



Summer is rolling along and that means another edition of Hort Snacks is here. Based on reports from across the province, things are reasonably moist in most locations, with crops moving along and a number (especially fruit) being ahead of schedule.

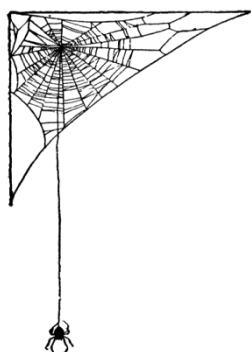
In this edition of Hort Snacks, you'll find a number of articles that sort of pull together the end of the growing season, including information on water for horticulture crops, some key points about post-harvest handling of hort crops, as well as a few disorders and insects to think about.

There are a number of good extension events going on across the country and continent during summer and it bears considering getting out to some of them. If you can't travel to them, at least visit a fellow producer. Sharing ideas is very beneficial.

For those who are fruit or vegetable growers (in Alberta), you can expect a call or email in the next while, requesting a little bit of data from you. We are attempting to more accurately determine the value of the horticulture industry in Alberta, so we could use your help in doing so. If you want to beat the call, just drop a note to share your approximate acreage for the crops that you grow.

As the summer rolls on, be sure to take a few minutes to enjoy the sunshine, recognize the good things that are happening around you and spend some quality time with good people. If you have a minute, send a brief update on what you are seeing in your neck of the woods. Take care. Have a great summer.

Rob Spencer / Dustin Morton, Commercial Horticulture Specialists
 Alberta Ag-Info Centre
 Alberta Agriculture and Forestry
 310-FARM (3276)



Featured Website

e-GRO (Electronic Grower Resources Online)
<http://e-gro.org/>

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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

- [Cover crops and zone tillage for reduced risk weed management in field vegetables in eastern Canada](#) – AAFC article
- [Market The Experience Of Gardening, Minus The Fuss](#) – Greenhouse Grower article
- [Automated Strawberry Picker: One Step Closer To Reality](#) – Growing Produce article
- [Setting Yourself Up For Hydroponic Success](#) – HydroPods article
- [Can Horticulture become a CO2 neutral industry?](#) – HortiDaily article
- [Which Ethnic Vegetables Are In Highest Demand?](#) – Growing Produce article
- [Climate Change – What's Your Plan?](#) – Growing Produce article
- [Organic Farming Programs Can Be Eye-Opening](#) – Growing Produce article

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.

DETAILS TO COME SOON

Fruit & Vegetable Field Days

#2 Strawberry Varieties (August 29) – The Jungle Farm (Innisfail, AB)

The plan for this year:

- Afternoons (starting with lunch)
- Single farm locations
- Focused / Specific topics

Watch www.albertafarmfresh.com OR AAF [Coming Events](#) for event details.

MENTAL SNACKTIME – Reap what you sow

“Don't judge each day by the harvest you reap but by the seeds that you plant.” – Robert Louis Stevenson

“All cannot rule, nor can all be ruled. All cannot plow, nor can all sow, nor reap. No more can all neglect such employments, else the race would become extinct. Each has his business to perform, his part to act. It is a duty he owes to the rest as well as to himself.” – Joseph P. Bradley

“The law of harvest is to reap more than you sow. Sow an act, and you reap a habit. Sow a habit and you reap a character. Sow a character and you reap a destiny.” – James Allen

“Success leaves clues, and if you sow the same seeds, you'll reap the same rewards.” – Brad Thor

“Maturity is the ability to reap without apology and not complain when things don't go well.” – Jim Rohn

“Sow an act and you reap a habit. Sow a habit and you reap a character. Sow a character and you reap a destiny.” – Charles Reade

Upcoming Conferences / Workshops

August 2016

- **NAFDMA Advanced Learning Retreat 2016**
Aug 2-5, 2016 – Seaquist Orchards – Sister Bay, Wisconsin, USA
<http://nafdma.wix.com/alr2016>
- **8th International Strawberry Symposium**
Aug 13-17, 2016 – Quebec City Convention Center – Quebec City, QC
<http://www.iss2016-quebec.org/>
- **North American Strawberry Growers Association (NASGA) Summer Tour**
Aug 17--18, 2016 – Quebec City, QC area
www.nasga.org
- **Independent Garden Centre Show**
August 16-18, 2016 - Navy Pier - Chicago, Illinois
www.igcshow.com
- **Farwest Show**
Aug 25-27, 2016 – Oregon Convention Centre – Portland, OR
<http://www.farwestshow.com/>
- **Hort Snacks in the Field (Strawberry Varieties)**
August 29, 2016 – The Jungle Farm – Innisfail, AB
<http://www.albertafarmfresh.com/> or AAF [Coming Events](#)

September 2016

- **2016 Canada's Outdoor Farm Show**
Sept 13-15, 2016 – Woodstock, ON
www.outdoorfarmshow.com
- **Potato Europe 2016**
Sept 14-15, 2016 – Villiers-Saint-Christophe, France
<http://www.potatoeurope.com/>
- **CanWest Hort Expo**
Sept 28-29, 2016 – Tradex – Abbotsford, BC
www.canwesthortshow.com
- **2nd Canadian Organic Science Conference**
Sept 19-21, 2016 – Montreal-Longueuil, Quebec
[Conference link](#)

October 2016

- **Canadian Greenhouse Conference**
October 5-6, 2016 – Scotiabank Convention Centre, Niagara Falls, ON
www.canadiangreenhouseconference.com
- **PMA Fresh Summit International Convention & Exposition**
October 14-16, 2016 – Orange County Convention Centre, Orlando, Florida, USA
<http://www.freshsummit.com/>

Hort Snacks in the Field Strawberry Varieties



August 29, 2016



Location: The Jungle Farm – 28120 Township Rd 362, Red Deer, Alberta (north of Innisfail, AB)

This field day will provide strawberry growers with an opportunity to visit a strawberry production operation to learn about different June-bearing and Day-neutral-type strawberry varieties. This interactive field day encourages participants to learn from each other, as well as the host farm.

Registration: 11:30 a.m. to 12 Noon

Lunch: 12 Noon to 1 p.m.

Farm Tour: 1 p.m. to 3 p.m.

To register: 1-800-387-6030

Registration deadline: August 22

Cost: \$10/person

Lunch and snacks provided

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 2016

CleanFARMS will be running obsolete pesticide & livestock medication collections in October of 2016 as follow:

- Northern Alberta (Red Deer to AB Peace)

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: In 2015, Alberta farmers disposed of more than 72,000 kg of obsolete pesticides and livestock medications

Q&A

Q: What strategies do you use to manage the harvest of multiple crops?

A: A lot of the tricks of managing the harvest of multiple crops take place in spring, or before, during planning and planting. Using different varieties, having a reasonably good knowledge of what you are planting and when it will mature, and then staggering things as best as you can, using different techniques will help to shape your harvest schedule. When it comes to harvest, have a clear plan for what needs to be harvested when, how it is handled and who is doing what. This should help reduce the confusion that can come from spur-of-the-moment planning and decision-making – Rob Spencer (AAF)

Next Month's ? → [What activities or products do you offer throughout September?](#)

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

Search the database for electronic labels

Hort Snacks in the Field – Seeds to Greens CSA – June 27, 2016

Good times were had by all at the late-June field day at Seeds to Greens CSA in Rockyview County. A number of keen individuals attended from across the province and spent an engaging afternoon looking at equipment, hearing about the technologies and protocols that the farm uses and sharing their own ideas and experiences with the other participants. The following are some of the points that popped out during the event.



1 and 2: Hosts Dick and Sue Pearson brought out all of their equipment to show field day participants some of the tools that they use in their operation. They have some simple, small farm scale equipment that is easy to train employees how to use. They also have friendly equipment-sharing partnerships with neighbouring farms that allow them to share equipment at different times of year (e.g. mulch laying and bed shaping equipment).

3: Seeds to Greens CSA utilizes a number of microclimate modification technologies to extend their season, spread out their harvest, and to deal with production challenges. Foremost among them is their high tunnel, which is full of flourishing warm season plants like peppers, tomatoes and eggplants (with ripening fruit on them).



5-7: The [Japanese Paper pot transplanter system](#) gets significant use at Seeds to Greens CSA. During the tour, Dick showed how the different component parts worked and discussed what sorts of crops it is used for. They also use different seeders for certain crops.

4: Other growing season extension / microclimate modification technologies in use on the farm include raised beds with plastic mulch, the use of different thicknesses of row cover, including some heavy weigh, barrier fabrics to increase germination of things like carrots or using the cloths to suppress weeds. A number of crops were also covered with low tunnels, to enhance growth and development. This, combined with plastic mulch, has been very successful.

Horticulture Crop Water Requirements

Horticulture crops are typically big water users compared to some crops, however, they each have their preferences and times for when they HAVE to have water (critical periods). The two questions you have to ask are:

How much water does my crop require?

When does the crop absolutely NEED water (when is moisture critical)?

The amount of water used by a particular crop depends on a number of factors, including crop growth stage and environmental conditions (temperature, wind, relative humidity). The speed at which soil moisture is depleted depends on crop use and the soil type (sand, clay, etc.). Applying adequate amounts of moisture requires a basic understanding of soils and the general water use of the crop. Moisture stress/excess can affect crop yield and survivability (over-wintering) and will definitely have an impact on the bottom line.

If you are in a situation where you have water restrictions, knowing the critical moisture period can allow you to get the water to the plant when it really needs it and make the difference between a crop and no crop.

Table 1: Critical periods and water requirements of Fruits and Vegetables

VEGETABLES		
CROP	CRITICAL PERIOD	WATER REQUIREMENTS
Asparagus	During establishment During harvest	Apply approx. 50 mm after harvest Apply 25 mm at the end of the season Apply 25 mm every 10 days (depending on precipitation)
Beans	During flowering and pod set	Apply 25 to 38 mm per week during peak use period*
Carrots	General growth and root fill	Will use 4 to 6 mm per day during peak use period
Cole Crops (Broccoli, Cabbage, Cauliflower)	Head formation and enlargement	Will use 380 to 500 mm during the season*
Corn	Tasseling, pollination and ear filling	Will use up to 6 mm per day (during peak use period) Will use up to 510 mm during the season*
Cucumbers	Flowering, fruit set and development During rapid growth and fruit sizing	Apply 25 mm after seeding/transplanting Don't allow to dry out during critical period Will use approx. 200 to 250 mm during the season*
Eggplant	Flowering, fruit set and enlargement	Apply 25 mm per week*
Garlic	Bulb formation and enlargement	Apply 25 mm per week (minimum)*
Lettuce	Germination and throughout growth	Don't allow soil profile to become depleted
Muskmelon/ Cantaloupe	Flowering, fruit set and development	Apply 25 mm after seeding/transplanting Don't allow to dry out during critical period
Onions	Bulb formation and enlargement	Will use 4 to 5 mm per day (during peak use) Apply 25 mm per week* Will use 350 to 500 mm during the season*
Peas	Flowering, pod set and fill	Will use 5.5 to 6 mm per day (during peak use) Will use 375 mm during the season*

Peppers	Flowering, fruit set and enlargement	Apply 25 mm per week* (depending on soil type)
Potatoes	Tuber initiation and sizing	Will use 5.5 to 6 mm per day (during peak use) Will use up to 550 mm during the season*
Pumpkins	Flowering, fruit set and development	Apply 25 mm after seeding/transplanting Don't allow to dry out during critical period
Radishes	Root fill	Don't allow to dry out
Tomatoes	Flowering, fruit set and enlargement	Apply 25 mm per week*
Zucchini	Flowering, fruit set and development	Apply 25 mm after seeding/transplanting Don't allow to dry out during critical period

FRUIT		
CROP	CRITICAL PERIOD	WATER REQUIREMENTS
Strawberries (June bearers)	After planting (during establishment) During flowering, fruit set and fill	Don't allow soil to dry out Apply 6 to 8 mm every 2 days* Apply 25 mm per week after mowing (renovation)*
Strawberries (Day neutrals)	After planting (during establishment) During flowering, fruit set and fill	Don't allow soil to dry out Apply water in frequent, light applications Initiate field cooling to improve fruit set in high temperatures
Raspberries	After planting (during establishment) During flowering, fruit set and fill	Will use approx. 5 to 8 mm per day (during peak use period) Apply 25 to 37 mm per week from blossom to harvest*
Saskatoon berries	After planting (during orchard establishment) During flowering, fruit set and fill	Will use 160,000 to 180,000 litres per acre per year
Currants/ Gooseberries	After planting (during orchard establishment) During flowering, fruit set and fill	Ensure supply of approx. 25 mm per week

* Including precipitation

Tips for reducing water application requirements

- Use some form of mulch [plastic, organic (straw, bark, shavings)]
- Apply the water either directly to the plants (through a drip system) or using a lower pressure applicator (versus sprinkler application)
- Apply water in the early morning or evening when temperatures are lower (to reduce evaporative losses)
- Provide adequate nutrients to ensure healthy, deep-rooted plants which maximise water use within the soil profile

Relevant Resources

[Irrigation Equipment Suppliers](#) – NOT A COMPREHENSIVE LIST

[Irrigation Information Videos - OMAFRA](#)

Other factsheets worth looking at this month

[FAQ – Microclimate Modification with Plasticulture](#)

[Feel Method for Estimating Soil Water Available for Crop Use](#)

[Freezing Date Probabilities](#)

Post-harvest Handling of Horticulture Crops

Why do horticulture crops break down so quickly?

Deterioration can be rapid as the harvested product continues to lose water and is physiologically active. Mature crops are also more susceptible to pathogens, due to aging tissues and potential wounds.

What can be done to reduce post-harvest breakdown?

1. *Harvest produce at the correct stage of development (avoid over-ripe or immature)*

Recognising the differences between various harvested crops will help to determine the appropriate way to handle the particular crop.

Immature or overripe produce will store differently than mature produce. The more mature a harvest product is, the harder it is to store and the quicker it needs to be marketed. Overripe produce often breaks down rapidly and will accelerate ripening of adjacent produce.

Immature produce may need to be handled differently to ensure marketable quality. Some crops will ripen after harvest, provided that they are physiologically mature, while others will stay at the stage and condition they are harvested at.

2. *Minimise wounding or damage*

Minimising harvest damage can improve storability of most crops. Wounds are an open door for the entry of post-harvest pathogens and can increase moisture loss dramatically. Curing can improve storability of onions and potatoes, as this can allow some level of wound healing and will tighten up skins. These same crops will benefit from a top-kill procedure or lifting, as this improves skin set and preparation for harvest.

Careful and minimal handling of most crops will reduce the level of damage and improve the quality. Some crops should be packaged in the field to reduce handling.

3. *Consider the temperature of the harvested product*

Harvested produce continues to be physiologically active after removal from the plant. For most produce, removing field heat will slow aging and decrease metabolic activity and respiration. Harvesting the crop in cool conditions will reduce the amount of heat that needs to be removed and will reduce cold storage costs.

Heat removal can be accomplished in a number of ways, including packing in ice slurries or using forced air, vacuum cooling or room cooling. The choice of cooling method will depend on the type of produce, as some crops are sensitive to free or surface moisture, some crops are stored in bulk or separately and some crops will not tolerate excessive cooling.

4. *Carry out grading procedures*

Post-harvest grading can include trimming, washing, grading for size/uniformity, etc. and will improve saleability. Removing material such as damaged leaves, cull product, excessively damaged or diseased produce will improve the overall post-harvest quality. Damaged material can accelerate ripening of adjacent produce and increase the likelihood of disease development and spread.

Washing of produce is acceptable for some crops, as this improves saleability and removes dirt, pathogens, spray residues, etc. Wash water must be disinfected regularly, as contamination can take place. Note: some crops are sensitive to disinfection products (e.g. bleach).

What impact can cold conditions or frost have on post-harvest handling?

Cool growing conditions can slow down the growth, development and maturation of many horticulture crops, resulting in a higher amount of immature produce and an increased risk of frost damage and crop loss. Immature produce will have to be handled differently.

Some crops may have delayed or altered ripening when growing conditions are below average or when they have been exposed to frost. Some protection may be required to minimize injury and ensure a crop can be harvested; however, abandoning a crop is sometimes the best option.

When crops have been exposed to cool or frozen conditions or frost, it is advisable to handle them differently. For example, the temperature at which potatoes are harvested affects their susceptibility to bruising. Tubers that are warmer than 18-20°C will be more susceptible to black spot bruising, while tubers that are harvested at pulp temperatures less than 7°C will be more susceptible to shatter bruising. Potatoes that have been frozen will not store well and may endanger the whole stored crop.

Some crops may have elevated levels of different minerals following frost, such as nitrates, which may impact their quality.

Apple Maggot

Rhagoletis pomonella

Crops Affected:

apple, crabapple, hawthorn, sweet cherry, sour/tart cherry, asian & common pear, bitter cherry, common plum, spreading cotoneaster, etc.

Life Cycle:

- One generation per year
- Adult flies emerge in late June to early July and continue through to early October
- Adults feed on dung, honeydew and exudates for 7-10 days until they are mature and then mate
- Females lay eggs on ripening fruit over 2-4 weeks – Eggs are laid singly under the skin and hatch within 3-7 days
- Larvae burrow through the fruit until they mature in 2 weeks to 7 weeks (dependant on temperature)
- Larvae leave the fruit when they are mature (often after it has dropped to the ground) and burrow into the soil to pupate and overwinter

Symptoms:

- Larval feeding / burrowing within the fruit results in brown channels
- Infested fruit is often misshapen and may appear bumpy
- Black spots, small dimples or depressions may be visible when egg laying has occurred
- Infested fruit often drops prematurely

Monitoring:

- Use ammonium carbonate baited traps (either yellow sticky traps or red sphere sticky traps) put out before mid-June to monitor for adults – sticky material on trap surfaces should be replaced regularly; Ammonium carbonate is placed in a plastic container with a puncture and should be refreshed every 7-10 days
- Place traps regularly throughout the planting
- Assess traps for the presence of AM adults (there are other species which resemble AM)
- Regularly inspect fruit for infestation symptoms

Management:

- Chemical controls are available for use in commercial operations – use in conjunction with monitoring for adults
- Remove wild plants within 500m of any established orchard
- Remove and destroy infested fruit from the trees
- Collect and dispose of dropped apples right after they fall, to prevent larvae from emerging and pupating – Sanitation is CRITICAL



Infested apples – Note bumpy or misshapen appearance of fruit



Apple Maggot adult fly – Note zigzag wing pattern

Photos by Agriculture & Agri-Food Canada
– Research Branch - Ottawa

Physiological Disorders – Heat / Drought related Deformities

Crops Affected: range of crops (depending on disorder)

Symptoms / Conditions Favouring Development:

Hollow Heart (potatoes)

- Common in oversized or rapidly growing, early tubers
- Very dependent on cultivar
- Most severe under rapid tuber growth conditions
 - Uneven moisture (dry followed by wet) or fertility
 - Wide plant spacing or missing plants
- No visible external symptoms
- Internal symptoms – tan to brown walled cavities that develop from brown areas at or near the centre of tubers

DISEASE OF THE MONTH

Hollow Stem (broccoli and cauliflower)

- No visible external symptoms
- Small cracks occur internally, which coalesce to form a hollow central stem
- Cause is suggested to be related to plant nutrient balance, as well as growth conditions after head initiation

Forking (carrots)

- Cause can be a result of disease or pest damage, compacted or heavy soils, excessive plant densities, or other factors that damage the root tips
- Location of the fork can give an indication of when the damage occurred and may suggest probable cause

Growth Cracks (carrots, rutabaga, turnips, potatoes, cabbage, tomatoes, cherries)

- Rapid tissue growth leads to vertical cracking, with cracks varying in size
 - Cracks may originate along root or tuber or in neck areas
 - Older cracks may have a layer of rougher wound tissue over the inside of the crack
 - More typical on larger roots
- Fruit cracking can occur as radial or concentric cracks
 - Can occur as “bursting” when very rapid
- Is typically the result of fluctuating soil moisture levels, specifically when abundant moisture follows a dry spell

Jelly End Rot (potatoes)

- Most prevalent in Russet Burbank potatoes
- Stem end tissues of tubers become glassy, jelly-like and shrivels and dries up
- Favoured by high soil temperatures and dry conditions followed by excellent moisture
- Often associated with misshapen tubers

Brown Bead (broccoli)

- Buds of broccoli florets turn tan or brown and can fall off easily
- Associated with rapid growth in high temperatures following abundant moisture

Sunscald (various crops)

Bulb crops

- Soil level tissues shrivel, and the plant withers and dies
- Young, sensitive plants are damaged by hot, sunny conditions in dry springs

Beans / Fruit crops (e.g. tomatoes)

- Small, water-soaked spots on plant parts only on exposed sides of the plant, typically in intense, direct sunlight following cloudy, high humidity and high temperature conditions
- Spots become brown to white and grow together to form large necrotic lesions; may be sunken

Management:

- Maintain adequate (and uniform, if possible) moisture levels throughout the growing season
 - This may involve the use of irrigation, improving soil moisture hold capacity, etc.
- Ensure plants are uniformly spaced within the row
- Avoid excess or inadequate fertilization (particularly nitrogen)
- For some disorders (e.g. hollow heart / hollow stem), there are varietal differences in susceptibility
- If possible, adjust planting dates to avoid having susceptible stages present during hot, dry conditions.
- Avoid irrigation to ripe fruit (susceptible to cracking)