PLANT BREEDERS' RIGHTS: THE VIEWPOINT OF A GOVERNMENT-EMPLOYED PLANT BREEDER

J. M. McEwan
Crop Research Division, DSIR,
Palmerston North

ABSTRACT

The production of improved cultivars of field crops, forage and pasture plants for New Zealand agriculture has traditionally been in the hands of plant breeders of the Crop Research and Grasslands Divisions of the DSIR. The passing of Plant Breeders' Rights legislation has now given the opportunity for private companies to operate profitably in this area. The consequences of this change for New Zealand cereal breeding are assessed and the advantages and disadvantages of the new system considered.

INTRODUCTION

The passing of the Plant Varieties Act of 1973 has some important implications for government-employed plant breeders. I would like to discuss some of these, essentially from a personal viewpoint and with the breeding of cereal crops particularly in mind. It is appreciated that these comments may not be valid for all agricultural plants under consideration.

Review to the Present Day

Divisions of the DSIR have long been responsible for the development of new cultivars of the principal field crop and herbage plants, and their record has been a good one. Wheat breeding at Lincoln has been actively pursued for over fifty years, and has produced a succession of valuable cultivars for the Canterbury plains, with Cross 7 (bred at Lincoln College), Hilgendorf, Aotea and Kopara being the best known. Plant breeding at the Crop Research Division has also led to the release of successful cultivars of barley, oats, peas, potatoes, lucerne and vegetable crops. Grasslands Division of DSIR, with its headquarters at Palmerston North and regional stations throughout the country, has released a number of important herbage cultivars, notably the ryegrasses Ruanui, Ariki, Tama and Nui, and Huia and Hamua amongst the clovers.

The principal features of the breeding programmes that have produced the cultivars discussed above are that they have been long established, yet are flexible enough to produce cultivars for the changing needs of the farming community. They are staffed by career plant breeders with a long-term investment of time and interest in their work, a number of whom have studied plant breeding techniques overseas during post-graduate study, and are supported by specialist research staff from within their own and other DSIR Divisions. Extensive resources for the regional evaluation of plant breeding material are provided through the system of regional stations and by the Soil and Field Research organisation of the Ministry of Agriculture and Fisheries. For some crops, quality testing services are provided without charge by the commercial processors. In total, a well-organised and integrated system of agricultural crop plant improvement has been developed.

THE IMPACT OF PLANT BREEDERS' RIGHTS

What then does the Plant Breeders' Rights legislation have to offer the scientists working in this government-sustained system? For cultivars that are adapted solely to New Zealand conditions, as is the case with most cereals, the breeders' rights system offers little advantage, and would result in additional costs to farmers for seed of new cultivars, as it is unlikely that government-produced lines would be allowed to undercut commercial cultivars in price. In agricultural plant species in which New Zealand cultivars could be successfully traded in other countries, i.e. some pasture plants, a significant revenue could be obtained, but it is probable that this money, or any accrued within New Zealand from the sale of new cultivars, would not be used to promote further research in plant breeding.

The implementation of the rights legislation will probably have the effect of slowing the release of agriculturally important cultivars as it will involve stringent requirements of distinctness, uniformity and stability (D.U.S.) of new lines. It is apparent that because of the rights system such valuable wheats as Kopara and Karamu could not have been released as early as they were because of lack of uniformity. These D.U.S. requirements are in fact likely to reduce the effective work input into cereal breeding, for they will demand a considerable effort on ear to row selection of all advanced lines to ensure that a satisfactory line will be available for registration. Much of this selection would be on minor distinguishing characters of no agronomic importance.

A further unfortunate feature of the introduction of rights is that it has the effect of restricting the exchange of information and material between plant breeders, a valuable source of assistance to progress in the past.

A consequence of the rights legislation is the need now to develop a New Zealand List of Acceptable Cultivars for crop plants. The list as it stands at present is not very useful as it simply lists cultivars that can be freely traded in commerce, and contains a number of outdated lines. It is the equivalent of the National Lists of Crop Cultivars in the United Kingdom, which may include up to fifty lines

of some crop species. Far more valuable would be a list of Recommended Cultivars such as is produced by the NIAB in the United Kingdom, where the relative merits of the cultivars are assessed and superseded cultivars eliminated. This would require more trial work than is currently being carried out in New Zealand and preferably would be conducted by an independent organisation acceptable to all parties concerned.

The principal advantage of Plant Breeders' Rights is that it allows private companies, organisations and individuals to receive recompense for the development of new and useful types of plants. I have no argument with this proposition, and would suggest that the more plant breeders we have, the better. The relationship of the activities of this section of plant breeders with the activities of government-funded breeding is, however, a matter that requires some examination. My concept of the situation would be that government-funded research makes available to farmers a steady improvement of performance based on the release of new cultivars of a wide range of crop and herbage plants. This activity is funded by the tax-payer for the benefit of the farmer and ultimately of the country as a whole. It in no way precludes the activity of the private sector which by particular success in certain crops can operate profitably and also make a significant contribution to agriculture.

I would liken the situation to that of the Ministry of Agriculture and Fisheries Farm Advisory Service which gives the farmer the advantage of locally-oriented research, much of which is conducted by government departments. The services provided by this organisation are complemented by the specialist activities of private firms and consultants who can provide valuable additional services. Government-funded breeding is also in a position to work on a wide spectrum of crop plants including many that would not justify the attentions of private companies and also to engage in long-term and speculative work with a low probability of profitable results. This would include the study of plant breeding methods and the generation and testing of new genetic variability which could ultimately be of value to breeders in both the public and private sectors. Enough of these lines of research are likely to prove profitable to offset the losses on unproductive projects.

In conclusion, I take heart at the recent statement(1), from one of the private companies active in crop-plant development that the private sector could fill a complementary role to government agencies for crop plant improvement, an attitude that I personally endorse.

(1) N.Z. Farmer, April 28 1977. p. 56.