



## Evaluation of Conklin Agro Vantage Products

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### Nature of Work:

Two Conklin products were evaluated in 2000. The first treatment was a liquid product that was applied as a spray directly on to the potting mix. The second treatment included treatment one plus a second product applied to the foliage of the plants every two weeks through out the production season. The control treatment consisted of 14# Osmocote Pro 23-4-8 and 1.5# / yd<sup>3</sup> of Micromax incorporated into the potting mix.

The *Abelia grandiflora* cuttings were direct stuck in trade gallons on April 18, 2000. The pots were filled with a bark sand mix (6:1) and the cuttings were rooted under mist. Plants were moved outside on the gravel bed in early May. The first foliar applications were made one week after the cuttings were stuck and still under mist.

The potting mix was amended with 4# dolomitic lime. There were 20 replicates and all treatments were completely randomized. Two rows of border plants were placed on the out side edge of the treatments. The plants were maintained under normal nursery conditions, in good health and weed free.

The plants were pruned in mid July. All branches were cut to the out side of the pot and cut 8" above the potting mix. All parts removed from each plant were placed in separate bags and completely dried. Dry weights of the pruned tops were recorded and analyzed for weight differences. The weight of these prunings give an indication of early growth.

A complete nutrient analysis of the potting mix and leaf tissue samples were done in late October at the end of the trial. A combined sample from three pots in each treatment were collected for both the potting mix and the leaf samples. These analysis should show the nutritional status of the media and the plants at seasons end.

A visual quality rating by nurserymen and myself were done on twenty plants of each treatment for each crop. The quality rating helps to determine if the treatments would be acceptable for sale in the nursery trade. The quality ratings were completed on October 31, 2000.

The crops were harvested on October 31 with fifteen replicates for each treatment. All top growth was removed at the soil line, placed in paper bags and placed in a walk-in dryer for two weeks at 120°F. The plant stems and leaves were completely dried and were weighed to record the plant dry weight. This dry weight accurately reflects the growth of the crops during the production season and is used to statistically compare growth of the treatments.

## Results and Discussion:

The abelia plants were pruned back to 8" tall and to the side of the pot in mid July. The leaves and stems removed during pruning were dried and weighed. The Conklin Incorporated treatment produced the greatest average weight of 10.6 grams per pot. The Control produced 7.7 grams which was greater than the Conklin Foliar Spray treatment (2.9 grams). There was significant differences between all treatments (Table 1). Many of the plants in the Conklin Foliar treatment produced brown leaves and the product was diluted with 1/3 volume water starting in July. No leaf injury was observed on any of the other treatments plants.

<b>Table 1. Abelia Prunings Dry Weight Statistical Analysis</b>		
<b>Treatment</b>	<b>Mean Weight (g)</b>	<b>Non-Significant Range*</b>
Control - Osmocote 23-4-8	7.7	b
Conklin Incorporated	10.6	a
Conklin Incorporated & Foliar Spray	2.9	c

\*Treatments means sharing the same letter are not significantly different using the Student-Newman-Keuls test.

The nutritional analysis of the potting mix and leaf tissue was done in late October. The results of the Abelia crop are reported below. The pH of the potting mix was lower than expected, however we have been using a lower initial lime rate and expect it to become depleted at seasons end. The soluble salts, NO<sub>3</sub> and NH<sub>4</sub> nitrogen, phosphorous and potassium in the potting mix were all in the acceptable range while the calcium and magnesium levels were low for all treatments. The Conklin Foliar Spray treatment had slightly elevated the nutrient levels over the non-foliar treatments. The Conklin Incorporated treatment was slightly lower than the Control but the levels were acceptable.

The Abelia leaf tissue had acceptable levels of nitrogen, calcium, magnesium, iron, manganese and zinc for all treatments. The phosphorous, potassium, boron and copper levels were all low. The phosphorous and potassium were available in the potting mix, but uptake is slow in the fall. The acceptable calcium and magnesium tissue levels indicate these elements are running out in the potting mix at the end of the season but still at acceptable levels in the leaf tissue.

The quality ratings range from the high score of 100 for all excellent plants, a medium score of 60 for all average plants and a low score of 20 for all poor plants. The results of evaluating 20 plants from each treatment in October 2000 are presented in Table 2 The Conklin Incorporated treatment produced the highest quality as compared to the Control. The plants from the Conklin Incorporated treatment were slightly larger, more dense and were rated good. The Conklin Foliar Spray treatment appeared much

smaller with some plants very stunted and were rated below average.

<b>Table 2. Abelia Nursery Quality Ratings*</b>			
<b>Treatment</b>	<b>Control Osmocote Pro 23-4-8</b>	<b>Conklin Incorporated</b>	<b>Conklin Incorporated &amp; Foliar Spray</b>
Abelia	70.3	79.7	50.3
*Excellent = 100, Good = 80, Average = 60, Questionable = 40 and Poor = 20			

The plant dry weights (grams) were recorded at the end of the production season in late October (Table 3). The Conklin Incorporated treatment produced greater top dry weight than the Control or Conklin Foliar Spray treatments. The Control produced more dry weight than the Conklin Foliar Spray. More dry weight means greater growth produced during the production season.

<b>Table 3. Abelia Dry Weight Statistical Analysis</b>		
<b>Treatment</b>	<b>Mean Weight (g)</b>	<b>Non-Significant Range*</b>
Control - Osmocote 23-4-8	34.1	b
Conklin Incorporated	39.5	a
Conklin Incorporated & Foliar Spray	18.3	c
*Treatments means sharing the same letter are not significantly different using the Student-Newman-Keuls test.		

### **Summary:**

The direct stuck cuttings of *Abelia grandiflora* were rooted under mist in a greenhouse and moved on to a sunny gravel pad for the production season. Osmocote 23-4-8 at 14# / yd<sup>3</sup> was incorporated in the potting mix as the Control treatment. Two Conklin products were used as fertilizers. A Conklin Incorporated product was applied to the potting mix during mixing. The second product was applied as a Foliar Spray to plants growing in the Conklin Incorporated treatment. Leaf and stem tissue removed during pruning in July were dried and weighed. The potting mix and leaf tissue were monitored for nutrients in late October 2000. The plants were visually rated for quality at seasons end. The crops were then harvested and top dry weight was determined.

The July Abelia pruning weights showed the Conklin Incorporated treatment produced more early growth than the Control. The Control produced more growth than the Conklin Foliar Spray treatment.

The Abelia potting mix had adequate levels of all nutrients except calcium and magnesium which were nearly depleted by the end of the production season. The tissue levels were all acceptable except for phosphorous, potassium, boron and copper. The uptake of phosphorous and potassium appear to have slowed late in the year. The calcium and magnesium levels were acceptable.

The quality rankings placed Conklin Incorporated treatment better than the other two treatments. These plants looked larger and more dense. The Conklin Foliar Spray treatment was poorer than the Control. Problems with foliage browning all through the season had reduced their growth and quality. The Conklin Incorporated and Control treatments were rated above average.

The top dry weight was significantly greater with the Conklin Incorporated treatment. The Control was better than the Conklin Foliar Spray treatment. The results of the quality ranking and top dry weight indicate the Conklin Incorporated product is effective in producing quality *Abelia grandiflora*. A competitive price and practical application method may allow for it to be used in the nursery industry. The Conklin Foliar Spray needs greater trial to determine the proper application concentration.