects placed a mini doughnut machine on campus for a period of eight weeks during the development of this project. The Food Industry and Technology Club, which in-

cluded students involved in the New Product Development course, was able to use the machine to produce and market mini doughnuts on campus. The food company involved continued development on this project and did a test market during the summer of 1986.

### Conclusion

Comments from representatives from the companies as well as faculty involved in the mock company were extremely positive and documented with letters to that affect. Several benefits of this teaching approach can be identified. Students work with and are exposed to industry people. Their creative abilities are

challenged. The students develop interpersonal skills needed in team situations. UMW faculty is made more aware of the nature of the food industry and technology program as well as its students.

Evidence of the success of this method of teaching has been demonstrated on the University of Minnesota Technical College, Waseca campus in the demeanor of students at formal activities and in their appearance at professional meetings. Two of the students who have taken the class are employed by The Pillsbury Company in its Research and Development Center in Minneapolis. Comments from their supervisors have been very positive, indicating that these students were well prepared for their role in industry.

---

## Results of a Skills Inventory for Production Agriculture in Developing Countries

David A. Munn

### Abstract

*This paper presents findings of a survey of international agencies and organizations assessing the importance of certain basic and applied skills in four broad categories of production agriculture. Since thousands of U.S. and non U.S. citizens are trained to become future participants in international agriculture, this survey attempts to assess the relative importance of skills in plant production (agronomy/horticulture), animal production, agricultural mechanics and engineering, and general educational skills. Survey results support the idea that U.S. scale and technology is not completely appropriate for the training of international agriculturalists. Smaller machinery, smaller animal enterprise units, crop planning, pest identification and control were among the most important skills. Solving practical math problems and effective oral and written communication skills were ranked very important by the respondents. Given an opportunity to list up to three languages important to their agency's work, the respondents' most cited languages were French, Spanish and English.*

### Introduction

The United States in this century has become a leading nation at training participants in international agriculture. This role has evolved from initially sending U.S. trained agriculturalists to developing countries and trying (sometimes unsuccessfully) to transfer or adopt U.S. technology or the U.S. agricultural systems to the local circumstances. This was followed by training scientists from developing countries in U.S. institutions and doing research in host countries or a network of international research institutes to develop appropriate technology and solve local problems. In

Munn is associate professor of Agronomy, The Ohio State University, Agricultural Technical Institute, Wooster, Ohio 44691.

this country, the training and employment of international agriculturalists has been a unique mix of U.S. government agencies like USAID, Peace Corps, educational institutions (especially the Land Grant and 1890 universities), and religious and other charities and foundations. Most recently, private consulting firms have offered the expertise of specialists in agriculture to foreign nations, universities and firms.

The Ohio State University/Agricultural Technical Institute, has begun to assume a participatory role in the training of both U.S. citizens and non U.S. citizens for international agricultural assignments. As a two-year technical college, our courses and curricula are a mixture of theory and application with "hands on" oriented laboratory activities in most technical courses. Many advisors to farmers in developing countries are trained at the sub-baccalaureate level (Brams, 1978). The presence of farm enterprises or "enterprise laboratories" at our campus (Garrison, 1986) makes real participation by students in the production of crops and livestock feasible. While the "extension" type farm advisor may be called upon to do many functions including civic skills and community development (Kouzekanani and Barrick, 1984), this paper represents an assessment of production agriculture skills as evaluated by U.S. based government programs, church charities, private foundations, and international research organizations involved in food assistance and production in developing countries. In order to assess those skills, a survey was done to discover an answer to the question: Are separate international or tropical agriculture courses and programs needed by individuals seeking training at the technical college level so that they may be participants in international agriculture? According to Sedlock (1984), most host countries prefer Peace Corp volunteers with specific training in skills in certain