**Managing Blackleg of Potatoes**

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Blackleg is a bacterial disease of potatoes. During the disease development, an inky dark colored and sometimes slimy lesion will develop on the potato stalk, which is where the name is derived. Other symptoms that blackleg bacteria may be associated with are seed-piece rot, leaf and stem wilting, yield loss, and tuber soft rot. This disease can be caused by several different species of bacteria including multiple *Pectobacterium* species and multiple *Dickeya* species. The field expression of the disease appears to be very weather dependent. Under dry conditions, symptom development may be quite limited, however, when sufficient moisture and high temperatures are present, the disease may progress rapidly and the entire plant can wilt and die.Below is a checklist (1) of actions growers can utilize to help minimize the risk and impact of potato blackleg on their farm.

* **Utilize the North American Health Certificate or other information such as dormant tuber testing results to help assess the potential risk of blackleg in particular seed lots. Depending on results of field inspections and dormant tuber testing one may decide the risk is too high, or may use the available information to make decisions such as what fields to put higher risk seed into. In general, higher risk seed for blackleg would likely do better in well-draining sites as opposed to sites with heavy, poorly draining soils.**
* **The following labs are following recommended protocols for dormant tuber testing:**
* **Maine Seed Certification Testing Laboratory**

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* **Plant whole seed tubers if possible. Suberize cut seed before planting. Allow to suberize for at least two days prior to planting; two weeks would be preferable.**
* **Avoid poor seed storage conditions that may lead to condensation build-up on tubers. Seed should be stored in a manner that it can be ventilated and its temperature controlled.**
* **Clean and disinfect tools and equipment used for cutting and planting seed with quaternary ammonium products. This should be done between seed lots, or at least once daily.**
* **Plant seed tubers during conditions that favor fast emergence. Plant seed into well-drained soil with temperatures > 50F. Warm seed to soil temperatures just prior to planting to avoid condensation layers forming around the planted seed. Plant “at-risk” lots last to avoid contaminating other seed lots, and will likely aid in planting into field conditions that will promote rapid emergence.**
* **Avoid wounding during seed cutting, planting and harvest.**
* **Fungicidal seed treatment of potatoes to prevent seed piece decay may indirectly prevent seed contamination, especially during the cutting operation. Consider using dry formulations of seed treatments as opposed to liquids.**
* **Consider using sanitary precautions such as disinfectants (quaternary ammonium products) on footwear and equipment prior to entering different fields or lots during the growing season.**
* **Utilize crop rotation of two or more years with non-host crops such as small grains or legumes.**
* **Avoid over-irrigation. Avoid irrigating prior to emergence.**
* **Avoid excessive fertilization, which may impact plant and tuber maturity, and promote micro-climate conditions conducive to blackleg development.**
* **Seed growers may consider roguing symptomatic plants prior to row-closure (2). Bag and dispose of properly. Be sure, when removing the plant, that mother and daughter tubers are removed. Rotting mother tubers (seed pieces) likely provide more inoculum and subsequent contamination of the daughter crop than the symptomatic vegetation. (5)**
* **Take proper care of cull piles and rogued plants. These can serve as inoculum sources for blackleg to be spread to neighboring fields.**
* **Consider copper fungicides in conjunction with mancozeb, or famoxadone in conjunction with cymoxinil and mancozeb. These products have shown partial effectiveness against disease spread and dry out existing lesions. Use of pesticides to aid in controlling blackleg is likely limited in efficacy. It won’t prevent infections resulting from infected seed pieces but may help in preventing further spread once external symptoms appear. Typically, these symptoms appear just prior to or after row closure. To penetrate the canopy with an application of pesticides, growers should consider increasing spray volumes and pressures, or consider chemigating the products if irrigating (3).**
* **For seed production, try to promote rapid vine desiccation as best you can. To try to target spray deposition into the middle and lower portions of the canopy, consider the following: increasing droplet size, increasing volume per acre (20-40 gal/ac total spray volume), lowering boom height, decreasing sprayer speed, angled nozzles, air-induction nozzles, and using spray formulations that minimize drift (4).**
* **Delay harvest until skin set is complete (up to 21 days after top-kill). This will also allow time for mother tubers (seed pieces) to decay prior to harvest.**
* **Avoid wet conditions during harvest to prevent soil from sticking to tuber skins.**
* **Disinfect harvesting equipment (including bulk trucks) between lots or fields to help prevent spread of bacteria during harvest operations.**
* **If using post-harvest applications of fungicides for control of pink rot, late blight, or Pythium leak, consider use only on suspected problem lots or fields.**
* **Store possibly contaminated potato lots separately.**
* **Provide adequate ventilation in storage. It is best to begin ventilating immediately upon storage filling in order to dry tubers. Growers may consider refrigeration units in order to provide early ventilation without raising tuber pulp temperatures.**
* **Check storages regularly for temperature increase and odors. If problems are detected, hot-spot fans can be used to cool the pile.**
* **Dry potatoes before storage or shipping.**

**References:**

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4. de la Pasture, L. 2016. Blackleg in potatoes- rapid haulm destruction key to blackleg control. Crop Production Management. Online: <http://www.cpm-magazine.co.uk/2016/12/06/blackleg-potatoes-rapid-haulm-destruction-key-blackleg-control/>
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