SUMMARY

Alachlor has shown promise in controlling *L. rigidum* in cereals when applied to the surface after seeding. Consistent results can only be expected in areas where long-term meteorological records show there is a high probability of adequate rainfall in the early post-seeding period. Soil incorporation of alachlor is likely to extend the areas of possible useage into the lower-rainfall regions.

DOES KARMEX(R) HAVE A PLACE AS A SELECTIVE POST-EMERGENT ANNUAL WIMMERA RYEGRASS HERBICIDE IN WHEAT IN SOUTH AUSTRALIA

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During 1968 diuron (3-3,4 dichlorophenyl)-1, 1-dimethylurea) was applied as an early post-emergent spray treatment to wheat, for the control of seedling annual Wimmera ryegrass (*Lolium rigidum*, Gaudin). Treatment of the crop (*Triticum aestivum* L., var. Insignia) using a Chesterford mini-logarithmic experimental sprayer took place one month after sowing.

Visual assessments indicated that:

(1) Complete control of annual Wimmera ryegrass was achieved at rates of diuron in excess of 1.44 lb active/acre (1.61 kg/ha).

(2) Heavy suppression (estimated 80% reduction in oven dry weight) was achieved at rates in excess of 0.81 lb active/acre (0.91 kg/ha).

(3) Although transient yellowing of the crop took place, there was no apparent visual damage remaining some 4-5 weeks after treatment.

Sedgley and Boersma (1969) reported that the rate of photosynthesis in wheat plants declined for at least 5-6 days after

root adsorption of diuron. They notes that plants remained green and healthy and there was no visible response to diuron treatment when in some instances, photosynthesis was virtually nil.

Field trials in 1969 examined yield, and the effect on the yield components heads/acre, grains/head, and weight/grain, of post-emergent applications of diuron in rye infested wheat. Results indicated that if a decline in crop photosynthesis did occur then it was of no significance at the levels of diuron used in these experiments at this early post-emergent stage.

At four of the five sites there was a marked increase in the number of heads of wheat/acre after post-emergent treatment of ryegrass with rates of diuron between 0.8-1.2 lb active/acre (0.9-1.35 kg/ha). An increase in grain yield for these treatments was subsequently recorded.

At two sites where grain number/head, and 1,000 corn weight were recorded no significant difference between treatments was evident.

1969 results indicated that the early control of annual Wimmera ryegrass with diuron some 2-5 weeks after sowing allowed the potential yield of wheat to be increased by increasing the number of heads/acre. Other yield components were little affected.

When the oven dry weight of ryegrass was measured some 6-8 weeks after treatment, all treatments gave a significant reduction. A fairly uniform pattern of reduction was noted regardless of initial density and subsequent growth.

A graph of yield (expressed as a percentage of untreated yield) against rate of diuron, showed that on these soils and with a ryegrass density in excess of 100 plants/square foot (1070m^2) a 20-25% yield increase/acre could be expected at a treatment level of 1.0 lb active/acre (1.12 kg/ha).

If diuron is valued at $2.80/lb. (for an 80% product), and wheat is valued at $1.00/bushel, then this 20% represents an extra 210 lb of grain/acre (235 kg/ha). The crop must therefore have a potential yield if left untreated of 1,050 lb/acre (1180 kg/ha) if cost of treatment is to be recovered.

To answer yes to the question posed by the title of this paper, these experiments would indicate that the following provisos should be added:

(1) Providing treatment and results occur before the crop has lost the ability to benefit from the reduced competition.

(2) Providing ryegrass density is greater than 100 plants/square foot (1,090/m^2).

(3) Providing growers will accept a percentage of ryegrass remaining after treatment if a rate of 1 lb active/acre (1.2 kg/ha) is used as a recommendation. Some 60-70% reduction in oven dry weight for ryegrass could be expected. Ridging and the presence of transplanted material can affect the percentage of ryegrass remaining.

(4) Providing (under the current price regime) the crop has a yield potential if left untreated of at least 17½ bushels/acre (1,180 kg/ha).

FENOPROP FINDS NEW USES

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Although fenoprop (2-(2,4,5-trichlorophenoxy) popionic acid) was released as a herbicide in 1953, it was not widely tested in Australia at that time. For some years, it found a limited use for soursob (*Oxalis pes-caprae)* control in South Australia.

In Queensland, it has been tested widely on the nine important cactus species including Harrisia cactus (*Eriocereus martinii*), common pest pear (*Opuntia inermis*), spiny pest pear (*Opuntia stricta*, tiger pear (*Opuntia aurantiaca*), velvety tree pear (*Opuntia tomentosa*), drooping tree pear (*Opuntia monacantha*), westwood pear (*Opuntia streptacantha*), devil's rope pear (*Opuntia imbricata*) and sword pear (*Acanthocereus pentagonus*).

EXPERIMENTAL TECHNIQUES

Individual species trials were established to test formulations and concentrations of fenoprop applied at high volume rates to the point of 'runoff' (150 to 200 gallons per acre).

Formulations - fenoprop amine and sodium salts in water,
fenoprop ester in water emulsion,
fenoprop ester in oil/water emulsion.

Concentrations - 0.25%, 0.5%, 1.0% and 2.0%