Helleborus lividus - New Crop Summary & Recommendations

By Myra Pehoski

2010

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

Part of the requirements for
Horticultural Science 5051: Plant Production II
University of Minnesota

Hort 5051
Research Paper on New Crops

Myra P.

New Crop Report

Background Essentials.

Taxonomy.

- Scientific Name (genus, species, subspecies): Helleborus, lividus, corsicus
- Synonym(s): corsicus, Helleborus argutifolius
- Common Name(s): Christmas Rose or Lenten Rose
- Family: Ranunculaceae

Geographic Distribution.

- Continent(s): Europe
- Country(-ies): Spain
- State(s)/Province(s)/Region(s): Majorca and Cabrera island
- Latitudinal Range(s): 39° 36', North. Longitude: 2° 39', East
- Altitude: up to 4000, usually not lower than 100
- General Climactic Conditions: Moist areas
- Tendency to naturalize or become invasive: Naturalizing found in native area

Native Habitat.

- Habitat (climactic factors):
- Plant Community: Woods, Open slopes, Rocky valleys, 40-1400 m altitude, Mountains, Along river beds, Torrent beds
-

Taxonomic Description.

- Overall Plant Habit/Description: clumping
- Root System Type: rhizomes
- Presence/Type of Underground Storage Organs: rhizomes
- Leaves: alternate leaves
- Flower: asymmetric, 5 petals, cup or bell inflorescence
- Season of Bloom: Winter- early spring
- Use(s) by indigenous people: medicinal
- Other uses: medicinal
- Additional Notes:

Name and Description of Varieties/Cultivars on the Market.

Propagation Method(s).

- Vegetative vs. Seed: seeds require warm and cold period, vegetative take a long time to reastablish
- If veg., plant tissue source(s): rhizomes

- If veg., proposed propagation method(s) & temperatures: division of rhizomes
- If seed, no. of seeds/flower: 4-30seeds in all capsules for 1 inflorescence
- If seed, seed dormancy? After seeds are ready to harvest embryo needs to develop: warm and cool period is need to complete the development of the embryo. Naturally dormancy is 4-6 months, forcing can be done in 2-4 months
- If seed, germination temperatures/duration: 40F +

Product Specifications.

- Crop Ideotype (the ideal phenotype that a marketable cultivar will possess)
- Non-floppy, frost hardy, shorter production schedule, more tolerant to divisions, Blooms continuation into late spring, various colors

Market Niche—Identification & Justification.

- Target sales date(s): Dec-Feb
- Potential holiday(s) for this product: Christmas, Valentines
- Programmability, i.e. could this be forced year-round: it would be more of a challenge then what it is worth
- Crops with which this will compete in the market: early bloomers in the garden, crocus
- What kind of "story" can be told about this product:
- Will this ever be a major crop (why or why not): it's much bigger in Europe, probably not here because of the long production schedule
- What will be the initial crop limitations/problems: Patience, time, and space needed for germination
- Is this product already identifiable to the growers & consumers: Yes, not as well known throughout US, better known in Europe
- How soon could this product be available: a good establishing plant at least 1 year, flowering most likely 2 years

Anticipated Cultural Requirements.

- Winter Hardiness (USDA Zones): 8
- Heat/Drought Tolerance: Drought tolerant once established
- Temperature (day/night): 39-61
- Light quantity, quality, duration; photoperiod response: Partial to full shade
- Nutrition: Organic matter, lime
- Soil: High in lime and organic matter, can tolerate acid soils
- Plant growth regulators: Usually none, people have tried to use gibberellins for germination
- Container size (through entire production cycle):
- Disease Resistance/Susceptibility: Deer resistance
- Fungicides, Insecticides: pyrimor
- Other:

Complete Production Schedule (from seed or cuttings).

- Estimated no. of weeks from planting to flower bud initiation, flower development, & shipping
- Estimated time, type, and quantity of special treatment applications: Germination 4-6 months (2-4 months, warm and cool treatment)

Growing on till bloom
Seed – 1-2 years
Division- 2-3 years
Tissue culture- 2-3 years

- Target sales date: Christmas(December 25) and Valentines (February 14)

Needs Assessment for Genetic Improvement.

- Based on the production schedule you have assembled, assess the need for crop improvement using standard breeding methodology or genetic transformation:

- Commercial production - Hellebores that will handle division
- flower shape – double, cupped, large & flat, open & up-facing flowers
- Well-developed seed strains

Work Cited.

'Helleborus's ' 5/6/10 http://www.pineknotfarms.com/new-retail-2.html
'Helleborus x hybridus' 5/6/10 http://www.hellebores.org/helleborushybridus.html
Hellebores Are Riding High 5/6/1 http://www.onhort.com/Hellebores-Are-Riding-High-article6960
'Hellebores, Hellebores, Hellebores' 5/6/10 http://www.helleborehelleborehellebore.com/
'Helebores' 5/6/10 http://www.thimblefarms.com/hellebore.html
'Celebrate Christmas Roses' 5/6/10 http://www.gardenworld.co.uk/hellebore1.asp
'Helleborus lividus, Aiton (1789)' 5/6/10 http://www.hellebores.org/lividus.html
'Helleborus lividus' 5/6/10. http://grahamrice.com/hellebore/species/lividus/index.html
'Hellebore aphid' 5/6/10 http://apps.rhs.org.uk/advicesearch/profile.aspx?PID=534