Antirrhinum boissieri - New Crop Summary & Recommendations

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Series: New Floricultural Crops: Formulation of Production Schedules for Wild, Non-domesticated Species

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Horticultural Science 5051: Plant Production II
University of Minnesota

Floratech

To: Grower Staff, Technical Staff, Sales Staff, and the President

From: Esther E. McGinnis

Re: New Crop Summary & Recommendations

After completing a thorough review of the published taxonomic, popular press, seed/vegetative catalogs, scientific and trade literature, I have summarized the pertinent information for *Antirrhinum boissieri*. In addition, I have included my recommendations for the potential production schedule for this crop. Please follow my recommendations for the initial production trial.

Taxonomy.

- Scientific Name: *Antirrhinum boissieri* Rothm. Taxonomy is confusing due to the restructuring of the genus. Some taxonomists consider it to be the same as *Antirrhinum hispanicum* Chav. due to the overlap in range and lack of consistent differences. (Sutton, 1988). Other sources list it as a subspecies of *A. graniticum* Rothm. (Valdes et al., 1987). Recent studies have elevated it to its own species. (Mateu-Andres et al., 2003). For the purposes of this report, *A. boissieri* and *A. hispanicum* will be considered to be comparable in diagnostic characteristics.
- Common name(s): Spanish snapdragon; Perennial snapdragon
- Family: Scrophulariaceae (Figwort family)

Geographic Distribution.

- Continent: Europe
- Countries: Southern Spain
- Province(s)/Region(s): Region of Andalucia; Provinces of Granada, Cordoba, Malaga and Jaen (Mateu-Andres et al., 2003).
- Latitudinal Range(s): 36°N to 38°N
- Longitudinal Range(s): 5°W to 3°W
- Altitude: Specific altitude range unknown
- General Climactic Conditions: Andalucia becomes progressively more arid away from the coast. Despite the high altitude, this region has high average summer day temperatures (over 80° F) with cold nights. (Polunin and Smythies, 1973). In the winter, Andalusia experiences relatively cold temperatures (January average temperatures of 23° to 32° F) in direct relation to altitude with the coldest temperatures in the Sierra Nevadas.
- Tendency to naturalize or become invasive: none reported

Native Habitat.

- Habitat: Granite slopes indicating preference for poor, well-drained soils. (Polunin and Smythies, 1973). Full sun; abhors winter wetness.
- Plant Community: Urban and rural wall and rock crevices; Parietario-Galion communities (Rivas-Martinez et al., 2002).

Taxonomic Description.

- Overall Plant Habit/Description:
  - Dwarf, well-branched plant
  - Erect habit
  - Glandular-pubescent; combination of hair lengths
    - Short hairs are up to 0.2 mm
    - With some hairs reaching up to 0.6 mm

- Dimensions
  - Height up to 60 cm
  - Leaves are up to 4 – 35 mm by 3 - 14 mm
  - Bracts are 9-15 mm
  - Sepals are 5.5-6.5 mm
  - Petals are 26-32 mm
  - Fruit capsules are 8-11 mm
  - Seeds are 0.5-0.7 mm; generally oblong
- Root System Type: Fibrous
- Presence/Type of Underground Storage Organs: None
- Leaves:
  - Lanceolate to ovate
  - Majority are alternate
  - Very hairy
  - Color is silvery-green
- Bracts are similar in appearance to leaves; located below the leaves
- Flowers:
  - White to pink spike-like inflorescences
  - Both white and pink flowers have very prominent hot pink venation
  - Flowers held laxly
  - Flowers alternate
  - 2-10 medium-sized flowers per spike
- Seeds
  - Generally oblong shaped
  - Blackish-brown in color
- Season of Bloom: May through July (Valdes, et al. 1987).
- Use(s) by indigenous people: Unknown
- Other uses: Rock garden plant
- Additional notes: N/A

Name and Description of Varieties/Cultivars on the Market.

- White Flower Farm and Bluebird Nursery, Inc. are marketing *Antirrhinum hispanicum* 'Roseum', a ten-inch tall plant with dark green, succulent foliage and soft pink flowers.

(White Flower Farm, 2005).

- Manor Nursery offers *Antirrhinum hispanicum* 'Avalanche'; has pure white flowers and pink venation (Manor Nursery, 2005)

Propagation Method(s).

- Seed vs. Vegetative:
    - Seed is the chief means of propagation:
        - No. of seeds per flower: unknown
        - Seed dormancy: no dormancy
        - Germination temperatures/duration:
            - 70°F produced good germination rates
            - Approximately 16 days to germinate
        - Seed on top of well drained medium; don't cover
    - Vegetative means
        - May take cuttings in early summer (Rock Garden, 2005)
        - Plant tissue source(s): unknown

Product Specifications

- Crop Ideotype: dwarf, herbaceous perennial with silvery green, hairy leaves; well-branched form; flowering May through July; low maintenance and drought-resistant

Market Niche—Identification & Justification

- Target sales date(s): Mother's day (traditional start of the bedding plant season in Minnesota)

- Potential holiday(s): Mother's Day and Fourth of July
- Programmability: could be used as a spring bedding plant or as a fairly hardy herbaceous perennial (in Zones 5 and higher)
- Crops with which this will compete in the market:
  - Annuals: *Antirrhinum majus* cultivars
  - Perennials: drought tolerant perennials like *Nepeta* spp.
- What kind of "story" can be told about this product:
  - This Spanish plant brings to mind the azure Mediterranean Sea, the rugged Sierra Nevadas, and flamenco music at night
  - Potential cultivar name: Flamenco
- Will this ever be a major crop: yes, due to drought resistance and flower power
- What will be the initial crop limitations/problems: limited information for growers as to crop scheduling, the use of plant growth regulators, and potential susceptibility to diseases and insects; also uneven germination
- Is this product already identifiable to the growers and consumers? yes, the genus *Antirrhinum* is readily identifiable to anyone that has grown snapdragons in their garden; flowers for *Antirrhinum boissieri* are very similar
- How soon could this product be available: May 10th, 2005

Anticipated Cultural Requirements.

- Winter Hardiness (USDA Zones): possibly zones 5 through 8
- Heat/Drought Tolerance: It is adapted to sunny, rocky crevices and therefore is anticipated to have superior heat and drought tolerance
- Temperature (day/night): 70°F (day); 65°F night
- Light quantity, quality, duration; photoperiod response:
  - High light levels
  - Long days (further experimentation required to determine whether long days are a facultative as opposed to obligative requirement)
- Nutrition: Do not over-fertilize; it is used to growing in poor, rocky soils
- Soil: any well-drained media
- Plant growth regulators: unknown—experimentation is necessary
- Container size (through entire production cycle):
  - Started in a 288 plug tray
  - Transplanted into a jumbo junior
- Disease Resistance/Susceptibility: Unknown
- Fungicides, Insecticides: Unknown
- Other: N/A

Production Schedule (from seed or cuttings).

- Estimated no. of weeks total: 10 to 12 weeks depending upon time of year
  - Approximate plug stages (total time 37 days); uneven germination makes it difficult to formulate a definitive schedule
    - Stage 1: 16 days
    - Stage 2: 6 days

- Stage 3: 7 days
- Stage 4: 8 days
  - Time from sowing to flower bud initiation: 65 days
  - Time from flower bud initiation to flowering: 10 to 19 days
- Special treatment applications
  - Long days appeared to hasten flower bud initiation
    - No buds on plants with short day treatment
    - Short day plants look weak
  - No known information on plant growth regulators; however gangly height suggests that it could benefit from PGR research
- Target sales date: Mother's Day sales

Needs Assessment for Genetic Improvement.

- Uneven germination makes the scheduling of this crop difficult. I would suggest selection for even germination and shorter crop time.
- The tall, spindly height of this crop would be difficult to market. Breeding and/or selection for compact growth would benefit this crop.

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