Green Leaf Plants®

Perennial Essentials

Growing Schedules

Schedule A: Transplant in summer through early fall in poly hoops or outdoors for spring sales. Typically planting occurs August-September. Plant earlier for larger pot sizes like 2-gallon. You may need to cover with a frost blanket for added protection in colder zones. Cover prior to severe cold or before temperatures are consistently below 32˚F (0˚C) at night. Uncover approximately March 1st-15th to sell in spring. Fall pinching/shearing and spring cleanup is variety dependent.

Schedule B: Transplant in fall through mid-winter inside minimally heated structures for spring sales. This typically occurs October-December. Overwinter by maintaining temperature above 32˚F (0˚C) and below 45˚F (7˚C) for vernalization to occur. Can move outdoors or remove protective cover approximately March 1st-15th to sell in spring. In warmer zones, where temperatures remain above freezing for most of the winter, growing inside a heated structure may not be necessary.

Schedule C: Transplant outdoors for early summer sales. Planting typically occurs in March and April.

Schedule D: Transplant outdoors in late spring or early summer for late summer or fall sales. Planting typically occurs in late May-June.

Schedule E: Transplant in January-March inside a heated greenhouse. Grow at approximately 55˚F (13˚C) night and 65˚F (18˚C) day temperatures for spring sales. Force under short day conditions.

Schedule F: Transplant in January-March inside heated greenhouse. Grow at approximately 55˚F (13˚C) night and 65˚F (18˚C) day temperatures for spring sales. Force under long day conditions.

Schedule G: Transplant in late winter in a low heat greenhouse using vernalized 72-cell or 30-cell liners. Protect from hard freezing but allow to develop naturally as day length and temperatures increase. Sell in spring or early summer as plants develop. Use multiple vernalized 72-cell liners per pot for containers larger than one gallon.

Schedule H: Transplant in November to early January outside or under saran. Protect from hard freezing with either minimal heat, covers, or icing. Once plants are rooted down, provide long days to initiate flowering for spring sales.

Schedule I: Transplant in November to early January outside or under saran. Protect from hard freezing with either minimal heat, covers, or icing. Grow and finish under natural day length for spring sales.

Schedule J: Transplant liners in May-June for sales the following spring-early summer. This is to allow sufficient time to bulk the plants before the shorter day lengths and lower temperatures of fall arrive. A fall planting is not advised.

Perennial Essentials

General Perennial Culture

Green Leaf Plants®

Transplant:

- For most perennials, it is preferred to plant the top of liner root ball level with soil.
- Water in after transplant.
- To encourage root development, avoid overwatering.

Temperature:

- Most perennials prefer moderate temperatures for best growth and performance. With such a variety of genera and species, there is a wide variation of preferred temperatures, but most prefer to be grown in the range of 55-65°F (13˚-18˚C) night and 65-75°F (18˚-24˚C) day temperatures.
- Climate, other crops, and temperature control capability will all play a role in what set points to determine.

Media:

- Recommend well-drained media with at least 15% air porosity.
- Use nursery-type mix for finishing rather than peat and vermiculite based types.
- Make sure bark is sufficiently composted or nutritional problems can occur.
- Make sure water holding capacity is not too low or too high for your geographic location's expected precipitation.
- Monitor pH and EC during production.
    - General recommended pH: 5.8-6.5.
    - General recommended EC: 1-2 ms/cm using saturated paste method.

Irrigation Options for Perennials:

- Drip tubes or lines
- Ebb/flow system
- Overhead irrigation: Make sure the water droplet size is heavy enough to penetrate canopy as crop increases in size. Wind can adversely affect direction of water and there is increased risk of foliar disease.
- Regularly test your irrigation water: pH, EC, alkalinity, and pathogens.

Fertilization:

- Always use a complete N-P-K fertilizer with micronutrients; e.g., 20-10-20, 20-5-19, 21-5-20, etc. while plants are actively growing.
- Choose a fertilizer based on an analysis of your water's alkalinity and pH.
- Injecting liquid fertilizer at every irrigation gives the best control of nutrient levels. Constant liquid feed rates range anywhere from 75-200 ppm Nitrogen for perennials with the average being 100-150 ppm Nitrogen. Test pH and EC regularly and leach with clear water if EC begins to creep up.
- Controlled release fertilizers (CRFs) with micronutrients can also be used and especially recommended for overhead irrigation for less runoff and waste. Use 150 to 180 day release rates for spring and summer crops. Keep in mind there is little nutrient release at temperatures below 60°F (16˚C) and faster nutrient release with high temperatures.
    - CRFs can be incorporated or top dressed so be sure to read the fertilizer label for proper measurements.
- Liquid feed and CRFs can also be combined by using low rates for both.

Insects and Disease:

- Scouting and early detection are important.
- Pests to watch for include aphids, thrips, whiteflies, spider mites, fungus gnats, shore flies, slugs and snails.
- Diseases to watch for include Botrytis, crown rots, fungal leaf spots, mildews, root rots, rusts and viruses.
- To prevent disease
    - Use a well-drained media and do not allow plants to sit in standing water.
    - Avoid excessive nitrogen.
    - Provide good air circulation.
    - Keep foliage dry overnight.
    - Remove old plant debris and weeds from the growing area.

Overwintering:

- A well-drained site with gravel, stone or tile is essential to avoid winter loss from excessive moisture. Eliminate puddles.
- Allow enough time to establish root systems in late summer/early fall before overwintering. Generally 8-10 weeks before hard frost is sufficient.
- Reduce fertilization in late summer/early fall to avoid soft growth in overwintering.
- Plants are usually placed pot to pot space efficiency and improved insulation.
- Cut back dead/dying foliage to minimize foliar disease development. Evergreen types should not be cut back. Monitor evergreen types through the winter for foliar diseases or dehydration and treat accordingly.
- Covering
    - Use white poly on unheated or low heat hoop structures instead of clear to minimize heat buildup.
    - Fleece or thermal blankets can provide extra protection in colder zones. If plants are not covered with an insulating blanket, be prepared to irrigate as needed.
    - Cover as late as possible when night temperatures are consistently in the mid 30s.
    - Apply rodent bait to overwintering area prior to covering.
    - Apply a broad-spectrum systemic fungicide drench prior to freezing or covering.
    - Allow for ventilation to avoid temperature buildup under cover (try to maintain 30° to 40°F (-1˚ to 4˚C).
    - Gradually uncover as early as possible in spring when temperatures are consistently in the high 30s or 40s at night.
- Some perennials do not tolerate multiple freeze-thaw periods or very wet winters. These are generally items that require good drainage in a garden situation. These items tend to rot easily and are best grown in a greenhouse structure, and not allowed to freeze. Hold temperatures slightly above freezing and keep as cool as possible on sunny days by ventilating. Examples of these items include Gaillardia, Lithodora, Lobelia, and Stachys.
- Apply another broad-spectrum, systemic fungicide drench or spray in spring.
- Once your plants begin to break, they must be protected from frost and freezing temperatures to avoid damage.

How to Handle Dormant Liners upon Receipt:

Your winter or early spring shipment may be partially or completely dormant, showing little or no top growth. Vernalization is essential for many perennials to grow and bloom properly in the coming season. Healthy roots should be white to tan in most cases and never mushy.

- Do not allow plants to dry out completely.
- Place flats on bench until active growth resumes, or transplant into desired container. Light is important in breaking dormancy.
- Once your plants begin to break, they must be protected from frost and freezing temperatures.
- Do not fertilize dormant plants until they are actively growing.
- Application of a broad-spectrum fungicide after emergence is a good practice.
- Closely monitor for Botrytis.