



Welcome to another edition of Hort Snacks. Another month has come and gone, lightning fast, as usual. The dry conditions continue in many areas, although there have been reports of decent rains received in various locations. Hopefully you were one that received some moisture, without any associated winds, hard/frozen moisture or other issues. Now is one of those years where you probably wish that you had a solid irrigation option in place (if you don't). It can take time to get the permissions and approvals in place, plus build storage, so maybe start thinking ahead for the future.

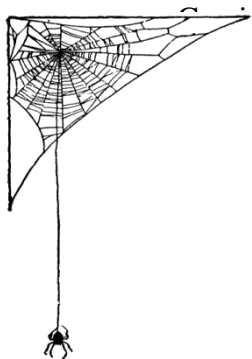
In this edition, you will find MANY event posters for the coming months, as well as a couple of articles from past editions that are perhaps pertinent today, what with weather being top of mind for most people. I've always found weather to be a fascinating subject, as well as a major challenge that we have to deal with daily. It certainly pays to understand it better, as well as the impacts of it on our crops.

You'll also find some brief (and not-so-brief) articles on various pests that you might encounter in your daily travels. While dry weather can be helpful in minimizing biotic (caused by a pathogen) disease incidence, insects and abiotic (physiological or not-caused-by-a-pathogen) disease incidence can be high, as reports would suggest is occurring this year. Please note the results of some of the pest surveillance work that is being done in Alberta (with your assistance) this year.

We hope that you will take advantage of one or many of our extension events that are planned this summer, fall and winter. You will see that we are trying to offer events when it will hopefully work best for you (our target audience) or those like you. So, field days are field evenings. Workshops for those that might enter the industry are on Saturdays or are hyper-local and in the evening. Check them out. There are many planned, with a great slate of topics.

Stay in touch. Send updates and reports. Give us a call if you need help. We'd love to help, if we can. Enjoy the sunshine and long, fresh days and beautiful mornings.

Rob Spencer / Dustin Morton, Commercial Horticulture Specialists
 Alberta Ag-Info Centre
 Alberta Agriculture and Forestry



Featured Website

[FarmStart Initiative](#)

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THINGS TO DO / THINGS TO THINK ABOUT THIS MONTH

Strawberries

- 2nd nitrogen application should be made to June bearing strawberries mid-August → 15-20 lbs actual N/ac
- Continue to cultivate June bearers between rows (same direction) after harvest to ensure good aeration and incorporation of straw and decrease next year's disease and slug population
- Maintain uniform soil moisture to facilitate rooting of runners
- Continue nitrogen feeding of day-neutrals until end of August → 10-20 lbs actual N/ac/month applied in weekly or bi-monthly applications
- Apply field cooling to day-neutrals if temperatures remain high (over 30°C)
- Application of herbicides after harvest (June bearers) if quackgrass or other grass is a problem
- Application of herbicides before mid-August (after harvest) for control of hard-to-control broadleaf weeds (June bearers only)
- Line up a clean wheat or rye straw for a mulch supply. Run straw through the combine twice to reduce the number of weed seeds (or volunteer grain) in the straw or have it ammoniated (Note: ammoniation is a dangerous and costly process)

Raspberries

- Increase watering until harvest completion
- Continue irrigation after harvest to maintain growth of new canes
- Trellis primocane raspberry canes (if required)
- Cultivation between rows after harvest to break up compacted soil
- Delay spent cane removal on floricanes until September

Saskatoon Berries

- Prune diseased plants
- Remove non-species plants

Vegetables

- Continue to supply water through to crop maturity, particularly during the fruit filling or maturation process
- Small amounts of foliar nutrient applications may be required to maintain plant growth and health

General / Other

- Maintain good weed control (harbouring of disease and insect pests)
- Commence or complete harvest operations, ensuring crops are harvested carefully, at appropriate mature stages and cooled quickly to prolong post-harvest lifespan
- For most fruit crops, particularly tree or bush fruit, reduce the supply of water towards the middle of the month and do not water after the end of the month – watering can slow or prevent the onset of dormancy and can increase winter kill in some crops
 - e.g. Apples – will not shut down growth if water continues to be available
- Visit a fellow producer

Pest Monitoring / Management

- Continue to monitor for pests and diseases, controlling as required, remembering to adhere to Pre-Harvest Intervals
- Strawberries
 - Continue to monitor for Tarnished Plant Bug and apply appropriate control measures
- Raspberries
 - Control mites as required

In the News / Interesting Articles

- [Rising Star: Local Continues Its Ascent As A Marker of Quality and Trust](#)
- [Want to boost energy efficiency and reduce costs for your greenhouse? Try this](#)
- [Watch out for Spider Mites in High Tunnels in Hot Weather](#)
- [High-tech farmer turns mall roof into bed of lettuce](#)
- [Study: Many Consumers Unwilling To Waver On GMOs](#)
- [How Good Are You At Hiring People?](#)
- [Wanted: 'E-daptable' Fresh Produce Suppliers](#)
- [Acoustic "Radar" Spots Stowaways Inside Metal Cargo Containers](#)
- [Fruit Rots in Strawberries](#) – OMAFRA article
- [The Biggest Problems That Can Be Solved by Retrofitting an Older Greenhouse](#)

NEWSLETTER USE RESTRICTIONS

Please feel free to share all or portions of this newsletter with other interested parties.

If you want to use content from this newsletter in other media, please request permission before doing so.

UPCOMING EVENT

Horticulture Field Day

A summer field day is planned for the Crossfield area on **August 10th, 2015**. We will be visiting Solstice Berry Farm. The following is the tentative agenda:

5:30pm: Registration and light supper

6:15 – 8 pm: Tour of Solstice Berry Farm orchards and facilities

There is no cost to attend this event.
R.S.V.P. to Ag-Info Centre Registration Line
(1-800-387-6030)

MENTAL SNACKTIME – Defining Yourself

“Do you want to know who you are? Don't ask. Act! Action will delineate and define you.” – Thomas Jefferson

“When you judge another, you do not define them, you define yourself.” – Wayne Dyer

“Don't ever empty the bucket of mystery. Never let people define what you do. It's not about zigging when you should zag. It's not about doing something unprecedented and unpredictable. It's just about never being a word, or something that is not in the process of transformation.” – Marilyn Manson

“I do know one thing about me: I don't measure myself by others' expectations or let others define my worth.” – Sonia Sotomayor

“We must not allow other people's limited perceptions to define us.” – Virginia Satir

Upcoming Conferences / Workshops

August 2015

- **Independent Garden Centre Show**
August 4-6 – Baltimore Convention Centre
August 18-20, 2015 - Navy Pier - Chicago, Illinois
www.igcshow.com
- **NAFDMA Advanced Learning Retreat 2015**
Aug 8-11, 2015 – Alstede Farms – Chester, New Jersey, USA
<http://www.farmersinspired-2015alr.com/>
- **Hort Snacks in the Field (Saskatoon berry/Processing focus)**
August 10, 2015 – Solstice Berry Farm – Crossfield, AB
[AF Coming Events](#) / R.S.V.P. at Registration line 1-800-387-6030
- **North American Strawberry Growers Association (NASGA) Summer Tour**
August 11-12, 2015 – Maryland, USA area
www.nasga.org
- **Hort Snacks on Wheels – Greenhouse Bus Tour**
August 24-25, 2015 – Sherwood Park, AB to Saskatoon, SK and back
- **Farwest Show**
Aug 27-29, 2015 – Oregon Convention Centre – Portland, OR
<http://www.farwestshow.com/>

September 2015

- **Hort Snacks in the Field (Saskatoon berry/Processing focus)**
Sept 1, 2015 – Hidden Valley Gardens – Sylvan Lake, AB
www.albertafarmfresh.com
- **Potato Europe 2015**
Sept 2-3, 2015 – Kain (Tournai/Doornik), Belgium
<http://www.potatoeurope.com/>
- **Explore Horticulture (for prospective growers)**
Sept 12, 19, 26, 2015 – Grande Prairie, Red Deer, Lethbridge
See AAF [Coming Events](#)
- **2015 Canada's Outdoor Farm Show**
Sept 15-17, 2015 – Woodstock, ON
www.outdoorfarmshow.com
- **Hort Snacks-to-Go Webinar**
Sept 21, 2015

October 2015

- **Canadian Greenhouse Conference**
October 6-8, 2015 – Scotiabank Convention Centre, Niagara Falls, ON
www.canadiangreenhouseconference.com
- **CanWest Horticulture Show**
Oct 9-10, 2015 – Tradex – Abbotsford, BC
www.canwesthortshow.com
- **PMA Fresh Summit International Convention & Exposition**
October 23-25, 2015 – Georgia World Congress Center, Atlanta, Georgia, USA
<http://www.freshsummit.com/>
- **4th Canadian Food Summit**
Oct 26-27, 2015 – Hilton Toronto – Toronto, ON
<http://www.conferenceboard.ca/conf/foodsummit/default.aspx>



HortSnacks in the Field



JULY 21

(Rain date July 28)

Erdmann's Gardens and Greenhouses (Vimy, AB)

Ron and Wendy Erdmann and their family have been growing vegetables for over 30 years in Westlock County. Ron will be discussing their Integrated Pest Management (IPM) program and their cooperation with Alberta Agriculture and Forestry's current horticultural pest surveillance project.

AUGUST 10

(Rain date August 17)

Solstice Berry Farm (Crossfield, AB)

Marsha and Rick Gelowitz jumped into saskatoons in 2003 and have become a force to be reckoned with. Their state-of-the-art processing line has enabled them to put their product in a number of different markets and they'll be sharing their successes and failures in this business.

SEPTEMBER 1

(Rain date September 8)

Hidden Valley Garden (Sylvan Lake, AB)

Growing crops since 1994 on their land just outside Sylvan Lake, Jim and Lesley Hill have been working on developing their soil health and quality for 20 years. Jim will be speaking to his cover cropping techniques and his use of tillage radish to decrease erosion and increase soil health on his farm.

To register call 1-800-387-6030

Sessions begin at 5:30 p.m.

Light supper provided.

Growing Forward 2 

A federal-provincial-territorial initiative

Alberta 
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ORGANIC VEGETABLE FARMING

Field Day & Farm Tour

August 20th Lethbridge, Alberta

Register by calling 587-521-2400 or
emailing lindon.carter@organicalberta.org
Cost \$20 (includes lunch)

SCHEDULE

Meet at Fork in the Rowed. East of
Lethbridge on HWY 3. Turn South on
Sunnyside Road (RR 212). Turn east immediately.
Farm is just past Victory Church.

- 8:45 am** *Arrive*
- 9:15 am** *Wildrose Heritage
Seed Company*
- 10:50 am** *Fork in the Rowed*
- 12:05 pm** *Lunch*
- 1:00 pm** *Earthly Matters
Vermiculture Farm
(Worm Farm)*

organic
ALBERTA

HortSnacks on Wheels

August 24 and 25, 2015



Cost: \$100 +GST (includes all meals)
Hotel room cost paid for by participant

**Bus leaves at 7:30 AM from
Salisbury Greenhouse in
Sherwood Park on August 24.**

Tour stops include:

**Kathy's Greenhouse, Kitscoty
Solar Gardens, Saskatoon**

**Wilson's Greenhouse and Garden Centre, Saskatoon
Dutch Growers Garden Centre, Saskatoon**

All aboard for a whirlwind tour of four fantastic greenhouses in eastern Alberta and Saskatchewan! This tour will visit four unique ornamental producers to find out what they're doing that sets them apart from the pack in terms of production and marketing. Opportunities for networking and expanding your operation abound on this jam packed tour into our neighbour to the east!

**To register please call 1-800-387-6030
or for more information call Dustin Morton at 403-742-7571**



Explore Horticulture!



Horticulture is a broad and diverse industry full of opportunities! This workshop will look at different methods of production and marketing with Agriculture and Forestry specialists. The workshop(s) will consist of a half-day in the classroom, followed by a tour of local farmers' markets and producer operations.

September 12

(Grande Prairie Provincial Building)

September 19

(Red Deer Recreation Centre,
Sportsmans Room)

September 26

(Lethbridge Exhibition Park,
Saddle Room)

To register call 1-800-387-6030

Cost: \$15 + GST per person (includes lunch)

8:30 a.m. Start

Growing Forward 2 

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How to Put on a Farm-to-Table Culinary Event **Bus Tour for Producers**

12:30 p.m. – 8:30 p.m., September 15, 2015

Are you a local food producer that would like to learn more about how to put on a farm-to-table culinary event, and how that could fit into your farm direct marketing business? Are you interested in learning more about attracting visitors to your farm and hosting them through events and experiences like Open Farm Days? Please join us for this bus tour featuring peer to peer discussion, networking, learning, and a demonstration dinner where you will be fed!



Barr Estate Winery



Irvings Farm Fresh



Nature's Green Acres

– featuring Chef Blair Lebsack from RGE RD restaurant

**Bus Pick Up &
Drop Off Point:**
Sherwood Park Area
(exact location TBC)

Registration Deadline is September 8, 2015

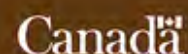
Cost: \$25 per person (plus GST), includes transportation and supper

To register call 1-800-387-6030

For more information about the tour call Colin Gosselin at 780-968-3518

Growing Forward 2 
A federal-provincial-territorial initiative


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2015 Communities in Bloom Alberta Awards

September 12, 2015 in Whitecourt

SCHEDULE

Tours depart from and return to Rotary Park (at the north end of 51 Street).

1:00-2:00pm Tour Check-in at Rotary Park – Check out the park with a self-guided tour!

2:00-4:00pm Tour 1: Hard Luck Canyon, Winter Recreation Park, Willow Biomass Project

Tour 2: Willow Biomass Project, Winter Recreation Park, Hard Luck Canyon

There is limited space on the bus tours. Please register early.

Registration and Banquet take place at the Whitecourt Golf & Country Club (north of Flats Rd.)

4:00-5:30pm Registration

4:00-7:30pm Silent Auction (Cash or Cheque)

5:00pm Meet & Greet Cocktails (Cash Bar)

6:00-7:00pm Welcome Address & Dinner

7:00pm Guest Speakers – Whitecourt Mountain Bike Association & Community Lunch Box

7:30pm CiB Alberta Awards Presentations

8:00-10:00pm Socializing

REGISTRATION

Registration Deadline: Friday, August 28, 2015

Mail: Whitecourt Communities in Bloom,
Box 509, Whitecourt, AB T7S 1N6

Email: bookings@whitecourt.ca

Phone: 780.778.3637 Ext.0

HOTEL BOOKINGS

A limited number of rooms are set aside, at a discounted rate of \$109. Book your reservation early, quoting "Provincial Communities in Bloom" to enjoy the discounted rate.

Lakeview Inn & Suites: 780.706.3349

Super 8 Whitecourt: 780.778.8908

GUEST SPEAKERS

Whitecourt Mountain Bike Association - Hear from our local Mountain Bike Association about their new and exciting development of trails both in and out of town – all done in pursuit of their goal to promote local riding and get more people out on the trails!

Community Lunch Box - "Helping kids learn better on a full stomach" is the goal of the Community Lunch Box. This all-inclusive program serves over 2,000 Whitecourt students with its force of over 130 volunteers. Learn how they got started back in 2004 and the amazing work they have done since then.

SILENT AUCTION

Silent Auction items will be accepted upon registration. Attending communities are asked to bring a silent auction donation. Donors will be acknowledged. We will have forms to fill out to describe the item and the community that donated.

FOR MORE INFORMATION OR QUESTIONS, PLEASE CALL KELLY SADOWAY AT 780-778-3637 EXT. 421.



Hort Pest Surveillance Project monitors for threats and emerging pests

In recent years, there have been many reports of disease issues in a number of different crops, in some cases going beyond what is expected or breaking free from the status quo. As a result, a collaborating group of pathologists and entomologists, industry and government specialists is undertaking a Horticulture Pest Surveillance project in Alberta for 2014 and 2015.

Late Blight

Over the last few years, there has been a great deal of concern in Alberta surrounding a serious disease called Late blight that affects mainly potatoes and tomatoes. This disease is caused by a fungal pathogen called *Phytophthora infestans*. In the past few seasons, the favourable conditions for disease development, combined with the presence of the pathogen, have resulted in multiple outbreaks of Late blight in commercial, market garden and urban potato and tomato crops throughout parts of Alberta. A number of different strains of the pathogen have been identified in different years, each being more or less aggressive on either potatoes or tomatoes. For 2015, this disease continues to be a risk for all Solanaceous crops (potato/tomato family) grown in Alberta.

Although the hot and dry conditions that have been observed in most parts of Alberta this year (so far) will help to reduce the potential for this disease, irrigation and rain showers can create favourable conditions in localized fields and plantings. Certain strains of *Phytophthora infestans* are also more tolerant of warmer/drier conditions than others, which increase risk.

It is recommended that ALL growers of potatoes and tomatoes be extra vigilant throughout the season to try and catch any diseased material early on, before a significant outbreak can occur. If you find plants showing suspicious lesions, it is recommended that you can contact 310-FARM (3276) to determine if further testing is required and to discuss management. Please do not hesitate to report an incidence, as early awareness will help to prevent and contain an outbreak and can help others to protect their crops.

While undertaking identification, producers should dispose of infected material as quickly as possible, removing disease parts (small scale) or killing out plants so disease cannot develop further. Protective fungicide applications can be made if conditions favour disease (and if disease is known to be present in the province

Information on Late Blight – [FAQ – Late Blight of Potatoes and Tomatoes](#)

Onion/Garlic Diseases

At the same time, the project team is collecting samples from **onion/garlic crops** that exhibit symptoms of a range of diseases. Soil testing is also planned for several sites. If you are a grower of garlic or onions, you are encouraged to monitor crop and submit samples as they appear.

Insect Pest Monitoring in Fruit and Vegetables

Weather stations and insect traps have been installed at 10-12 locations across Alberta to monitor for potential/emerging pests, including Spotted Wing Drosophila (SWD), Brown Marmorated Stink Bug (BMSB) and Swede Midge.

Survey results to date (2015) have found Spotted Wing Drosophila present at 2 fruit production sites in central Alberta, all mid-July captures. Very low numbers, and so far only males, were found in the traps. Both trap types (apple cider vinegar and SWD lures) have had captures. Because the capture populations are so low control recommendations have not been recommended, however cooperators will be advised of the captures at their site. Alberta participated in Emergency Use Registration applications through PMRA in 2015, so control options are available to producers if required. We will continue to monitor adult populations and sample fruit for larval populations across Alberta, primarily in raspberry, which seem to be the preferred (but not only) egg laying site. If numbers increase, we will notify producers.

Spotted Wing Drosophila

SWD Update 2014

If you want more information on any or all of these monitoring projects, please feel free to contact Rob Spencer at 310-FARM (3276).

Check your Elm Trees for Dutch Elm Disease (DED) Symptoms

By Janet Feddes-Calpas

Please help us prevent Dutch elm disease (DED) in Alberta. It is that time of year to be checking your elm trees for DED symptoms. A confirmed DED tree must be removed immediately to prevent further spread.

If an elm tree is infected with DED the leaves initially become wilted and soon will curl up, turn yellow and then brown. This is also referred to as flagging. Leaf symptoms are usually accompanied by brown staining under the bark. Symptoms begin in late spring or any time during the growing season. Suspicious elms must be tested in a STOPDED recognized lab for the presence of the fungus. Lab costs are covered by STOPDED.

This fatal fungus, which affects all species of elm trees in Alberta, clogs the elm tree's water conducting system and will cause the tree to die, usually within one or two seasons. The fungus is primarily spread from one tree to another by three species of insect vectors, the smaller European elm bark beetle (SEEBB), the native elm bark beetle (NEBB) and the banded elm bark beetle (BEBB). The beetles are attracted to weak and dying trees, which serve as breeding sites for the beetles. Once the beetles have pupated and turned into adults they leave the brood gallery and fly to healthy elms to feed, thus transporting the fungus on their bodies from one tree to the next. STOPDED monitors annually for the vectors throughout the province and both the SEEBB and BEBB have been found in various locations.

For this reason, it is important that elm firewood not be transported into or within Alberta as the wood may be harbouring the bark beetles. Firewood is confiscated at all the Alberta-Montana border crossings.

All elm trees that are showing DED symptoms must be reported immediately. To report symptoms or for more information call the toll free provincial STOPDED hotline by dialling 1-877-837-ELMS (3567). You can also visit our website at www.stopded.org.

CleanFARMS 2015

CleanFARMS will be running obsolete pesticide & livestock medication collections in October of 2015 as follow:

- Southern Alberta (Red Deer to border)
- Northern Saskatchewan (Davidson north)

The program is free and ag-retail collection locations/dates will be released in early summer. The program is delivered by CleanFARMS and its members in each province/region of the country every three years.

Visit www.cleanfarms.ca for more information.

NOTE: Can you please re-distribute this note to all your organizations and members so it gets as wide a distribution as possible? Thanks!



Q: If you do on-farm sales, do you consider yourself an agritourism operation? How does that affect what you do?

A: No

A: No, we sell 2000 pounds approx. annually of Saskatoon Berries and we sell out locally.

Next Month's ? → [How do you manage your cull product? How do you extract value from "waste" product?](#)

Rob Spencer, BSA, MSc, P.Ag. **Commercial Horticulture Specialist**

robert.spencer@gov.ab.ca

Alberta Ag-Info Centre

310-FARM (3276)

FAX: 403-742-7527

[Pest Management Regulatory Agency \(PMRA\) – Electronic Label Search Engine](#)

Search the database for electronic labels

Understanding and Predicting the Weather

In general terms, by definition, weather is the “symptom” of atmospheric change, as demonstrated by a range of different related factors or indicators. Some of these indicators include:

- Air Pressure
- Wind (speed or direction)
- Humidity
- Clouds

General Alberta Weather Rule of Thumb
If you don't like the weather, wait 5 minutes

The study of meteorology (*the science of the processes relating to the atmosphere*) and the use of it to predict or forecast the weather is very complex, and represents a blend of experience, computer models and a great deal of historic and real-time data collection. Meteorologists present forecasts for the public to use, which show how weather systems are developing and what types of weather might be expected over the short, medium and long term. People can look at weather maps, specific weather station data (which shows a range of weather factors), or follow weather reports and forecasts.

As evidenced by the variability of daily, weekly, monthly and longer term forecasts, it is difficult for anyone to just “predict the weather”. However, by watching for trends in atmospheric changes and having a basic understanding of the different component weather indicators, it is possible for people to recognize potential weather events, predict weather changes (in the short term) and, in theory, prepare for those that might negatively affect their lifestyle.

The following content will discuss some of the basic weather indicators and some of the general weather that might be expected before, during or following particular weather signs. A number of general and/or traditional weather signs will also be discussed, with reference to the weather they “predict”.

Note: Producers should rely on professional weather forecasts for specific decisions and weather information. These weather signs represent general guidelines that may apply in some situations, but do not represent hard and fast rules for predicting weather events.

Atmospheric or Air Pressure

Air pressure affects weather as it changes in an area. Air pressure changes are caused by heating or cooling of the air in the atmosphere due to the effect of the sun's radiation on the earth's surface. Heating or cooling air rises or sinks, changing the pressure. Differences in air pressure between areas create pressure systems.

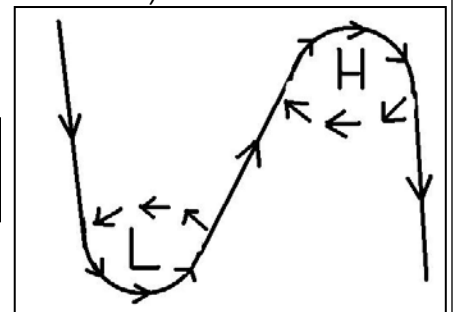
The Jet Streams are a narrow band of strong, high level (upper atmosphere) winds which move from west to east (in the Northern Hemisphere). These winds wave or bend in variable amounts, resulting in areas or systems of high and low pressure. These systems move west to east, which result in differences in the weather.

Low Pressure Systems are areas where atmospheric pressure is lower than that of the areas around it. Winds rotate in a counter clockwise rotation around a low pressure system. Low pressure systems (also known as Lows) are associated with unsettled weather.

In general, you will observe the following conditions in a LP system:

- High winds
- Warm air (relative to other areas)
- Cloudy conditions
- Precipitation
- Less diurnal (day/night) variations in temperature
 - This is because the clouds block solar radiation during the day (results in less heating) and trap heat like a blanket at night (results in less cooling)

**Low & high pressure systems
and rotational direction of winds**



“The trouble with weather forecasting is that it's right too often for us to ignore it and wrong too often for us to rely on it.” – Patrick Young

High Pressure Systems are areas where atmospheric pressure is higher than that of the areas around it. Winds rotate in a clockwise direction around a high pressure system. High pressure systems (a.k.a. Highs) are associated with clear skies and calm weather. High pressure systems generally have higher temperature extremes and greater diurnal variation, resulting in higher highs and lower lows.

As air pressure systems move, you will see the weather change. The greater the rate of change, the faster the system is moving. Many times, where the high pressure system originates affects what the approaching weather will be. If a HP system moves in from the south, you can expect warm and clear weather in summer. If a HP system moves in from the north, you can expect cold weather in winter.

Other signs that come with high pressure systems include:

- Winds blow away from HP systems
- Weather is usually drier in HP systems

Red sky at sunset / evening



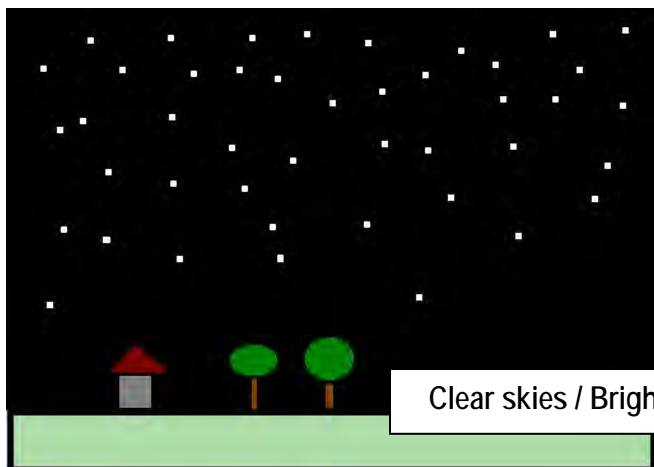
Weather Signs:

Since weather systems move, there is a continual replacement of weather systems. This allows you to predict how weather will develop based on what you observe in the present. Similarly, throughout history, there have been many rhymes, poems and tips and tricks handed down to help the population predict the weather. Here are some examples grouped by type.

Changes in Air pressure

- The speed of changes in air pressure can indicate the duration of a particular weather system. For examples, if air pressure increases rapidly you can expect calm and clear conditions to pass over quickly.
- If a barometer rises (increases in air pressure), expect fair weather, decreased cloudiness, calmer winds and clear skies, all associated with a high pressure system.
- Clear skies will result in no clouds and cool/cold conditions. The following adages would apply in this case:

"Cold is the night when the stars shine bright" or "When stars shine clear and bright, we will have a very cold night"



Clear skies / Bright stars

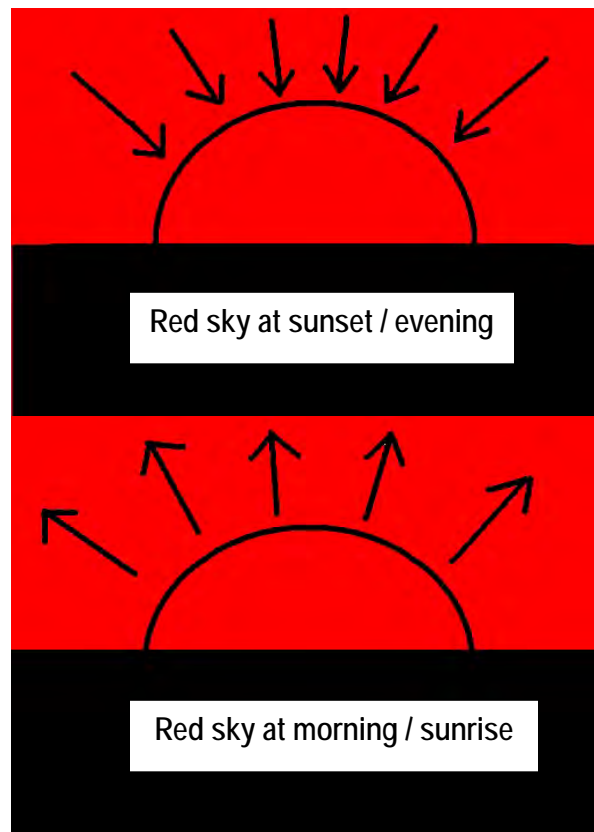
- There are a couple rhymes that predict the arrival of a high or low pressure system.
 - A red sky during sunset suggests a high pressure system is approaching, bringing clear, dry air. A red sky at sunrise suggests a low pressure system is coming, bringing moisture.

"Evening red and morning gray, helps the traveler on his way.

Evening gray and morning red, brings down rain upon his head"

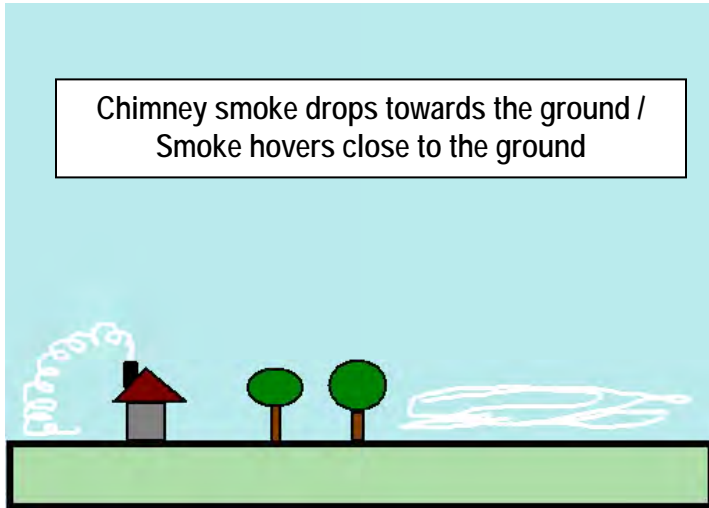
"Red sky at night, sailor's delight; Red sky at morning, sailors take warning"

- A red, hazy or pale moon signals high pressure

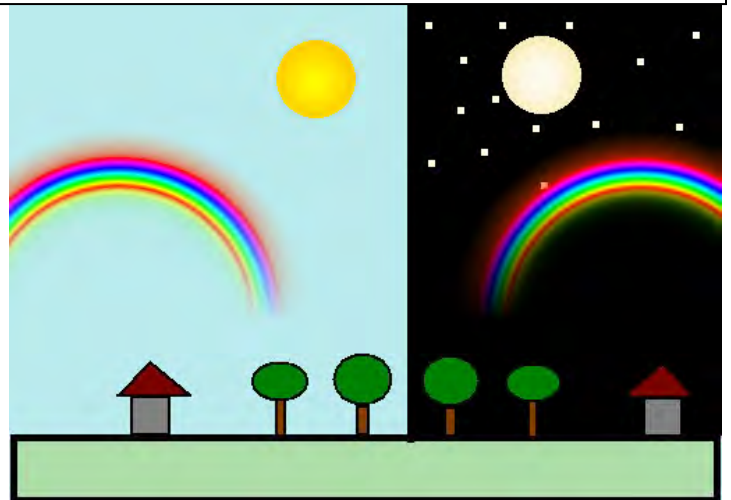


"A rainbow afternoon, Good weather coming soon"

- Dropping air pressure will cause smoke to drop or stay close to the ground
"Chimney smoke descends, our nice weather ends"



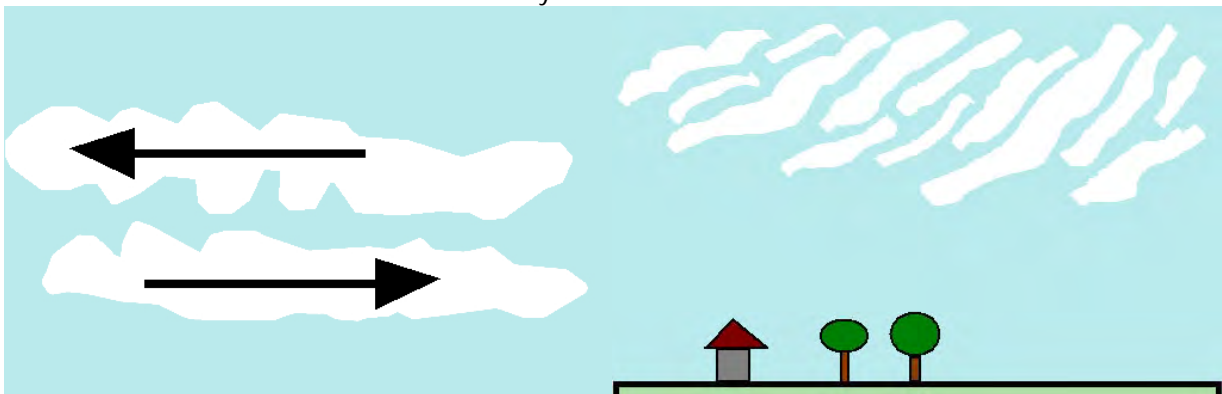
*"A rainbow in the morning, is the shepherd's warning
A rainbow at night is the shepherd's delight"*

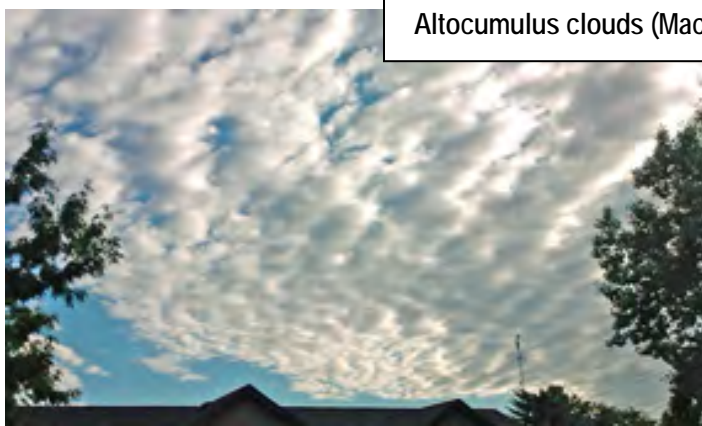
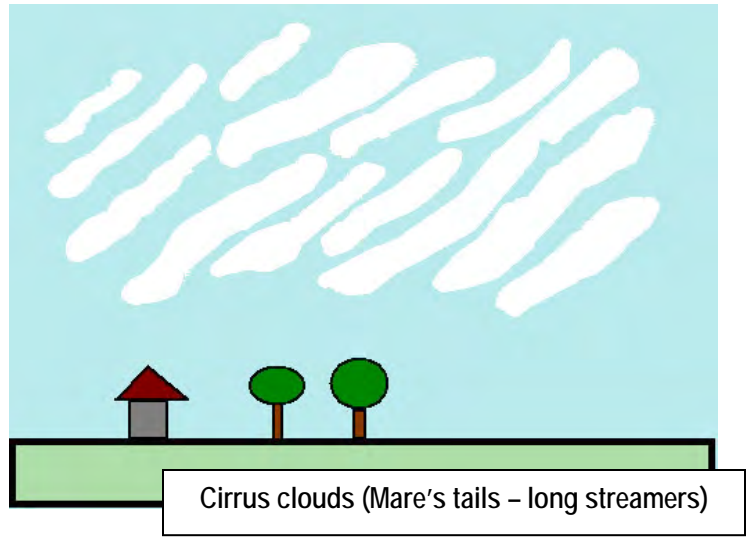
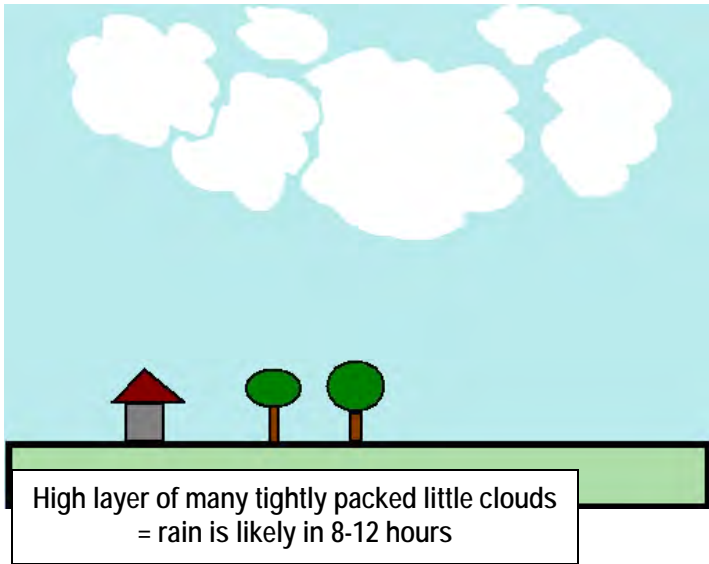


[Sky Watchers Guide to Cloud ID - Environment Canada](#)

Cloud Formations

Different types of clouds are associated with different types of weather. The way that clouds are moving or changing can signal a shift in the weather and the arrival of different weather systems.

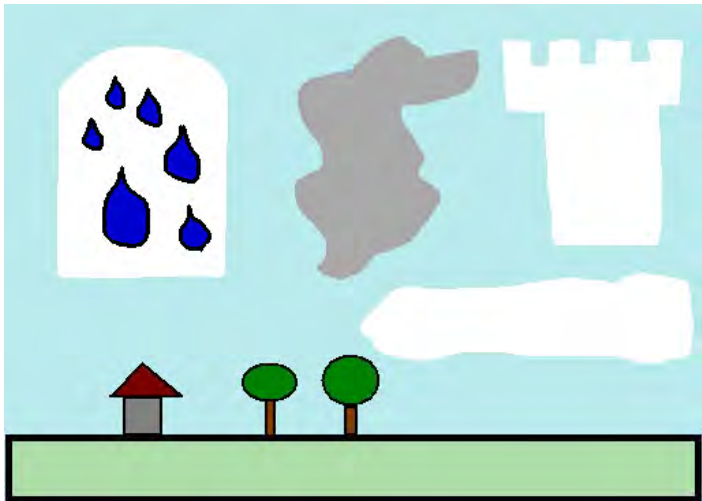




Altocumulus clouds (mackerel scales – scaly appearance)
 Cirrus clouds (Mare's tails – long streamers)

"Mare's tails and mackerel scales, tall ships carry short sails"
"Mackerel scales and mare's tails, sailors furl their sails"

If covers the whole sky = 80% chance of rain in next 24 hours;
 Bad weather in 36 hours



"Clouds with round tops and a flat base has rain upon its face"

"When clouds look like black smoke as wise man will put on his cloak"

"When smoke hovers close to the ground, there will be a weather change"

"When clouds appear like rocks and towns, The Earth's refreshed by frequent showers"

- Early and developing cumulonimbus clouds = increased chance of severe weather
- Cloud cover on a winter night = warmer weather
- Fog in the fields = will be sunny
- Slow / gradual wind direction change = weather will be fair

Other Signs

There are many adages or weather signs that may be used to indicate weather changes or predict how long current weather will last. Most relate to the arrival or duration of precipitation.

Some weather adages that relate to the sound of things (indicating for the most part changes in humidity or a decrease in pressure) include:

- *"When the chairs squeak, it's of rain they speak"*
- *"Catchy drawer and sticky door, coming rain will pour and pour"*

- *"The squeak of snow will the temperature show"*

Other adages relate to watching conditions during precipitation. Signs include:

- *"Rain before seven, fine before eleven"*
- *"When leaves show their undersides, be very sure that rain betides"*
- *"When night goes to bed with a fever, it will awake with a wet head"*
- *"When the sun shines while raining, it will rain the same time tomorrow"*

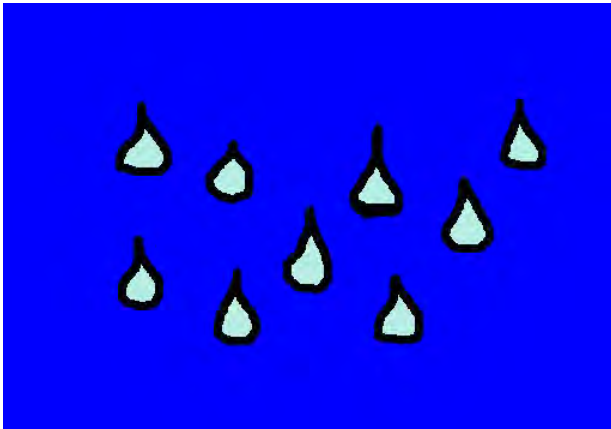
"Sea gull, sea gull, sit on the sand, it's never good weather while you're on the land"

"When sea-gulls fly to land, a storm is at hand"

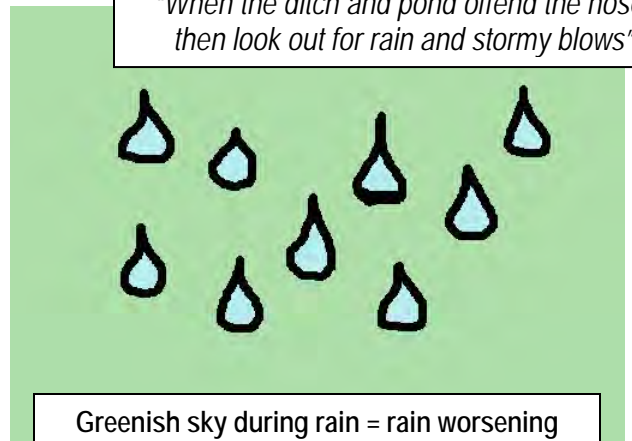
"Summer fog for fair, a winter fog for rain. A fact most everywhere, in valley or on plain"

"If bees stay at home, rain will soon come, if they fly away, fine will be the day"

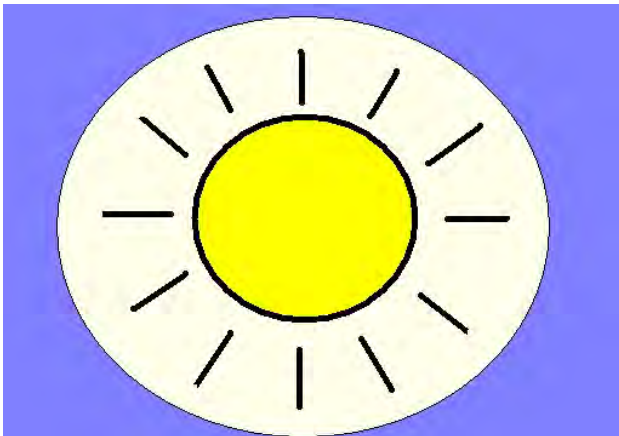
"When the ditch and pond offend the nose, then look out for rain and stormy blows"



Deep blue sky during rain = showers will continue



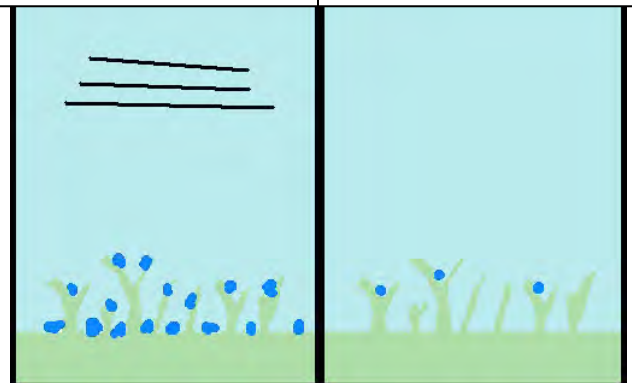
Greenish sky during rain = rain worsening



Circle around the moon = rain or snow soon;
Halo around the sun = rain in 10-12 hours
Caused by cirrostratus clouds = warm fronts and moisture

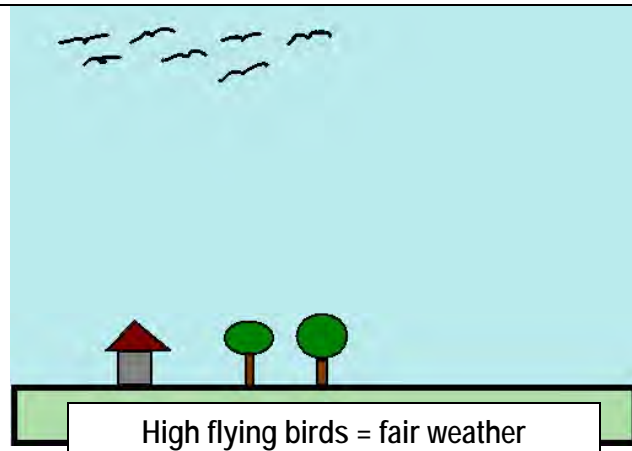
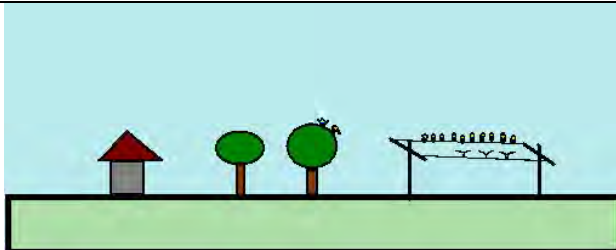
Heavy dew = day will be nice

Light dew and no wind = expect rain



"When the dew is on the grass, Rain will never come to pass. When grass is dry at morning light, Look for rain before the night"

Low flying or roosting birds - decreased air pressure = hurts their ears
Animals cluster together if bad weather approaching



High flying birds = fair weather

Flooding / Excess Water

Flooding or excess water damage can be caused by short to medium term, intense introductions of water, as a result of poor soil drainage causing soil saturation and pooling, from overapplication of water through irrigation or through heavy rains or runoff from water bodies.

Impact on Soil

Excess water impacts both the plants and the soil. During and after excess water situations, soil quality and structure will be reduced, with an increase in compaction, clinging soil and the number of clods. Nutrients will be leached out of the soil profile, potentially resulting in nutrient deficiencies. Soils (and plants growing within them) may become contaminated with pathogens (human or otherwise), while produce may become contaminated with silt or other debris.

General Plant Damage / Impact

Plants that have been flooded or that grow in saturated soil situations will often exhibit reduced growth and/or stunting. Foliage (leaves and stems) may look yellowed and chlorotic and, if conditions persist, may become necrotic (dead). Seeds may rot and root death may occur. Plants may wilt and decline (depending on the duration of the saturated soil conditions). There will be an increase in the incidence of diseases (bacterial, fungal) due to weakening to the plants and due to improved conditions for disease development (increased humidity, prolonged leaf wetness periods, etc.).

Plants that are exposed to excess water will have altered plant hormone levels, which will result in abnormal growth, including twisting, epinasty, distortion, enlarged lenticels, and aerial or adventitious root formation.

The main impact that comes from excess water is due to a reduction in the amount of oxygen that is in the roots, which affects respiration and metabolic transport systems. Reduced oxygen also damages roots, which reduces uptake of nutrients (such as calcium) and can result in increased uptake of toxins and attack from pathogens.

Different crops respond to flooding in different ways, depending on the previously outlined factors. The following tables outline the specific impact of flooding on different crops.

Impact of Flooding on Potatoes		
Timing / Duration	Plant Response	Other Damage
Anytime		Leaching of nutrients from soil
8 -12 hours	Root death	
	Irreversible wilting and plant death	
After Planting	Delayed emergence	
	Increased seed piece decay	
Planting to Emergence	Seed piece decay	Increased clod formation
Vegetative Growth Stage	More prone to development of Verticillium wilt	Increased compaction & clod formation
Tuber Initiation	Development of tuber disorders - brown centre; stem and hollow heart	
Tuber Bulking	Lush canopy	Nitrate leaching
	Increase in Early blight, Late blight, Aerial stem rot, sclerotinia stalk rot, bud end hollow heart	
Tuber Maturity	Enlarged lenticels	Increased bacterial soft rot

From the Hort Snacks Archives

	Delayed senescence and skin set	Increased Pythium leak, pink rot, late blight tuber rot
Harvest	Increased susceptibility to shatter bruise and thumb nail cracking	More soil cling
	Increased tuber rot	

Impact of Flooding on Carrots	
Timing / Duration	Plant Response
Anytime (at higher temperatures)	More permanent affect
	Plant wilting
Persistent flooding	Chlorotic / necrotic tissues
	Increased chance of attack by pathogens / secondary pathogens
	Increased bacterial soft rot
	Forking of tap root (due to death or restriction of growing tip)
	Reduced carrot quality <ul style="list-style-type: none"> • Decreased root length and colour • Increased lateral root development (e.g. hairy roots) • Stimulate cellular growth at later root emergence sites • Blemishes

Response / Solutions to Excess Water

The most important thing when dealing with excess water is to remove it as quickly as possible. When at all possible, improve drainage of the soil to prevent future issues. Removing water will improve access of the roots to oxygen, which immediately will improve nutrient uptake. Root growth will resume to replace lost roots.

Tillage, once soil is dry, may remove soil crusts and hard layers and improve aeration. You might consider replacing lost nutrients, if you feel it is necessary and appropriate. Consider waiting for a short time to allow plants to recover somewhat, otherwise applications may be less effective. Foliar applications can supply necessary nutrients quickly to plants, which might be more effective than a soil-based application.

During recovery, it is important to monitor plants (especially young ones) closely. Increase monitoring for diseases. The application of fungicides may be appropriate to protect recovering plants from disease, but carefully consider the cost/benefit of applications. In some cases, tilling under unsalvageable crops to reduce spread and development of disease will be necessary. You may replant shorter maturing crops to try and recover lost revenue.

Harvest mature crops as quickly as possible after flooding damage, however only harvest if product is safe. Increase culling to remove any reduced quality product and avoid use of harvested product where flooding may have introduced human pathogens. Wash/disinfect all harvested product carefully.

Hail

Hail (and similar severe weather) can be devastating, both in the physical/tangible sense, and psychologically, as it can be pretty random and pretty much impossible to predict or prevent. Hail can cause partial to complete defoliation of leaves and stems, tearing or shredding leaves and breaking stems and branches. The plant will often focus on recovery of lost tissues, which results in the diversion of resources away from storage areas (such as fruits, tubers, storage roots, etc.). As a result of the loss of the foliage/foliar area, the plants have reduced photosynthetic capacity and reduced sugar (metabolite) production and increased sunburn to exposed fruit.

If hail occurs at a generative stage of plant growth, flowers or fruit may be physically knocked off (e.g. strawberries, tomatoes, etc.), reducing yields, while fruit, bulbs, root shoulders, etc. may be bruised and tissue browning may be observed. Injured tissues also represent an entry point for pathogens. Product may not be marketable or may be reduced in quality (e.g. storage organs such as tubers). Some delay in maturation of produce may be evident, as the plant regrows or recovers. As with all severe weather damage, the severity of the damage and associated losses depend on a number of factors, including how much damage actually occurs, what stage of growth the plant is at, specific cultivars, as well as cultural practices and the subsequent weather that follow the injury. In the case of crops like potato, if slight to moderate damage is combined with good subsequent weather/growing conditions should result in a rapid recovery.

The specific impact of different types and levels of damage at different growth stages of potatoes and other crops are outlined below.

Impact of Hail of Potatoes	
Level of Injury / Plant Stage	Plant Response
Slight leaf damage (any stage of growth)	Minimal impact on yield
Partial defoliation to complete mutilation of leaves and skins	Reduction of yield and tuber quality
	Delayed maturity
25% Foliage loss (especially if before mid-season)	Reduced total and marketable tuber yield
Increased Damage	Reduced marketable tuber yield
	More small and malformed tubers
	Lower specific gravity
Severe stem damage	
Shortly before/during or just after bloom	Reduced yield
2-4 weeks after bloom	Highest losses
Percent Defoliation	Reduced tuber starch content in proportion to % foliage removal
	Delayed maturity
	Secondary growth

Impact of Hail on Various Crops	
Level of Injury / Plant Stage	Plant Response
Strawberries	
During flowering or fruiting	Reduced yield /Highest losses
	Bruising on mature fruit / brown scars on immature fruit
Beans	
Cotyledon/seedling stage	Death if cut off below cotyledons or cotyledons are severely damaged
Flowering stage	Reduced yield and split sets (uneven maturity)
Other stages	Similar response to damage to other crops
Corn	
Vegetative stage or silking	Reduced marketable ears and reduced yields
At harvest	Minimal impact

Response / Solutions to Hail Damage

After heart rates have settled, take some time to assess the level of damage that has occurred. This isn't necessarily a one-time process. As plants recover to some degree, it will become easier to see permanent versus temporary damage. In some cases, wait up 7-10 days to make the final assessment. This allows clear distinction between dead and living tissues. Assessment will help you to determine the reduction in both yield and quality.

Once a reasonable assessment has been made, some actions may help plants to recover. The application of fungicide treatments may help in recovery and can help to protect damaged tissues from attack by pathogens. Additional nitrogen can encourage new vegetative growth, however, ensure that plants have recovered sufficiently to be able to take up nitrogen and use it. Pruning or removal of damaged tissues (e.g. trimming carrot tops in field) can be undertaken with moderation.

Heavy Rain

Rain is rarely considered to be negative weather, however if it arrives in excessive amounts in a short time, resulting in localized flooding of soil and associated excess moisture damage. Sudden, heavy rains can also produce damage that is very similar to hail damage, causing varying degrees of defoliation, bruising of plants (particularly soft fruit), specifically in the shoulder regions. Some cracking of the shoulder regions can also occur. Disease development may increase due to soil splash, damaged tissues and increased humidity.

Response / Solutions to Heavy Rain

Dealing with heavy rain is similar to dealing with excess water / flooding or hail, depending on the situation. Producers should ensure that there is good drainage (or actively work to drain soils) and may apply protective fungicides may help protect damaged tissues from infection. Replacement of lost nutrients may also be necessary.

INSECT OF THE MONTH

Something Strange – Observed Plant Deforming Insect Pests

There are a number of different insect pests that you might be seeing out “there” these days. In reality, in most cases you will not see the actual culprit, but rather the product of their feeding or life cycle. These particular examples can exhibit themselves as unusual swellings or galls on the plant (e.g. a pustule-like gall on the leaf surface) or may appear as abnormal or distorted growth, sometimes accompanied by discoloration. In other cases, they are noticed due to a rapid browning of the leaf surfaces. These pests are certainly off-putting (ICK-factor), and potentially disconcerting or worrisome to behold, most of these pests are not overly damaging to the large woody plant specimens that they are normally observed on. Most merely reduce the aesthetic value of the host, although in some cases, it may be permanent. Some can be managed with spot treatments or simply by ignoring them. Some of these pests can be problematic on other host crops and should be recognized for their potential damage to the crops.



Left – Willow red gall sawfly (*Pontania proxima*) on golden willow



Right – Abnormal gall on the trunk of a pendulous willow



Multiple galls caused by Poplar Bud Gall Mite on poplar (*Aceria parapopuli*)



Quarter to loonie sized popcorn ball-like swellings caused by Poplar Bud Gall Mite (*Aceria parapopuli*)



Pocket galls formed on elm leaves by Gall Mite (*Aceria ulmi*)



Close up of pocket galls caused by Gall Mite (*Aceria ulmi*)



Underside of currant leaf – masses of aphids are feeding



Leaf discoloration and swelling on currant caused by aphid feeding



Leaf curling and distortion caused by aphids feeding on larkspur



Elm upper surface leaf distortion and curling caused by feeding of Woolly Elm Aphid (*Eriosoma americanum*)



Aphids (*Pemphigus populivenerae*) feeding inside midvein swelling (turned inside out) on poplar leaf



Left – midvein swelling on poplar leaf (underside)
Right – same swelling on upper surface



Distortion of branchlets of elm caused by aphid feeding



Severe leaf distortion caused by Woolly Elm Aphid (*Eriosoma americanum*)



Winged and wingless greyish-black aphids are visible, as well as copious amounts of honeydew (sugary secretion from feeding) and white waxy material



Birch Leafminer (*Fenusa pusilla*) damage on Cutleaf Weeping Birch



Birch leafminer – frass and larva are visible within the space created by feeding between the upper and lower surfaces of the leaf cuticle



Birch leafminer (*Fenusa pusilla*) on paper birch

Photos by Robert Spencer

DISEASE OF THE MONTH

Cankers (Hypoxylon, Nectria, Cytospora, etc.)

Crops Affected: Range of tree species (depends on pathogen)

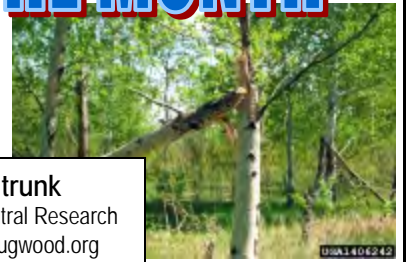
Disease Cycle / Symptoms / Conditions Favouring Disease Development

Hypoxylon Canker

- Caused by *Entoleuca mammata* fungal pathogen
- Affects several species of aspen and poplar
- Ascospores are suspected to gain access to a tree through dead branch stubs and injuries to the stem
 - Considered more of a secondary infection
- Spores (both ascospores and conidia) are produced in infected wood (dead and alive)
- Symptoms include:
 - Slightly sunken areas on the stem with a yellowish-orange coloured bark
 - Cankers enlarge and spread rapidly to girdle the stem
 - The cortex will be yellow and black mottled, with a fan of mycelium on the cambium layer
 - Trees with this infection are often broken by wind at the point where the canker occurs
- Most common in weak, stressed or damaged plant stands
- Trees typically die within 5 years of infection

Hypoxylon canker – broken trunk

Photo by USDA Forest Service - North Central Research Station Archive, USDA Forest Service, Bugwood.org

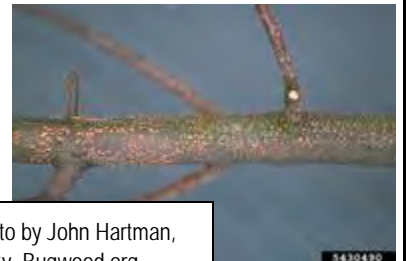


Nectria / Cytospora Canker

- Caused by either *Nectria cinnabarina* or *Cytospora chrysosperma*
- Affect most broadleaf tree species
- Disease cycles for these fungal pathogens are not well-known
 - Tend to be secondary colonizers of dead or dying trees
 - Infections are started by both ascospores or conidia
- Symptoms include:
 - Nectria causes bright orange to pink raised pustules on the trunk
 - Cytospora has black, multi-chambered fruiting structures

Hypoxylon canker – Note distinction yellowish colour

Photo by Linda Haugen, USDA Forest Service, Bugwood.org



Fire Blight (Canker form)

- Caused by *Erwinia amylovora* bacterial pathogen
- Affects plants within the Rose family, particularly apple, crab apple, pear, cotoneaster, Saskatoon berry, raspberry, etc.
- Disease cycle:
 - Overwinter in infected stem cankers, although are introduced through infection of smaller parts
 - Infection into larger branches and trunks can occur during pruning operations
- Symptoms include:
 - Blight of blossoms, twigs, leaves and branches are main, recognizable symptoms
 - Cankers of branches and trunks are dark and water-soaked, often with thick, milky masses of bacteria oozing out
 - Canker infection progresses from other infections into the larger branches and main stems

Nectria canker - Photo by John Hartman,

University of Kentucky, Bugwood.org

Management:

- Ensure that plants are kept healthy and free from stress and injury
- Remove injured or diseased plant parts once detected, disposing by burning or burial
 - Ensure pruning is done correctly
 - Ensure that the pathogens are not introduced into the plant through the wounds (clean equipment)
 - Ensure that wounds heal correctly
- Some registered products are available for fire blight suppression



Fire blight canker - Photo by www.aqf.gov.bc.ca

Cytospora canker - Photo by William Jacobi, Colorado State University, Bugwood.org

