

Successfully Facing Five Common Perennial Production Problems

by Allen R. Pyle

Whether you are new to perennials or an experienced grower, you likely will encounter at least a few of these perennial production problems, if you have not already. None is impossible to overcome, but successfully managing them is one factor which sets an exceptional grower apart from an average grower.

1) Disorganization

Disorganization is the most common problem I see in perennial production. A primary symptom of this problem is last minute scrambling to get enough plugs and liners to meet production needs. I often encounter growers wanting to order plugs to finish for a specific sales window, but with barely enough time to produce the plugs, let alone grow plants to finish. Remember that perennials, even small propagules, can take considerably longer than annuals to propagate, and availability (especially for new cultivars, recent award winners, and some vegetatively propagated items) may be seasonal and/or limited.

Good planning doesn't take rocket science. Gather as much information as possible about a plant's production scheduling as early as possible, before you plan your production. There is more and more information available about scheduling perennial production, and the December 1997 and January 1998 issues of *GM Pro* have some guidelines. Ideally, you should develop production plans at least 3-6 months ahead of when you need to order plugs or propagules.

Once you have developed a general production plan, keep good records – including what was ordered, when it was ordered, from which supplier, how many were ordered, when it arrived, when it was transplanted, and what was done culturally (fertilizer program, etc.). If you track this information, and notes on how the product looked for the target window, you can modify and improve your production schedule as needed to be more successful in future seasons. Spreadsheet software is an excellent tool for keeping this information accessible and easy to work with.

2) Transplant stress

The first few weeks after transplant are critical, especially for small plugs (250 cell trays or smaller). If you are not experienced growing perennials, it is generally safer to use a larger plug or liner (128 cell tray or larger), especially when transplanting into quart or larger pots. Regardless of starting material, for best performance after transplant, roots need to quickly grow into the media in the new container, and how you treat new transplants affects rooting.

Growing too wet after transplant decreases oxygen levels in media, which stresses plants, slows root growth, and increases the chances for root diseases. Ideally, you should transplant into a moist, but not saturated, medium and allow it to dry out between waterings. The goal is to encourage roots to quickly grow to the bottom of the pots, and watering so the bottom of the pots is drier than the surface encourages root growth. Far too often, growers water new transplants too heavily, applying far more water than the plants can use.

Another common cause of growing too wet is applying fungicide drenches immediately after transplant. If you plan to drench at transplant, you may have better results drenching plant material in the trays *before* transplant. This way, you avoid the stress of water saturated conditions, plus you can treat the same number of plants with less chemical, saving both time and money.

3) Improper culture

Consistent success growing perennials depends on understanding the different requirements of the species and cultivars you grow. However, because of the sheer number of perennials grown, it is difficult to make good general cultural recommendations. If you have trouble with a specific perennial, do some research on its bloom time, place of origin, and landscape preferences. These will give clues to the correct greenhouse environment and cultural requirements for the plant to thrive.

Spring blooming perennials typically grow well under cool conditions (50 to 60° F) and are often day neutral, flowering under short or long days. Many spring blooming perennials do not perform well if grown under warm greenhouse conditions (65 to 70° F or higher), so they often suffer when grown for sale in summer months, especially species which prefer shady locations in the landscape.

Summer blooming perennials typically perform well under warm (65 to 70° F) growing conditions, and often require long days to flower. Some summer flowering perennials – like *Asclepias*, *Echinacea*, *Rudbeckia fulgida*, and many ornamental grasses – grow poorly under cool temperatures and/or short days (less than 14 hour photoperiod), and prefer even warmer temperatures (70 to 75° F).

Fall blooming perennials may be day-neutral or require short days to flower. Some even require short days after a period of long days (“long day-short day” plants) to flower. They typically tolerate cool temperatures, especially cool night temperatures.

Most perennials are not heavy feeders, and will perform well with fertilizer programs ranging from weekly or biweekly feedings with a balanced fertilizer at 100-200 ppm nitrogen, to more regular feedings with lower levels of nitrogen (50-75 ppm). Nutrient demand increases as plants mature and fill out pots. Watch phosphorous levels, especially if you are injecting phosphoric acid into your irrigation water to control pH and alkalinity. Generally, you’ll want to keep your phosphorous at 10-15 ppm or less in your irrigation water, to help control stretch, especially when dealing with young plants.

Keeping good records about plant culture is very helpful in diagnosing and correcting problems. Make sure that records are accurate, even during your busiest times. Frequently, in the “crunch time” of the busy season, consistent record keeping is forgotten in the rush. Murphy’s Law ensures that problems pop up during the most hectic weeks, so you definitely want to have your records up to date. Never underestimate the importance of record keeping.

4) Pest and disease problems

Disease and pest outbreaks can be a problem in perennial culture, especially for plants with a long crop time. A good Integrated Pest Management (IPM) program is a critical component of perennial production. Although too many growers take this oversimplified approach, IPM is *not* “look at the bugs on the sticky cards each week, then spray”! If you rely only on pesticides, especially systemic pesticides, do not be surprised when pests develop resistance to the pesticides you use.

Some perennial species and cultivars are especially prone to pest or disease problems. (See tables 1 and 2.) Watch these plants carefully for early signs of problems, since early treatment will help you to prevent serious injury and losses.

Weed control in and around the greenhouse is an important component of IPM, since many common weed species can harbor both insects and diseases, including Tomato Spotted Wilt Virus (TSWV). Don’t neglect weed control in the busiest times of the year, when a pest or disease outbreak will have a major impact. Consider using a virus test kit to test some of those weeds – you may be surprised at the results! In Raker’s research greenhouse, concreting the floor was one of the key strategies that allowed us to solve a persistent problem with TSWV in our research material, by greatly reducing weed problems.

5) Expecting a foolproof, cookbook recipe

Even with the best planning and information, perennial production, especially forcing plants into bloom for a specific sales window, is not foolproof. Don't expect someone else's "cookbook" to automatically work perfectly in your system. And never assume that a production system which works for one cultivar will work exactly the same for another cultivar, since vernalization and photoperiod requirements can vary tremendously among cultivars.

It is always a good idea to trial potential new perennials for your program before attempting to produce large numbers of plants, to avoid unexpected surprises. Learn as much as you can about the plants you are growing. Why does a production plan call for long days? Is it to get the flower stems to elongate sufficiently to give the plant good quality, or is it because plants won't bloom without long days? As in cooking, the best way to use a recipe is as a guideline, which is freely modified using the cook's skill and knowledge. When you keep good records, you can develop your own, custom recipe for the plants you grow.

Table 1: Perennials prone to aphid infestation

The following crops frequently have problems with aphids, especially when they are grown for extended periods. Because only winged forms of aphids are caught on sticky cards, regularly check plants for signs of infestation, so quick action can be taken.

Achillea

Anthemis

Arabis

Aubrieta

Bellis

*Leucanthemum**

Lychnis

Papaver nudicaule

Trollius

Veronica

Viola tricolor

* The cultivar 'Snow Lady' is quite susceptible to pesticide injury

Table 2: Disease prone crops

These crops frequently have problems with diseases, primarily root and stem rots (*Rhizoctonia* and *Pythium*) and *Botrytis*. Regular monitoring will help ensure you identify potential problems before a serious outbreak occurs.

Alyssum (Aurinia) saxatile
Arabis
Aubrieta
Arenaria montana
Campanula medium, C. glomerata
Cerastium tomentosum
Delphinium
Digitalis
Echinacea purpurea
Gypsophila
Iberis sempervirens
Leucanthemum
Linum
Lupinus x hybrida
Monarda
Myosotis
Oenothera missouriensis
Papaver orientale
Platycodon
Rudbeckia hirta
Tanacetum

Allen R. Pyle (pyleman@perennialguru.com) is Research Team Leader for C. Raker & Sons, Inc. (www.raker.com) Allen holds a bachelor's degree in Horticulture and a master's degree in Entomology, both from Michigan State University. He is also certified in Permaculture Design.