

and surface resistance (Fig. 2), suggesting that crops high in Si have the ability to contribute to soil crusting. Therefore, it may be beneficial to consider crops with lower amounts of Si when planning crop rotations in areas where soil crusting can be a concern. Further research on this topic will include conducting a field survey on comparable fields this summer.

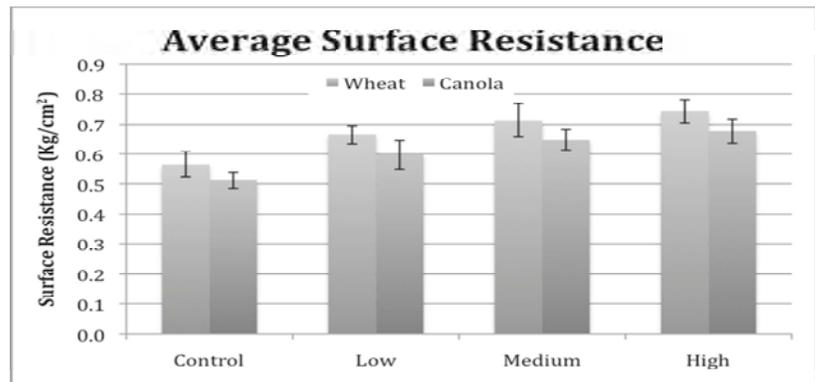


Fig. 2. Average surface resistance of wheat and canola soil per treatment.

### Emerging Diseases of Canola and Camelina in the Pacific Northwest

TIM PAULITZ, SCOT HULBERT, EBRAHEIM BABIKER AND KURT SCHROEDER; USDA-ARS; DEPT. OF PLANT PATHOLOGY, WSU

Blackleg, caused by the fungus *Leptosphaeria maculans*, is the most economically important disease of canola in North America and world-wide. It is endemic in the Midwest, southern US and the prairie provinces of Canada. However, Washington and Idaho have been considered blackleg free, which gives them an advantage in producing disease-free seed. The lack of the disease has also greatly simplified canola breeding for the northwest compared to other areas. The situation will change radically if the disease becomes established. The disease is also a big part of the reason that canola production has been banned from key brassica seed crop production areas of the northwest, like Skagit Valley and parts of the Columbia Basin and Willamette Valley. If the disease moved to those areas, it would be economically devastating.

In Aug. 2011, we detected the disease in samples from Bonner's Ferry in N. Idaho. All putative blackleg isolates were identified as *L. maculans*. Koch's postulates were performed in the greenhouse in Manitoba on susceptible varieties, with cotyledon inoculation and all isolates gave a high level of disease, showing a high level of virulence. Additional testing will be done to determine the race structure of the isolate. Growers should become aware of the dangers of planting non-certified seed that has not been tested with a phytosanitary certificate, especially if seed is traded among growers or imported from Canada.

A downy mildew disease was observed in most camelina fields and breeding plots monitored in 2010, 2011 and 2012. This has been the only prevalent disease or pest problem noted in camelina production in recent years. Efforts to determine the causal agent and epidemiology of the disease were therefore undertaken. Symptoms were not observed until plants were flowering. Symptoms often included dark colored stunted branches or racemes that developed poorly and sometimes white sporulation (figure below). We suspected the pathogen could be a downy mildew, performed DNA assays which confirmed that the causal pathogen was *Hyaloperonospora camelinae*. To determine whether *H. camelinae* is a seed-transmitted pathogen, seeds collected from infected plants were planted in growing mix and grown in a growth chamber. Disease symptoms were observed in 96% of the seedlings grown from seed from infected plants and only 3% of the seedlings grown from seed from asymptomatic plants. This indicates that *H. camelinae* is a seed-transmitted pathogen. Seeds treated with mefenoxam, a fungicide specific for Oomycetes, significantly reduced the incidence of the disease.

