USE OF WEEDICIDES IN THE NURSERY

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Weed eradication and control have always been a major problem for nurserymen producing ornamental trees and shrubs. As growing media and nutritional programs have improved over the years providing better plant growth, weeds have also prospered. In field production, cultivation to prevent weeds is possible but pulling of the weeds by hand is very slow and expensive. particularly with escalating wages. Also the cost of maintaining weed-free pathways or tracks has become astronomical.

In order to beat the ever increasing weed situation in nurseries, Casuron granules, Roundup, Tenoran and Gesatop (Simazine) were used in weed control experiments during 1980 with the following results.

GROUND WEED CONTROL

Casuron. I had a bad infestation of a very soft, fast-spreading weed called bitter cress *(Cardimine pennsylvanium)* growing in and around tube growing shadehouses. Damp conditions continually cause this weed to become a real plague.

Casuron granules were applied at the rate of 220 grams per 10 sq. metres. Although Casuron gives off a vile smelling gas which tends to be worse under enclosed conditions, such as shade houses, the long term effectiveness of the chemical is excellent. A full 8 months control was gained with one application. Under no circumstances should Casuron be used in glasshouse enclosures.

Roundup. Roundup has been used extensively for pathway weed control in nurseries because of its effectiveness in killing most weeds and grasses. The cost of Roundup has been rising rapidly and it is becoming prohibitively expensive to use. I tested urea used with Roundup to see if the rate could be decreased and the cost reduced.

The usual rate for Roundup is 1700 ml to 200 litres of water with no wetting required. I was able to get excellent weed control by using only 800 ml Roundup per 200 litres of water when I added 1000 ml of wetting agent (Agral 20) and 4 lbs urea. With only 600 ml, Roundup control was only reasonable to poor.

WEED CONTROL IN CONTAINERS

The questions that arise are:

a. What cultivars of plants can withstand a herbicide treat-

ment?

b. How long will the weed control period last?

c. At what strength should the chemical be used?

d. To what extent does stunting of the plants occur

Two herbicides that seem to be fairly widely used are Tenoran and Gesastop (Simazine). To evaluate these herbicides a group of 350 plants of 70 cultivars (Table 1) was set aside and treated with various strengths. Included in these cultivars were Australian natives, ornamentals, shrubs, trees, and conifers.

Table 1. Plants used to test susceptibility to Tenoran and Simazine "X" indicates plants that were very susceptible to herbicide applications

Abelia × *grandiflora*
A grandiflora, variegated cv
Acacia baileyana
Araucaria heterophylla
Archonto phoenix alexandrae
Asparagus densiflorus 'Sprengeri'
A setaceus (Syn A plumosus) A 'Nanus'
Banksia integrifolia[x]
Bauera rubioides[x]
Betula pendula
Buxus sempervirens[x]
Callistemon 'Captain Cook'
C 'Endeavour'
Callitris sp
Casuarina cunninghamiana
Chamaecyporis pisifera 'Boulevard'
cyanoviridis
Choisya tenana
Cordyline sp
Cuphea hyssopifolia
Cupressus 'Brunniana' (?)[y]
C sempervirens[x]
C sempervirens 'Swane's Golden'
C 'Skyrocket' *(Juniperus scopularum* 'Skyrocket'
Erica canaliculata[x]
E 'Stumpy'[y]
Eriostemon sp
Euonymus sp [x]
Eutaxia sp.[x]
Ficus elastica 'Decora'
F pumila[x]
Gardenia augusta (Syn *G florida)*
Grevillea biternata
G 'Canberra Gem'
G 'Firebird'
G "Pink Pearl'
G 'robusta[x]
Grevillea rosmarinifolia
Hakea salicifolia
H buxifolia[x]
H 'Inspiration'[x]
Hedera helix 'Gold Dust'
Hypericum[x] *mosetanum* 'Tricolor'
Jasminum polyanthum
Juniperus conferta
J procumbens
Lantana 'Chelsea Gem'
L 'Snowflake'
Lavendula sp.[x]
Leptospermum 'Burgundy Queen'[x]
L petersonii (Syn.: *L citrinum)*
Liquidambar sp
Lonicera nitida
Melaleuca armillaris
M incana
Nandina domestica 'Purpurea' ('Nana')
Phlox, alpine
Phoenix roebelenii
Photinia robusta
Pittosporum (Variegated cv.)[y]
Platycladur (Thuja) orientalis *Beverleyensis Aurea*
Privet, golden[x]
Rosmarinus sp
Sapium sp
Schnus-molle
Thryptomene australis
Thusa occidentalis 'Rheingold'
T 'Swellii' (?)[y]
Trachelospermum jasminoides
Vibernum tinus
Westringia fruiticosa (Syn *W rosmariniformis)*

[x] Susceptible to herbicides
[y] Bot Ed unable to verify name

Herbicides were applied between 4 and 5 p.m. on 2nd April, 1980 with weather changing from sunny to cloudy. Irrigation one hour after spraying washed the herbicides off and four hours later a shower of rain was received. Results were compiled 6 hours later.

Three strengths of each chemical were used. All pots contained some grass and weed vegetation when sprayed. The following observations were made.

Simazine

23 ml per 15 l knapsack — poor weed control.

35 ml per 15 l knapsack — excellent weed control.

44 ml per 15 l knapsack — excellent weed control but severe stunting of potted plant.

The first effects of Simazine showed up 5 weeks after application and weeds continued to die over the next 3 weeks. There was very noticable stunting of almost all potted plants. The conifers were the only ones showing no ill effects. Susceptible plants were affected by all three concentrations of herbicide but the stunting was greater with the higher concentration.

Tenoran

3½ tablespoons per 15 l knapsack — no weed control

4½ tablespoons per 15 l knapsack — partial control

6 tablespoons per 15 l knapsack — control of soft weeds

(6 tablespoons/knapsack is equivalent to 6 lbs/acre)

All Tenoran treatments were unsuccessful and only achieved partial control of soft weeds and grasses. More vigorous weeds continued to grow but were very stunted. The potted plants seemed to be a little stunted. It seems that stronger rates of Tenoran are needed for successful weed control.

Of the 350 plants used in these trials only 30 were killed by the herbicides. The rest were still alive 6 months after treatment.