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***Dickeya* and *Pectobacterium* - Potato Disease Summit
NACAA Scholarship Educational Report**

Dickeya and *Pectobacterium* are bacterial soft rot pathogens that cause the potentially devastating disease of potato, blackleg. In recent years, blackleg has been causing significant economic losses in potato production nationwide. In Florida, our potato producers have been no exception. Currently, there are no resistant cultivars or treatment options available once the potato is infected. Yield reductions as much as 100% have been seen with blackleg disease.

Being the commercial agriculture agent in St. Johns County, the official 'Potato Capital of Florida,' I serve over 15,000 acres of potato production, helping growers find solutions to their production challenges, and of the challenges faced, blackleg has been on the forefront for several growing seasons. Growers in the area have been facing significant losses from *Pectobacterium* both in seed, field and storage, and now, more recently, *Dickeya* an associated pathogen, is sweeping across the nation. To date, *Dickeya* has been reported in 16 states, including Florida, on at least nine potato varieties.

The University of Maine responded to the situation by hosting the *Dickeya* and *Pectobacterium* Summit, an international symposium focused on the latest research and steps needed to help the potato industry face these pathogens in the US and beyond. The summit was held in beautiful Bangor, Maine, and featured the current advances in the detection and diagnosis of *Dickeya* and *Pectobacterium*, and the spread, risk and management of these pathogens in potato cropping systems across the US. More than 170 people from four countries attended the important event. Speakers included potato experts from the Netherlands, Scotland, Maine, Colorado, New Jersey, North Dakota and New York.

The key take-home points from the summit were that *Dickeya* is a seed issue and the initial sources of infection need to be determined for proper management of the disease. Blackleg development is related to seed inoculum levels. When comparing *Dickeya* and *Pectobacterium*, lower levels of *Dickeya* are needed to cause damage. *Dickeya's* survival rate in the soil is much less than in water and field losses can occur even without visible seed problems. The spread of *Dickeya* is rapid during potato handling, and inoculum buildup increases with seed generations. *Dickeya* is most damaging in temperatures of more than 77 °F.

Both pathogens can be airborne, soil-borne, mechanically spread, and perhaps even spread by insects, but the initial sources of seed infection are largely unknown. Seed lot inspection before planting and sanitation are currently the front line of defense for managing the spread of the disease. Because these are bacterial pathogens, they proliferate in wet

conditions, so avoiding waterlogged soils is a way to control the disease during cultivation. Also, avoiding crop damage is essential as any damage will allow bacterial pathogens to enter potato plants and spread to tubers.

Blackleg symptoms from infected seed start to show up about 45- 55 days after planting. Non-emergence is the most common symptom in the field, and infected tubers can be symptomless on the outside but rotten on the inside, or the infection can be latent altogether, and disease may not show up until conditions are favorable in subsequent years.

The summit had a reoccurring theme after each speaker. Each expert was asked, “What needs to be addressed now? What research needs to be done to help us move forward with this issue?” Consensus was that we need to establish *Dickeya* thresholds for seed certification, as well as understand sublethal infection and spread. The epidemiology and etiology of the pathogens in potato systems is unclear and diagnostics of the pathogen needs to be improved. Diagnostic tests should yield less false negatives, and there is a need to develop protocols for surface water detection and epidemiology.

Thank you to the National Association of Agricultural Agents for the professional development scholarship funding to travel to the 2017 *Dickeya* and *Pectobacterium* Summit. This opportunity was an excellent way to get up to speed on the current status of these pathogens. I will now pass the knowledge learned on to the commercial potato producers in St. Johns County so they are well-equipped with the know-how on how to face and manage these pathogens in 2018 and the subsequent growing seasons. I will be updating the St. Johns County potato growers on what I learned during a “Lunch and Learn” series on December 9, 2017.

Steve Johnson, UMaine, shows *Dickeya* distribution in U. S.

