Calibrachoa: interspecific hybrid selections 20080512x6 and 20060912x1

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Taxonomy

- Family: Solanaceae
- Genus: *Calibrachoa*
- Species:
  - interspecific hybrid 20080512x6
    - Hybrid pedigree: *C. caesia* x *C. longistila* (native species)
  - interspecific hybrid 20060912x1
    - Hybrid pedigree: *C. linearis* (native species) x Callie Scarlet (commercial variety)
- Common Names: Mini petunia, Million Bells, Wild petunia, Seaside petunia
- Synonyms: *Leptophragma* Benth. Ex Dunal, *Stimomphis* Raf.

Geographic Distribution

- South America, North America
  - Brazil is the center of diversity
    - Paraná, Santa Catarina, and Rio Grande do Sul
  - Argentina, Chile
  - Brazil spans the equator and the Tropic of Capricorn
  - Brazil's highest point is 2,994m
  - Brazil's lowest point is 0m at the Atlantic Ocean
  - No tendency to become invasive
  - Brazil has tropical and temperate regions. Calibrachoa is more common in the temperate areas.

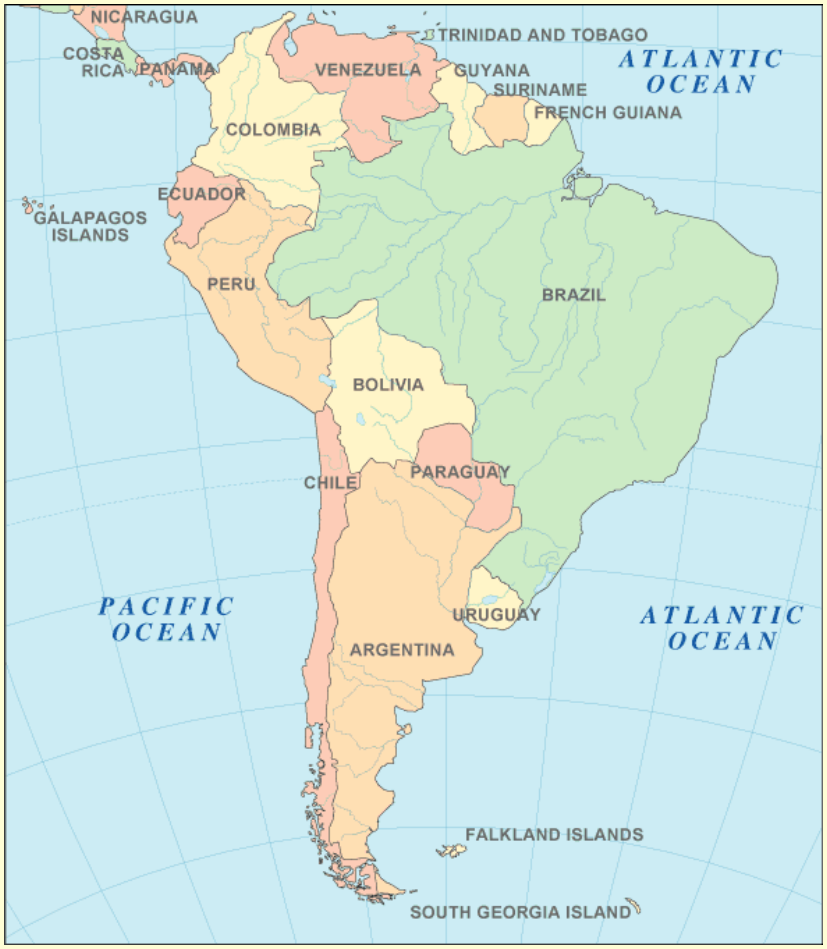

Photo: www.world-atlas.us/south-america.htm

Native Habitat

Photo: www.delange.org/SeasidePetunia/SeasidePetunia.htm

- Southern Brazil to northern Argentina
- Temperate Climate
  - Few species found in subtropical climate
- Few extremes of temperature or precipitation
- Other native species examples:
  - *Araucaria, Ascrepias, Cestrum, Chorisia, Cypella, Erythrina, Herbertia, Heliconia, Hydrockleys, Ipheion, Jacaranda, Oxalix, Oxypetalum, Passiflora, Peperomia, Sesbania, Tabebuia, Tibouchina*.

Taxonomic Description

- Closely related to petunia
- Compact, low growing, trailing or upright
- Height 4-6” to 10-15”
- Fibrous roots
- Fine, fuzzy foliage and tender stems
- Flowers are trumpet shape with range of colors
  - Blue, purple, orange, yellow, pink, red, white
- Bloom spring to frost
- Increasingly popular bedding plant
  - Containers and hanging baskets
  - Full color
  - Long flowering period

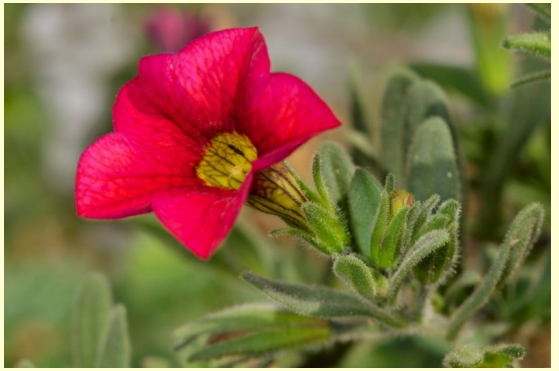

Photo: http://commons.wikimedia.org/wiki/File:Calibrachoa_flower_red.jpg

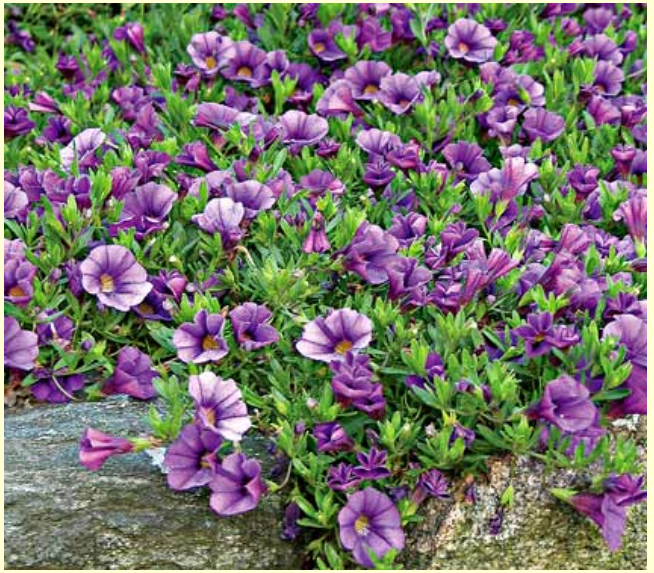

Photo: www.whiteflowerfarm.com/71025-product.html

Cultivars on the Market

- First release in 1992
- Too many cultivars to describe them all!
- Some of the most common cultivars are:
  - Million Bells: Introduced by Suntory. Vigorous, cold hardy, prolific
  - Superbells series: Produced by Proven Winners. Heat tolerant and low maintenance
  - MiniFamous series: Produced by Selecta First Class. Includes double flower series.

Propagation Methods

- Veg production
  - All but one species (*P. parviflora*) are self incompatible
  - Flowers produce little seed
- Many producers of calibrachoa plugs
  - Ecke Ranch, North Carolina Farms, Inc., and Agrich.
- General production recommendations:
  - One cutting per cell in 72, 84, or 105 plug tray
  - Well draining media
  - Provide bottom heat (70-75°F), cool with mist
  - Rooting may improve with up to 2500ppm IBA or 500ppm NAA
  - Pinch if necessary
  - Average 6 weeks to root
  - Provide full sun and high light
  - One pinch at planting

Crop Ideotype

- Emphasis on mitigating cultural requirements
  - Improve pH tolerance
  - Improve high heat tolerance
  - Shorten production schedule
  - Improve hardiness
  - Minimize chlorotic response to iron deficiency
- Little concern with
  - Color
  - Habit
  - Appearance factors

Market Niche

- Target spring sales (May)
- Holidays
  - Mother's Day
  - Memorial Day and 4th of July
- Little value year round
- Competitors
  - Petunias and other hanging basket crops (dichondra or ipomoea)
- Challenge
  - Distinguishing from petunia
  - Requires good marketing
- Potential problems
  - Sensitive to pH
  - Can die-out in the center, mid summer
- Known to growers and gardeners, but not the average person
- New cultivars could be produced in one growing season

Photos: http://www.hmaplants.com/prod/index.php?token=95

Cultural Requirements

- Perennial in zones 9-11
- Heat and Drought tolerant
- 65-70°F day / 60-65°F night
- High light (5000-6000 foot candles
- Do not over fertilize or irrigate
- Supplemental iron
- Clear water for excess soluble salts
- Well aerated media
- PGRs not usually needed
- 72, 84, or 105 plug trays. 4-6" pots, or multiple plugs into larger containers.
- Susceptile to:
  - botrytis, powdery mildew, root and stem rots (pythium, phytopthera, and thelaviopsis).
  - aphids, thrips, fungus gnats, caterpillars, leafminer, or whiteflies.
- Prone to leaf yellowing
  - High pH, iron, low nitrogen, high salts, low magnesium

Experiment 1

- Compare rooting in Rockwool of
  - Calibrachoa interspecific hybrids, *C. xhybrida* 'Superbells Saffron', and *C. xhybrida* 'Superbells Lavender‘
- Results
  - Low levels of rooting
  - Superbells Lavender displayed best rooting → 67% transplantable
  - 20060912x1 → 67% transplantable, but not as developed
  - 20080512x6 → 44% transplantable
  - Superbells Saffron → 0% transplantable

Experiment 2

- Plant rooted cuttings in professional mix and rice hull mix
  - Calibrachoa interspecific hybrids, and *C. xhybrida* 'Superbells Lavender‘
- Results
  - Equivalent vegetative growth
  - Both Superbells Lavender treatments more compact
  - Interspecific hybrids showed slower root growth
  - Negligible differences between media

Experiment 3

- Compare rooting in vermiculite, 1000ppm IBA of:
  - Calibrachoa interspecific hybrids, *C. xhybrida* 'Superbells Saffron', and *C. xhybrida* 'Superbells Lavender‘
- Results
  - Slow rooting
  - High number of dried/dead cuttings
  - Superbells Lavender in 1000 IBA produced best roots
  - No results should be commercially acceptable

Production Schedule (veg)

- Target mid-May
- Prop. 6-7 wks, Growing On 4-7wks

- Propagation: Wk 5 stick cuttings
  - Aerated media, 1000ppm IBA
  - Wk 7 fertilize 250 ppm 21-7-7, continue weekly
  - Wk 10 pinch if necessary

- Growing On: Wk 12 transplant
  - 4-6" containers
  - Avoid excess irrigation and fert
  - Wk 14 balanced CLF
  - Monitor iron and pH
  - Light at 5000-6000 foot candles
  - Warmer temps for faster flowering
  - Space containers when established
  - PGR unlikey
    - 5-10ppm Sumagic or 2500ppm B-9
    - Florel for branching
  - Broad spectrum fungicide when roots are at edge of pot

Photos: www.greenhousegrower.com/magazine/?storyid=1691 and http://www.florifacts.umn.edu/2006%20Annual%20Trials/Calibrachoa%20Superbells%20coral.jpg

Needs Assessment

- Marketability warrants breeding and research
- Neither 20080512x6 or 200609012x1 meet the future needs of this crop.
- Further areas of research
  - High pH and High heat tolerance
  - Iron deficiency
    - Genetic or alternative media
  - Susceptibility to root rots
  - Flower initiation
    - Day length, light, temperature