

# EFFECTS OF USING THE PLANT GROWTH REGULATOR, BONZI® ON THREE *EUCALYPTUS* SPECIES AND FOUR *CHAMELAUCIUM* CULTIVARS

PETER LEWIS

*Birkdale Nursery*  
438 Old Cleveland Road  
Birkdale, Queensland 4159

In recent years, the Australian nursery industry has witnessed the introduction of the ICI-developed product, Bonzi® (a.i. = 4g/l paclobutrazol). This is a new plant growth regulator with very broad spectrum growth retardant properties. The horticultural benefits of Bonzi® to the nursery industry include:

- Reduction in vegetative growth leading to a more compact plant.
- Reduction in numbers of treatments required compared to other products.
- Longer duration of control.
- Increased and earlier flowering.
- Improved colouration, including darker green foliage and improved flower colour (Pers.comm.ICI).

The objective of this experiment was to observe the effect of five Bonzi® treatments on three *Eucalyptus* species and four *Chamelaucium* cultivars.

## MATERIALS AND METHODS

The species chosen for this experiment were:

- (1) *Eucalyptus maculata*
- (2) *E. microcorys*
- (3) *E. nicholii*
- (4) *Chamelaucium uncinatum* 'Early Pink'
- (5) *Chamelaucium uncinatum* 'University'
- (6) *Chamelaucium uncinatum* 'Album'
- (7) *C.* 'Lady Stephanie'

**Table 1.** Treatments applied to each of the *Eucalyptus* species and *Chamelaucium* cultivars

Treatment No	Rate of Application*	Method of Application	Number of Applications
1		Control—no treatment	
2	50ml/liter 100ml soln POT	Soil drench	1
3	100ml/liter	Foliar spray	1
4	200ml/liter	Foliar spray	1
5	100ml/liter	Foliar spray	3 (14 day intervals)
6	200ml/liter	Foliar spray	3 (14 day intervals)

\*Rate refers to—mls Bonzi® /liter

The treatments were unreplicated with ten plants per treatment.

Each of the experimental plants were potted into 140mm containers on the 21st December, 1988. The medium used was sand, peat, and milled pinebark in equal portions. The nutrition was supplied by Osmocote® (9 month plus) at 5 kg./m<sup>3</sup>, plus Uramite® at 1 kg./m<sup>3</sup>.

Using previous experience, the Bonzi® treatments were not applied until the plants had grown to an average height similar to the height of their container, e.g., 150mm from pot surface. Thus the chemical treatments were not applied until the 23rd January, 1989 with the follow-up treatment occurring at two week intervals after this date.

For foliar spray treatments, the Bonzi® was sprayed on until the foliage was just wet. No wetting agent was used. Normal nursery production procedures were carried out and the treatments were observed periodically for their growth and flowering responses.

## RESULTS AND DISCUSSION

To prevent misunderstanding with the results, I will discuss the plant species separately. For *Eucalyptus*, the main aim of using a growth retardant was to control the speed of vegetative growth. The objective of this growth control was to extend the optimum economic life of the plant in a wholesale and retail nursery situation.

For the three species used, the responses to the treatments were quite variable. *E. maculata* showed no response to the foliar sprays and only little response to the soil drench. This response showed as a slight shortening of the stem internode length for approximately six weeks.

*E. microcorys* showed desirable responses to the foliar spray treatments. However, the soil drench treatment appeared to cause severe malformation of new growth. Subjectively, I would rate the

treatments in the order 4, 5, 6, 3, but there was not a marked visible difference between them and all plants are still saleable four months after application.

*E. nicholii* displayed dramatic response to all treatments. All plants exhibited severe growth malformation with only the control treatment saleable. I would suggest trying foliar spray treatments at rates lower than those used in this experiment.

*Chamelaucium*, particularly the cultivars of *C. uncinatum*, is very important, especially for the cut flower and nursery industries. Geraldton wax flower, as it is commonly known, flowers heavily through late autumn to early summer. One of the production problems with container-grown Geraldton wax flower is it tends to have a very open form and a straggly habit. To overcome this the plants require regular tip pruning and shaping. The main aims for trialling Bonzi® on this species is to shorten internode length thus creating a compact looking plant, and to observe flowering habits.

For the *Chamelaucium* cultivars tested in this experiment, the results were interesting, 'Early Pink' showed little or no response to the foliar spray treatments, but displayed a desirable growth response to the soil drench treatment. 'University' exhibited similar growth responses to those of 'Early Pink;' neither appeared to be forced into early flowering by the treatments.

*Chamelaucium* 'Lady Stephanie' and *C. uncinatum* 'Album' showed desirable growth responses to treatments 2,4,5, and 6. However, leaf disease led to a partial or total defoliation of some plants. Both these forms are noted for their disease sensitivity in summer conditions in Queensland nurseries. Personally I would not persist with the container growing of 'Album' in Queensland and would suggest treating 'Lady Stephanie' in drier winter months as it is one of the later flowering forms.

## CONCLUSIONS

Bonzi® displays potential as a growth management aid in the production of container-grown ornamentals. However, users be warned: The plants' responses to treatment with this new plant growth regulator will vary dramatically depending on species, their stage of growth, and local environmental conditions, as highlighted by this observational trial. To gain the economic benefits of using Bonzi®, the user will need to spend time determining the optimum dosage, and method and time of application to suit his own specific requirements.