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Verticillium Wilt — *Verticillium longisporum*

Verticillium longisporum is a plant pathogen that can cause early plant death and decreased yield. It infects a broad range of crops, but the most severe impact is on canola. It was first detected in Canada in 2014, and since then, the (Canadian Food Inspection Agency (CFIA), along with several industry and provincial partners, has conducted extensive surveying to determine the extent of its distribution nationally.

Verticillium longisporum has been detected in varying levels in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, and Quebec.

Landowners are encouraged to have a biosecurity management plan in place to prevent the introduction and minimize the spread of plant pests. Learn more about the [National Voluntary Farm-Level Biosecurity Standard for the grains and oilseeds industry](#).

Where is *Verticillium longisporum* found?

- Europe: Belgium, Czech Republic, France, Germany, Netherlands, Poland, Russia, Sweden, United Kingdom (England and Wales)
- Asia: Japan
- North America: United States (California, Illinois), Canada (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec)

Biology

The disease cycle of *V. longisporum* happens in two phases. First, the fungus grows inside the vascular (water conducting) tissues of the plant. Then, it has a necrotrophic stage, which involves tissue rot and the production of microsclerotia in dying plant tissues. Microsclerotia are the survival structures of the pathogen. They are tolerant of many environmental conditions.

The first phase of the disease cycle requires microsclerotia to germinate in the soil. This occurs when they are in close proximity to plant roots. The fungus grows in plant roots and spreads up into the above-ground

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Figure 1: Layers of blackish microsclerotia underneath disrupted epidermis on the stem of a mature rapeseed plant

Photo: A. V. Tiedemann, Göttingen, 2006

Source: Department of Crop Sciences - Division of Plant Pathology and Crop Protection



Figure 2: Field symptoms of *Verticillium longisporum* infection on *Brassica napus* showing one-sided stem discoloration

Photo: A. V. Tiedemann, Göttingen, 2006

Source: Department of Crop Sciences - Division of Plant Pathology and Crop Protection

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Verticillium Wilt continued

vascular tissues of the plant, including the stem and leaves. As the disease progresses into the second phase, the fungus causes the stem and leaves to prematurely degenerate. Microsclerotia form on the stem (see Figure 1), and when infected plant debris is incorporated into the soil, these survival structures can stay in the soil until there is another host plant available to colonize.

Symptoms

Disease symptoms include yellowing of leaves and lateral branches, early degeneration, drying out of stems and leaves, and potentially plant death. Yellowing and stem symptoms tend to occur on one side of the plant (see Figure 2). Symptoms may also include early ripening of seeds on infected branches. Reduced plant biomass and smaller seed sizes have also been reported on canola as a result of infection with *V. longisporum*.

How does the pathogen spread?

The pathogen is primarily spread through the movement of infested soil or diseased plant parts. There is also some evidence that seed from heavily infected crops may introduce the pathogen to new areas.

Management and Control

Survival structures of this fungus (microsclerotia) can stay in the soil and remain infective for many years, even without a host plant. This makes eradication a difficult process, and requires that host plants of the fungus are not grown on infected fields for several years. In countries in which *V. longisporum* is present, in-field control measures concentrate on reducing the number of microsclerotia in soil and include tilling plant residue into the soil to reduce wind-blown spread of infected debris, clearing fields of susceptible weed species, and extended crop rotations.

Raised with Care

Concerns around antimicrobial resistance are quickly being recognized internationally. Governments around the world are increasing regulation of antimicrobial use, affecting consumers and producers. Antimicrobial regulation in Canada is soon to be amended as well, most notably affecting the livestock production industry.

Decreasing antimicrobial use in livestock production helps to slow the development of resistance and ultimately leads to more effective and sustainable husbandry practices, something all livestock producers can benefit from.

To inform livestock producers about the upcoming changes to antimicrobial legislation and to prepare them for the shifts in the practice and culture of livestock production, the Alberta Veterinary Medical Association (ABVMA) has launched the informational campaign "Raised with Care". This campaign focuses on educating and empowering livestock producers to engage in antimicrobial stewardship with print and digital media directing audiences to its web portal. Additionally, the ABVMA's Dr. Duane Landals has appeared on CHED and CFCW to discuss the issue with their hosts and is available for future interviews. Dr. Landals has decades of experience working as a rural veterinarian and is the former president and current senior advisor of the ABVMA.

Educating consumers and livestock producers on the importance of antimicrobial resistance is vital to the sustainability of the livestock production industry, and controlling the spread of resistance is essential if we hope to retain our access to these tools that save countless human and animal lives.

For more information on this issue, please visit www.raisedwithcare.ca or contact Dr. Duane Landals at duane.landals@abvma.ca.

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Weed Watch: Hound's Tongue

Hound's Tongue (*Cynoglossum officinale*) is a biennial tap rooted weed growing 0.5 to 1.2 metres (19 in to 47 in) tall. During its first year's growth, it is a soft hairy rosette. The leaves resemble the shape of a dog's tongue, and the flowers are a dull reddish-purple colour. It has rounded seeds that are covered with barbed hooks, making this plant easily spread by clinging to clothing and animals. It prefers drier, well-drained sites, but is tolerant of alkaline soils.

This noxious plant contains toxic alkaloids that cause irreversible liver damage in grazing animals and found in cured hay.

Hound's tongue is a weak competitor and by maintaining a healthy rangeland will be resistant to invasion. Repeated cultivation is effective when it is found in cropland situations. Mowing before flowering will prevent seed production. Hand-pulling is very effective but in harder soils there is potential for the root to break. It is best to sever the root below ground level to prevent re-sprouting. Any seed should be disposed of in a garbage bag or thoroughly burned.

Prevention is the key!

For more information on Hound's Tongue or any other noxious or prohibited noxious weed; to contact a weed inspector in your division to assist with plant identification; or to contact the Report-A-Weed hotline (confidential and available 24 hours) please call 403-520-8162 or visit www.rockyview.ca



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Agricultural Youth Green Jobs Initiative

Agriculture and Agri-Food Canada is pleased to announce a new initiative that may be of interest to you. The Agricultural Youth Green Jobs Initiative supports employers who wish to hire youth to undertake environmentally beneficial activities on their farm; or employers who employ youth in the agriculture sector to undertake environmentally beneficial activities.

The Agricultural Youth Green Jobs Initiative will help fund internships for post-secondary graduates



working the agriculture industry. These internships would include activities or projects that benefit the environment. Please note that this is not a summer employment program.

Funding is available through the following two streams:

1. Green Farms Stream: Farm operators could receive up to a maximum of \$10,000 per intern to implement projects that are environmentally beneficial.
2. Green Internships Stream: Employers in the agricultural sector but not directly on farm could receive up to a maximum of \$16,000 per intern to undertake environmental activities, services, or research that will benefit the agriculture sector.

Application acceptance has been ongoing since April 25th, 2016. Eligible projects are approved on a first-come, first-served basis, so interested employers are encouraged to apply early.

More detailed information is available on the [Agricultural Youth Green Jobs Initiative website](#).

New Farmers Market Phone App Available for Download

The Alberta Farmers Market mobile app links users to up-to-date information about all the Alberta approved farmers markets including location, dates, times, and contact information.

This mobile application will allow users to search for their favourite farmers markets in a number of ways. Upon entering the app, the app zooms in on the user's current location and shows all the markets in a 25-kilometre radius. Users can map out their travel route from the map. Green pins show which markets are open today and red pins show markets that are currently closed. Users will also have the opportunity to search by market name, type of market, day of the

week, specific date and location. They can also tag their favourite markets for easier access to the market information.

The app gives shopping tips for consumers, a seasonal guide for fresh produce from both Alberta and BC as well as other Alberta agricultural products.

You can find the links to the app and resources for farmers market managers and vendors at www.sunnygirl.ca.



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Got Rodents?

Richardson ground squirrels, also known as gophers, usually emerge from hibernation in mid-March. Ground squirrels eat a wide variety of grasses and broadleaf plants and may compete with livestock for forage. Damage to cereals can be particularly severe on the edges of fields adjacent to native grassland. In addition, mounds of soil excavated from burrows smother desired vegetation and can damage farm machinery.

Managing crop and pasture land to discourage establishment of gophers is important as crop growth is slowed and stunted, grazing pressure is increased, and even smaller populations can consume large quantities of crops or pasture.

Many preventative and control methods are used including perching poles for hawks and owls, maintaining taller pasture and grass lengths, rotation of crops to disturb the burrow systems, and shooting, trapping, or baiting. Unfortunately, no one method will prevent or solve high infestation problems, but considering all options can be more effective.

If baiting is a consideration, timing is crucial. Farmers can purchase 2% strychnine from Rocky View County Agricultural Services (please phone ahead) or anti-coagulant baits from other select local retailers.

Pocket gophers, commonly referred to as moles, are solitary rodents with one occupant per burrow system (typically 20 mounds of soil). They feed on forbs or broadleaf plants (alfalfa for example). Above ground feeding (usually at night) occurs in late spring and early summer and below ground on roots and tubers in the fall and winter. The mounds created by the gophers cause wear on farm machinery and are potential hazards for leg injuries in livestock. Mounds also smother desirable vegetation, provide a seed-bed for annual weeds and reduce stand density, particularly in legumes. Garden crops and shrubs can also be damaged or killed by feeding on the roots.

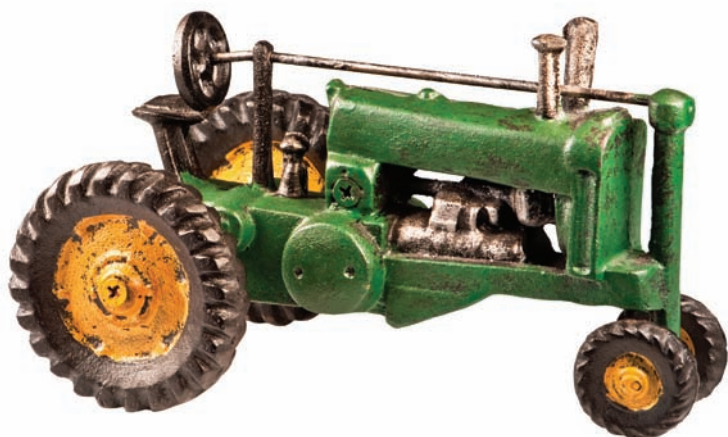
One of the most effective control methods for pocket gophers is trapping. Convert traps (box-type) can be purchased from the Rocky View County office for \$10.95 each or retail outlets such as UFA or Home Depot. To view a video on setting a trap click www.rockyview.ca/Agriculture/Weeds,PestsAnimals/PestControl.aspx

Rocky View County Agricultural Services works with residents to resolve pest control issues and can make recommendations and help find effective solutions based on individual needs. For more information or assistance with gophers or other pests, please call 403-520-1287 or visit www.rockyview.ca/agriculture.



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The 2016 Agriculture Tour



Join us on **July 21** for a day-long tour of agricultural operations in northeast Rocky View County. You'll learn more about agriculture, farming best practices, and improving soil quality in our community.

The cost is \$35 per person and includes a bus tour, lunch, and a barbecue steak dinner.

The **registration deadline is July 13**, and space is limited.

Book now at www.rockyview.ca/agriculture



The Classroom Agriculture Program

When asked "where does food come from?", too many kids say the grocery store. The Classroom Agriculture Program (CAP) is trying to change that. CAP has been around since 1985, and during that 30 years, more than 600,000 grade four students have participated in the program. These students have learned where their food really comes from and why agriculture is important to Alberta.

The vision of CAP is: "To provide students with quality, comprehensive agriculture learning experiences that lead to a greater understanding of and support for the agriculture industry in Alberta". They do this through a volunteer base of about 300 people who work in the agriculture industry.

A class may have presentations from a veterinarian, someone who works on a chicken farm, someone who owns a grain farm, works in a soil lab, or runs a country grain elevator. As you can see the variety of professions in agriculture is large and varied. In addition to the volunteer presentation each student also receives an activity booklet. The booklet is full of puzzles and games.

CAP is endorsed by the Minister of Education and the Minister of Agriculture and Forestry. This year, they were chosen as the winner for the 2015 Friends of Education Award, given out by the Alberta School Boards Association.

If you would like to become a part of CAP, either as a volunteer, member, or partner, or if you would like more information, please contact Don George, general manager of CAP by phone at 587-877-2544 or email don.george@classroomagriculture.com



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University Well Water Research Study Seeks Participants

The study aims to understand rural well water quality and its relationships with other environmental and agricultural factors in Alberta.

Participation criteria

We are looking for farm owners and managers that are interested in participating in the study.

What would I have to do?

You would complete a questionnaire and submit a sample of your water for bacterial testing.

You would be asked questions about your farm, your home, and your perceptions about rural water quality.

What's in it for me?

A gift card of \$100 dollars will be given to participants who complete the questionnaire and submit a water sample for bacterial testing.

You will receive feedback on the quality of your water, and guidance on how to deal with any issues identified.

The University of Calgary Conjoint Faculties Research Ethics Board has approved this research study.

How else can I be involved?

There are two other studies that you may be interested in:

- The first looks for viruses in well water from your farm. Sampling takes place on a monthly basis over a 12 month period.
- The second will evaluate a well vulnerability assessment tool in collaboration with Alberta Health Services. This will involve a one-time farm visit and well assessment where we will ask questions and examine your well, in conjunction with your water testing.

What if I change my mind?

Your participation in the study is completely voluntary. There is no risk to you based on whether or not you choose to participate. You can select to answer some or all of the questions and decline to answer any question in particular. If you have any questions about this process, or if you need to contact someone about participation, please contact: FoodNet Water Study: Niamh Caffrey, niamh.caffrey@ucalgary.ca or Sylvia Checkley, sylvia.checkley@ucalgary.ca



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 of **Hand'n Hand Solutions**

\$60 for members (Organic Alberta; Partner Forage Association) // \$80 non-members

Lunch included.

Space is limited. Participants must register in advance.
 To register and for more information, contact Organic Alberta or your local Forage Association:

Organic Alberta: (587) 521-2400/ info@organicalberta.org
 Grey Wooded Forage Association: (403) 844-2400
 Foothills Forage Association: (403) 700-7406

JUNE 13 & 14, 8:30am - 5:30pm,
RED DEER COUNTY OFFICE
 38106 Range Road 275, Red Deer County, AB
 RSVP June 6th

JUNE 16 & 17, 8:30am - 5:30pm,
WEEDON PIONEER COMMUNITY HALL
 42299 Weedon Trail, Cochrane, AB
 RSVP June 9th



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Agricultural Supplies for Rent or Purchase

For Rent:

Pasture sprayer – No charge to rent. Cost covered by the Agri-Environmental Incentive Program. \$1,000 deposit required at time of drop off.

Skunk trap – Free for two weeks, \$25 per week after the first two weeks. \$125 deposit required.

Magpie trap – Free for two weeks, \$25 per week after the first two weeks. \$125 deposit required.

Pigeon trap – Free for two weeks, \$25 per week after the first two weeks. \$125 deposit required.

Hay and soil probes – Free for two weeks, \$25 per week after the first two weeks. \$125 deposit required.

Tree planter – \$50 per day

For Sale:

Pocket gopher traps – \$10.95 each

Weeds of the Prairies – \$30 each

Alberta Invasive Plant Guide – \$5 each

Bat boxes – \$30 each

Green Acreages Guide workbook – \$30 each

Twine recycling bags – FREE, pickup at main office

For more information or to rent or purchase any of these items please call 403-230-1401 and ask to speak with Agricultural Services.

Agricultural Service Board

Rocky View County's Agricultural Service Board implements agricultural policies, programs, and services which support a sustainable future for Rocky View County residents.

Agricultural Service Board Members

Councillors:

Earl Solberg, Division 5, Board Chair

Liz Breakey, Division 1

Bruce Kendall, Division 9

Farmer Representatives:

Gwen Isaac, East Airdrie

Jim Dunn, West Airdrie

Jessica Dugdale, Southeast Rocky View County

Travis Eklund, West Rocky View County

Agricultural Services Staff:

Jeff Fleischer, Agricultural Services Supervisor

Laura Poile, Agricultural Services Officer

Ashley Stewart, Agricultural Services Officer

Kristyn Smigelski, Agricultural Services Officer

Alberta Agriculture and Forestry

Michelle McKinnon

For information about Growing
Forward and EFP call 403-230-1401

Growing Forward 

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