



Rolling Tomato Leaves?

May 23, 2013

Within a 24 hour period last week, I had two individual clients bring in tomato samples exhibiting very prominent leaf rolling. My first suspicion was that this was a result of herbicide damage, specifically 2, 4-D, which tomato can be very susceptible too. However, after talking with both clients, I decided that this was likely not the cause. This started my research on physiological leaf roll as well as other potential factors that cause this symptom. The findings make for a great news article.

If your tomatoes start exhibiting leaf curling and leaf rolling, there may be several factors including environmental stresses, viral infections, and herbicide damage. To determine which might be the cause, take a close look at the plants and which leaves are rolling (new leaves, old leaves, or all leaves), what direction the leaves roll (upward or downward), and if any other parts of the plants are exhibiting symptoms.

Physiological leaf roll can be caused by excessive moisture, nitrogen, heat, drought, severe pruning, root damage, or transplant shock. The first symptoms often appear on the lower leaves with upward cupping of the leaflets followed by an inward lengthwise rolling toward the mid-vein. The affected leaves will often thicken and have a leathery texture but will retain a healthy green color. It could be that all the leaves on the plant will be affected. This condition has little impact on actual fruit production. To help prevent problems, properly hardening off seedlings before planting in the garden, maintaining a consistent moisture level in the soil, and avoiding over fertilization, excessive pruning or root damage during cultivation will help reduce risk of physiological leaf roll. Planting of determinate (bush type) tomato varieties also results in fewer incidences of physiological leaf roll than indeterminate (vine type) tomatoes.

There are also some viral infections that can cause leaf rolling. If tomatoes are infected with yellow leaf curl virus transmitted by whiteflies, new leaves become cupped and pale green in color. The entire plant may also exhibit stunted growth, yellowing leaf edges, purplish veins on the leaf undersides, and decline of fruit production. A second virus, tomato mosaic virus, can also cause leaf rolling, but other symptoms such as mottled leaf coloring and internal browning of infected fruit distinguishes itself from other potential causes. There are really no options for helping virus infected plants, and removal of plants is recommended. Viruses can also be hosted on weeds or transmitted by garden tools and insects.

As mentioned earlier, herbicide damage can be common, especially by the herbicide 2,4-D which is a common broadleaf herbicide. Typical symptoms include downward rolling of leaves and twisted growth as well as splitting stems that turn white and deformed fruit. There's no way to reverse herbicide damage but if the plant is not killed, new growth may be normal. Preventing pesticide drift and non-target plant damage will be the best way to prevent herbicide damage.

If you only are noticing leaf rolling, see how the plant does for the next few days to week. Our fluctuating temperatures and moisture levels have appeared to be prime suspects for the two cases I saw last week, and yours might be in a similar situation. With more stable conditions, the plants might return to normal appearances.