

ORGANISATION OF RESEARCH INTO ASPECTS OF FORAGE FARMING

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There are several factors which must be considered in planning research and development of forage farming systems in New Zealand agriculture.

PLANNING CRITERIA

Firstly, agricultural scientists must keep closely attuned to the response and interest of the farming industry in such systems, to the degree of success being achieved and to the problems which arise in their use. The amount of scientific support committed in this direction must be commensurate with the extent of farmer commitment to these systems. From my position, I see analogies in the application of forage farming technology in New Zealand agriculture to the development of industrial growth by the Auckland and Christchurch Industrial Development Divisions and the Physics and Engineering Laboratory. Usually, the scientists are responding to industry needs rather than leading like Old Testament prophets, although they will also anticipate some of the problems that arise.

Secondly, much of the technology has been worked out overseas and therefore one is largely concerned with the application to New Zealand economic and agronomic conditions of systems which have been intensively studied in other countries. This is in marked contrast to the evaluation of improved grass/legume farming systems 30 to 40 years ago, when New Zealand scientists and farmers were in the vanguard of the development of an improved grass/legume farming eco-system.

Thirdly, much agronomic work has been and is being done to establish the productivity of various forage crops in different agricultural regions of New Zealand, including consideration of possible double cropping systems. Given the climatic diversity in New Zealand, this is a large task in itself. During the last few years, your Society has been a valuable forum for facilitating the discussion of results and the co-ordination of efforts in this direction.

Fourthly, evaluations of the economic viability of different systems must be made. This includes hybrid systems involving mixed grassland and arable farming. Agricultural economists should be asked for advice on forms of analysis which will be generally acceptable and which can be applied to a variety of possible systems. One such pilot analysis was made last year by an MAF group chaired by Dr R.C. Stephen. Further development of a common basis for analysis of various forage systems, is now required.

Fifthly, the energy inputs and outputs for different systems must be evaluated, with a view to using those that give maximum energy outputs for minimum energy inputs. Energy budgets for various cropping systems are being drawn up, both at Lincoln College and Massey University. One may speculate that energy considerations may favour mixed farming with maximum reliance on the return of animal wastes, to replace the very high cost of nitrogenous fertiliser. The use of techniques such as direct drilling to minimise cultivation requirements should also reduce fuel use.

RESEARCH ORGANIZATION

A wide range of scientific and technological skills is required in the overall evaluation and refinement of such systems, ranging from the plant physiologist to the veterinarian, from the soil scientist to the economist and the agricultural engineer. This situation is quite familiar in contemporary applied science. For example analogies can be seen to the wide range of scientists and technologists who are now contributing to an overall national energy plan; to studies of the cause, effects and prevention of eutrophication in fresh waters; to the problems of pasture pests; or to those who have over a period of 20 years contributed to the development of geothermal power.

In all cases, it has been found that the work is facilitated by the establishment of a focal point within the group of interested scientists, which will perform the functions of collecting a data base on the overall subject; collating and exchanging information; organising forums or workshops where necessary and advising scientific administrators of progress in particular aspects and bottlenecks hampering progress in others. The focal point is usually a Committee, especially when a wide range of discipline is involved.

Earlier this year, a similar move was taken in relation to forage farming. A Research Advisory Committee on Forage Farming Research chaired by Dr J. Kerr, Director of Plant Physiology Division and with personnel from MAF, Massey University and DSIR was set up to carry out such a function. It is establishing an informal network amongst the scientists involved in New Zealand to facilitate information exchange and assist in the planning of programmes. Societies such as the Agronomy Society, and the Animal Production Society provide good forums for reporting and discussing aspects of this subject, but there will probably be a requirement for smaller workshop/seminars to be organised by the Forage Farming Committee.

At the administrative level in Wellington, an interdepartmental Committee with representatives from the Producer Boards was set up last year to review developments in forage farming research and endeavour to provide resources where required. The Research Advisory Committee will advise the Wellington ad hoc Committee of needs that are seen.

These mechanisms should ensure that the research and development effort on forage farming systems is set at an appropriate level in relation to other research needs and the requirements of the farming industry. They provide an additional check to the priorities which have independently been arrived at by MAF and DSIR in their departmental research planning.

INDUSTRY AND RESEARCH INTERACTION

An interesting aspect of this subject has been the extent to which individual farmers and private companies have been and are involved in developmental aspects. In part, this arises from the direct application of

overseas technology as mentioned earlier. It does mean that technology transfer to the farming industry from the research sector is relatively easy and conversely that the research sector will be readily aware of the practical problems arising in the field. This augurs well for a good balance between research on the one hand and the development or application of forage farming techniques within the farming industry on the other.