

AgriNews – Late blight of potatoes and tomatoes

Late blight has been reported in many areas across southern and central Alberta, with indications that it has been found in some commercial potato fields. The largest number of reports has been from urban residential plantings of potatoes and tomatoes. Due to late identification, limited control options and excellent conditions for disease development, the disease has been largely unchecked in residential locations and has spread rapidly. There is the potential for continued spread of the disease, due to air-borne spores that are being produced. There is also a risk of spread into greenhouse tomato operations.

Late blight is a serious plant disease caused by the fungus *Phytophthora infestans* and is found in most potato and vegetable-growing areas of Canada, although it does not occur every year on the Prairies. It affects potatoes, tomatoes, eggplants and related weeds. Late blight is an aggressive disease that, if left unchecked, can cause significant and rapid crop losses, both in the field and in storage.

Initial symptoms are typically noted on older leaves, appearing as dark, water-soaked areas (lesions) that move in from leaf tips/margins, becoming brown and brittle within a couple days. Late blight lesions are not contained by the leaf veins as they are with another common foliar disease called early blight. Lesions may also develop on plant stems and on potato tubers and tomato fruit. Late blight develops most quickly in warm and wet/humid conditions and can spread very rapidly through a planting. Plants may be rapidly defoliated and die. Potato tubers may be infected by spores produced on the foliage. Infected tubers may have irregular, sunken lesions that are often around the eyes with the rot penetrating deeply into the potato. The rot has a reddish-brown colour and the disease can spread from diseased to healthy tubers in storage.

On the Prairies, late blight does not form an overwintering spore type. Instead, the pathogen overwinters on living tissues and the disease is carried forward from one season to another on infected seed potatoes, cull piles and volunteer potatoes. In-season spread is by spores produced on infected tissues and diseased crop debris. Spores can move considerable distances on the wind or will move within the fields by rain or water splash.

Late blight can be managed in commercial crops using protective fungicidal sprays (with rotating chemistries), applied at regular intervals when conditions favour disease development. In home gardens, infected plant materials should be disposed of as soon as possible after detection, either by burying or freezing. Leaving cull piles or diseased materials in the open can lead to infection of healthy plants. Volunteer potato plants and solanaceous weeds, such as nightshade and wild tomato, should be controlled in all situations. If infected crop debris is composted, it should be covered with a tarp or soil until it has frozen to minimize spore distribution. Killing potato tops can help to minimize tuber infection, as this encourages tuber skin set and stops top growth. Tubers can be harvested a couple of weeks after the tops are killed. Tubers should be heavily graded and culled before storage in an attempt to prevent entry of the disease into storage.

As the season progresses into fall, the risk of late blight infection should decrease dramatically because potato and tomato vines will stop growing and begin to dieback naturally, thus reducing the amount of living tissue available for infection and reproduction of the pathogen. If you suspect that you have had late blight, it is recommended that you dispose of all infected material immediately (by burial, etc.). Once the tops of plants are dead or have been removed, the potential for continued infection is reduced or eliminated. Top killing will encourage tuber skin set and reduce tuber infection. Only harvest from healthy stands and do not keep any infected plant material (e.g. tubers). Cull and dispose of infected tubers appropriately. It is always recommended that growers and gardeners purchase clean, certified seed potatoes each season, rather than keeping their own tubers over for seed.

Late blight is not a disease that occurs every year in Alberta. There are other diseases that can resemble it, but are less serious in nature. By carefully managing any infected plant debris, people can help to prevent late blight from overwintering and avoid a potential repeat infection of susceptible crops and weeds in future years.