

BAYER 94 337, A COMPOUND FROM A NEW GROUP OF HERBICIDES

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A number of compounds in the 4-amino-1, 2, 4-triazin-5-one group have been shown to possess considerable herbicidal activity; they achieve this by interfering with the Hill reaction in photosynthesis.

Of the compounds synthesized in this group, Bayer 94 337 has been the most extensively tested in Australia.

The compound is herbicidally active when used before or after emergence as either a 25% w/v emulsifiable concentrate or a 70% wettable powder. (Its molecular weight is 214.3, its solubility in water, 1,200 ppm.)

Post-emergence activity is not restricted to seedling weeds. For example, the following weeds have been controlled in advanced stages of growth by Bayer 94 337 at the rates shown:

<i>Datura stramonium</i>	0.5 lb a.i./acre (0.6 kg a.i./ha)
<i>Echium lycopsis</i>	0.7 lb a.i./acre (0.8 kg a.i./ha)
<i>Homeria</i> spp.	0.7 lb a.i./acre
<i>Xanthium spinosum</i>	1.0 lb a.i./acre (1.1 kg a.i./ha)
<i>Polygonum aviculare</i>	1.0 lb a.i./acre
<i>Polygonum lapathifolium</i>	1.25 lb a.i./acre (1.3 kg a.i./ha)
<i>Xanthium pungens</i>	1.25 lb a.i./acre
<i>Juncus</i> spp.	2.8 lb a.i./acre (3.1 kg a.i./ha)
<i>Sida rhombifolia</i>	4.0 lb a.i./acre (4.5 kg a.i./ha)
<i>Panicum maximum</i>	10.5 lb a.i./acre (11.8 kg a.i./ha)

Further experimentation is being carried out to determine the herbicide's complete spectrum of activity on established weeds.

Pre-emergence testing has principally been conducted with direct-seeded tomatoes grown under furrow irrigation in the Murrumbidgee Irrigation Area. The selective herbicidal control of solanaceous weeds has not previously been possible in direct-seeded tomatoes; *Solanum nigrum* has thus become a major weed of this crop in the MIA.

The work compared the effects of soil incorporation with surface application of Bayer 94 337 on the crop and weeds (*S. nigrum* and *Echinochloa crus-galli*). Over a series of four trials, Bayer 94 337 consistently provided selective control of *S. nigrum* and *E. crus-galli* in direct-seeded tomatoes.

The results showed that weed control was better when the herbicide was soil-incorporated to a depth of 4-5 in. (10-12.5 cm).

Applied in this way, 1.4-1.6 lb a.i. per acre (1.6-1.8 kg a.i. per hectare) satisfactorily controlled both weed species, while tomatoes were not damaged at rates below 2.5 lb a.i. per acre (2.8 kg a.i. per hectare).

Germination of *S. nigrum* occurred in treated plots 5-7 weeks after soil incorporation of 1.6 lb a.i. per acre, while *E. crus-galli* was controlled for 12 weeks by the same treatment. Similar observations on the relatively short residual activity of Bayer 94 337 have been made in other trials.

Overseas data show that many annual weed species are susceptible to pre-emergence treatments of 0.5-2 lb a.i. per acre (0.6-2.2 kg a.i. per hectare). Other crops in which tolerance has been demonstrated include soybeans, potatoes, beans, peas, maize, sorghum, asparagus, and sugarcane.

The molecular weight of Bayer 94 337 is 214.3.

Its solubility in water is 1200 p.p.m.

## EVALUATION OF RH-315 AS A HERBICIDE IN LETTUCE

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### INTRODUCTION

In order to evaluate RH-315 ('Kerb') as a pre-emergence herbicide for lettuce in the Melbourne metropolitan vegetable-growing areas, six trials were carried out by the author and R. Allison over the 6-month period from December 1969 to July 1970. The safety of RH-315 to lettuce had been established and these trials were designed to evaluate weed control efficacy at different times of the year and on different soil types.

### METHOD AND DESIGN

RH-315 was applied at 0.75, 1, and 1.5 lb a.i. per acre (0.83, 1.11 and 1.67 kg per hectare) in the first two trials. It was