# Cultural Tips for New Guinea Impatiens

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Many greenhouse growers continue to encounter problems when growing New Guinea impatiens (NGI). Compared to many other bedding plant species, the optimal range of temperature and nutrition under which New Guinea impatiens thrive is fairly narrow. Although Spring is still a long way off, now may be a good time to review NGI culture.

Cultural management of NGI should be divided into two phases – establishing new transplants and growing on to sale. With newly transplanted cuttings, both temperature and water management are critical. Most often when growers lose pots in the first month after transplant, it is because of poor water or temperature management. Once plants are established, nutrient management becomes the overriding concern. Problems that develop after the first month can often be attributed to either high salts or micronutrient toxicity.

## Water management

NGI use large quantities of water but do not tolerate water logging. New transplants are susceptible to water logging until the root system becomes established, a process that typically takes 2 to 4 weeks or until the roots reach the sides of the pot. Preventing water logging begins with a well drained mix. Avoid media with high a percent of peat, over 50%, or combinations of peat and styrofoam. Media with a mix of textures such as perlite and peat, or bark, peat and perlite combinations work well. Next do not plant rooted cuttings deeper than they were in the original rooting cube – keep the rooting cube surface even with the surface of the potting medium. Finally, use the initial watering to settle the cutting into the new container, but then irrigate sparingly over the next 2 to 3 weeks. Allow the mix to dry down between each irrigation to encourage quick, unchecked root development.

Transplanting into large containers is especially challenging. With large containers such as baskets, plant roots take a longer time to grow through the large volume of potting medium and large containers are generally started early in the season when weather con-

ditions are still not optimal for rapid growth. Consequently, water logging, slow plant development and poor crop uniformity often results. Avoid problems by limiting water penetration in the initial watering to just the top zone of the potting medium or the area where the transplant roots reside. Gradually increase water penetration as the roots begin to move deeper into the pot. Alternatively, establish the transplants in 3- to 4-inch pots early in the season and then shift the larger transplants to the large volume basket as the season progresses. This is an extra step but if you routinely have a problem with NGI in baskets, it may be a step that is well worth taking.

Once established NGI will require lots of water to avoid wilting. Allowing the plants to dry down between each irrigation will prevent excessively soft, lush growth. Such plants will be better acclimated to outdoor conditions and will produce a better flower display than the lush grown plants.

## Nutrient management

NGI are efficient in the uptake of both macro and micronutrients. They are also intolerant of high soluble salt levels in the growing medium. Consequently, NGI neither require nor tolerate high fertilizer rates.

As with water, fertilize new transplants sparingly until the roots become well established. A good recommendation is to avoid soluble fertilizer applications altogether during the first 2 to 3 weeks after transplant or until the roots reach the side of the pot. The modest nutrient charge in the growing medium should provide enough nutrients to allow the plants to become established. If new transplants do require fertilizer (the nutrient charge in the mix is not adequate) apply a complete fertilizer such as a 20-10-20 formulation at 100 to 150 ppm once or twice until the plants do become established.

After plants are established, high salts often become a problem due to the chronic accumulation of nutrients over time. Soluble salt levels should not exceed an EC of 1 to 1.5 (60-80 on the UConn test). Begin fertilizing established plants using a constant liquid feed rate of 100 ppm. Gradually, increase the rate to 200 ppm as required to support increased plant size. Monitor salt levels in the medium on a regular basis to determine whether salts are accumulating, maintaining a constant level, or being depleted over time. If the concentration of soluble salts approach an EC of 2.25 it is time to leach. Generally, constant liquid feed rates for mature plants will range from 200 to 250 ppm and periodic feed rates (e.g. every other irrigation) will range from 300 to 350 ppm.

Use the same 20-10-20 fertilizer formulation previously recommended for transplants on established plants. Avoid the use of slow release fertilizers especially on newly transplanted cuttings as high salt levels may result. Well established NGI will also benefit from a periodic magnesium supplement at 8 oz of epsom salts per 100 gallons every two weeks or a constant rate of 4 oz per 100 gallon in with the regular feed. Avoid fertilizers fortified with micronutrients if micronutrients have already been added to the mix. The danger of micronutrient toxicity will be most acute at pH lower than 5.8. Generally a pH in the 5.8 to 6.5 range is ideal for NGI.

Newly transplanted NGI that are over fertilized will appear stunted. Root growth will be slow and plants will tend to wilt easily, even in moist medium. On established plants, over fertilization produces a dark green appearance with leaves that tend to cup at the margins and have a rippled surface. If high fertilizer levels persist over time, the leaf tips and edges will become brown and the stressed root system will be more susceptible to root rot disorders. In contrast, the leaves on under fertilized plants will be small and light green or yellow on cultivars with normally green leaves, or reddish on cultivars with normally purple-green leaves.

## Light and temperature

NGI's flower under both long and short day conditions but the total number of flowers produced increases as the total available light increases. Consequently, a long daily exposure to bright light produces an optimal flowering response. In the greenhouse, light intensities between 3000 and 4500 foot candles are optimal for NGI. Use shade if light intensities exceed 5000 fc. If light intensities are below the optimal range, stem stretch and reduced flowering will result. In the garden, NGI will grow best where they do not receive direct sunlight all day. Bright but indirect light for part of the day will produce the best garden performance.

Temperature control is critical for success with NGI's. NGI's grow best when average temperatures range between 60°F and 80°F. Establish new transplants by running night temperatures at 68° to 72°F and day temperatures between 70°F and 80°F. To encourage flowering, once the plants become established, reduce the night temperature to 60°F - 65°F. Avoid average temperatures below 60°F. As temperatures approach 55°F, all growth slows to a stop. Growth is maximized when average daily temperatures are in the 77°F to 80°F range, but at these temperatures flower bud initiation can become sporadic. If using a cool morning temperature dip for height control (e.g. DIF), do not allow temperatures to drop below 58°F on new transplants or 55°F on established plants.