

Pardancanda norrisii

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Pardancanda norrisii

Taxonomy

- *Pardancanda norrisii*, no subspecies
 - Synonym: *Pardancanda x norrisii*, *x Pardancanda norrisii*, *Iris norrisii*, *Iris x norrisii*, *x Iris norrisii*
 - Common name: Candy Lily, Painted Lily, Orchid Lily
 - Iridaceae
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Geographic Distribution

- Not native to any locations. Candy Lily is the result of a hybrid cross between *Belamcanda chinensis* and *Pardanthopsis dichotoma*.



Belamcanda chinensis

- Continent: Asia
- Countries: China and Japan
- States: Naturalized in the eastern half of the United States (AL, AR, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MD, MI, MN, MO, MS, NC, NE, NJ, NY, OH, OK, PA, SC, SD, TN, TX, VA, VT, WI, WV)
- Latitudinal Range: 38-47 degrees N
- General Climactic Conditions: Zone 4-8. Requires full sun and long, hot summers
- Tendency to naturalize or become invasive: Slight if climactic factors favorable



Pardanthopsis dichotoma

- Continent: Asia
- Countries: Siberia, China, Mongolia, Manchuria
- Latitudinal Range: 40-49 degrees N
- General Climactic Conditions: Zone 5-9. Requires full sun; requires both wet and dry seasons
- Tendency to naturalize or become invasive: Slight if climactic factors favorable



General Habitat Information

- No native habitat; parent plants prevalent in open or thin woods, also in rocky and dry sites
 - Prefers areas with warm, well drained soils with a pH from 5.8-6.8
 - Perennial from Zone 5a-10b
 - Coexists well with *Achillea* 'Colorado,' *Echinacea* 'Magnus,' *Eryngium varifolium*, and *Heuchera* 'Palace Purple Select'
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Taxonomic Description

- Habit: Strong, upright habit. Height ranges from 14 to 52 inches with flowers
- Root system type: Rhizomes
- Leaves: Fans of long, sword-like leaves in are similar in appearance to bearded iris



Flowers

- Flower: Small, three part flowers (standards, styles, and falls) borne on a long, wiry stalk. Each stalk can have as many as 45 bud placements with 6 to 10 buds each. Individual blooms open for only one day, but are produced in profusion on the plant and bloom can last several weeks.



Flowers

- Colors range from orange and yellow to shades of pink, white or purple, with contrasting red or purple markings, and can be speckled, spotted, blotched, or unmarked.



Seeds

- Seeds: Very similar in appearance to *Belamcanda*. Each stalk can produce up to 450 blackberry-like seeds.



Taxonomy, continued

- Season of Bloom: Blooms from June to first frost, depending on location
 - Use by indigenous people: None. However, *Belamcanda* root has been used in Chinese medicine for centuries, as an analgesic, antibacterial, antifungal, anti-inflammatory, depurative, expectorant, febrifuge, pectoral, purgative, stomachic and tonic. Root may also have been used for tannins.
 - Other uses: Used mainly as a border plant in sunny gardens. Not ideal as a cut flower because it is so short-lived. Dried seed pods may be used in floral arrangements.
 - Plants are generally short-lived; gradual decline in plant vigor and appearance year after year.
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Cultivars on the Market:



Propagation

- Vegetative through rhizome division (provides cultivars that are the most true to type)



Propagation: Seed

- Seeds are readily self sown; hundreds produced per stalk (thousands per plant). Seeds produced from parent may not be true to type.
- Germination requirements: Seeds must be covered with a layer equal to seed diameter, constant moisture, temperatures above 68 degrees F
- No current research has been done on vernalization, but a recommendation on any perennial would include a 6 to 15 week vernalization period. The experiments I conducted for this crop tested this theory, but results were inconclusive due to long germination requirements.



Crop Ideotype

- Hardiness to at least Zone 5
- Colorful
- Attractive flower form
- Superior branching
- Attractive foliage
- High bud count per stalk



Crop Experiments

- Five treatments of 20 seeds each: Control, 2 week stratification, 4 week stratification, 6 week stratification, and dry germination.
 - Results:
 - Control: 10% germination after 3 weeks, full germination (50%) after 7 weeks. Big enough for transplant after 10 weeks. No prospects for flowering by target sales date (Week 19)
 - 2 week stratification: 5% germination after 3 weeks. Full germination (60%) after 8 weeks. Big enough for transplant after 11 weeks. No prospects for flowering by target sales date.
 - 4 week stratification: 15% germination after 3 weeks. Full germination (65%) after 8 weeks. Big enough for transplant after 13 weeks.
 - 6 week stratification: Full germination (70%) after 8 weeks. Did not grow large enough to transplant in time allotted
 - Dry germination- 5% germination after 3 weeks. Full germination (55%) after 6 weeks. Did not grow large enough to transplant in time allotted.
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Experiments, continued

- Conclusion: While a full conclusion cannot be made, it appears that stratification does increase percent germ of *Pardancanda* seeds. However, stratification did not seem to increase the time to germination of the seeds



Cultural Requirements

- Winter Hardiness: USDA Zones 5a to 10b
 - Heat/drought tolerance: Excellent. Grows best in dry soils
 - Temperature: Daytime temperatures above 68 degrees F
 - Light: Full sun to partial shade. Long day plant requires 16 hours of continuous lighting to flower. Night interruption lighting between 10 pm and 2 am during winter months (Jelitto, 2010).
 - Nutrition: Requires between 150 and 200 ppm N
 - Soil: Warm and well-drained with a pH between 5.8 and 6.8
 - PGRs: Not required
 - Container size: Sow at 2-3 seeds per cell in a 72s plug tray. Can be transplanted when 4 leaves are present. 1-2 plugs per 4.5" pot, 2-3 plugs per 6" pot.
 - Disease resistance: High
 - Pests: Rare
 - Fungicides: May be required if soils are wet
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Production Schedule

- **Stage 1:** Sow 2-3 seeds per tray in a 72s plug tray. Place in a dark cold room (4 C, 40 F) for 6-15 weeks. Remove tray after stratification period and place on a mist bench at 20 C (68 F)
 - **Stage 2:** During stem and cotyledon emergence increase light levels. Once the cotyledons have expanded, begin fertilizing every other watering with a 100 ppm N.
 - **Stage 3:** True leaves develop. Increase light and fertilizer to 150-200 ppm. Growth regulators not needed.
 - **Stage 4:** Transplant when 4 true leaves are present; 2-3 plugs per 6" pot
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Production Schedule

- Once transplanted, plants should be ready for Mother's Day sales within 6-8 weeks, and will flower throughout the summer in warm climates
 - If in Zone 5 or above, can be stratified by planting outdoors in fall
 - No PGRS or fungicides generally needed
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Timing

- From seed:
 - ❑ 6-15 weeks seed stratification at temperatures of 40 F
 - ❑ 4-8 weeks to germination
 - ❑ 4-6 weeks from germ to transplant
 - ❑ 6-8 weeks to salable plant
 - ❑ **Total time required: 20-37 weeks**
 - For Mother's Day sales, plants should follow the recommended scheduling:
 - ❑ Week 37 (2010) seeds placed in stratification
 - ❑ Week 51 (2010) sow seeds
 - ❑ Week 11 (2011) transplant seeds
 - ❑ Week 19 (2011) saleable plant
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Next best thing?

- Maybe, if some changes are made
 - **Genetic improvements could include:**
 - Increased hardiness
 - More dwarf varieties for smaller gardens
 - Improved yearly vigor
 - Shorter time for seed germination
 - Increased germination success
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