

Crop Rotation and Disease Management

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Several disease-producing bean pathogens are soil-borne or borne on dry bean crop residue. A three-year crop rotation helps reduce inoculum of most pathogens. A four-year rotation may be needed if white mold is severe in a field. However, crop rotation is not a “cure-all” because many pathogens can be air-borne and may blow in from nearby fields. This is particularly notable in the case of white mold and rust. Field selection is also important: If possible, avoid planting next to a field that was severely infected with rust last year.

Other pathogens, such as the *Rhizoctonia solani* (*Rhizoctonia* root rot pathogen) and *Sclerotinia sclerotiorum* (white mold), attack several crops (hosts), so crop rotation must take into account all crops that are hosts of the pathogen.

Many broad-leaved crops can be infected by white mold, and dry bean, sunflower and canola are among the most susceptible. Other crops that are somewhat less susceptible include soybean, safflower, mustard,

lentils, alfalfa, field peas and potatoes. Flax and buckwheat are only marginally susceptible.

Regardless of which plant/crop is infected with *Sclerotinia*, the pathogen produces the same survival structures. As a result, an epidemic of white mold on sunflower can incite an epidemic in dry bean in future years. Similarly, the pathogen can cause severe white mold on a number of different broad-leaved weeds, making good weed control important for management of white mold. Members of the grass family, including small grains, corn and millet, are not susceptible to white mold and are good rotational crops for dry bean disease management.

Rhizoctonia solani causes a root rot of dry bean. Specific Anastomosis groups (strains) of *Rhizoctonia solani* can cause disease on sugarbeet and soybean. Including these crops in a rotation may lead to the buildup of *Rhizoctonia* inoculum. One of the *Rhizoctonia* strains that attack dry bean, sugarbeet and soybean also attack flax and lentil.