

## Assess Alfalfa Stands for Brown Root Rot This Spring

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If your alfalfa that looked great last October is slow to emerge this spring or if it has suffered apparent 'winterkill', brown root rot (BRR) may be one of the main contributing causes.

Brown root rot, caused by the fungus *Phoma sclerotioides*, is a cold-weather disease affecting the roots and crowns of alfalfa during the dormant period when plants are not actively growing. April through early May is the best time to assess over-wintered alfalfa plants for the symptoms and signs of BRR. It is difficult to diagnose BRR in dead plants, but characteristic lesions can be discerned on the roots and crowns of plants showing slow regrowth of shoots from the crown buds in spring. You will need a good shovel or trowel to dig up plants and a bucket of water to rinse off adhering soil for a closer inspection. A pocket knife is useful for slicing through roots to determine the depth of lesions. BRR lesions vary in appearance, but they are generally light to dark brown, often with a darker border. BRR lesions that girdle the upper tap root or the crown result in winterkill. BRR lesions that girdle the lower tap root or affect just part of the root or crown, can lead to reduced plant vigor and slow emergence of alfalfa in the spring. You can be fairly certain that BRR was a factor in poor winter survival and reduced plant vigor when you see characteristic root symptoms on a high percentage of plants in early spring and there are winterkilled plants interspersed with slowly emerging plants in patches scattered across the field. The severity of brown root rot increases as the plants age and experience more winters.

Absolute confirmation of brown root rot requires a molecular laboratory test that is recently available from the Cornell University Plant Disease Diagnostic Clinic (<http://plantclinic.cornell.edu/Default.htm>) for \$40 per composite field sample. The result will be yes/no whether the BRR fungus was present at any level in the overall sample. We suggest you call the clinic at 607-255-7850 prior to submission of samples for diagnosis.

First confirmed within New York in Clinton Co. in 2003, BRR is now known to occur throughout New York, Vermont, New Hampshire and Maine. In New York, high incidence levels of the disease have been observed in alfalfa production fields across western, southern tier, and northern parts of the state. The disease is most severe in regions with harsh winters such as in northern New York and northern New England. Many other stresses to alfalfa plants interact with BRR to cause plant death. Winterkill is not a new problem for New York alfalfa producers. The brown root rot fungus may not be new either though our recognition of it in the Northeast is very recent. The widespread finding of BRR in association with winterkill represents an opportunity to reverse one of the main factors that reduces the productivity and longevity of alfalfa in our region. There is no action that an alfalfa producer can take currently to control BRR, but we hope that ongoing research at Cornell University and elsewhere will change that. With support from the Northern New York Agricultural Development Program we are assessing alfalfa varieties adapted to this region in BRR-infested soils in order to identify varieties that may perform better than others in the presence of the BRR fungus.



**Figure 1.** Range of typical brown root rot symptoms in alfalfa. Note the light to dark brown lesions and the flaky epidermal tissues within the lesions. Photos by Kent Loeffler, Cornell University.