

Cultural Information for:	Pansy Ultima	Annual
Common Name:	Pansy	
Botanical Name:	Pansy wittrockiana	
Seed Count:	22,700/oz.	800/gram
Optimum Germination Temperature:	64-68°F / 18-20°C	
Optimum Growing Temperature:	55-65°F / 13-18°C	
Optimum pH:	5.5 – 6.0	
EC – Plug:	0.4 – 0.8 mmhos/cm (1:2) / 0.9 – 2.0 (SME) / 1.1 - 2.6 (Pour Thru)	
EC – Finishing:	0.9 – 1.3 mmhos/cm (1:2) / 2.1 – 3.5 (SME) / 2.7 - 4.6 (Pour Thru)	

Plug Culture - 30 days (288 / 12 x 24 tray)

Stage One (days 1-6) Sow pansy seed in a well-aerated plug mix. Lightly cover with a medium or coarse vermiculite. After sowing, water the plug flats well and maintain a soil temperature between 64-68°F/18-20°C. The use of primed seed and a germination chamber with a fine mist system to maintain 100% relative humidity is ideal.

Stage Two (days 7-14) If using a germination chamber, be sure to remove pansy plug flats when the seed coat is cracked. When green begins to appear in the flat, lightly fertilize with 75 ppm of nitrogen from a well-balanced fertilizer. Applying 0.25 ppm of boron, if needed, using Solubor or Borax, is recommended to avoid boron deficiency. Maintain temperatures as cool as possible with good airflow. Supply up to 3,000-foot candles / 32,000 lux of light. After the initial feed, begin fertilizing with 200 ppm N from a well-balanced fertilizer containing trace elements. A calcium nitrate-based fertilizer works well to build strong compact plants.

Stage Three (days 15-24) Plug trays are beginning to fill in so reduce fertilizer applications. When applying fresh water, (no fertilizer), still apply trace elements; especially boron, and keep water alkalinity at 60-80 HCO₃ to maintain soil pH between 5.5 and 6.0. Fertilizer concentrations can be reduced to 150 ppm but maintain trace elements at full strength; especially boron at 0.25 ppm. Ideally, pansy plug flats should be given higher light levels to control stretch. Moving plants outdoors under a saran house will reduce temperatures and provide optimal air movement. Maintain light levels up to 7,000-foot candles / 75,000 lux but avoid heat and water stress. If plant height control is needed, B-Nine (daminozide), Cycocel (chlormequat) and A-Rest (ancymidol) are effective. Begin spraying when leaves are the size of a dime.

Stage Four (days 25-30) Plug flats are approaching market size, feed every 2nd or 3rd watering, alternating with acid, (if needed), and trace elements to maintain soil pH and trace element supply; especially boron. During periods of hot and humid weather, or before shipping plugs in a box or truck, treat to control anthracnose. **Do not delay transplanting which delays flowering and reduces quality.**

Transplanting: 5-6 weeks

Media: Transplant plugs into a well aerated soil mix. Avoid planting the plugs too deep to prevent stem rot.

Temperature: Optimum day temperature is 62-68°F/17-20 °C with nights at 50-55°F/10-13°C.

Fertilizer: Fertilize with 200 ppm N from a well-balanced fertilizer to ensure a healthy start. Pansies are sensitive to boron deficiency characterized by deep green foliage, crinkled foliage and tip abortion. It is recommended to supply 0.25 ppm of boron at each watering. Be sure to check the boron level in your water supply to avoid oversupplying this microelement. Pansy special fertilizers are formulated with higher microelements and highly recommended.

Growth regulator: Providing optimum temperatures, high light, good ventilation and low phosphorus promotes compact plants. Ultima flowers later and may require additional application of plant growth regulators compared to Supreme. If needed, B-Nine, Cycocel, and A-Rest are effective.

Pests: Major pests include caterpillar, cut worm, cabbage looper, fungus gnat, slug, shore fly, spider mite and thrip.

Diseases: Major root diseases include Pythium, Phytophthora and Thielaviopsis. Thielaviopsis or Black Root Rot is often a problem early in the season when temperatures are high. Research has shown that the disease is less checked at a pH of 5.5 or lower. Avoid high ammonium levels and the use of the chemical Subdue/Metaxyl which encourage the development of this disease. Anthracnose or leaf spot can be a problem during periods of high heat and humidity. Good sanitation and moisture management works well to prevent most of these diseases.

Crop Time*

Container Size	Plants per pot	Weeks from sowing
Cell Pack	1 per cell	8-9 weeks
4-inch / 10 cm.	1 per pot	9-10 weeks
6-inch / 15 cm.	3 per pot	10-11 weeks

**Ultima is more sensitive to day length and temperature than is Supreme. High heat and short days delay and or decrease flowering. Ultima Morpho is more sensitive to photoperiod than are other Ultima types, with delayed flowering in fall and early spring.*

“All information given is intended for general guidance only and may have to be adjusted to meet individual needs. Cultural details are based on North American conditions and Sakata cannot be held responsible for any crop damage related to the information given herein. Application of recommended growth regulators and chemicals are subject to local and state regulations. Always follow manufacturer's label instructions. Testing a few plants prior to treating the entire crop is best.”