New Guinea Impatiens Production

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New Guinea impatiens have steadily increased in popularity since their introduction into the U.S. in 1972. Today's varieties offer a wide range of flower colors as well as variegated foliage types. The versatility of this plant allows for its sale as bedding plants, 4 inch potted plants, and up to 12 inch hanging baskets.

Propagation

New Guinea impatiens are started from rooted cuttings, except for Spectra F_1 hybrids, which are grown from seed. Most cultivars are patented, so do not take cuttings of New Guinea impatiens unless you are a licensed propagator or you are certain you are growing a non-patented variety. A 3/4 to 1 inch tip cutting is the best material to propagate. Root cuttings using 72 to 75 °F bottom heat in a mist bed. Cuttings root in 8 to 18 days, depending on the variety; most well-drained substrates are adequate for propagation purposes.

Substrate Selection and Potting

Plant rooted cuttings in a well-drained substrate that does not contain a large nutrient charge; New Guineas are very susceptible to salts injury. A substrate pH of 5.8 to 6.2 is preferable for a soilless substrate. Substrates containing 20% or more mineral soil by volume should have a pH of 6.2 to 6.8. The number of cuttings per container depends on the container size and the production schedule. In general, use a single cutting for 4 and 5 inch pots; two for 6 inch pots; three to four for an 8 inch and four to five for a 10 to 12 inch basket.

Pinching

Newer New Guinea impatiens varieties are free-branching and **do not** require pinching. Pinching will delay flowering by 2 to 3 weeks. Pinching can be used as a timing device to delay flowering, if necessary.

Watering

After potting, water only with clear water (no fertilizer) for the first two weeks. New Guineas grow best if the substrate is allowed to dry out between waterings, but not to the point of severe wilting. Avoid overwatering plants throughout production.

Nutrition

Do not over fertilize New Guineas. They are susceptible to salts injury. Micronutrient toxicities can occur if substrate pH is too low. Excess micronutrients cause dieback of the growing tips, marginal necrosis of leaves, and eventual plant collapse.

Fertilization should begin once roots are visible in the soil ball at the edge of the pot. Use 100 to 150 ppm nitrogen, 50 to 75 ppm phosphorus, and 100 to 150 ppm potassium at each watering, once plants are established. If fertilizer is not applied at every watering, then use 300 to 350 ppm nitrogen, 100 ppm phosphorus, and 300 to 350 ppm potassium every third watering. Use recommended saturated media (paste) substrate tests and foliar analysis test levels for New Guinea impatiens as guides to monitor the crop's nutrient status (Tables 1 and 2).

Light

Full light is needed during winter and early spring. A minimum of 3000 to 4000 footcandles (fc) is suggested. Too low of a light level reduces variegation and color intensity in leaves and results in poor flowering. Apply shadecloth if light levels exceed 6000 fc to avoid sun burn of foliage.

Table 1. Recommended saturated media (paste) substrate test ranges for New Guinea impatiens grown in a soilless substrate.*

pH	EC	NO_3-N	NH_4-N	P	K	Ca	Mg	Na	Fe	Mn	Zn	B
5.8 to 6.2	1.5 to 2.25	75 to 125	0 to 10	5 to 10	75 to 125	100 to 200	30 to 70	0 to 20	0.3 to 3.0	0.02 to 3.0	0.3 to 3.0	0.05 to 0.5

*From the University of Minnesota. Units for EC are dS/cm (mmhos/cm). Units for all elements are ppm.

Temperature

Proper plant development requires relatively warm temperatures. After rooting, use a 65 to 68 °F night temperature and a 75 °F venting temperature. Night temperatures above 72 °F can cause a delay in flowering and should be avoided. Once plants are well established, the night temperature can be dropped to 62 to 64 °F.

Height Control

Excessive stretching is best controlled through maintaining high light levels, adequate spacing, and proper fertilization and watering practices. Many of the newest cultivars have a compact growth habit and do not require chemical height control. For cultivars that stretch, use a foliar spray of Bonzi™ at 5 to 30 ppm. New Guinea impatiens also respond to a negative DIF, and height can be controlled by maintaining slightly higher night temperatures than day temperatures.

Spacing and Scheduling

Spacing too close will result in excessive stretching. After cuttings are potted, maintain pot to pot spacing until plant canopies reach the edge of the pot. Afterwards, space out according to need (Table 3).

The timing of New Guinea impatiens depends on several factors, including cultivar, light level, temperature, number of cuttings per pot, and pot size. Use Table 3 as a guide in scheduling your New Guinea crops.

Table 2. Recommended tissue analysis standards for New Guinea impatiens.*

Macronutrients (%)	
Nitrogen	2.5 to 4.5
Phosphorus	0.3 to 0.8
Potassium	1.9 to 2.7
Calcium	1.0 to 2.0
Magnesium	0.3 to 0.8
Sulfur	0.13 to 0.75
Micronutrients (ppm)	
Iron	150 to 250
Manganese	100 to 250
Zinc	40 to 85
Copper	5 to 10
Boron	50 to 60
Mo	1 to 10

*From the University of Minnesota.

Cultivars

The number of varieties available to growers increases each year. A recent survey conducted by Clemson University concluded that growers are producing the following percentages of each flower color for their New Guinea impatiens hanging baskets: reds = 30 to 35%; pinks plus pink bicolors = 45 to 50%; lavenders = 10 to 15%; and whites = 5%. This is a good starting point in planning a marketing mix for colors. The problem arises when trying to determine the percentage of leaf colors and variegations. Table 4 lists many of the currently available cultivars to assist in cultivar selection. The final column in Table 4 indicates the landscape

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Table 3. Spacing and scheduling recommendations for New Guinea impatiens.

Pot or basket size (inches)	Spacing (inches)	Number of cuttings per container	Weeks to to finish
4	7 × 7	1	6 to 8
5	8 × 8	1	7 to 9
6	10 × 10	2	8 to 10
8	14 × 14	3	8 to 10
10	18 × 18	4	12 to 14
12	20 × 20	5	12 to 14

Table 4. New Guinea impatiens cultivars sorted by flower color and cultivar.

Flower Color	Series[z]	Cultivar	Leaf Color	Variegated Foliage?[y]	Growth Habit[x]	Landscape Rating[w]
White	Twice As Nice	Allegro	Medium Green	No	2	
White	Mikkel Sunshine	Cirrus	Medium Green	Yes	4	2.2
White	Lasting Impressions	Innocence	Dark Green	Slight	3	2.8
White	Mikkel Sunshine	Milkyway	Medium Green	Yes	3	3.5
White	Paradise	Moorea	Medium Green	No	2	2.6
White	Celebration	Pure White	Medium Green	No	2	3.4
White	Danziger	Waltz	Medium Green	No	3	2.1
White	Patriot	White	Medium Green	No	3	
White	Pot O' Gold	White	Medium Green	No	2	
White	Spectra	White	Dark Green	Yes	2	2.8
White */ Pink Eye	Celebration	Blush White	Medium Green	No	2	4.1
White */ Pink Eye	Paradise	Samoa	Medium Green	No	3	4.1
Light Pink	Twice As Nice	Canon	Medium Green	No	2	
Light Pink	Mikkel Sunshine	Equinox	Bronze	Yes*	3	3.4
Light Pink	Lasting Impressions	Illusion	Medium Green	No	4	4.6
Light Pink	Spectra	Light Pink Shades	Medium Green	Yes	3	2.1
Light Pink	Bull	Melanie	Dark Green	No	3	3.4
Light Pink	Patriot	Soft Pink	Medium Green	No	3	
Light Pink */ Fuchsia Eye	Celebrette	Apple Blossom	Medium Green	No	1	
Pink	Pure Beauty	Aglia	Medium Green	Yes**	3	
Pink	Bull	Barbara	Medium Green	No	2	1.4
Pink	Celebration	Deep Pink	Dark Green	No	2	3.7
Pink	Mikkel Sunshine	Gemini	Medium Green	Yes	5	3.3
Pink	Pure Beauty	Kallima	Bronze	No	2	1.9
Pink	Twice As Nice	Minuet	Medium Green	No	2	
Pink	Patriot	Pink	Medium Green	No	3	
Pink	Pot O' Gold	Pink	Medium Green	No	2	
Pink	Lasting Impressions	Rosetta	Dark Green	No	3	2.3
Pink	Twice As Nice	Waltz	Medium Green	No	2	
Dark Pink	Pure Beauty	Apollon	Dark Green	No	5	
Dark Pink	Paradise	Bonaire	Dark Green	No	3	2.9
Dark Pink	Danziger	Dandin	Dark Green	No	4	3.6
Dark Pink	Danziger	Dangal	Medium Green	No	3	4.9
Dark Pink	Pure Beauty	Dark Delias	Medium Green	No	1	4.2
Dark Pink	Bull	Doerte	Dark Green	No	3	2.0
Dark Pink	Celebration	Electric Pink	Dark Green	No	3	4.0
Dark Pink	Mikkel Sunshine	Enterprise	Dark Green	Yes	4	0.0
Dark Pink	Twice As Nice	Etude	Medium Green	No	2	
Dark Pink	Pure Beauty	Melissa	Dark Green	No	3	
Dark Pink	Patriot	Pink Salmon	Medium Green	No	2	
Pink */ Rose Bicolor	Celebration	Candy Pink	Dark Green	No	3	2.9

Table 4, Continued.

Flower Color	Series[z]	Cultivar	Leaf Color	Variegated Foliage?[y]	Growth Habit[x]	Landscape Rating[w]
Pink */ Rose Bicolor	Twice As Nice	Duet	Medium Green	No	2	
Pink */ Rose Bicolor	Lasting Impressions	Impulse	Medium Green	No	3	4.9
Pink */ Fuchsia Bicolor	Paradise	Guadeloupe	Dark Green	No	2	
Pink */ Fuchsia Bicolor	Liberty	Lilac & Red	Dark Green	No	4	
Pink */ Fuchsia Bicolor	Pot O' Gold	Purple Bicolor	Dark Bronze	No	2	
Pink */ Red Eye	Paradise	Tahiti	Medium Green	No	2	
Pink */ Red Bicolor	Pure Beauty	Octavia	Medium Green	No	4	
Pink */ Red Bicolor	Paradise	Pago Pago	Dark Green	No	2	3.8
Pink */ Lavender Bicolor	Paradise	Tonga	Dark Bronze	No	1	
Pink */ Purple Eye	Danziger	Danlight	Dark Green	No	4	2.9
Light Salmon	Celebration	Light Salmon	Medium Green	Yes	3	5.0
Lt. Salmon */ White Eye	Celebrette	Peach	Bronze	No	1	
Salmon	Paradise	Grenada	Dark Green	No	2	3.0
Salmon	Celebration	Salmon	Medium Green	Yes	3	5.0
Salmon	Pot O' Gold	Salmon	Bronze	No	2	
Salmon	Liberty	Salmon Orange	Dark Green	No	3	
Salmon	Spectra	Salmon Shades	Medium Green	No	3	2.2
Dark Salmon	Celebration	Bright Coral	Dark Green	No	3	5.0
Dark Salmon	Celebration	Deep Coral	Bronze	Yes	3	4.1
Salmon Pink	Lasting Impressions	Cameo	Medium Green	Slight	4	3.1
Salmon Coral	Bull	Inge	Bronze	No	2	0.0
Salmon Coral	Bull	Rosemarie	Dark Green	No	3	1.4
Salmon Orange	Lasting Impressions	Charade	Dark Green	No	2	2.5
Salmon Orange	Danziger	Danshir	Dark Green	No	2	3.7
Orange	Lasting Impressions	Ambrosia	Dark Green	No	4	3.4
Orange	Lasting Impressions	Escapade	Dark Green	No	3	5.0
Orange	Bull	Mathilde	Dark Bronze	No	3	2.5
Orange	Mikkel Sunshine	Nebulous	Dark Green	No	4	4.9
Orange	Celebration	Orange	Medium Green	No	3	
Orange	Patriot	Orange	Medium Green	No	3	
Orange	Pot O' Gold	Orange	Bronze	No	2	
Orange	Twice As Nice	Sonata	Medium Green	No	2	
Orange	Paradise	Timor	Dark Green	No	1	5.0
Orange	Mikkel Sunshine	Zenith	Medium Green	Yes	3	2.4
Dark Orange	Paradise	Antigua	Medium Green	No	3	
Dark Orange	Celebration	Bonfire Orange	Dark Bronze	No	2	4.4
Dark Orange	Pure Beauty	Marpesia	Dark Bronze	No	3	
Dark Orange	Mikkel Sunshine	Nova	Dark Green	Yes	2	2.8
Dark Orange	Bull	Suzanne	Medium Green	No	4	2.5
Dark Orange	Paradise	Tanna	Dark Green	No	3	1.9
Orange */ Fuchsia Eye	Celebrette	Orange Crush	Dark Green	No	1	

Table 4, Continued.

Flower Color	Series[z]	Cultivar	Leaf Color	Variegated Foliage?[y]	Growth Habit[x]	Landscape Rating[w]
Orange "/ White Bicolor	Lasting Impressions	Tempest	Dark Green	Yes	1	1.2
Orange "/ Pink Bicolor	Lasting Impressions	Ambience	Medium Green	No	3	2.4
Orange "/ Salmon Bicolor	Mikkel Sunshine	Sunburst	Bronze	Slight	3	3.5
Orange "/ Salmon Bicolor	Mikkel Sunshine	Sunglow	Dark Green	Yes	1	1.4
Orange "/ Salmon Bicolor	Mikkel Sunshine	Twilight	Bronze	Yes	3	1.0
Orange "/ Red Bicolor	Danziger	Danova	Dark Bronze	No	3	1.9
Orange "/ Red Bicolor	Pot O' Gold	Red Bicolor	Dark Bronze	No	2	
Rose	Celebration	Rose	Medium Green	No	3	
Rose	Spectra	Rose Shades	Medium Green	Slight	3	2.0
Fuchsia	Paradise	Papete	Medium Green	No	1	
Fuchsia	Mikkel Sunshine	Pulsar	Dark Green	Yes	3	3.6
Fuchsia	Mikkel Sunshine	Radiance	Medium Green	Yes	2	4.6
Fuchsia Red	Bull	Anna	Dark Green	No	3	1.1
Fuchsia "/ Purple Eye	Celebrette	Hot Rose	Medium Greeen	No	1	
Red	Pure Beauty	Anaea	Medium Green	No	3	
Red	Celebration	Bright Scarlet	Medium Green	No	2	5.0
Red	Celebrette	Cherry	Dark Green	No	1	
Red	Celebration	Cherry Red	Medium Green	No	4	
Red	Danziger	Danhill	Medium Green	No	4	3.3
Red	Celebration	Deep Red	Dark Green	No	2	
Red	Bull	Karina	Dark Green	No	2	1.9
Red	Paradise	Lanai	Medium Green	No	3	
Red	Twice As Nice	Largo	Medium Green	No	2	
Red	Paradise	Martinique	Medium Green	No	2	2.6
Red	Lasting Impressions	Masquerade	Dark Bronze	No	3	
Red	Mikkel Sunshine	Mirach	Medium Green	Yes	3	4.2
Red	Pure Beauty	Prepona	Dark Green	No	2	1.6
Red	Celebration	Red	Dark Green	No	3	4.9
Red	Patriot	Red	Medium Green	No	2	
Red	Pot O' Gold	Red	Medium Green	No	2	
Red	Spectra	Red Shades	Medium Green	No	3	3.2
Red	Danziger	Rhondo	Medium Green	No	3	2.0
Red	Celebrette	Scarlet	Medium Green	No	1	
Dark Red	Lasting Impressions	Blazon	Dark Green	Slight	3	3.1
Dark Red	Patriot	Dark Red	Dark Green	No	3	
Red "/ Pink Bicolor	Celebration	Apple Star	Dark Green	Slight	4	1.8
Red "/ Pink Bicolor	Celebration	Cherry Star	Dark Bronze	No	2	2.9
Lavender	Twice As Nice	Baroque	Medium Green	No	2	
Lavender	Danziger	Flamenco	Medium Green	No	3	1.8
Lavender	Lasting Impressions	Heathermist	Dark Green	No	3	3.4
Lavender	Celebrette	Lavender	Medium Green	No	1	

Table 4, Continued.

Flower Color	Series[z]	Cultivar	Leaf Color	Variegated Foliage?[y]	Growth Habit[x]	Landscape Rating[w]
Lavender	Liberty	Lavender	Dark Green	No	2	
Lavender	Patriot	Lavender	Medium Green	No	3	
Lavender	Celebration	Light Lavender	Medium Green	Yes	4	4.8
Lavender	Celebration	Light Lavender II	Medium Green	No	3	
Lavender	Lasting Impressions	Serenade	Medium Green	No	3	3.6
Lavender	Lasting Impressions	Tiffany	Dark Green	No	3	
Purple	Paradise	Anguilla	Dark Green	No	2	
Purple	Paradise	Aruba	Dark Green	No	1	
Purple	Paradise	Bora-Bora	Medium Green	No	2	
Purple	Danziger	Danserra	Dark Green	No	2	2.5
Purple	Celebrette	Grape Crush	Medium Green	No	1	
Purple	Patriot	Lilac	Medium Green	No	2	
Purple	Celebration	Purple	Medium Green	No	3	
Purple	Danziger	Samba	Dark Green	No	3	1.6
Purple	Patriot	Violet	Medium Green	No	3	
Purple	Pot O' Gold	Violet	Bronze	No	2	
Dark Purple	Patriot	Purple Lilac	Medium Green	No	3	
Dark Purple	Lasting Impressions	Rhapsody	Medium Green	No	4	1.7
Purple Rose	Celebration	Raspberry Rose	Medium Green	No	2	4.5
Purple Red	Danziger	Lambada	Bronze	No	2	4.3
Purple Lavender	Mikkel Sunshine	Antares	Medium Green	Slight	2	3.9
Purple [v]/ Lavender Bicolor	Celebration	Purple Star	Bronze	No	3	
Purple [v]/ Lavender Bicolor	Lasting Impressions	Shadow	Dark Green	No	3	2.8
Purple [v]/ Lavender Bicolor	Mikkel Sunshine	Sunregal	Dark Green	Slight	1	3.1

[z]Bull series is a product of Gartenbau Norbert Bull, Goennebek, Germany.
Celebration and Celebrette series are products of Ball FloraPlant, West Chicago, Illinois.
Danziger series is a product of Dan Flower Farm, Beit Dagan, Israel.
Lasting Impressions™, Mikkel® Sunshine™, Pot O' Gold™ and Twice as Nice™ series are products of Mikkelens, Inc., Ashtabula, Ohio.
Liberty and Patriot are products of Dümmen USA, Vancouver, Washington.
Paradise® and Pure Beauty™ series are products of Kientzler Jungpflanzen, Gensingen, Germany.
Spectra™ series is a product of PanAmerican Seed Company, West Chicago, Illinois.

[y]Foliage is either non-variegated (No); has white variegation that is prominent (Yes) or slight (Slight); has red variegation (Yes*); or has yellow variegation (Yes**).

[x]The growth habit number indicates how the cultivar develops in the greenhouse during production. The rating ranges from 1 (very compact) to 5 (very vigorous).

[w]Landscape ratings were conducted at Clemson University in a full sun situation. The rating ranges from 5.0 (excellent flowering) to 0 (very poor flowering). Cultivars lacking a landscape rating were not included in the evaluation.

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performance of many of the cultivars. The performance ratings are from a study conducted at Clemson University in the summer of 1994 under full-sun conditions. These ratings should assist growers in selecting cultivars best suited for the Southeastern landscape.

Insect and Related Pests

The main pest problems of New Guinea impatiens are the two-spotted spider mite, cyclamen mite, and western flower thrips. Western flower thrips is the most serious pest on New Guineas, as they serve as a vector for Impatiens Necrotic Spot Virus (INSV; formerly called Tomato Spotted Wilt Virus), a destructive disease. Thrips can spread this virus to susceptible species throughout a greenhouse, including New Guinea impatiens, garden impatiens, gloxinias, cyclamen, gerbera daisies, and many other floricultural crops. Careful routing of infected plants, monitoring of sticky cards, frequent inspection of flowers to check for the presence of thrips, and thorough spraying are essential in controlling thrips and INSV.

Other insects that can be a problem include fungus gnats, mealybugs, and aphids. Consult the current year's N.C. Agricultural Chemical Manual for suggested control measures for all of these pests.

Diseases

Impatiens Necrotic Spot Virus is the most serious disease on New Guinea impatiens. It starts as foliar and stem lesions and eventually destroys the marketability of plants. The only control is prevention via purchasing plants from reliable propagators, rouging infected plants, and control of the vector, western flower thrips.

Botrytis blight can be a serious disease on New Guinea impatiens. Too cool night temperatures and / or too high relative humidity can increase the severity and incidence of *Botrytis*, so maintain at least 62 °F night temperatures and vent to reduce humidity in the greenhouse whenever possible. The other major above-ground disease is *Rhizoctonia* stem rot and web blight.

Root rot caused by *Pythium* spp. or *Phytophthora* spp. also affect New Guinea production. Avoid overwatering plants as a water-soaked substrate can increase the incidence of root rot. Consult the current year's N.C. Agricultural Chemical Manual for control measures for the diseases mentioned above.

For Further Information

Contact your County Cooperative Extension Center for related Horticulture Information Leaflets, Ornamental Disease Notes, and Ornamental and Turf Integrated Pest Management Insect Notes. Also consult the current edition of the N.C. Agricultural Chemicals Manual for pest and disease control recommendations. Other general information sources on New Guinea impatiens production used in the development of this article include:

Ecke, P. 1994. New Guinea impatiens cultural information guide. Paul Ecke Ranch, Encinitas, California.

Erwin, J. 1992. New Guinea impatiens production. Minnesota Commercial Flower Growers Association Bulletin. 41(3):1–15.

Mikkelsen, E. 1994. Cultural information for New Guinea impatiens. Mikkelsens, Inc., Ashtabula, Ohio.

Miller, W.B. and M.S. Williams. 1994. 1994 New Guinea impatiens landscape trials. South Carolina Greenhouse Newsletter. 8(5):8–10.

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