FARMERS' APPROACH TO PRACTICAL CONTROL OF BARLEY GRASS

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Summary

Many farmers are reluctant to accept existing recommendations for barley grass control. There has been a tendency for exaggerated claims to be made regarding individual products, which after a very short space of time have then been superseded. A *laissez faire* approach to the control of barley grass has been encouraged, to a certain extent, by not declaring it a noxious weed in all areas. Farmers are not convinced of the economic importance of this weed and infestations appear to be increasing. Future lines of research should include detailed grazing management techniques complemented by chemical control on productive areas.

GENERAL

THIS PAPER is a report on farmers' opinion and comment on the control of barley grass. The writer's statements cannot be construed as in any way representing an official Department of Agriculture review or opinion.

HISTORICAL

The initial problems associated with barley grass control using chemicals were not recognized and led to disappointing results in practice. Those who carried out a spray programme with TCA in the mid-1950s and 2,2-DPA in the early 1960s rapidly became disillusioned because of variable results. Farmers who failed to take any action adopted an even more smug attitude and immediately "wrote off" as useless all new wonder weedkillers. Many of the poor results occurred because of limited knowledge in using sprays and spray equipment, and failure to carry out precise recommendations. Some good results with 2,2-DPA were obtained but it was not made clear that this treatment was most successful in controlling seedling barley grass which had germinated some months prior to the application of the chemical. Where disappointing results occurred, farmers resorted to the inevitable cure-all—higher rates of application of the chemical in order to get some kill of the weed. The result was severe depression of both pasture production and the farmers' enthusiasm. Farmers did not fully appreciate that barley grass seeding in the November-January period resulted in the germination of a fresh crop of seedlings following the first rain. These plants matured long before the recommended time of application of 2,2-DPA and survived the treatment. A promising spray programme suffered from a practical point of view as it required all barley grass seedlings to be at the same stage of growth at the time of spraying for complete control.

Various workers, including farmers, then embarked on a wide range of management techniques and assessed a series of individual chemicals and

mixtures in an almost frantic and unco-ordinated attempt to eradicate barley grass. During the period 1960 to 1970, a long list of recommendations emerged, all with some justification claiming a measure of success.

A simple killer policy was the theme in most cases, not recolonization of treated areas with desirable species. This aspect was further highlighted by the introduction of soil sterilants designed for use in waste areas but in practice used rather indiscriminately by farmers on productive grass areas. Few of these sprayed areas received adequate follow-up treatment and relatively bare areas around buildings, sheep yards, shelterbelts and sheep camps bore mute testimony to the effect of these herbicides. This caused some rethinking and ultimately led to the proposals to spray barley grass seedlings and plants in the green seed-head stage. To all intents and purposes such a proposal seemed to be a clear-cut and simple recommendation. Failures, however, continued to occur owing to a proportion of the plants having matured prior to spraying, and the failure of farmers to apply the chemical at the optimum and critical time and failure to carry out follow-up spray treatment in the same area.

The next phase again supported the principle of substituting dominant productive species in place of the weed. Relatively low rates of chemical to suppress and, if possible, eradicate the barley grass during the October-December period, creating an abundance of clover competition in the sward, appear to the layman a most desirable and practical approach. This is especially the case on sheep farms where this type of feed can be utilized for lamb fattening and is a worthwhile side effect of the treatment. This technique held out hope of excellent results, especially if under- or over-sowing was carried out where severe infestations of barley grass were treated. However, before even this method could be universally accepted, a fresh recommendation endorsing the use of a mixture of chemicals has been made. The farmer is now rather weary and wary of constantly being one round behind—or should the research workers and chemical concerns be complimented for forward thinking and being one jump ahead? An expression of opinion sought from various farm advisers showed a wide range of viewpoints on the necessity and recommendations for barley grass control. There is inevitably a narrow gap between research and commercial evaluation of weedicides, followed by a larger gap to farm advisers in all spheres, and care should be taken that this does not become a chasm of suspicion and distrust before the farmer, the man who counts, is reached.

CRITICAL ANALYSIS

There is adequate published material showing the harmful effect on New Zealand's economy of continuing to propagate barley grass. This economic loss is ignored by many farmers. There must be some sympathy for such farmers, however, as we endure the almost comic opera situation where less than half the counties within the country have declared barley grass a noxious weed. It is most undesirable that, in some areas harbouring severe infestations, there is no statutory obligation to control barley grass. A recent newspaper report (*Waikato Times* 23/3/1971) indicated the concern of farmers over the sale of hay containing barley grass and over this weed being conveyed in contractors' equipment. The farmer should ensure that no contaminated material is imported on to his property in this way and he only has himself to blame for such external infestations. Too many dairy farmers accept with a degree of fatalism a

barley grass infestation and consider it just another grass. Sheepfarmers are more sensitive to severe infestations of barley grass on their properties and, although more likely to carry out a control programme, seldom visualize that eradication could be vital, not merely desirable or obligatory. Because of economic conditions, these farmers are fully aware of the costs involved but somehow have to be convinced of the economic return.

PRACTICAL CONSIDERATIONS

If control measures advocated were effective, there would have been a continual decline in barley grass infestations, a decline in damage caused to products, and a decline in the quantities of weedicides applied. The reverse appears to be the present situation. Some farmers are successfully following the basic principles of grazing management for the control of barley grass identical to those outlined by Gunning (1966) without having read such notes or apparently receiving advice on the matter. Some dairy farmers are able to suppress a barley grass infestation by intensive grazing on a set-stocked basis.

Recommendations for the control of barley grass must bear the hallmark of simplicity with the ideal method based on a grazing or stock utilization technique, with weedicides as a prop for weaker management or as an emergency measure. Chemicals would gain widespread acceptance if more specific and capable of broad-spectrum use in terms of time and rates of application. The swing to increased cattle numbers on many sheep properties may aggravate an existing problem owing to the changed grazing pattern. As an interim measure, the grazing technique similar to that outlined in *Rural Research in CSIRO* (1970) offers distinct possibilities and is a practical approach.

LINES OF RESEARCH

A major weakness in past recommendations may have been the failure to consider barley grass control in terms of the relationship between soil, plant, animal and chemical. Re-infestation of barley grass readily occurs on areas prone to drought and, as the chemical control in lucerne or lucerne mixtures appears more promising than in ryegrass-dominant areas, the place of this species in such areas should be studied. A full evaluation of the spread of the weed is essential to define the effect of re-infestation within each farm boundary and the part played by external sources. The whole farm should be examined, not merely areas of severe infestation. Regional evaluation would be essential to evaluate alleged variations due to soil type, climate, elevation and actual degree of infestation of the weed. The effect of various grazing regimes must be closely studied. The effect of fungal or bacterial diseases specific to barley grass should not be ignored. The importance or otherwise of soil fertility may have been exaggerated in the past and should be further investigated. There are known infestations on low-fertility soils.

CONCLUSION

The farming community has reservations regarding information available on barley grass control. The incidence of this weed appears to be on the increase and will not be reduced until farmers are made aware of the economic loss caused by this weed and have available a reliable and consistent control measure. A renewed effort should be made to ensure a

uniform approach to the control of this weed is achieved by research workers, commercial and advisory organizations in order that at least some of the existing confusion in the farming community is removed. There is a need for a responsible organization such as the N.Z. Weed and Pest Control Society Inc. to make a clear stand on up-to-date recommendations, and publications of research work should only be made after a full and exhaustive investigation. Farmer organizations and local authorities will also have to face up to their responsibilities in a combined and united effort to remove barley grass from the farming scene.

The end result will be in both the farmers' and the national interest.

REFERENCES

- Gunning, B. A., 1966: *Proc. 19th N.Z. Weed & Pest Control Conf.*: 127.
Rural Research in CSIRO, June 1970: 29.