Rhizoctonia
Solution Sheet

The Problem

Rhizoctonia is a soil-borne fungal pathogen notorious for causing diseases such as damping-off of young seedlings, root rot, crown rot and stem cankers. These diseases are common on bedding plants, including garden impatiens, New Guinea impatiens, vinca, dahlia, pansies and numerous others. However, *Rhizoctonia spp*. are widely distributed and among the most common root rot pathogens of annuals, perennials, foliage and woody ornamentals in greenhouses and nurseries. Under warm and humid conditions, the pathogen is capable of spreading upward, causing stem cankers, leaf spots and aerial blight. Rhizoctonia is a fungus that can infect both living and dead plant tissue, which makes it even more challenging to control.

What to Look For

The fungal pathogen lives in the potting medium or soil and causes both preemergence and postemergence "damping off" of many seed-produced crops such as vinca, impatiens, stock and snapdragon. *Rhizoctonia spp* typically attack plants at the soil line, causing root loss and constriction of the stem, which can result in girdling, leading to postemergence damping off of seedlings. Rhizoctonia root rot appears much like root rots caused by other fungal pathogens. The roots turn dark brown and tissue becomes necrotic and rots away. Leaves of affected plants often appear pale green or yellow and may become stunted and unsightly. Severe cases often result in wilt and eventual collapse. It's not uncommon to have more than one root rot pathogen associated with declining plants at the same time, so obtaining an accurate diagnosis is important for control options. Rhizoctonia stem rot is often characterized by the formation of brown cankers appearing most often at the soil line. These cankers are sunken lesions on the lower stem tissue that appear dry. Rhizoctonia can spread upward and infect leaves, causing brown spots, and cobweb-like mycelium may appear on leaf and stem tissue.

Favorable Conditions

Diseases caused by *Rhizoctonia spp*. can occur over a fairly broad range of temperatures (68-86°F), but warmer temperatures and high humidity (> 80%) are most favorable for aerial blight. Severe disease development can occur in less than a week, so plants should be scouted and monitored for symptoms at least weekly.

The Solution

Since *Rhizoctonia spp*. are capable of surviving on non-living substrates, maximize sanitation in production areas of the nursery or greenhouse. Carefully inspect plugs or newly introduced plant material and reject if any symptoms are present. Space plants to allow as much air movement as possible to hasten leaf drying after irrigation or rainfall. Use of HAF (horizontal air flow) fans will increase air movement and reduce overall disease occurrence. Sanitize hard surfaces in the growing area with disinfectants. Remove all diseased plant tissue and dispose offsite. Always begin with healthy plants, new or sterilized pots, and potting media, and avoid placing plants directly on the ground whenever possible.

For effective management of aggressive plant pathogens such as Rhizoctonia, preventative fungicide applications are necessary. Fungicides are one of the most important tools for effective disease management, and it is critical that individuals making application decisions follow the manufacturer's recommendations for proper rates and application intervals. The proper use of fungicides and recognizing the importance of rotating FRAC groups (modes of action) for control of economically important plant pathogens such as Rhizoctonia spp. will ensure long-term success and future viability of fungicides for disease management. Envu offers several fungicides currently labeled and effective for the control of Rhizoctonia. These include Chipco® 26019, Compass® and Broadform®.

Example Rotation Program for Managing Rhizoctonia

Week	Trade Name	FRAC Group	FRAC Group	Rate per 100 gal	Notes
1	Chipco® 26019 FLO	2	iprodione	13 fl oz to 2.5 qt (80 oz)	Lower rates for control of Rhizoctonia; higher rates for control of Stemphylium, Fusarium corm rot. See label for details.
3	Fame	11	fluoxastrobin	2-4 oz	Sprench to protect roots and crown every 14-28 days. Reduce interval for more challenging to control root and crown rots.
6	Affirm® WDG	19	polyoxin D	0.5 lb	Apply as a soil drench/sprench every 14-28 days
8	Chipco® 26019 FLO	2	iprodione	13 fl oz to 2.5 qt (80 oz)	Apply as a soil drench/sprench every 14-28 days

Broadform is labeled for foliar applications only and offers a much broader spectrum of disease control. Other products to consider as a tank mix or rotation include Medallion® (FRAC Group 12), 3336® (FRAC Group 1), Cease® (FRAC Group 44) or Triathlon® BA (FRAC Group 44).

Rhizoctonia root and crown rot on gardenimpatiens. (Envu)

Symptoms of aerial blight withcobweb-like growth of the mycelium present on Boston fern. (Envu)