

## THE INTERACTION BETWEEN PRODUCER AND SCIENTIST IN THE IDENTIFICATION AND PROGRAMMING OF RESEARCH NEEDS - THE NORTHERN DAIRY GROUP

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### SUMMARY

This paper describes the work of the Northern Dairy Group (NDG), a committee of industry representatives and research workers devoted to encouraging relevant research and development for the dairy industry in Queensland and northern NSW. It describes the development of an interactive process between producers, scientists from various institutions, and a Research and Development Corporation. The Group (NDG) may be a useful model for other rural industries.

*Keywords:* identification, programming, research, dairy.

### INTRODUCTION

It is a basic tenet of modern research in the primary industries that it has to be relevant to a particular industry and a particular problem within that industry. Gone are the days when research workers, even in the universities, could obtain research funding without clearly defined objectives. In the past, research projects were initiated in many different ways, the most extreme being:

(i) Scientists working in the isolation of their own laboratories, often in a major city, thought they knew what the industry needed and designed and ran experiments based on these thoughts. These scientists then wondered why their results were not adopted by the industry!

(ii) Groups of leading producers tried to persuade scientists to do research on what they perceived as real problems. They were frequently frustrated by the communication gap between them and the scientists and the reluctance of scientists to tackle their practical and often complex problems, especially when this required the co-operation of a number of scientists in different laboratories.

In 1990, the Federal Minister for Primary Industries, Mr Kerin, indicated that primary producers should be involved in all stages of agricultural research from initial problem identification to the final application of the results to industry. This is indicative of the change in the research ethos of today in which the producers pay the research levies and are demanding value for their money, particularly on projects that they see as relevant to their problems. This demand has increased as the level of funding paid to the Dairy Research and Development Corporation (DRDC) has been increased from 0.2% in 1989-90 to a proposed 0.5% of the gross value of farm production (GVP) in 1993-94. This levy is matched on a dollar for dollar basis by the Federal Government. Ideally, the research should involve a response of the research worker to the problems of the industry, and in turn, a response of the producers to the results of research.

The identification of potential research projects is the first important component of this process and was the reasoning behind the development of the Northern Dairy Group (NDG). The NDG is a small group of people representing the dairy farmers' organisations in Queensland and northern NSW, and research and advisory scientists in the Departments of Agriculture, the Universities and Divisions of CSIRO. The dairyfarmers' organisations provide secretarial support. The NDG has the broad objective of improving the efficiency of dairy production in the tropical and subtropical regions of Australia.

This paper will consider the various stages in this co-operation process, the principles established, the strengths and weaknesses of the existing approach and finally where this approach may lead.

### IDENTIFICATION OF PROBLEMS BY PRODUCERS

Two major series of iterative meetings were conducted in New South Wales and Queensland to determine the main issues and concerns facing dairy farmers in the north in 1989 and 1990. In New South Wales, they were part of a state-wide survey conducted by the Dairy Farmers' Association, whereas in Queensland, the Dairyfarmers' Organisation, with the assistance of the Department of Primary Industries, conducted a series of 'think-tanks' in the various dairying districts to address research directions and identify the problems of dairy farmers. These problems were then collated and ranked for the Queensland industry by the members of the 'think tanks'. The Dairy Farmers' Association of NSW used a questionnaire format. The outcome of these meetings were ranked lists of

**Table 1. Top ten priority problems identified by the northern New South Wales and Queensland dairy industries**

Queensland	Northern NSW
1. Year-round pasture production	1. Vaccine for mastitis control
2. Providing balanced diets	2. Developing subtropical pastures
3. Cow infertility	3. Feed budgeting and fodder conservation
4. Dissemination of information and data base co-ordination	4. Nitrogen fixing grasses
5. Buffalo fly control	5. Nutritional factors affecting fertility
6. Improved vaccines	6. Drainage and water table controls
7. Improved milk composition	7. Adapting perennials to subtropics
8. Improved fertiliser technology	8. Control of Parramatta grasses
9. Prevention and control of bloat	9. Effluent disposal systems
10. Leptospirosis vaccinations for dairy industry workers	10. Pasture-based feeding systems

perceived problems, of which the top 10 from each State are shown in Table 1. Some problems were precise whilst others were vague propositions which amounted to a general dissatisfaction with some part of the industry.

#### IDENTIFICATION OF RESEARCH PROJECTS AND PROGRAMS

The next phase was undertaken by the working party ('scientific' committee) of the NDG. This was a small group of scientists from various disciplines and currently employed by CSIRO, State Departments of Agriculture and the Universities. They redefined the producer problems (Table 2) and then selected 4–6 scientists who, in addition to the committee, could be expected to have a view about the particular problem. These scientists were asked to quickly, in not more than 15 minutes, complete a simple questionnaire about the problem. When these questionnaires were returned to the working party, it was possible to divide the original problems into 3 main classes:

(i) Class 1. Problems which had known solutions from research and development work completed either in Australia or overseas. The solution lay not in undertaking further research but rather in extension programs, for example 'effluent disposal'.

(ii) Class 2. Problems which were amenable to immediate research. Some of these were already being studied, using either DRDC funding or other institutional funds. In many cases, it was possible to nominate one or a group of scientists who would have ideas and expertise in the disciplines. These nominees were advised of the desirability of solving the problem and encouraged to develop proposals for submission to DRDC.

(iii) Class 3. Problems which were not amenable to immediate research either because the original problem was complex or there was at present no known research hypothesis.

**Table 2. Research problems on which opinions were sought by relevant scientists**

Soil degradation in cropping systems	Inefficient use of nitrogen
Weed control in pastures	Field assessment of pastures
Better forages for cropping and conservation	Making and use of silage
Efficiency of feed utilisation	Infertility in high producing cows
Low milk protein and SNF	
Effluent disposal	Gene mapping of dairy cows
Vaccine compatibility	Ephemeral fever control
Enzootic bovine leucosis contro	Buffalo fly control
Lack of exotic dung beetles	Chemical control of worms
Transmission of leptospirosis to humans	Entry of exotic diseases into Australia
Lack of knowledge of completed research	

Many of the pasture, feed and disease problems were specific to the northern industry and special attention was paid to these. Others were of interest to all dairy farmers in Australia, for instance 'gene mapping' and 'transmission of leptospirosis' and these were referred directly to DRDC.

### SUBMISSION OF RESEARCH PROPOSALS

Each research problem was forwarded by the NDG to relevant scientists who were encouraged to make submissions to the DRDC. In many cases this resulted in the development of complementary research proposals by 2 or 3 scientists and led to 19 submissions in 12 problem areas (Table 3). Independently, the NDG advised the DRDC that these 19 submissions were developed by an interactive process involving the farmers and the scientists but made no attempt to rank or prioritise the proposals.

Of the 3 classes of problems, those that were amenable to immediate research (Class 2) were submitted to DRDC in 1990. However, extension projects (Class 1) and broader 'strategic' research programs (Class 3) are within the guidelines of the DRDC 5 year plan (DRDC 1991; Donnelly and Gray 1991). It is anticipated that further research proposals may be introduced into later submissions, particularly Class 3 programs.

**Table 3. Research projects submitted to DRDC from northern Australia in December 1990**

Numbers in parenthesis indicate that more than one project was submitted on this topic

Ephemeral fever control	Buffalo fly control
Enzootic bovine leucosis	Compatibility of vaccines
Inefficient use of nitrogen	Soil degradation in cropping systems
Efficient feed utilisation (4)	Better forages for grazing and conservation (4)
Assessment of pasture quality	Low protein and SNF in milk (2)
Effluent disposal	Gene mapping

### RESULTS OF NDG-AIDED SUBMISSIONS

It had been anticipated that the activities of the NDG would result in an increase in the number of projects and a change in the type of projects for the northern industry. The DRDC has funded 5 new projects, which is considered to be a moderate success for the NDG. The reasons for not achieving a higher success rate include the changes in the philosophy and organisation of the DRDC and delays associated with analysis of the future of the northern dairy industry.

### IMPROVED COMMUNICATION IN THE INDUSTRY

A notable achievement of the NDG has been the bringing together of people concerned with the efficiency of the dairy industry and dairy research. The farmer workshops have increased their awareness of the value of research, where their levies are going and what different organisations can offer. There has been a substantial improvement in communication between research organisations, with many collaborative projects being proposed. This has led to research proposals becoming more complementary as scientists with different interests and from different institutions have been brought together. In addition, the expertise in other areas, such as cropping research, has been harnessed for use in the dairy industry. This goodwill and cooperation has gone beyond State boundaries.

### THE FUTURE FOR THE NORTHERN DAIRY GROUP

The initial work of the group was aimed at stimulating research for the Class 2 projects, but in the future more emphasis is likely to be placed on Class 3 programs where complex research problems will be detailed. Subsequent discussions with DRDC have indicated that some preference is likely to be given to these broader integrated research programs, involving a number of scientists from various organisations. This appears to be achievable with the programs (Class 3) which were omitted from the 1990 submissions.

The NDG does not believe that the initiation of research will only come from the producers. It would be irresponsible if the scientists themselves did not highlight the need for research in the course of their work and applied and strategic research projects will arise from within the research institutions. Similarly, some may be initiated by DRDC.

A problem that may emerge is that members of the NDG will have difficulty in continuing to give their time and energies to the NDG. It may be that as the NDG develops it will act as a 2-way conduit to

aid in the dissemination of results back to the farmers, as well as to develop further research programs. This would be a significant development in the evolution of the NDG but will represent a substantial increase in the time involved for the members of the NDG.

The NDG has been developed as a small committee with the aim of assisting the northern dairy industry by providing bridges between the dairy farmers, the scientists in the research institutions and the DRDC, so that each may respond to the needs of the other. The NDG model may be of use to other sections of the rural industries of Australia.

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