# THE CONTROL OF ONEHUNGA WEED WITH BROMOFENOXIM

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*Summary*

Under favourable weather conditions, bromofenoxim rapidly killed Onehunga weed (*Soliva* spp.), a common annual weed of lawns and playing fields. Maximum effect was achieved from applications of 0.75-1.0 kg/ha during fine weather with air temperatures of at least 17-20°C. Apart from poa annua (*Poa annua*), established turf grasses were tolerant to at least twice the highest recommended rate. Dichondra (*Dichondra repens*) generally suffered some temporary scorch.

## INTRODUCTION

Onehunga weed is a very common and troublesome annual weed of lawns and playing fields in the North Island. The main germination occurs in the autumn and, although the plant remains quite small through the winter period, it grows quickly with the onset of warmer weather in the spring to set seed from about mid-November. Generally it is at this time that control measures are sought and carried out, often killing the plants but not eliminating the prickly seeds which cause discomfort to barefeet. Onehunga weed is not very susceptible to MCPA and 2,4-D, and the addition of ioxynil, bromoxynil or mecoprop has been necessary to obtain control (Matthews 1972). Bromofenoxim was therefore considered for evaluation as it has the distinct advantage of being a non-hormone material with particular effectiveness against certain composites (Anon. 1969). This research note summarises the results achieved from 16 applications of bromofenoxim made during the last 6 years.

## METHOD

Applications were made at various rates and times, either replicated in small plot trials or unreplicated on larger areas. The degree of weed control was assessed visually, and at times subjectively with bare hands and feet.

## RESULTS AND DISCUSSION

### Climatic factors

As bromofenoxim is a contact herbicide, with no soil activity, fine warm weather at the time of application is necessary for maximum herbicidal effect. This is shown in Table 1 which summarises the degree of weed control obtained from various rates applied at different air temperatures. Most applications were made during a period of fine sunny weather, and results were not affected by light showers the following day. During the early spring period, applications late in the afternoon tended to be slightly less effective. Maximum effect was usually achieved in a week, and at 25°C considerable scorch was evident after 2 or 3 days. In contrast, hormone mixtures containing MCPA took 4-6 weeks to achieve similar results. Not included in the Table was an anomalous result obtained from the only application made between two successive frosts. In that case 1 kg/ha applied on a 12°C mid-September day, gave rise to a slow but complete kill within about 10 days.

TABLE 1: Percentage control of Onehunga weed.

| Treatment | Air temp (°C) kg/ha | 12-13 June/July | 15-17 Sept/Oct. | 20 Nov. | 22-25 Nov./Dec. |
|---|---|---|---|---|---|
| bromofenoxim | 0.25 | | | 50 | 90 |
| bromofenoxim | 0.5 | | | 95 | 100 |
| bromofenoxim | 0.75 | | 75 | 98 | 100 |
| bromofenoxim | 1.0 | 50 | 98 | 100 | 100 |
| MCPA + bromoxynil | 0.35 + 0.35 | | | 100 | |
| MCPA + bromoxynil | 1.2 + 1.2 | 98 | | | |
| MCPA + mecoprop | 1.0 + 2.0 | | | | 95 |
| number of trials | | 3 | 2 | 3 | 6 |

**Rates of application**

As Table 1 indicates, maximum control is dependent upon the factors of rate and temperature. Although 0.5 kg/ha gave excellent control in very warm weather, rates of 0.75-1.0 kg/ha appear necessary when conditions are cooler. Most applications were made in 300 litres/ha, this being adequate to obtain complete coverage. Control was not affected by volumes of 1500-2000 litres/ha made to dense weed infestations, as run off was negligible.

**Stage of growth**

This factor was of less importance than the weather. However, control was slightly less if plants were seeding at the time of application. Mowing immediately prior to application was not detrimental, but when carried out 2 hours after spraying, very poor control resulted.

**Tolerance of turf species**

Apart from initial leaf tip scorch, grasses are not greatly affected and are tolerant to at least 2.5 kg/ha. These include browntop (*Agrostis tenuis*), Chewings fescue *(Festuca rubra* ssp *commutata),* paspalum (*Paspalum dilatatum*) and perennial ryegrass (*Lolium perenne*). Poa annua was generally tolerant but was susceptible to high rates applied during very warm weather. Similarly, areas of mature dichondra usually tolerated bromofenoxim, though temporary scorching occured under higher temperatures and rates. A good cover of turf grasses was essential to restrict the germination and establishment of other weeds following the elimination of Onehunga weed.

## CONCLUSIONS

Bromofenoxim is a contact non-hormone herbicide, which provided a rapid kill of Onehunga weed infestations. The speed and degree of effect was largely dependent upon air temperature, and rates of 0.75-1 kg/ha applied during day temperatures of 20°C and higher were desirable for best effect. Apart from poa annua, the usual turf grasses were tolerant of at least twice these rates.

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## REFERENCES

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