

The use of this herbicide for the control of nut-grass in a selective role in crops warrants further attention. Encouraging results in sugarcane are being obtained by workers in Queensland but the results of the tolerance study indicate that CP44939 cannot be used selectively in maize. However, many other summer-growing and perennial crops in which nut-grass can be a problem offer possible avenues for use of this potentially valuable herbicide.

RH-315 - A SELECTIVE HERBICIDE

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RH-315 (Kerb), a new compound discovered by the Rohm and Haas Company, USA, is being developed in Australia as a selective pre-emergence herbicide for the control of annual grasses and broadleaved weeds in lettuce, cotton, peas, beans, peanuts, small-seeded legumes, small fruits, vineyards, and turf. Effective rates range from 0.5 to 2 lb a.i. per acre. RH-315 acts through root adsorption both before and after emergence. It has a relatively low order of mammalian toxicity.

Its melting point is 154-156° C, its water solubility 15 ppm at 25°C, and its vapour pressure 8.50×10^{-5} Torr. at 25°C. The formulation is being tested as a 50% wettable powder.

TOXICOLOGY

The accurate oral LD₅₀ of technical RH-315 in a corn oil solution administered to male rats by stomach tube is 8,350 mg per kg body weight. The acute oral LD₅₀ female rats is 5,620 body weight. The acute dermal LD₅₀ of technical RH-315 for adult albino rabbits is greater than 3,160 mg per kg.

WEED CONTROL AND CROP TOLERANCE

The herbicide is promising for the control of certain grasses including *Echinochloa crus-galli*, *Digitaria sanguinalis*, *Poa*

annua, and *Avena fatua*, and broadleaved weeds such as *Chenopodium album*, *Portulaca oleracea*, *Amaranthus viridis*, *Solanum nigrum*, *Stellaris media*, *Urticae* spp., *Capsella bursa-pastoris*, and *Polygonum aviculare*.

Tolerant crops are legumes, beans, onions, vegetables, (particularly lettuce, endive, chicory), sunflower, safflower, and turf. Testing on seed crops including cocksfoot, clovers, medics, and lucerne is recommended.

TYPE OF ACTIVITY

Although RH-315 has pre- and post-emergence activity, best results are obtained with pre-emergencé applications. The post-emergence effect is slow and may require 3-4 weeks, providing application has been made to very young seedlings. The weeds will stop growing, gradually become chlorotic, and eventually succumb. To obtain activity the herbicide must move into the root zone of the weeds; little activity is obtained from foliar contact alone. Soil type, temperature, and rainfall appear to influence field results.

RESULTS OBTAINED IN AUSTRALIA

To date RH-315 has been shown to be a promising herbicide for weed control in lettuce. Excellent crop tolerance (3 lb a.i. per acre), broad-spectrum weed control, and good activity is obtained when application is made immediately after drilling lettuce seed. Initial results indicate that the normal thinning operations of direct-sown lettuce can be carried out without adversely affecting weed control. Beans and peas have also shown excellent tolerance, the most interesting feature of the herbicide being its ability to control *Datura stramonium*. The excellent control of *Poa annua* in a range of crops and in turf is worth noting.

Residual pre-emergence weed control of up to 6-8 weeks may be obtained in cool, wet environments. Laboratory and field studies have shown that RH-315 is readily transformed to non-herbicidal products in warm to hot weather in most types of soil. Herbicide residues are therefore most unlikely to affect subsequent susceptible crops.