GUEST COLUMN

# Manage Alfalfa Diseases with Advanced Genetics

***Randy Welch, CROPLAN by WinField United***

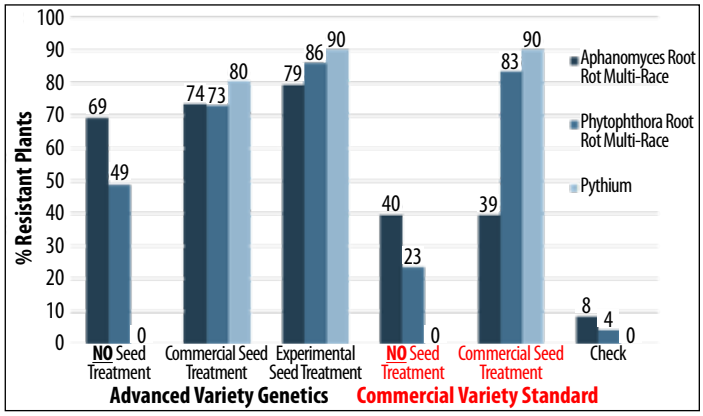
Healthy roots, stems, and leaves lead to higher alfalfa yield potential. Above ground, stems and leaves produce and transport plant energy to make valuable forage. Below ground, alfalfa roots gather water and nutrients. While the soil holds many components alfalfa plants need to thrive, it can also contain destructive soilborne diseases like Aphanomyces root rot, Anthracnose, Pythium, and Phytophthora root rot.

Diseases can limit key plant processes, negatively impacting forage yield and quality potential. Understanding these costly threats and prioritizing improved disease resistance packages can help you establish stronger stands, healthier plants, and higher yield potential.

## Aphanomyces Root Rot

Strong, healthy roots allow the alfalfa plants to gather more soil nutrients and water to support a high-producing plant while fixing more nitrogen in the soil from healthy nodulation. In seedlings, the Aphanomyces disease causes root pruning and poor root development often appearing above ground as a stunted, yellow plant. In established alfalfa stands, Aphanomyces can continue to infect roots, stunting plant growth and producing lower yields.

Percent of plants resistant to seedling diseases.




Data obtained from experiments by USDA-ARS Plant Science Research Unit and WinField United. Funded in part by a grant from NAFA U.S. Alfalfa Farmer Research Initiative.

Aphanomyces can be found in many soils across the U.S. The oomycetes (which infect plants by mobile soil spores) are most active in saturated and poorly drained soils. Oftentimes, soil compaction and limited water dispersal will aggravate disease symptoms. Spring planting conditions are typically wetter, providing a perfect environment for heightened Aphanomyces infection. Multiple races have been identified in the Midwest, East, and areas of the Pacific Northwest, including race 1, race 2, and more recently enhanced multi-race.

## Anthracnose

Anthracnose is a severe stem and crown fungal disease causing defoliation and stem death. It appears as oval- to diamond-shaped lesions on the stem. These lesions are deep, destructive, and disrupt nutrient and water movement in the plant. Infected stems often appear wilted and display the "shepherd's hook" once the disease has killed the stem. Anthracnose infection can cause significant yield losses of up to 25% or more.[1] Crowns from infected plants decline in productivity. Once infected, crown death is likely from this pathogen.

There are multiple races of Anthracnose. Race 1, race 2, and recently race 5 have been identified to cause economic damage to alfalfa. Race 5 is a very destructive race often showing up earlier than previous races and during the first season of growth. Race 5 Anthracnose is most aggressive during warm, moist, and higher rainfall periods during mid-summer and fall. Anthracnose spores readily spread from stem to stem and plant to plant through wind, rain, and harvesting equipment.

Variety pictured center includes built-in disease resistance to multiple races of diseases.

## Advanced Disease Resistance Packages

Protect the roots and stems of your alfalfa with advanced plant genetics. Both Aphanomyces root rot

and Anthracnose can be important threats to protect your crop against. New varieties are available offering disease resistance to multiple races of both Aphanomyces root rot and Anthracnose for protection both above and below ground.

## More Ways to Support Your Alfalfa Crop

For additional protection during seedling establishment, use coated alfalfa seed treated with two modes of fungicide seed treatment. Mefenoxam (Apron XL®) with pyraclostrobin (Stamina®) offered good plant protection to Pythium seed rot and damping off as well as Phytophthora root rot and Aphanomyces root rot. Research is ongoing to provide the most advanced genetic resistances built into the variety, as well as additional seed treatments providing superior protection during germination.

Talk to your local dealer to learn more about new varieties and seed treatments and how they could benefit your alfalfa acres.

[1]Undersander, 2018.

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