

NO-RISK COLOR FOR THE SHADE

BEACON™

IMPATIENS

NEW BEACON™ IMPATIENS

High resistance to Impatiens downy mildew!

PanAmerican Seed® provides you with the solution to bring *Impatiens walleriana* back into production without the risk of disease! NEW Beacon Impatiens offers high resistance to the currently known and widely prevalent populations of *Plasmopara obducens*, which cause Impatiens downy mildew.

This new series also offers similar plant structure, flowering time, flower size and crop culture to Super Elfin® Impatiens, so they are easy to include in production.

For fast-filling season-long color, you can rely on Beacon to thrive in gardens and landscapes.

Visit BeaconImpatiens.com for more information.

beacon noun
bea·con | /'bēkən

a source of light
and inspiration

PanAmericanSeed®

NO-RISK COLOR FOR THE SHADE

NEW BEACON IMPATIENS AND PANAMERICAN SEED® SHINE THE LIGHT ON OI!



**OSTEOGENESIS
IMPERFECTA**
OI
FOUNDATION

In the spirit of bringing light - and happiness - back to shade gardens all over the world, **PanAmerican Seed** will donate 3% of Beacon Impatiens global sales to a less-widely known charitable organization. For 2019 and 2020, our chosen charity is the Osteogenesis Imperfecta (OI) Foundation. OI, also known as "brittle bone disease,"

is a genetic bone disorder characterized by fragile bones that break easily.

It is estimated that approximately 25,000 to 50,000 people in the United States alone have OI. The donation will go toward helping The OI Foundation improve the quality of life for those living with osteogenesis imperfecta through research, education, awareness and mutual support.

Beacon is putting the next generation of Impatiens to work for others as well.

To find out how you can help, visit oif.org.

Get your no-risk disease-resistant impatiens!

Order NEW Beacon seed or plugs from your preferred supplier today.

Panamseed.com makes it easier for you to grow

USA: +1-630 231-1400 / 800 231-7065

The Netherlands: +31 (0) 228-541-844



Visit panamseed.com for current Terms & Conditions of Sale.

© 2019 Ball Horticultural Company 19148-01

™ denotes a trademark of and ® denotes a registered trademark of Ball Horticultural Company in the U.S., unless otherwise noted. They may also be registered in other countries.

PanAmerican Seed®

NO-RISK COLOR FOR THE SHADE

BEACON™

IMPATIENS

WHAT IS IMPATIENS DOWNY MILDEW?

A destructive disease caused by an Impatiens host-specific water mold, *Plasmopara obducens*.

NEW BEACON™ IMPATIENS offers high resistance to Impatiens downy mildew!

PLASMOPARA OBDOCENS



airborne sporangia



survival oospores (soil)

THE DISEASE CYCLE OF IMPATIENS DOWNY MILDEW

Under high humidity, aerial sporangia release from structures on the underside of the leaf and can be dispersed long distances by wind or short distances by splashing water.

Cool temperatures (60°F/15°C) and high humidity >85%, especially at night, are ideal for rapid disease development. Moist air, rainy weather or irrigation practices that extend the amount of time moisture remains on the leaves also encourage the development and expression of downy mildew. Oospores that form inside infected tissues have the potential to overwinter in the ground and re-infect impatiens sown or replanted into the bed the following year.

INTERNATIONAL SEED FEDERATION (ISF) DEFINITION OF TERMS

The ability of a pest to cause disease in or damage to a plant depends on environmental conditions, the properties of the organism itself and the capacity of the plant to defend itself. Plant varieties within a species can differ in their ability to defend themselves. Under different conditions, such as age of the plant, pest pressure and degree of virulence or adverse environmental conditions, the interaction between the same plant variety and pest may have different outcomes.

To promote consistency in the terms used to describe the reaction of a plant to a pest, ISF Vegetable and Ornamental Crops Section has defined and recommends the use of the following terms within the vegetable seed industry.

Susceptibility is the inability of a plant variety to restrict the growth and/or development of a specified pest.

Resistance is the ability of a plant variety to restrict growth and/or development of a specified pest and/or the damage it causes when compared to susceptible plant varieties under similar environmental conditions and pest pressure. Two levels of resistance are defined: High Resistance and Intermediate Resistance.

Immunity is when a plant is not subject to attack or infection by a specified pest. For example, zinnias are immune to Impatiens downy mildew.

High Resistance refers to plant varieties that highly restrict the growth and/or development of the specified pathogen and/or the damage it causes under normal pressure when compared to susceptible varieties under similar environmental conditions and pathogen pressure. These plant varieties may, however, exhibit some symptoms or damage under heavy disease pressure.

Intermediate Resistance refers to plant varieties that restrict the growth and/or development of the specified pathogen and/or the damage it causes, but they may exhibit a greater range of symptoms or damage compared to high-resistant varieties. Intermediate-resistant plant varieties will show less severe symptoms or damage than susceptible varieties under similar environmental conditions and/or pathogen pressures.

Tolerance is not recognized by ISF. This references abiotic stressors, such as wind and sun.

IMPATIENS DOWNY MILDEW DISEASE RESISTANCE SCREENING

Inoculation of plants:

Seedlings and young plants are challenged by aerial inoculation of sporangia under high disease pressure in controlled environmental conditions using characterized isolates of *Plasmopara obducens*.

Resistance screens are conducted in greenhouses in Venhuizen, The Netherlands and Elburn, IL and in the Ball Helix Pathology Laboratory in West Chicago, IL.

All hybrids are screened a minimum of 10 times.

Observations of field resistance align with lab/greenhouse results.

PanAmerican Seed®

Get your no-risk disease-resistant impatiens!

Order NEW Beacon seed or plugs from your preferred supplier today.

Panamseed.com makes it easier for you to grow

USA: +1-630 231-1400 / 800 231-7065

The Netherlands: +31 (0) 228-541-844

HIGH RESISTANCE IS NOT IMMUNITY

What does this mean?

Per the definition of High Resistance, plant varieties may exhibit some symptoms or damage under heavy disease pressure. This means it may be possible to see some leaf discoloration and limited sporulation under adverse environmental conditions and high pathogen pressure. Plants may abscise the affected leaves, but the plant will continue to live and thrive.



Super Elfin® XP Violet (Top) vs. Beacon™ Violet Shades



Beacon™ Orange (Top) vs. Super Elfin® Bright Orange



Possible to see some leaf discoloration; there may be some limited sporulation under high disease pressure.

Plants may abscise the infected leaves, but the plant will continue to live and thrive.

EXAMPLE OF YOUNG PLANT SCREEN



From Left to Right: Four Beacon™ varieties and one Super Elfin® XP variety.

Inset: Sporulation on Commercial Variety

Visit panamseed.com for current Terms & Conditions of Sale.

© 2019 Ball Horticultural Company 19148-04

™ denotes a trademark of and ® denotes a registered trademark of Ball Horticultural Company in the U.S., unless otherwise noted. They may also be registered in other countries.

NO-RISK COLOR FOR THE SHADE

BEACON™

IMPATIENS

TRIAL RESULTS

GREENHOUSE DEMONSTRATIONS

4 weeks after inoculation, Beacon™ is thriving,
Venhuizen, NL Week 9, 2018



Super Elfin® XP Salmon vs. Beacon™ Coral



Super Elfin® Bright Orange vs. Beacon™ Orange



Super Elfin® XP White vs. Beacon™ White

5 weeks after inoculation, Beacon™ is thriving,
Elburn, IL Week 31, 2018



Beacon™ White

NEW BEACON™ IMPATIENS

HIGH RESISTANCE TO IMPATIENS DOWNY MILDEW!

TRIAL RESULTS

LANDSCAPE/FIELD DEMONSTRATIONS NATURAL INFECTION

7 weeks after transplant, Beacon™ is thriving,
Elburn, IL Week 32, 2018



Super Elfin® XP White



Beacon™ White

11 weeks after transplant, Beacon™ is thriving,
Venhuizen, NL Week 36, 2018



Super Elfin® XP White vs. Beacon™ White



Super Elfin® XP Salmon vs. Beacon™ Coral

PanAmerican Seed®

Get your no-risk disease-resistant impatiens!

Order NEW Beacon seed or plugs from your preferred supplier today.

Panamseed.com makes it easier for you to grow

USA: +1-630 231-1400 / 800 231-7065

The Netherlands: +31 (0) 228-541-844

In both field trials, no Impatiens downy mildew preventative fungicides were ever applied to the plant material.

Visit panamseed.com for current Terms & Conditions of Sale.

© 2019 Ball Horticultural Company 19148-05

™ denotes a trademark of and ® denotes a registered trademark of Ball Horticultural Company in the U.S., unless otherwise noted. They may also be registered in other countries.

NO-RISK COLOR FOR THE SHADE

BEACON™

IMPATIENS

NEW BEACON™ IMPATIENS

High resistance to Impatiens downy mildew!

Bring *Impatiens walleriana* back into production without the risk of disease! Beacon has high resistance to the currently known and widely prevalent populations of *Plasmopara obducens*, which cause Impatiens downy mildew. Plus, it flowers all Summer long, with fast-filling color for gardens and landscapes.

For lasting color, you can rely on Beacon to thrive.

Visit BeaconImpatiens.com for more information.



Beacon Coral (R) outperforms a susceptible competing variety (L) in a side-by-side field trial in Venhuizen, the Netherlands in Summer 2018.

PanAmerican Seed®

NEW BEACON™ IMPATIENS

HIGH RESISTANCE TO IMPATIENS DOWNY MILDEW!

PanAmerican Seed® is thrilled to re-invigorate garden impatiens with its new series of *I. walleriana* that has proven high resistance to Impatiens downy mildew.

IMPATIENS 
Impatiens walleriana

New Beacon™ Series F1



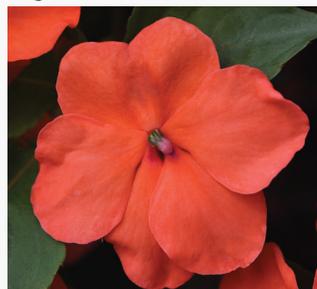
**PRO LANDSCAPE
PERFORMER**



Bright Red US PAF



Violet Shades US PAF



Salmon US PAF



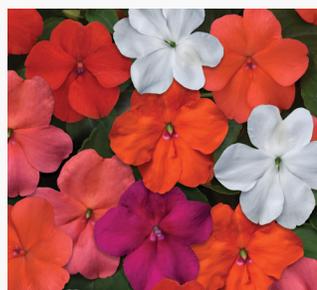
Orange US PAF



White US PAF



Coral US PAF



Select Mixture US PAF



Red White Mixture US PAF

NEW Beacon Impatiens has high resistance to the currently known and widely prevalent populations of *Plasmopara obducens*, which cause Impatiens downy mildew, offering the opportunity to bring back into production a well-known, in-demand, easy-to-grow and versatile product for gardens and landscapes.

Plus, Beacon has a plant structure, flowering time, flower size and crop culture that is similar to Super Elfin®, so it is easy to incorporate into production planning.

With season-long performance and fast fill in gardens and landscapes, Beacon brings color to the shade ... without the risk!

Height: 10 to 12 in./25 to 30 cm

Spread: 12 to 14 in./30 to 36 cm

Flower size: 1.25 to 1.5 in./3 to 4 cm

Seed supplied as: Raw

Plug crop time: 4 to 5 weeks

Transplant to finish: 3 to 4 weeks

New Bright Red

A warm-toned red on upright mounded, moderately vigorous plants with mid-green foliage. Plant vigor is slightly larger than Super Elfin XP Red, and the flower size is slightly smaller.

New Coral

Coral-pink flowers on mid-vigor, mounded plants with bright green foliage.

New Orange

A bright, clean orange on moderate-vigor, upright mounded plants with bright green foliage. Plant height, vigor and flower size are similar to Super Elfin Bright Orange.

New Salmon

A warm salmon-orange flower on mid-vigor, mounded plants with bright green foliage.

New Violet Shades

Shades of bright violet and burgundy-violet on moderate-vigor, upright mounded plants with mid-green foliage. More vigorous with the same flower size as Super Elfin XP Violet.

New White

Pure white flowers on moderately vigorous, upright mounded plants with mid-green foliage. Features more plant vigor with the same flower size as Super Elfin XP White.

New Red White Mixture

Bright Red, White.

New Select Mixture

Bright Red, Coral, Orange, Salmon, Violet Shades, White

Get your no-risk disease-resistant impatiens!

Order NEW Beacon seed or plugs from your preferred supplier today.

Panamseed.com makes it easier for you to grow

USA: +1-630 231-1400 / 800 231-7065

The Netherlands: +31 (0) 228-541-844

PanAmerican Seed®

Visit panamseed.com for current Terms & Conditions of Sale.

© 2019 Ball Horticultural Company 19148-02

™ denotes a trademark of and ® denotes a registered trademark of Ball Horticultural Company in the U.S., unless otherwise noted. They may also be registered in other countries.

NO-RISK COLOR FOR THE SHADE

BEACON™

IMPATIENS

NEW BEACON™ IMPATIENS

High resistance to Impatiens downy mildew!

PanAmerican Seed® provides you with the solution to bring *Impatiens walleriana* back into production without the risk of disease! NEW Beacon Impatiens offers high resistance to the currently known and widely prevalent populations of *Plasmopara obducens*, which cause Impatiens downy mildew.

This new series also offers similar plant structure, flowering time, flower size and crop culture to Super Elfin® Impatiens, so they are easy to include in production.

For fast-filling season-long color, you can rely on Beacon to thrive in gardens and landscapes.

Visit BeaconImpatiens.com for more information.

PanAmerican Seed®

NEW BEACON™ IMPATIENS SERIES

HIGH RESISTANCE TO IMPATIENS DOWNY MILDEW!

PanAmerican Seed® is thrilled to re-invigorate garden impatiens with its new series of *I. walleriana* that has proven high resistance to Impatiens downy mildew.

Plug crop time: 4 to 5 weeks
Transplant to finish: 3 to 4 weeks

GENERAL INFORMATION

Exposure:

Shade, Partial Shade, Sun

Bloom Season:

Spring-Summer

Height:

8-10 in. (20-25 cm)

Spread:

12-14 in. (30-36 cm)

Spacing:

8-10 in. (20-25 cm)

GERMINATION

Seed Form:

RAW

Recommended Plug Size:

288

Seeds/Cell:

1

Plug Crop Weeks:

4-5

Days to Germinate:

3-5

Initial Media pH/EC:

6.0-6.2 pH

0.5-0.75 mmhos/cm

Cover Seed:

No

GROWING ON TO FINISH

Growing on Temperature:

(day) 70-75°F (21-24°C)

(night) 62-68°F (17-20°C)

Target Media pH/EC:

6.2-6.5 pH

0.75-1.0 mmhos/cm

Fertilizer:

Less than 100 ppm N

Less than 0.7 EC

Daylength:

Day Neutral

PLUG PRODUCTION

| | STAGE 1 | STAGE 2 | STAGE 3 | STAGE 4 |
|--------------------|----------------------|--|--|--|
| Moisture | Level 4-5 | Level 2-4 | Level 2-3 | Level 2-3 |
| Temperature | 72-76°F (22-24°C) | 70-72°F (21-22°C) | 68-70°F (20-21°C) | 62-65°F (17-18°C) |
| Light | Optional | 450-700 f.c. (4,800-7,500 Lux) | 450-700 f.c. (4,800-7,500 Lux) | 450-700 f.c. (4,800-7,500 Lux) |
| Fertilizer | | Less than 100 ppm N - Less than 0.7 EC | Less than 100 ppm N - Less than 0.7 EC | Less than 100 ppm N - Less than 0.7 EC |

CROP SCHEDULING

| CONTAINER SIZE | PLUGS/POT | CROP TIME | SEASON | PGR |
|------------------------|-----------|--------------|--------|-----|
| Cell Pack | 1 (ppp) | 3-4 (weeks) | Spring | - |
| 4"/4.5"/Quart | 1 (ppp) | 4-5 (weeks) | Spring | - |
| 10" Pot or HB/3 Gallon | 3-5 (ppp) | 8-10 (weeks) | Spring | - |

PROPAGATION KEY TIPS

Do not cover seed.

FINISHING KEY TIPS

Impatiens will respond to daminozide, paclobutrazol and uniconazole. Monitoring of water and fertilization can help with controlling plant growth and vigor.

NOTE: Growers should use the information presented here as guidelines only. PanAmerican Seed recommends that growers conduct a trial of products under their own conditions. Crop times will vary depending on the climate, location, time of year, and greenhouse environmental conditions. It is the responsibility of the grower to read and follow all the current label directions relating to the products. Nothing herein shall be deemed a warranty or guaranty by PanAmerican Seed of any products listed herein. PanAmerican Seed's terms and conditions of sale shall apply to all products listed herein.

PanAmerican Seed®

Get your no-risk disease-resistant impatiens!

Order NEW Beacon seed or plugs from your preferred supplier today.

Panamseed.com makes it easier for you to grow

USA: +1-630 231-1400 / 800 231-7065

The Netherlands: +31 (0) 228-541-844

Visit panamseed.com for current Terms & Conditions of Sale.

™ denotes a trademark of and ® denotes a registered trademark of Ball Horticultural Company in the U.S., unless otherwise noted. They may also be registered in other countries.