

Container Production of Passion Flower

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Nature of Work : Passion flowers are members of the genus *Passiflora*, and are among the most beautiful and exotic flowers in cultivation. They are rarely grown outside of botanic gardens and arboreta. Passion flower is a high value crop with the potential for summer containers sales marketed in a similar fashion as other tropical vines like *Bougainvillea* and *Mandevilla*. Most passion flower hybrids and cultivars are easily grown from cuttings. However, there is limited information on commercial container production of passion flower. Therefore the objective of this study was to evaluate the effect of fertilizer and plant growth regulator treatment (Bonzi) on plant growth in container-grown passion flower.

In late February, two-node cuttings of *Passiflora*. 'Blue Bouquet' (*P. caerulea* x *P. amythestina*) were treated with IBA (1,000 ppm in talc) and stuck in Oasis rooting cubes. Cuttings were placed in an intermittent mist bed (5 sec. every 10 min.) with bottom heat (75 °C). After two weeks cuttings were well-rooted and moved to 4-inch plastic containers with a peat/bark medium (Scott's 360 Metro mix). Greenhouse conditions were maintained with day/night temperatures of 65/55 °F. Plants were fertilized with a 100 ppm fertilizer solution (Peter's 20-10-20) at each watering.

Plants were moved to 5-quart (Nursery Supplies, Inc. Classic 500) containers on May 15, 2001 and maintained in an outdoor nursery under trickle irrigation. The medium used was southern pine bark. Each container was treated with slow release fertilizer (Osmocote 14-14-14) at 1, 5, 10 or 15 grams per container and 300 ml of Bonzi (paclobutrazol) at 0, 50 or 100 ppm. Half the plants were retreated with an additional 500 ml of Bonzi at 25 or 50 ppm on June 15. Plants were harvested after two months of growth (July 15) and evaluated for number of stems, stem length, node number, dry weight, and flower number.

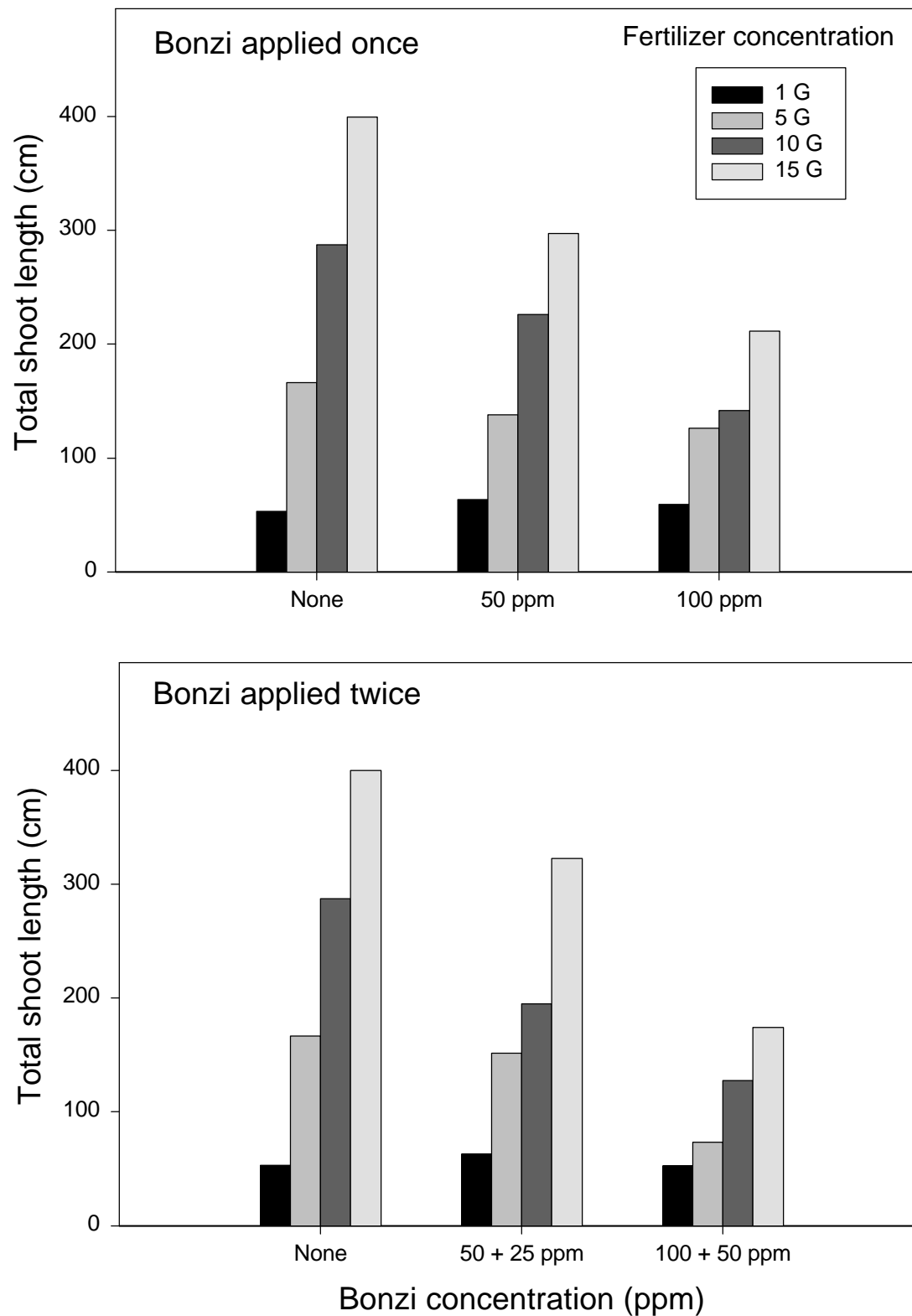
Results and Discussion: Fertilizer had the biggest impact on shoot length (Figure 1) and flowering (Figure 2) in passion flower vines. There was a linear increase in shoot length as fertilizer concentration increased. The recommended level of fertilization is approximately 14 grams per container. There were approximately twice as many flowers in plant produced with 15 grams of fertilizer compared to other fertilizer treatments.

Bonzi reduced overall shoot length and was more effective at the higher rates. Multiple applications further limited shoot growth (Figure 1). There was very little interaction effects between fertilizer concentration and Bonzi application. Single applications of Bonzi reduced total stem length by 20% averaged over fertilizer treatment. This is similar to our preliminary greenhouse studies, where Bonzi at 50 ppm applied once reduced plant height by 28%. Multiple applications of Bonzi limited growth compared to the control by 41% (50 ppm followed by 25 ppm) and 53 % (100 ppm followed by 50 ppm).

Flower number was greatest in plants treated with 15 grams of fertilizer (Figure 2). At this rate of fertilizer, Bonzi reduced flower number. However, there was no significant effect of Bonzi on flower number at the other fertilizer concentrations.

Significance to Industry: This is the first report on container production in a desirable Passion flower cultivar. It proved to be a fast growing container plant with high market potential. Commercially acceptable plants were produced using 15 grams of slow release fertilizer. A single application of Bonzi at 50 ppm reduced internode length and overall plant height to produce a more compact plant. However, flower production was delayed.

Figure 1. Total shoot length after two months of passion flower treated with different levels of Bonzi and fertilizer.



1.

Figure 2. Flower number after two months of passion flower treated with different levels of Bonzi and fertilizer.

