

**Crop: Cineraria**  
**Scientific Name: Senecio cruentus (Compositae)**

**I. Introduction**

- A. In 1772 Francis Masson, an English explorer from the Royal Botanical Gardens went to the Canary Islands and gathered the original wild plants for the greenhouse produced cineraria. The scientific name *Senecio x hybridus* instead of *Senecio cruentus* is often used for the commercial produced cineraria.
- B. Cinerarias have flowers in many bright colors and are inexpensive to produce.
- C. They are a 5-6 month crop and are primarily marketed mainly in mid-winter.
- D. Cinerarias are produced as annuals but are really biennials.

**II. Cultivars, Clones, Breeding, and Development**

- A. Cinerarias can be divided into two groups.
  - 1. The grandiflora type is usually produced in 13 to 17 cm (5 to 6 1/2 inch) pots and has larger but fewer flowers.
  - 2. The multiflora type has smaller leaves and flowers and a more dwarf and compact growth habit than the grandiflora type. Multiflora plants are primarily produced in 10 to 13 cm (4 to 5 inch) pots.
- B. 'Jubilee' is a grandiflora type with small leaves. It requires about 180 days for development. 'Jubilee Mix' has a wide range of bright flower colors with or without eyes.
- C. 'Starlet' is a multiflora type and an extra dwarf, compact plant with small leaves. The plant average 20 cm (8 inch) across and is covered with flowers. It requires about 180 days for development and is ideal for mass market sales.
- D. 'Tourette', a multiflora type, is good for fast production in 10-13 cm (4-5 inch) pots. Expected production time is 180 days. The plants have a compact, branched growth habit with flowers that are 1 1/2 inch in diameter.

- E. 'Fidelioi Mixture' is recommended for 10 cm (4 inch) pots. Plants have relatively small leaves and compact growth. The mixture contains many different colors including some zoned flowers.
- F. 'Nana', a grandiflora type recommended for 15 cm (6 inch) pot production. The mixture includes solid flower colors with white eyes.

### III. Flower Initiation

- A. Temperature a very important factor for flower initiation.
  - 1. A cold treatment (temperatures below 15°C (59°F) is considered necessary for proper flower induction.
  - 2. Some cultivars will flower without a cold treatment. Plants produced without cold generally, have more and larger leaves, and may develop slower than plants receiving a cold treatment.
  - 3. Recommendations for temperature and length of the cold treatment will vary from cultivar to cultivar.
  - 4. Small plants are not as receptive to the cold treatment as larger, older plants. The recommended time for the cold treatment is 2-3 weeks after transplanting when the plants should have at least 6 leaves. At that time, the roots should have reached the edge of the pot.
  - 5. Most recommendations suggest 6-10°C (43-50°F) as optimal during the cold treatment for most cultivars. For some cultivars, the upper critical limit appears to be 12°C (54°F) and for other cultivars 15°C (59°F).
  - 6. Flower induction requires 4-6 weeks of cold.
- B. Day length has no effect on flower bud initiation.
  - 1. Long days, however, promote development from visible bud to anthesis. Long days can reduce forcing from visible bud to anthesis by up to 2 weeks.
  - 2. Fluorescent or high pressure sodium light is the light of choice. Incandescent lamps promote excessive elongation.

#### **IV. Environmental Requirements**

##### **A. Light**

1. Full sun acceptable during winter and early spring.
2. High intensity supplemental lighting reduces the time from germination to transplanting when natural light intensities are low.

##### **B. Temperature**

1. Grow the young plants at 18-20°C (65-68°F) until plants are large enough for low temperature treatment.
2. Lower the temperature treatment at 10-15°C (50-59°F) for 4-6 weeks. See section III. A. Flower Induction.
3. Temperature recommendations after the cold treatment vary from 10-18°C (50-64°F). The rate of development can be expected to be slower at lower temperatures. A low temperature will result in more compact plants with larger flowers and more intense color than higher finishing temperature.
4. The choice of temperature after the cold treatment is based on a trade-off between rate of development and plant quality. The quality will be better at low temperature while the development will be faster at high temperature. Never allow the temperature to increase above 18°C (64°F).

##### **C. Water**

1. Keep small plants moist but avoid overwater as stem and root rots caused by *Pythium*, *Rhizoctonia* or *Verticillium* are favored by high moisture.
2. As plants near flowering, they may become pot bound and require 2-3 waterings per day, especially for plants in 10 cm (4 inch) pots.

##### **D. Nutrition**

1. High levels of nitrogen stimulate vegetative growth and the development of large leaves. When transplanting plants to a 5 or 6

inch pot, a high initiated change of fertilizer in the medium will promote excessive leaf enlargement.

2. After plants are established, feed plants with 100 ppm nitrogen and potassium at every watering or feed with 200 ppm 20-20-20 at every other watering.
3. The plants are susceptible to iron deficiency at high pH.

#### E. Gases

1. Cineraria is susceptible to root and stem rots. Good ventilation and air circulation is important to maintain low relative humidity.

### V. Cultivation

#### A. Propagation

1. Cineraria is propagated from seed (150,000 seed/oz) and requires light for germination.
2. Germination will occur in 10-14 days at 21°C (70°F).
3. Seedlings should be grown at 18-20°C (65-68°F) until transplanting.
4. Seedlings are susceptible to damping off.
5. Recommended time to sow:
  - a. July and August for January flowering in 13-15 cm (5-6 inch) pots.
  - b. August and September for February and March flowering.
  - c. October for February and March flowering in 10 cm (4 inch) pots).
  - d. December sowing for Easter flowering.

#### B. Transplanting and Spacing

1. Transplant to at least 7.5 cm (3 inch) pots as the seedlings become crowded.

2. Drench with a fungicide after transplanting.
3. Transplant into final pot when the leaves touch. Azalea pots are preferred to standard pots.
4. Shallow planting is important to decrease the risk of stem rot.
5. Never allow leaves to touch and become crowded or rotting can occur.

C. Growth Regulators

1. B-Nine is effective in controlling height at 2,000-5,000 ppm. The application should be made 2 weeks after the cold treatment or before stem elongation.
2. A 2,000 ppm B-Nine application may delay flowering up to 5 days.

VI. Problems

A. Insects

1. White flies and aphids are the major insect problems.
2. Spider mites, thrips, mealy bugs and leaf rollers can also cause problems. Use proper pest-control measures.

B. Diseases

1. *Verticillium* wilt - most troublesome disease.
  - a. *Verticillium* is a fungus that invades the water-conducting tissues and causes wilting. The pathogen is soil-borne and overwinters as microsclerotia.
  - b. The plants turn yellow, drop their leaves and die.
  - c. The best prevention is to sterilize media, flats or pots. Good air circulation and proper spacing also help in the control of this disease.

2. Stem Rot

- a. Stem rots caused by *Pythium* or *Rhizoctonia* most frequently occur after deep planting.

**VII. Harvesting, Handling and Marketing**

- A. Plants are sold when flowers are almost fully open.
- B. Leaves are brittle and the plants should be handled with care.
- C. It is very difficult to ship plants long distance because of wilting and disease.
- D. Plants have good keeping quality in the home if given plenty of water and light. Plants deteriorate if allowed to wilt excessively. Cool temperature increase the postharvest life.
- E. Plants are susceptible to root loss, especially under conditions with low light and overwatering.
- F. Decorative life is dependent on light intensity. The shelf life is about 10 days at 50 foot-candles and 20 days as light increases to 250 foot-candles.

**VIII. Schedule (Dates are approximate)**

<b>Date</b>	<b>Growing Time For Cultural Segment</b>	<b>Cultural Procedure</b>	<b>Temperature</b>
September 1		Sow seeds and germinate	
	1 week	 ↓ V	21°C (70°F)
September 10		Grow Seedling	
	2-3 weeks	 ↓ V	18-20°C (65-68°F)
October 1		Transplant to 6-8 cm (2 1/4 - 3 inch) pots	
	3-5 weeks	 ↓ V	18-20°C (65-68°F)
November 1		Transplant to 13-15 cm (5-6 inch) pot	
	2 weeks	 ↓ V	18-20°C (65-68°F)
November 15		Lower temperatures	
	5-4 weeks	 ↓ V	10°C (50°F)
January 1		Raise Temperature and grow to flower	
	7-10 weeks	 ↓ V	13-16°C (55-60°F)
March 1		Flower	