ESTIMATING THE COST OF WILD OATS (*AVENA* SPP.) TO THE AUSTRALIAN WHEAT INDUSTRY

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Abstract: Economic losses caused by weeds take the form of shortfalls in potential production and additional costs of production.

In order to assess yield loss due to competition from wild oats, data were obtained from the Australian Wheat Board on levels of wild oat contamination in silos around the nation. These data were transfigured to estimate the average density of wild oat plants, and from this wheat yield loss, across all silo districts. The synthesis involved the use of models that describe wild oat fecundity and wheat yield loss and assumed that 90% of wild oat seed was dispersed prior to harvest. The losses in production were summed and converted into monetary terms assuming a grain value of $130/t. The analyses did not attempt to assess the cost of on-farm cleaning of grain or of dockage penalties for contaminated grain.

The direct costs of weed control considered were the quantity of herbicide used and the cost of its application. The cost of tillage was not assessed since in many instances this is aimed at general weed control and has other benefits. Production statistics for 1987 were obtained from manufacturers of the major pre- and post-emergence herbicides registered at that time in Australia for control of wild oats. As the recommended application rate for individual herbicides varies between states, and is flexible in some, commonly used rates of application were assumed along with average recommended retail price of each herbicide. Since one of the herbicides is also widely used for control of other annual grass weeds, an adjustment, based on market survey data, has been applied to discount usage on other than wild oats. Contract spraying rates of $5.00/ha were assumed. No allowance was made for incorporation of the pre-emergence herbicide since this was considered part of normal crop sowing operations. It was assumed that all of the wild oat herbicide manufactured and distributed in 1987 was consumed on wheat crops during that year.

The analyses revealed that approximately one million hectares sown to wheat in Australia was treated with wild oat herbicides, valued at $23.05 million. Application of these herbicides cost an additional $5.0 million. Lost production due to competition from wild oats was estimated to cost $13.3 million, bringing the total estimated cost of wild oats in the Australian wheat industry to $41.35 million during 1987.

ACKNOWLEDGEMENTS

This work was made possible by the generous provision of grain contamination data by the Australian Wheat Board, herbicide data by Hoechst Aust. Ltd., Monsanto Aust. Ltd. and Shell Chemical (Australia) Pty. Ltd. and with financial support of the Wheat Research Council of Australia.