Root Rot of Easter Lily

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The potted Easter Lily is one of the most popular flowering potted plants grown in the United States. There are wide variety of diseases and disorders that can play havoc with the production of this crop. One of the most common diseases is root rot.

Root rot in Easter lilies is caused by the fungus Pythium sp. As most of you know, Pythium is a relatively common greenhouse fungus which causes root rot in a wide variety of bedding plants and potted crops. The Pythium fungus belongs to a group of fungi called the water molds. As the name implies, these fungi flourish in an environment in which water is constantly available. They don't just like it moist. They like it wet. The wetter the better for Pythium. In order for Pythium to infect the root of the lily there must be lots of water around the plant root for an extended period of time.

In a situation where the root environment is favorable for the fungus to grow and reproduce the fungus will produce microscopic motile spores that swim toward the root tip of the lily. Once these spores reach the root tip they encyst, germinate, and the germ tube penetrates the root. Thus, the disease process starts. Once the fungus is in the root, it produces enzymes that breakdown the cell structure of the lily root and the roots become unable to function properly.

One of the first symptoms associated with Pythium Root Rot in Easter Lily is yellowing and/or tip burn on the plant's lower leaves (Figure 1) (Figure 2). This symptom should tell the grower that the roots of the plant are not functioning as well as they should and the roots need to be examined. If the disease is left unchecked, the lower leave will fall and the entire root system will die (Figure 3) (Figure 4).

The first line of defense in controlling Pythium Root Rot is to not allow the root environment to become a favorable place for Pythium to grow and flourish. Start with a growing medium that is well drained and do not over water the plants early on. Run plants on the dry side if necessary. Remember, the Pythium must have an environment saturated with water in order to become a problem. If you use well-drained media, watch your watering, and still have a problem it may be necessary to use a fungicide.

There are variety of fungicides that are labeled for this disease. These would include, Subdue MAXX, Banrot, Banol, Chipco Aliette, Quell, and Cleary's DrenchPak. You may want to try one of the biofungicides that are effective against Pythium such as Root Shield. This product has to be applied at bulb planting as a preventive and cannot be used as a rescue product.

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Fig. 1. Tip burn and yellowing of lower leaves of Easter Lily indicating early stages of Pythium Root Rot.
Fig. 2. Tip burn and yellowing of lower leaves of Easter Lily indicating early stages of Pythium Root Rot.
Fig. 3. Root ball of Easter Lily with severe Pythium Root Rot. Note severe tip burn and necrosis of lower leaves.
Fig. 4. Close up of Easter Lily roots showing symptoms of severe root rot. Note lack of white roots.