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PHYTOPHTHORA ROOT ROT IN ALFALFA FIELDS

Phytophthora root rot is a serious problem in alfalfa fields throughout Fresno County. This is evident by the sight of alfalfa fields heavily infested with water grass, thinning of alfalfa stands, good growth on the levees and poor growth on the checks, and alfalfa drying up rapidly after irrigations.

Phytophthora is a soil fungus disease that is active where there is excess moisture in the root zone. Presence of this disease can be determined easily by digging up alfalfa plants and inspecting the tap roots. Infected roots will have localized orange and yellow discolorations which may rot the root off completely. Rotting occurs in most fields at a uniform depth due to poor soil drainage. The roots branch at the point of rotting, but sometimes branches are rotted off and must branch again to survive. This destroys the deep tap root system normal to alfalfa.

Phytophthora may infect the alfalfa plants at any time if conditions are favorable for its development. Young seedlings, when attacked by this root rot, may be killed. Reseeding is not much help if the conditions that caused the disease to develop are not corrected first. Older plants are not killed as readily as seedlings because they have an established root system.

Once this disease is established it is very difficult to cure, but proper management of the soil prior to planting can prevent its development. The following soil management practices are suggested to aid in growing alfalfa free from root rot.

1. Proper leveling of the land before the crop is established. A proper grade will allow water to move at a constant rate down the checks.
2. Having a loose open soil to a depth of at least 18 inches is desirable. Subsoiling in two directions in the early fall or when the soil is dry may be necessary to obtain this condition. Land planing after subsoiling will rid the field of uneven areas.
3. Application of gypsum on alkali soils will help to improve water penetration. Frequent light irrigations on hardpan, heavy, and alkali soils help to prevent soil drainage problems.
4. If possible, alfalfa should be established early in the fall (mid-October through November) so that it can benefit from natural rainfall. Late spring plantings which must be irrigated up or irrigated when the seedlings are young, makes the plants susceptible to root disease. Growers should strive to plant alfalfa in the fall when the soil is loose and roots can easily penetrate, allowing a deep root system to be established.

Control of Phytophthora in established stands will depend upon the conditions which caused the disease to develop. Management practices which may stop the infestation are:

1. Shorten irrigation runs by putting a ditch through the center of the field.
2. Channel water into fewer checks to shorten the time water is on the field.
3. Make frequent light irrigations rather than one or two heavy irrigations between cuttings.

If the disease is found before many plants have been killed, these management practices may bring the production of alfalfa up to an economical level.