

Insect/Disease Information

VEGETABLES

Colorado Potato Beetle



Check your tomatoes, eggplant, and potatoes for Colorado potato beetles now. This beetle overwinters as adults in the soil, and emerges in late spring. Masses of eggs may be found on the undersides of leaves in clusters of around 25. This pest is so successful because each female can lay up to 500 eggs, it is a voracious feeder, there are two generations, and it adapts to whatever it thrown at it, i.e., insecticides.

Alternative treatments to insecticides include:

- crop rotation, ideally as far away from last year's planting as possible
- planting one or two extra rows as "trap crops" that are treated at planting time with a systemic such as imidacloprid (Admire)
- use organic mulches to impede beetle travel
- plant late, after beetles have emerged and dispersed

When scouting, treat plants if you find more than 1 adult beetle per plant, or 4 small larvae per plant. Keep in mind that healthy and late-season potatoes can tolerate up to 20% defoliation without yield losses.

If an insecticide is warranted, we recommend changing materials at each generation (it is OK to use the same material within each generation).

Treatment: spinosad (Conserve, Entrust, Success, Bonide^H, FertiLome^H, Monterey^H), pyrethrin (Ace Flower and Vegetable Insect Spray^H), imidacloprid (Admire), carbaryl (Sevin^H, Bayer Advanced^H), abamectin (AgriMek), acetamiprid (Assail, Ortho Max Flower, Fruit, and Vegetable Insect Killer^H), indoxacarb (Avaunt)

^Halso for homeowner use

Phytophthora Root Rot



Phytophthora is a fungal-caused root rot that can catch people off guard, because it is a disease that is associated with water-logged or saturated soils, which are not so common in the West. But this pathogen is ubiquitous in most soils, can survive for several years in a resting state, and all that is needed is about 24 hours of free water, plus a susceptible host, for infection to occur. Growers using flood irrigation in clay soils may find instances of root rot in the lower parts of the field.

Cucurbits, solanaceous crops and beans are very susceptible. Here are some ways to combat this disease:

- Proper water drainage and sanitation are key. Cultivate your gardens or fields to encourage drainage as sun-exposed soil develops a hard, almost impermeable crust.
- Do not add rotten fruit or plants to your compost.
- Clean soil and debris off equipment that is borrowed, or that is moved from one field to the next. This will

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prevent the spread of infected soil.

- Rotate susceptible plants (listed above) with more resistant crops such as sweet corn.

If you do see phytophthora, remove the infected plants immediately, as well as 1-2 adjacent plants (even if they look

healthy). The upper soil can also be removed to facilitate “clean up” of the fungus. It can survive on the smallest, broken rootlets for up to 5 years.

Production Information

Pruning Fresh Market Tomatoes

By Liz Maynard, Purdue Fruit and Vegetable Regional Horticulture Specialist

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Should tomatoes be pruned? What if the plants get too big? Questions like these come into the office on occasion and so this article will review pruning. As with many cultural practices, there's no one answer because it depends on the variety, production system, method of tomato support, labor availability, market demand, and other factors.

There are at least three types of pruning used in tomatoes: topping, fruit thinning, and sucker removal. Topping is cutting off the top of the plant to promote development of fruit and is sometimes used in greenhouse production towards the end of the cropping cycle. Fruit thinning is the removal of one or more fruit from a cluster soon after fruit set. This is sometimes used on cluster tomatoes to promote larger and more uniform fruit size. Sucker removal involves breaking off branches when they are small. The remainder of this article will focus on sucker removal.

Branches, also known as suckers, typically form at each node along the stem of a tomato plant. Every place a leaf attaches to the stem, a sucker can form in the 'V' formed by the stem



Figure 2. Small suckers are easily broken off with a thumb. (Photo by Liz Maynard)



Figure 1. Tomato plant showing first flower cluster on main stem and two suckers (branches) below the first flower cluster. (Photo by Liz Maynard)

and the leaf (Figure 1). A pair of suckers also forms at the cotyledonary node. When a few inches long, suckers break off easily and cleanly with pressure from a thumb (Figure 2). In determinate tomato varieties like Florida 91 and Mountain Fresh, suckers are sometimes removed beginning at the bottom of the plant and working up to the sucker just below the first flower cluster on the main stem (Figure 1). Often one, two, or three suckers below the flower cluster are allowed to grow and just the lowest suckers are removed. The sucker just below the first flower cluster will grow into a thick branch, practically a second main stem. The 'V' formed by this branch and the main stem is sometimes called the 'fork.' In indeterminate tomato varieties like 'Trust,' all suckers are removed if the plant is grown as a single stem. If an indeterminate variety is grown with two stems, the thick branch at the 'fork' is left, and all others removed. If not trained to just one or two stems, indeterminate tomatoes are sometimes pruned just below the first flower cluster.

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A few years ago we evaluated the effect of sucker pruning in field production in northern Indiana using several varieties. Plants were pruned once early in the season, and in pruned plants, one or more suckers were removed below the first flower cluster on the main stem (Figure 3).

We saw two main effects (Figure 4):



Figure 3. Unpruned (left) and pruned (right) tomato plants. Red label marks first fruit cluster on main stem. (Photo by Liz Maynard)

1. Total marketable yield was reduced by pruning, and
 2. Average fruit size was larger with pruning.
- The more suckers removed, the greater the effect. The magnitude of the effects depended on variety.

(The complete reports for these trials are available on line at Fresh Market Tomato Pruning Trial for Northern Indiana, 2001 ([click here](#)).



Figure 4. Developing fruit from unpruned (left) and pruned (right) tomato plants. On pruned plant, 3 suckers below first flower cluster were allowed to grow and remaining suckers below that flower cluster were removed. (Photo by Liz Maynard)

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Editor: Marion Murray, marion.murray@usu.edu

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