



Winter Damage to Fruit Trees



by *Forrest Scharf*
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Various types of winter damage can occur to fruit trees. Temperature-related injuries include: sunscald, tip dieback, bud death, and heartwood damage.

Cultivars grown in Saskatchewan are bred or adapted to survive extremely low temperatures, but management is often necessary to prevent injury. When temperatures dip below the freezing point, water vapor moves out of plant cells through the cell membrane due to ice formation within intercellular spaces. Other cell constituents like sugars become more concentrated within the cell and this gradual reduction of water leads to dehydration.

In general, it is tolerance of dehydration that allows winter hardy varieties to survive, but some plants also tolerate freezing via production of antifreeze proteins and other compounds. Ice nucleation releases heat, so



Protective wrap and paint on a young apple tree.

at relatively short and moderate freezing temperatures little damage occurs to plants, but when temperatures fluctuate dramatically or descend below -40 C, ice crystals form and intracellular freezing occurs leading to cell death. Tip dieback, bud death, and heartwood damage usually occur in situations where temperatures drop dramatically before the plant has hardened off adequately. Limiting soil moisture and the availability of nutrients late in fall, applying hormones like abscisic acid and managing air flow may help plants dehydrate or “harden off” for winter and thereby improve survival.

Sunscald occurs on the south to southwest side of trees, where the bark is exposed to sunlight during the warmest part of the day. Sunlight is absorbed by the bark and internal liquids are heated so that the cells become active; but when the sun sets and the temperature of the bark drops, the active cells die. To prevent this problem, the bark can be painted white (or covered with a reflective wrap), so that the sun’s energy is reflected away from the surfaces of the tree. Damage is more likely to occur to young plants with smooth, thin bark such as apples, pears and cherries.

FOR MORE INFORMATION

- Contact Forrest Scharf, Provincial Specialist, Fruit Crops in Regina at 306-787-4666 or via e-mail at forrest.scharf@gov.sk.ca.

THE CROP PROTECTION LABORATORY

by *Carla Weitzel*
Plant Health Technician
Crop Protection Laboratory

The Crop Protection Laboratory (CPL) provides year round services to Saskatchewan field, greenhouse and fruit crop growers. The laboratory tests for a variety of plant diseases including those caused by fungi, bacteria and nematodes. Identification services for weeds and insects are also provided, with an onsite plant and insect sample collection for reference. The CPL accepts submissions of home and garden pests and plant diseases as well.

Testing for herbicide resistance in weeds is offered by the CPL. For accurate and timely results, submit samples that are mature, dry and free from pre-harvest herbicide or disease. For specific instructions or inquiries, contact the CPL staff.

Fees are charged for the CPL services with the amount charged dependent on the complexity of the test.

The Dutch Elm Disease program is also based at the CPL. Each summer, a student is hired to assist Saskatchewan Environment and private home owners in diagnosing trees infected with this disease.

1-800-SASKELM has more information on symptoms and how to properly collect and submit a sample.

FOR MORE INFORMATION

on the Crop Protection Laboratory, fees and how to submit a sample please visit: www.agriculture.gov.sk.ca/programs-services or contact:

- Grant Holzgang, Laboratory Supervisor;
- Carla Weitzel, Plant Health Technician; or
- Nicole Lobb, Plant Technician at 346 McDonald Street, Regina, SK S4N 6P6 - Phone: 306-787-8130.



Technicians examining a sample.



HOT OFF THE PRESS

Saskatchewan Agriculture is constantly updating the wealth of information it makes available to Saskatchewan residents. You can download the most current version of any document posted on our website. You can also call the Agriculture Knowledge Centre at 1-866-457-2377 to request a hard copy of many items. Below is a list of the latest documents posted, as well as the most frequently visited pages, on Saskatchewan Agriculture’s website at: www.agriculture.gov.sk.ca.

Grasshopper Forecast Map - The grasshopper forecast map, which indicates populations of this insect pest in Saskatchewan, is now available. Visit: Production | Crops-Insects.

Crop Planning Guides - Provides information that can help estimate the income and cost of production for different crops on summerfallow and stubble in the various soil zones in the province. Visit: Management | Financial Planning.

Guide to Crop Protection - Provides information on the use of herbicides, fungicides and insecticides for control of weeds, plant diseases and insects. Visit: Production | Crops-Overview.

Specialty Crop Report - This report contains statistics on a number of planning and decision factors involved with the planting of specialty crops in Saskatchewan. Visit: Statistics | Crops.

