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ASCOCHYTA BLIGHT OF FABA BEAN

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Ascochyta Blight of Faba Bean

This fact sheet provides information on Ascochyta blight of faba bean for commercial growers and home gardeners. Faba bean (*Vicia faba*, also known as fava bean or broad bean) has been grown in the ancient Near East (present day Iraq, Syria, and neighboring countries) since the Neolithic era (about 8,000 BC). Faba bean is now grown world-wide, but is relatively novel to the United States, where it is grown on small to medium scale farms or by gardeners. Increasingly seen at farmers markets in the Pacific Northwest (PNW), faba bean is marketed primarily to immigrant or ethnic consumers but has potential for wider popularity (Dugan et al. 2017; Miles and Hu 2014). Faba bean is mostly grown in the relatively mild climate of the coastal PNW, but selection of cold-hardy breeding lines has expanded the potential of faba bean for the Palouse region of Washington and Idaho, already famous for production of cool season legumes like pea, chickpea, and lentil (Landry et al. 2015a, 2015b, 2016).

Identification

Ascochyta blights are fungal plant diseases that attack all pulse crops (pea, chickpea, lentil, and faba bean). Each *Ascochyta* species tends to be specific for a given crop species. *Ascochyta fabae* is the pathogen attacking faba bean. Initial symptoms appear as brownish flecks on leaves and stems. These darken and enlarge (Figure 1 and Figure 2), and eventually display concentric zones containing minute blackish dots that are the fruiting bodies (pycnidia) that produce infective spores called conidia (Figure 3). Similar lesions may also occur on pods and seeds (Bailey et al. 2003; CABI 2017; Punithalingam and Holliday 1975). The concentric zones in lesions and the narrow conidia (often containing a cross wall or septum) distinguish *A. fabae* from other fungal disease agents, such as *Botrytis* species, agents of chocolate spot. Worldwide, Ascochyta blight and chocolate spot are leading diseases of faba bean (Jellis et al. 1998).

Life Cycle

Ascochyta fabae has a sexual stage and a non-sexual (asexual) stage. The sexual stage is sometimes found on over-wintered crop residue in spring and produces wind-blown spores (ascospores), which may initiate disease. But it is the asexual stage of *A. fabae*, producing pycnidia and conidia, as described above, that is responsible for buildup of the disease during the growing season. Conidia are efficiently spread via rain-splash or irrigation. The asexual, conidial stage (Figure 1) is also the most commonly recognized and diagnosed stage of the pathogen. *Ascochyta fabae* can be seedborne and, in many instances, conidia produced on seed may initiate disease (Jellis et al. 1998; Tivoli and Banniza 2007). Another type of spore, the chlamydospore, is said to function as a survival structure for *A. fabae*, although the overall importance to the life cycle is not well understood, and *A. fabae* may not typically produce chlamydospores (Davidson and Kimber 2007; Jellis et al. 1998). The conidial stage is promoted by cool, moist weather or by irrigation and is especially prevalent in spring on crops grown through the winter in mild climates such as western Washington (Bailey et al. 2003; Stoddard et al. 2010).

Figure 1. Ascochyta blight of faba bean. Photo credit: Shari Lupien.

Figure 2. Ascochyta blight lesions on stem. Photo credit: Shari Lupien.

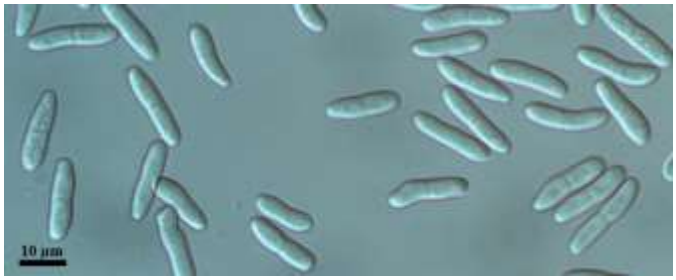

Figure 3. *Ascochyta fabae* conidia. Photo credit: Shari Lupien.

Management

Disease-free seed is highly recommended in areas where faba bean is grown commercially on a large scale (Galloway 2017; Government of Saskatchewan 2017). The WSU Pesticide Information Center Online (PICOL) currently references products labeled for seed treatment of faba bean in Washington. Registrations may change, so growers are encouraged to check PICOL regularly. There is limited disease resistance among faba bean varieties as only incomplete resistance is available (Ahmed et al. 2016; Sillero et al. 2010). Disease-free seed is especially important in areas of higher precipitation, such as western Washington. Seed testing prior to planting and early monitoring of the crop for disease development are advised (Government of Saskatchewan 2017). Seed testing is sometimes mandatory, as in Idaho for faba bean seed produced outside of Idaho (IDAPA 02.06.06). There is no precisely analogous regulation in Washington State, but the Washington State Department of Agriculture has regulations (WAC 16-301-380, WAC 16-473-001), on *Colletotrichum lindemuthianum* and *C. truncatum*, two fungal pathogens affecting common bean and lentil, respectively. Faba bean is also a host for both pathogens, although so far these pathogens have not been formally reported on faba bean in the US (Farr and Rossman n.d.).

Crop rotation is an important disease management strategy. Avoid planting faba bean more than once every four years or within 500 meters of a current crop (Galloway 2017; Government of Saskatchewan 2017). Plowing under post-harvest residue and destruction of volunteer plants reduce over-wintering survival and spread of the pathogen (CABI 2017). Intercropping with other legumes, vegetables, or cereals may reduce the spread of the disease and confer agronomic benefits (CABI 2017; Stoddard et al. 2010).

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