

AN INDEX OF COMPETITION + HOE 23408 -  
A NEW APPROACH TO ANNUAL RYEGRASS CONTROL

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Annual ryegrass (*Lolium rigidum*) is one of the most commonly occurring and important weeds in field crops of southern Australia. Control measures for this weed have included pasture management, cultivation and selective chemical control with pre-emergence herbicides. However, until recently there have been no herbicides that would give effective post-emergence ryegrass control and still retain selectivity in cereal, oilseed and grain legume crops.

HOE 23408, a new herbicide being developed by Hoechst Australia Ltd, has however given control of ryegrass in wheat, oilseed rape, lupins and a number of other crops when applied after crop and weed emergence. Excellent grass control has been obtained under a range of environmental conditions and no crop damage has been observed at the rates under test.

With the advent of this selective post-emergence herbicide it is important to know the level of weed infestation which can be tolerated before it is economically desirable to spray. In these times of rising developmental costs it is unlikely that HOE 23408 will be a cheap herbicide if and when it attains registration.

The author has determined that the effect of ryegrass on grain yield is directly proportional to the square root of its density, but that the weed is more competitive in later sown crops:

$$\text{Optimum sowing time } Y_R = 1.042 \sqrt{D}$$

$$\text{Late sowing } Y_R = 1.578 \sqrt{D}$$

where  $Y_R$  is the wheat grain yield reduction expressed as a percentage of the weedfree control and  $D$  is the ryegrass density.

These relationships obtained under a range of seasonal conditions and seeding times should aid in the efficient use of herbicides such as HOE 23408 for post-emergence control of ryegrass in wheat.

Additional information is currently being obtained on the effects of ryegrass density on oilseed rape and lupins.