

# THE PURDUE LANDSCAPE REPORT

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## Prevent Summer Pests With A Dose of Patience

(Cliff Sadof, [csadof@purdue.edu](mailto:csadof@purdue.edu))

Whether it be a hail storm, late frost, or an early season pest, springtime is when Mother Nature tests the patience of even the most experienced gardeners. While many gardeners have learned the hard way not to plant during a warm spell two weeks before the frost-free date, many more are unable to resist the urge to protect the new leaves of their precious plants with the first insecticide they can get their hands on.

*What can be wrong with taking care of small pest problems before they become big problems?* There is nothing wrong with closely monitoring your plants for pests. Indeed, monitoring plants and resolving pest issues before they damage your plants is actually the hallmark of a good pest management program. Problems arise, however when the method of pest control, kills the pest of concern, as well as the beneficial insects in your garden that can keep other insects and mites from becoming pests.

In order to avoid problems with late season pests ask yourself the following questions:

1. *Can this pest damage my plants?*

To answer this question you need to identify the pest. Many early season pests that suck sap, like aphids and spittle bugs rarely threaten plant health, because there are many beneficial insects that feed on them before they can cause irreparable harm. Other pests that chew like early season caterpillars and sawflies can cause extensive damage.

2. *Are there enough pests on my plants to make damage likely?*

A single insect rarely if ever causes enough damage to harm a plant. For example, a single monarch butterfly caterpillar or parsley worm will not cause extensive damage and rarely merit control action. Cabbage butterflies, or bagworms occur in groups

are often present in large enough numbers to completely defoliate and kill plants.

3. *Am I using a tactic that is appropriate for controlling the problem?*

- Mechanical control, or the physical removal and destruction of an isolated cluster of pests, may sometimes be enough to stop a pest problem.
- Applying *broad spectrum insecticides*, like pyrethroids (eg. bifenthrin, deltamethrin, cypermethrin), or neonicotinoids (eg. imidacloprid, clothianidin, dinotefuran) kill a wide variety of pests, but will also kill beneficial insects and mites that keep late season pests. Removing these beneficials early in the season, gives spider mites and scale insects plenty of time to grow, reproduce and damage plants.
- *Biorational insecticides*, like Spinosad (Fertilome borer and bagworm killer) can kill caterpillars and sawflies without killing many beneficial predators. [Horticultural oil](#) and soap, can be used to smother sucking insects, like aphids and some scale insects without long-lasting impacts on beneficial insects.

4. *Does this problem really warrant the use of broad spectrum insecticide?*

Sometimes, as in the case of borers, like [emerald ash borer](#), the pest will kill the plant if a broad spectrum insecticide is NOT used. In these situations, it makes sense to protect the plant from imminent danger. You can always clean up scale or mite outbreaks after the primary problem has been solved.

Check your diagnosis and find the most appropriate controls for you pests, by using the Tree, Shrub, Annual, or Perennial Flower Doctor apps available at [PurduePlantDoctor.com](http://PurduePlantDoctor.com)

## Iris Leaf Spot

(Tom Creswell, [creswell@purdue.edu](mailto:creswell@purdue.edu))

Rhizomatous bearded iris (*Iris x germanica*) is a favorite early spring perennial; however, it is routinely troubled by a fungal leaf spot that tends to appear soon after flowering (Figure 1). These start as small wet-looking lesions that may quickly enlarge into larger spots with brownish edges, tan centers and yellow margins

(Figure 2). When infection rates are high due to crowding or wet weather, the spots may coalesce and blight leaf tips or large sections of leaves (Figure 3). Repeated attacks may weaken rhizomes but this disease will not kill plants. The main effect is making plants look ugly after flowering is over.



Figure 1: Iris leaf spot usually appears on susceptible bearded iris at the time of flowering.



Figure 2: Iris leaf spot lesions tend to be elliptical with tan centers and a yellow halo.



Figure 3: When conditions are right iris leaf spot lesions may coalesce, blighting the entire leaf.

The fungus causing iris leaf spot is *Cladosporium iridis* and spreads from diseased to healthy leaves during the summer primarily via splashing water. For this reason, infected leaf tissue should be removed as soon as it is observed. In addition, it is important to avoid overhead watering of foliage, to work with plants only in dry weather, to space plants in order to promote good air circulation and to use more resistant species. Since the fungus over-winters on plant debris, it is especially important to remove infected leaf and flower stalks in the fall.

Bearded iris species are more susceptible compared to the non-bearded varieties. Siberian iris (*I. sibirica*), crested iris (*I. cristata*) and *I. graminea* species appear to be tolerant or resistant to this disease, so these are candidates to replace highly susceptible rhizomatous iris.

Fungicides are generally not needed for this disease in the home landscape, but may be needed where other management techniques are not working, or when keeping a favorite bearded iris variety looking pristine is a priority. Pageant, Orkestra, Heritage and Iprodione products can be used as preventive sprays but getting fungicides to stick on iris can be a challenge.

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## Wire Baskets: Leave them or remove them?

(Kyle Daniel, [daniel38@purdue.edu](mailto:daniel38@purdue.edu))

There are many age-old, philosophical questions that people have been arguing over for many years. What is the meaning of life? Nature or nurture? Do aliens exist? Should I remove the wire and burlap from B&B plant material? The last question has been debated for many years, with almost everyone having a different opinion.



Figure 1. Wire baskets with burlap have allowed large plants to be transplanted into the built landscape efficiently and successfully.

There are many recommendations, almost exclusively based on anecdotal evidence, from Green Industry professionals regarding the proper way to treat balled-in-burlap plants. These recommendations range from leaving everything intact, to removing all of the packaging material.

Wire baskets are an indispensable product for the Green Industry. The introduction of wire baskets allowed larger trees to be planted successfully with much less transplant shock compared to previous methods.



Figure 2. A mechanical digger on a skid steer digging a tree with a spade attachment.



Figure 3. A wire basket with burlap ready for packing a tree.



Figure 4. Nursery employees packaging a freshly dug tree.

By removing the wire and burlap, most of the root ball will become loose or break apart. This situation is the equivalent of planting a bare root plant, which typically will have a significant amount of transplant shock and require multiple seasons of staking and watering. This also significantly increases time to install (Koeser, et.al., 2015).

On the other hand, by leaving the wire and burlap will increase transplant success and minimize staking. The concern for leaving the packaging material intact is the potential restriction of roots as the plant grows out of the original root ball.

All parties agree that removing all twine around the trunk and root ball is necessary. Many times twine is synthetic, thus doesn't break down in an acceptable amount of time. The same is true for synthetic or treated burlap, but these aren't used as much currently.



Figure 5. Remove all twine from the trunk and basket after placing into planting hole.



Figure 6. Remove twine and burlap from the top of the root ball to find the root flare.

The debate between leaving the wire basket intact vs. removing is essentially a debate between successful transplanting (leaving on the wire) vs. long-term health (removing the wire). This debate is most common between nurseries/installers and arborists, which can create a negative view from the arborists of the installers/nurseries (Appleton and Floyd, 2004).

There has been a limited amount of data on this issue due to the long-term nature of the research, and the difficulty in elucidating stress/death from the wire basket or some other factor (i.e. planting depth, soil conditions, etc.). Traditionally the thought was for initial transplant success that leaving the wire basket and burlap, at least partially, is the best method. A recent study by Koeser, et.al. (2015) on Norway maple and honeylocust indicated no difference on early growth between wire intact vs. wire removal. There was a significant difference in root ball condition and time for installation two to three years after planting. Since this trial was conducted with nursery soil, there might be differences when planted into the built environment.

The research on the long-term success of plants with wire baskets left intact is mixed. This is most likely due to species and site differences. Many plant species (especially faster growing), will

envelope the wire in the roots as the roots increase caliper. The most recent work related to long-term (9 years) effects of wire baskets demonstrated marginal differences between removal of wire and burlap, removal of burlap and string, and removing all packaging materials (Klein, et.al., 2019). This study concludes by suggesting removal of wire baskets is not as important as site factors and post-planting care (i.e. watering).



Figure 7. Large tree enveloping the wire basket. Photo by Dr. Ed Gilman. <https://hort.ifas.ufl.edu/woody/root-growth-wire.shtml>

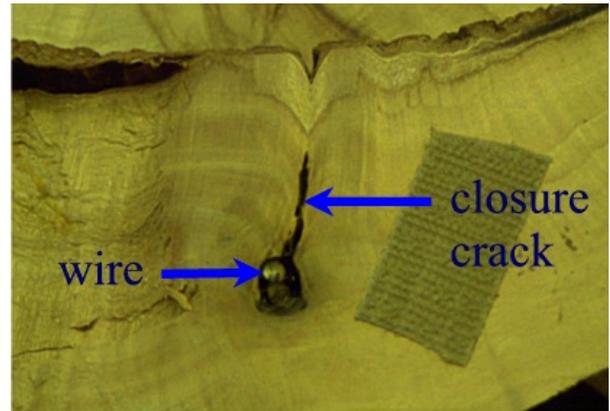


Figure 8. Tree roots growing around wire from basket. Photo by Dr. Ed Gilman. <https://hort.ifas.ufl.edu/woody/root-growth-wire.shtml>

Appleton and Floyd (2004) summarized the recommendations from major arboricultural references.

Table 1. Wire basket handling recommendations of major arboricultural references. Modified from Appleton and Floyd (2004).

Reference	Author	Publication Date	Recommendation
Arboriculture	Harris, Clark, and Matheny	2004 (4 <sup>th</sup> edition)	"Removing the wire from the top 200-300 mm (8-12 inches) of the root ball (depending on size) would be wise for most landscape trees". "Remove the wire from the top of the root ball".
Arborist's Certification Study Guide	Lilly	2001	"Although it may be impractical to remove the entire basket, it is preferable to cut away as much of the wire as possible, once the tree is in the planting pit and the tree is stabilized".

Pirone's Tree Maintenance Hartman, Pirone, and Sall 2000 (7<sup>th</sup> edition)

Principles and Practices of Planting Trees and Shrubs Watson and Himelick 1997

Trees for Urban and Suburban Landscapes Gilman 1997

"Wire baskets, essential to lowering the tree into the hole, are no longer needed and wire strands should be cut with a bolt cutter as far down the sides as possible". "All potentially damaging portions of the wire baskets should be removed at planting time." "To prevent future problems, cut off the top half of the basket before backfilling". "Remove the top portion of the wire basket once the root ball is in place".

Ed Gilman. <https://hort.ifas.ufl.edu/woody/root-growth-ends.shtml>

Current, science-based steps to planting a balled-in-burlap plant after in the planting hole:

- Remove and discard all twine around the base of the tree and the basket.
- Pull back burlap from the top of the root ball.
- Remove soil from the top of the root ball to find the trunk flare. If no flare is present (common on conifers), remove the soil to the top most root.
- Remove the top one-third of the wire basket.
- Pull back or remove burlap in the top one-third of the basket.
- Backfill, filling in all air pockets.
- Stake (only if necessary).



Figure 9. Root growth from balled-in-burlap root ball. Photo by Dr. Ed Gilman. <https://hort.ifas.ufl.edu/woody/root-growth-ends.shtml>



Figure 10. Growth from a root ball after 6-12 months. Photo by Dr.

#### Literature Cited:

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Koeser, A.K., Hauer, R.J., Edgar, J., Kleinhuizen, D. 2015. Impacts of Wire Basket Retention and Removal on Planting Time, Root Ball Condition, and Early Growth of *Acer platanoides* and *Gleditsia triacanthos* var. *inermis*. *Arboriculture and Urban Forestry*. 41(1). Pgs. 18-25.

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