



Welcome to another edition of Hort Snacks. In some years, we'd expect to have no time for reading, as there would be a flurry of seeding and planting activity underway, as well as orchard maintenance and the like. However, due to the delay in the arrival of spring in most areas of Alberta, with lots of moisture (arriving as both clear and white), things are pretty slow getting off the ground. Hopefully the sun will come out more often and the fields will warm and dry quickly, letting things get under way in short order.

With the extra time that you might have for reading, this "jumbo-sized" edition should fit the bill nicely. Inside, you'll find a number of articles reminding you of the potential for Late blight. You'll also find some interesting information and thoughts from your peers on how weather is or isn't changing, as well as some musings on the topic. There are the usual articles on pests to watch out for. And last, but not least, you'll find the results of the Alberta Direct Market Fruit & Vegetable Price Survey, which is conducted annually. It is getting harder and harder to gather this information in the "old way", so expect a different delivery method next year. But this will give you a round surface view of what average produce prices are being reported for this coming year.

Planning is underway for some summer and fall extension programming, so if you have thoughts or ideas to share, please do so. As always, we're just a phone call or email away, so please feel free to share thoughts, updates or questions/suggestions with us.

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

### FEATURED WEBSITES

**Courses for Aspiring, New and Experienced Farmers**  
<http://www.nebeginningfarmers.org/online-courses/>

### NEWSLETTER USE RESTRICTIONS

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## THINGS TO DO / THINGS TO THINK ABOUT THIS MONTH

### **Strawberries**

- Light application of nitrogen as growth commences (end of April or early May – 10-20 lbs actual N/acre); make a heavier application if there was severe winter damage
- Foliar application of complete fertilizer once leaves fully developed; if regrowth is weak, weekly applications may be necessary
- Application of herbicides for grassy weed control prior to bloom (if required)
- Frost protection of June bearers at bloom if required
- Deblossom newly planted June bearers for season
- Deblossom newly planted Tristar Day-neutrals for 6 weeks
- Apply herbicide 4-6 weeks after planting new fields

### **Raspberries**

- Complete cane thinning
- Remove dead cane tips down to active growth
- Make 2<sup>nd</sup> application of N (mid-May) – 20-40 lbs actual N/acre

### **Saskatoon Berries**

- Commence 1<sup>st</sup> application of nitrogen and phosphorus during early-mid May (additional application June-end) – 15-25 lbs actual N/acre; 10-20 lbs P/acre – adjust rate when banding

### **Black Currants**

- Apply nitrogen (end of April or early May) – starting in 3<sup>rd</sup> year – 50 lbs actual N/acre

### **Vegetables**

- Pre-planting application and/or incorporation of herbicides (trifluralin, etc.) for registered crops in early part of month (if not completed previously)
- Seeding of most crops should be completed before month end
- Consider multiple planting dates to spread out harvest dates and reduce risk
- Transplant crops when risk of frost is past or protect crops using field or row covers or mini-tunnels
- Extending the early growing season in spring rather than fall has more sunlight benefit
- Consider try a few “new to you” varieties, to hedge your risk against the loss of “standby” varieties

### **General / Other**

- Monitor soil moisture conditions and irrigate as required
- Install / repair outhouses, update signage, arrange washing facilities & drinking water locations
- If foliar feeding, application on slow drying days may increase uptake

### **Pest Monitoring / Management**

- Continue insect and disease monitoring
- Watch out for unusual insects – often linked with weather
- Do not apply pesticides during full bloom

### **Vegetables**

- Flea beetle adults emerge and begin egg laying towards mid-month – monitor for shot holes in cotyledons late month
- Consider the use of appropriate seed treatments in cool and/or wet seeding conditions

### **Strawberries**

- If Botrytis fruit rot was a problem in the past, consider application of fungicides as growth commences; generally one early application and one late application should be sufficient.
- Monitor 1<sup>st</sup> blossoms for Tarnished Plant Bug activity and take control options as necessary
- Monitor for strawberry clipper weevils when temperatures exceed 18°C

### **Saskatoon berries**

- Make applications of insecticides and fungicides based on label timing, with adjustments for weather conditions and scouting / monitoring activities (e.g. dryer conditions may allow you to skip a Entomosporium control application)
- Decis 5.0EC applied at green tip stage (flower bud break to tight bud cluster), early flowering (25-50% bloom) and after petal drop
- Jade 250E/Mission 418EC (propiconazole) may be applied at white tip, petal drop and green fruit stages
- Adhere to Pre-Harvest Interval and Re-Entry Intervals for respective pesticides

### **Black Currants**

- Apply insecticides against currant fruit fly at petal fall (repeat 7 days later)

## Registration for Open Farm Days 2017 NOW OPEN!

The initiative provides an opportunity to support local food producers, educate consumers about agriculture, and generate additional tourism in your area. **This year's event is the weekend of August 19-20, 2017.**

For further information or to **register by May 31<sup>st</sup>** please go to <http://albertafarmdays.com/host-farms-2017>

## **MENTAL SNACKTIME – Enthusiasm**

- “I know of no single formula for success. But over the years I have observed that some attributes of leadership are universal and are often about finding ways of encouraging people to combine their efforts, their talents, their insights, their enthusiasm and their inspiration to work together.” – Queen Elizabeth II
- “Success consists of going from failure to failure without loss of enthusiasm.” – Winston Churchill
- “Enthusiasm moves the world.” – Arthur Balfour
- “Apathy can be overcome by enthusiasm, and enthusiasm can only be aroused by two things: first, an ideal, which takes the imagination by storm, and second, a definite intelligible plan for carrying that ideal into practice.” – Arnold J. Toynbee
- “Enthusiasm is the energy and force that builds literal momentum of the human soul and mind.” – Bryant H. McGill
- “Flaming enthusiasm, backed up by horse sense and persistence, is the quality that most frequently makes for success.” – Dale Carnegie
- “Enthusiasm is not the same as just being excited. One gets excited about going on a roller coaster. One becomes enthusiastic about creating and building a roller coaster.” – Bo Bennett

## Upcoming Conferences / Workshops

### May 2017

- **Canadian Produce Marketing Association (CPMA) Conference & Trade Show**  
May 9-11, 2017 – Metro Toronto Convention Centre – Toronto, ON  
<http://convention.cpma.ca/>

### June 2017

- **14<sup>th</sup> International Conference of the European Industrial Hemp Association (EIHA)**  
June 7-8, 2017 – Maternushaus – Cologne, Germany  
<http://www.eiha-conference.org/>
- **Early Ripening Haskap Tour**  
June 23, 2017 – Horticulture Field Lab – Saskatoon, SK  
[www.fruit.usask.ca/extension.html](http://www.fruit.usask.ca/extension.html)
- **Greenhouse Canada Grower Day 2017**  
June 21, 2017 – Holiday Inn – St. Catharines, ON  
<http://www.greenhousecanada.com/grower-day/>
- **International Floriculture Expo**  
June 13-15, 2017 – McCormick Place, Chicago, Illinois, USA  
<http://www.floriexpo.com/>

### July 2017

- **Haskap Days Extravaganza (4 separate days)**  
July 19-22, 2017 – Various sites around University of Saskatchewan – Saskatoon, SK  
[www.fruit.usask.ca/extension.html](http://www.fruit.usask.ca/extension.html)
- **Cultivate 17 (Formerly OFA Short Course)**  
July 15-18, 2017 – Greater Columbus Convention Centre – Columbus, OH  
<http://cultivate17.org/>
- **100<sup>th</sup> Potato Association of America (PAA) Conference**  
July 23-27, 2017 – Holiday Inn – Fargo, North Dakota, USA  
[www.potatoassociation.org](http://www.potatoassociation.org) OR <http://z.umn.edu/paa17>

## IN THE NEWS

- [Packaging: A Powerful Way for Farmers to Reach Consumers](#) – Growing Produce article
- [10 Greenhouse Design Mistakes to Avoid for Garden Centers](#) – GGS Greenhouse Structures article
- [Diseases to watch for on seed potato tubers](#) – Fruit & Vegetable magazine article
- [Laser technology protects fruit from bird pests](#) – Fruit & Vegetable magazine article
- [How essential are thermal screens for an energy efficient greenhouse?](#) – HortiDaily article
- [Greenhouse Business: Start-Up Costs, Profits, and Labor](#) – Bright AgroTech Blog article
- [The Ultimate Guide to Testing Soil pH](#) – Hanna Instruments article
- [It's Time to Apply Pre-emergent Herbicides](#) – OMAFRA article
- [Preventing Yield Loss from Flea Beetles](#) – OMAFRA article
- [Going Mobile is Good for Your Business](#) – Greenhouse Canada article
- [How Brand Enthusiasts Can Be Your Most Loyal Customers](#) – Greenhouse Grower article
- [Will an inflatable greenhouse be the solution to grow food on Mars?](#) – HortiDaily article
- [Frustrated by Overwintering Culls and Volunteers? Blame Potatoes' Wild Roots](#) – Growing Produce article

## Summer Farm Employment Program

If full time farmers are thinking about hiring a student for summer employment, now is the time to apply. Once again, Alberta Agriculture and Forestry will be offering the Summer Farm Employment Program. This program gives Alberta's youth the opportunity to gain farm work experience and provides wage support to farmers for the months of July and August. Alberta Agriculture and Forestry provides wage support to a maximum of \$400 per month as well as worker's compensation coverage and safety training information.

Employers must own or rent a farming operation in Alberta with gross production of \$25,000 per year and work must be directly related to the farming operation. This does not include domestic work or child care. Employers must recruit their own employee, provide daily supervision and ensure safe working conditions for their employee. Monthly records of time worked must be completed by the employer. Employees are paid by the farmer and by the government for each respective part of their salary, which must meet provincial minimum hourly rates.

Employees must be residents of Alberta, between 15 and 24 years of age and cannot be a direct relative of the employee. Employees must not be working fulltime anywhere else or attending school while participating in the program. If they have been working full time prior to July 1 for the employer, they are not eligible for the program. Employees require a social insurance number in order to receive payment under this program.

Farm safety is an emphasis in this program and all summer farm employers and employees are required to review a safety DVD together. Employees must complete and pass a safety quiz based on the DVD information in order to be accepted into the program.

Application forms and detailed information are available on Alberta Agriculture and Forestry's website under [Summer Farm Employment Program](#). Applications are processed on a first come, first served basis. Applications can be printed from the website or obtained by calling the Ag-Info Centre at 310-FARM (3276). **The deadline for applying is May 31<sup>st</sup>, 2017** and signatures of both employee and employer must be included.

## Q&A

**Q: Looking back on past seasons, are there any noticeable differences with spring now, versus spring in the past?**

A: Yes, I think it stays cooler for two weeks than in the past; seems like the season is slipping

A: Back to more moisture in our soil

A: Not really, I have seen these conditions before here: low snow levels in winter, average temperatures. A bit windier than usual though.

A: Not as much moisture

A: No real difference - in 60 + years, no 2 springs in Alberta have been the same; some earlier, some later. I have painted buildings in early to mid-April, then the following year froze my butt just doing chores

A: Spring seems to be coming earlier.

A: In the Fifties, we planted on May 10 with the soil warm under our bare feet. Then we shifted to much cooler springs expecting freezing weather to the end of the month. We were told to expect going into an ice age because of CO2 filtering the sun. The last few years have gone back to normal.

A: I'm older and taxes are still due April 30 (haha). The geese came 12 days later than last year, yet soil temperatures are relatively the same.

A: Yes

A: We have a dirt basement that is considerably drier than previous years. I suspect it's due to lack of snow. Run off is a lot less through the garden.

A: Spring 2017 is about a month later than Spring 2016. Definitely in time of seeding but I also expect in temperature as well.

A: Weather wise: Sometimes I think we had warmer weather 10 years ago and were able to get seeding earlier in April. The last few years I've had to wear my parka more times seeding in the spring than I use to years ago. Maybe I'm cold blooded now. Industry wise: With the huge increase in labour costs over the last couple of years, it seems we have to nickel and dime our way when planning the crop so we can see profit... but it's still fun and exciting to be in this biz. Time wise: the days are shorter...I use to get a heck of a lot more done in a day before.

A: Tough to say. I do feel it is warmer. I also feel like the amount of cold weather after it warms is less frequent. I always remember warm March days, but then I also remember very cold ones in May. Seems like the later cold days are not happening. And then the Spring feels drier because there is less snow.

A: Yes, a huge difference. In business for almost 30 years the whole growing season has sifted about 3-4 weeks. Springs are later and cooler and falls are longer without killing frosts. In 1980's all cool season crops could be seeded and transplanted by end of April, and warm seeded transplants were in by May 20<sup>th</sup>. Now cool season transplants go in by May 20 and warm season transplants by June 10. Fall frosts have shifted from August 20 to September 15, most years.

A: No, I don't think so

**Next Month's ? → [What key factors do you use as indicators for making expansion \(or reduction\) decisions?](#)**

## Musings – Dealing with changes in weather

Weather is one of those great unknowns. It affects us every day and can have significant impacts on our health, happiness and success (from a producer perspective). It is the first and only safe topic of any conversation. It is also almost always described as worse than it actually was. And we can rarely recall what it was REALLY like, from year to year.

As a child growing up in Saskatchewan, I often visited my maternal grandparents in southern Saskatchewan. They were really into gardening and wildlife, particularly birds. In Grandpa's office (later continued by Grandma – if it wasn't her to begin with), there was a day timer where the daily weather and weather events were dutifully recorded, day after day, year after year. I'd be interested to see what sorts of patterns would be revealed if you mapped it out for the 60+ years of their adult lives. You'd see wet years and dry years, cold years and hot years.

Fact: Weather changes. It is one of those things that we can do very little about, other than "weather the storm". There is an old adage that is adjusted slightly for every place you'll ever live. "Don't like the weather in <LOCATION>? Then wait 5 minutes!" But truthfully, what CAN we do to adjust to changes in the weather? Here are a few things that might help.

- 1) Keep records! How are you going to know if things are different or changing, if you have no data?
- 2) Always grow a few different things (or a few varieties of a specific crop) in order to give yourself a bit of a buffer or cushion against normal, slight changes and to reduce your overall risk.
- 3) Consider using microclimate modification technology – it isn't overly complicated and can help take the sharp edge off things like late springs, early falls and some of the bigger variances that crops can't always deal with on their own. Tunnels (high or low), plastic mulch, row or field covers can even things out and help a crop to get over a challenging seasonal hump.
- 4) Try new things out. New crop varieties may do better in changing times and weather than others. Theoretically, new varieties or selections should reflect some of the surrounding changes, and that can work to your advantage.
- 5) Accept the fact that things change and so must we all.

Weather patterns fluctuate from year to year, decade to decade. A string of good or bad years would be normal, I think. If you want to see what things have happened in the past, weather-wise, have a look at the Alberta Climate Information Service (<http://agriculture.alberta.ca/acis/>) (or the equivalent service in your area), it contains historic information that could be of interest to you.



## Alberta Direct Market Average Berry & Vegetable Prices – 2016 / 2017

A number of farms contributed their pricing information, with a wide range in size, diversity and operational focus. As well, prices reported on producer websites were added into the pricing dataset, if they did not represent duplication. Some data was contributed by a visitor to several different farmers' markets.

Most prices are reported per pound (for fruit and most vegetables), however many fruit farms charge on a volume basis (often 4L pail or smaller containers for certain fruit e.g. raspberries) or on a per unit basis (for a number of vegetable crops – e.g. per head, per bag, per bunch). For the purposes of comparison, the price per pound was calculated assuming 5 pounds per pail for all fruit; however, the actual weight of fruit per volume can vary. In converting prices to a "per pound" basis, it was assumed that 1 pint is equal to 0.625 pounds. The price per pound varied according to the container size, with some producers offering a range of container sizes for some pre-picked fruit. In this case, an **average** price was generated to use in comparisons with other farms. In cases of vegetable pricing, producers reporting a price per pound for a product were compared with producers reporting similarly, whereas producers reporting in a price per unit were compared with other similar reported data. Data was not compared between reported weight and volume datasets. Where possible, the u-pick and the pre-pick (pre-picked on-farm sales and/or p-p farmer's market sales, etc.) prices are reported.

Many producers offer a volume discount (sometimes with several different prices for different volumes) or include a price adjustment for customers bringing pails/containers or charge a fee for pails. The average price discount or charge for a 4L pail was \$1. Some producers also make some price adjustments for early or late crops, depending on the crop.

Not all of the data contributed could be reported, as there was insufficient data to create a quality range &/or average. The number of data points comprising a dataset is included (e.g. n=x). If three or more data points were available, both a range and an average were reported. The higher the N-value, the stronger the data set. While the prices reported represent a range, there may be significant variation within the range. As a result, the median value was also included (for the fruit crops only), which represents the middle value of the dataset. Producers should consider their individual, specific costs of production, as well as their customers and markets when setting their prices. **Use the prices as a guide only**, and do not make adjustments to price, simply because you are lower than the average. In a number of areas, prices appear to be reaching the limit of what the market will bear, for the time being.

For the 2017 season, a number of producers were considering a price increase to account for increased costs of production (including labour, taxes, etc.). A number of producers are offering a range of prices and offerings, such as different volumes, fresh/frozen, washed/unwashed, delivered/pick up, etc., depending on the product.

### Fruit Prices

#### Strawberries

<b>Marketing Generalities</b>	Strawberries were often sold on a U-pick basis; however producers are also selling pre-picked berries at the farmers' markets or on-farm. Volume of container was typically 4L pail/basket; however more, smaller container options are appearing (mainly for pre-picked product).					
	U-pick (n=9)			Pre-Pick (n=11)		
	Range (price per pound)	Average (price per pound)	Median (price per pound)	Range (price per pound)	Average (price per pound)	Median (price per pound)
	\$2.70 - \$5.0	\$3.61	\$3.35	\$4.0 - \$10.0	\$5.54	\$5.0
<b>Comments</b>	There did not tend to be a huge difference in price between pre-picked product that was sold on-farm and Farmers' market product.					

#### Raspberries

<b>Marketing Generalities</b>	Raspberries were most often U-picked, with some pre-picked (farm gate / farmer's market) sales. A number of farms did not pre-pick raspberries.					
	U-pick (n=11)			Pre-Pick (n=5)		
	Range (price per pound)	Average (price per pound)	Median (price per pound)	Range (price per pound)	Average (price per pound)	Median (price per pound)
	\$2.2 - \$5.56	\$3.67	\$3.85	\$4.0 - \$5.0	\$4.8	\$5.0
<b>Comments</b>	Prices per pound varied with container size. The labour of picking raspberries for sale can be significant.					

Saskatoon Berries						
Marketing Generalities	Saskatoon berries were often sold U-picked, however many farms offer pre-picked fruit. Pre-pick prices most often were more than u-pick prices, depending on the operation and how they were packaged. It was not always reported whether pre-picked sales were fresh or frozen, although it can be assumed that immediate sales were fresh, with later sales certainly frozen. Prices varied with different volumes of product sold. Value added product was not included, but would feature prominently in most operations.					
	U-pick (n=13)			Pre-Pick (n=15)		
	Range (price per pound)	Average (price per pound)	Median (price per pound)	Range (price per pound)	Average (price per pound)	Median (price per pound)
	\$2.0 - \$5.0	\$2.89	\$3.0	\$3.5 - \$6.0	\$4.42	\$4.0
Comments						
Sour Cherries						
Marketing Generalities	Limited prices reported					
	U-pick (n=4)			Pre-Pick (n=4)		
	Range (price per pound)	Average (price per pound)	Median (price per pound)	Range (price per pound)	Average (price per pound)	Median (price per pound)
	\$2.0 - \$5.0	\$3.0	\$2.5	\$2.0 - \$3.5	\$2.75	\$2.75
Comments	Equal number of u-pick versus pre-pick reported; In past years, some variation in price due to pitted versus not pitted. In some cases, there was a price difference depending on the type of sour cherry (related to quality, size, etc.)					
Haskap (Blue honeysuckle)						
Marketing Generalities	Limited prices reported. All were for u-pick. Many more acres coming on, with markets variable and specific to each producer.					
	U-pick (n=3)					
	Range (price per pound)	Average (price per pound)		Median (price per pound)		
	\$3.0 - \$5.0	\$4.5		\$5.0		
Comments						
Rhubarb						
Marketing Generalities	Limited prices reported.					
	U-pick (n=3)			Pre-Pick (n=6)		
	Range (price per pound)	Average (price per pound)	Median (price per pound)	Range (price per pound)	Average (price per pound)	Median (price per pound)
	\$2.0 - \$2.5	\$2.21	\$2.13	\$2.0 - \$5.0	\$2.97	\$2.63
Comments	Prices varied quite a bit.					

## Vegetable Prices

Beans	U-pick (n=3)		Pre-Pick (n=4)		Pre-Pick (Farmers' Markets) (n=3)	
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)
	\$1.75 - \$2.3	\$2.1	\$2.5 - \$5.0	\$3.62	\$4.0 - \$6.0	\$4.67
Comments	Prices did not seem to vary between colour or type of bean sold.					
Beets	U-pick (n=3)			Pre-Pick (n=4)		
	Range (price per pound)		Average (price per pound)	Range (price per pound)		Average (price per pound)
	\$1.5 - \$2.25		1.92	\$2.25 - \$4.0		\$3.03
Comments	-					
Beets, bunched	Pre-pick (n=4)			Pre-Pick (Farmers' Market) (n=7)		
	Range (price per pound)		Average (price per pound)	Range (price per pound)		Average (price per pound)
	\$2.5 - \$4.0		\$3.2	\$1.5 - \$5.0		\$3.71
Comments	-					
Carrots	U-pick (n=5)		Pre-Pick (n=7)		Pre-Pick (Farmers' Markets) (n=7)	
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)
	\$1.5 - \$2.5	\$1.95	\$0.75 - \$3.25	\$2.06	\$1.0 - \$4.0	\$2.51
Comments	Some price variation depending on time of year, product size (higher price for smaller) and package volume.					
Carrots (bunched)	Pre-picked (n=5)			Pre-Pick (Farmers' Market) (n=3)		
	Range (price per unit)		Average (price per unit)	Range (price per unit)		Average (price per unit)
	\$2.5 - \$3.75		\$3.02	\$3.0 - \$4.0		\$3.67
Comments	-					
Cucumbers, Pickling	Pre-pick (n=3)			Pre-Pick (n=3)		
	Range (price per pound)		Average (price per pound)	Range (price per pound)		Average (price per pound)
	\$1.5 - \$3.25		\$2.25	\$1.5 - \$2.0		\$1.83
Comments	-					
Garlic (bulb/head)	U-pick			Pre-Pick (Farmers' Market) (n=3)		
	Range (price per unit)		Average (price per unit)	Range (price per unit)		Average (price per pound)
	Too few reported		-	\$1.0 - \$4.0		\$2.67
Comments	Size of head/bulb will vary.					
Kale	Pre-pick (n=4)			Pre-Pick (n=4)		
	Range (price per pound)		Average (price per pound)	Range (price per bag)		Average (price per bag)
	\$5.78 - \$8.25		\$6.91	\$2.25 - \$3.0		\$2.67
Comments	Unit size varied/					



Lettuce	Lettuce, Head – Pre-pick (Farmers' Market) (n=4)		Lettuce, Bagged – Pre-Pick (Farmers' Market) (n=8)		
	Range (price per unit)	Average (price per unit)	Range (price per unit)	Average (price per unit)	
	\$3.0 - \$3.5	\$3.13	\$2.0 - \$3.5	\$2.88	
Comments	-				
Onions, Bulb	U-pick (n=3)		Pre-Pick (n=4)		
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	
	\$1.13 - \$1.5	\$1.25	\$1.5 - \$1.89	\$1.76	
Comments	-				
Onions, bulb (bunched)	U-pick		Pre-Pick (n=3)		
	Range (price per unit)	Average (price per unit)	Range (price per unit)	Average (price per unit)	
	Too few reported	-	\$1.68 - \$3.0	\$2.12	
Comments	-				
Onions, Green	Pre-pick (n=3)		Pre-Pick (Farmers' Market) (n=7)		
	Range (price per bunch)	Average (price per bunch)	Range (price per bunch)	Average (price per bunch)	
	\$1.68 - \$2.50	\$1.98	\$0.75 - \$4.0	\$2.54	
Comments	Size of bunch varied				
Peas	U-pick (n=3)		Pre-Pick (n=4)		Pre-Pick (Farmers' Market) (n=9)
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	Range (price per pound) / Average (price per pound)
	\$2.0 - \$2.5	\$2.17	\$3.5 - \$5.0	\$4.27	\$1.67 - \$6.5 / \$3.64
Comments	-				
Potatoes, mature	U-pick (n=7)		Pre-Pick (n=12)		
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	
	\$0.80 - \$1.75	\$1.19	\$0.50 - \$2.5	\$1.64	
Comments	Prices vary within season but also depending on volume (lower price for higher volumes)				
Potatoes, baby/new	U-pick (n=3)		Pre-Pick (n=3)		Pre-Pick (Farmers' Market) (n=10)
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)	Range (price per pound) / Average (price per pound)
	\$1.75 - \$2.0	\$1.92	\$2.0 - \$2.5	\$2.33	\$1.6 - \$3.5 / \$2.42
Comments	-				
Pumpkins	U-pick (n=3)		Pre-Pick		
	Range (price per unit)	Average (price per unit)	Range (price per unit)	Average (price per unit)	
	\$1.5 - \$25.0	\$9.83	Too few reported	-	
Comments	Price varies widely with size.				
Radish	Per pound – Pre-pick (n=3)		Bag/bunch – Pre-Pick (n=6)		
	Range (price per pound)	Average (price per pound)	Range (price per unit)	Average (price per unit)	
	\$2.5 - \$3.0	\$2.73	\$0.75 - \$3.0	\$2.17	
Comments	-				

Rutabaga	U-pick		Pre-Pick (n=3)	
	Range (price per pound)	Average (price per pound)	Range (price per unit)	Average (price per unit)
Comments	Too few reported	-	\$0.75 - \$3.0	\$2.17
Spinach	U-pick (n=3)		Pre-Pick (n=6)	
	Range (price per pound)	Average (price per pound)	Range (price per pound)	Average (price per pound)
Comments	Too few reported	-	\$2.0 - \$8.38	\$5.7
Swiss Chard	Per pound – Pre-pick (n=5)		Bagged – Pre-Pick (n=3)	
	Range (price per pound)	Average (price per pound)	Range (price per unit)	Average (price per unit)
Comments	\$3.0 - \$7.54	\$5.19	\$2.0 - \$2.93	\$2.48
Comments	Sold in a range of package sizes, bunches, etc.			
Zucchini	Per pound – Pre-pick (n=3)		Each – Pre-Pick (n=4)	
	Range (price per pound)	Average (price per pound)	Range (price per unit)	Average (price per unit)
Comments	\$2.0 - \$2.1	\$2.07	\$1.0 - \$3.0	\$2.06
Comments	Size of unit varies			

## 2017 Growing Season – Prices Changes / Adjustments

For the 2017 growing season, many producers were increasing their prices slightly, typically due to factors such as increased input costs, labour costs, taxes, etc. Price changes tend to be minimal and often can after holding prices the previous year. Similar to previous years, price increases (or lack of increase) were scattered across the province and varied considerably. Some producers shift prices throughout the growing season, as influenced by supply, demand and/or rarity of a particular product, particularly in reference to early harvests.

Producers continue to vary in how they charge for fruit, with many charging per pound, but a fair number charging a flat rate for a fixed container (volume) size, typically small volume containers (e.g. pint). Price per pound was more common in the vegetables; however it depended very much on the type of vegetable. U-pick was less common than pre-pick in the data reported again this year. Pre-picked fruit product sold at the Farmers' markets was typically sold in containers by volume, but that varied. Per unit pricing of vegetables was likely due to simplicity of marketing and packaging, rather than having to deal with wide ranges of weights.

Most producers charge for pails / containers or provide a discount to customers that bring their own containers. It was mentioned regularly that a charge for containers would be added for u-pickers (noted on numerous websites). More common this year was the addition of a per head charge for entry to an orchard, regardless of volume/quantity picked. Some refer to this as a grazing fee.

A number of u-pick pricing was dependant on the number of pails picked/purchased and vegetable sale prices were usually dependant on the quantity purchased. Some producers charge for a delivery service if that is something that they provide. On-line orders/sales option is appearing on a number of producer websites; however the details of this were not delved into.

The number of Community Shared Agriculture (CSA) operations continues to increase, with many direct market operations offering this as an option in addition to their other direct market delivery channels (e.g. u-pick, FM). In many cases, this is the only option that is provided. The cost of the various products compared to other market channels is difficult to compare and CSA share prices vary greatly, both in terms of price and the number of weeks that are available.

It is evident that great care and attention must be given to input costs, cost of labour, transportation and to what prices the market will bear, related to other producers, retail pricing, etc.

# INSECT OF THE MONTH

## Carrot Weevil

*Listronotus oregonensis*

**Crops Affected:** carrot, parsnips

### Life Cycle:

- Overwinter as adults in soil, in and around infected carrot fields from previous season
  - Move into new crops in spring to feed on foliage
- Adults are approximately 0.25 inches (6 mm) long, with a dark brown body and a snout
  - Females chew holes in the petiole or crown, lay 2-3 eggs and seal the hole with black exudate
  - Eggs are generally laid on petioles when plants reach the 4 leaf stage
  - Eggs hatch one to two weeks after being laid
- Larvae are grub-like, with a reddish brown head
  - Larvae tunnel into the main root, feeding in the upper portion of the root
  - Larvae feed for minimum of 3 weeks, then move out of the carrot to pupate in soil
- Adults emerge after 1 to 2 weeks
- Typically only one life cycle per year

### Symptoms:

- Tunnelling into petioles, heart, crown or centre and root of affected plant
- Scarring of root in top 1/3, rendering it unmarketable
  - May be distinguished from Carrot Rust Fly damage, which typically occurs in the bottom 2/3 of the root
- Distinctly weevil-like adults may be seen early in season, feeding on petioles

### Monitoring:

- Wooden plate traps can be used to monitor adults
- Chunks of carrot may also be placed in the soil
- Adults rarely fly, so infestations may be localized and take number of years to build up to levels of concern

### Management:

- Monitor traps and apply registered products at appropriate times
- Parasitism by *Anaphes* sp. may offer significant control in some regions and should be encouraged as much as possible



Carrot weevil pupa, left; larva, right.

<http://www.omafr.gov.on.ca/english/crops/facts/93-077.htm>



Above: Carrot weevil, adult

Photo by Alton N. Sparks, Jr., University of Georgia, Bugwood.org



Above right: Carrot weevil larvae and damage

Photo by Whitney Cranshaw, Colorado State University, Bugwood.org



Left: Wooden plate trap and carrot traps

<http://www.omafr.gov.on.ca/english/crops/facts/93-077.htm>

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

Search the database for electronic labels

## Alternaria Leaf Spot (a.k.a. Black Spot)

Causal Organism(s): *Alternaria brassicae* or *Alternaria brassicicola*

Crops Affected: Cruciferous vegetables, including cabbage, broccoli, cauliflower, Brussels sprouts, Chinese cabbage, kale, kohlrabi, rutabaga, turnip and cruciferous weeds

### Disease Cycle:

- Fungal pathogen, which can be seed, soil or wind-borne or transferred mechanically
  - Contaminated seeds (with surface spores or internally infected) may produce infected seedlings, but not all of the time
    - Seed surface-borne spores may be viable for up to a couple years, with internal infections remaining viable for over a decade
      - This is the most likely way that new infestations are introduced
  - The pathogen may also survive on infected crop debris or on cruciferous weed hosts
    - This is likely the primary method of survival from year to year
  - Spores are produced on infected tissues and may travel via the wind for long distances (over a mile)
  - Spores may also be spread mechanically by equipment, people, animals or some insects (e.g. early flea beetle feeding)
- Spots may appear first on older leaves, and will then spread to marketable parts of the plant
- Spores are black and sooty within the spots
- If conditions are favorable, the disease will develop where a spore lands, whether on leaf or head tissue

### Symptoms:

- Yellow, dark brown to black circular leaf spots which exhibit concentric rings (light and dark rings; target-like pattern)
  - Lesions start off yellowish, turning tan coloured prior to sporulation
  - The centres of lesions may drop out
  - Spots may coalesce into larger necrotic areas
  - Infected leaves will often drop off if infections reach 50 percent of the leaf surface infected
- Spotting of cauliflower curds is very obvious (also observed on broccoli florets)
  - Black, sunken spots develop on the florets, spreading to encompass large parts of the head
  - Spots may be tiny to several centimetres across
- Fallen leaves (and active lesions) are covered with dark brown/black sooty spores

### Conditions Favoring Disease Development:

- Wind, water splash (rain or irrigation) or equipment can move the spores within the growing season
- Prolonged periods of leaf wetness and moderate to warm temperatures (15-25°C; 59-77°F) favor development
- High humidity and temperatures over 14°C will lead to spore development

### Monitoring:

- Check new and old leaves and growth throughout the field, starting at emergence, assessing the percentage of leaves that are infected and the number of lesions per leaf
- Note any black spotting on cauliflower or broccoli florets on mature plants

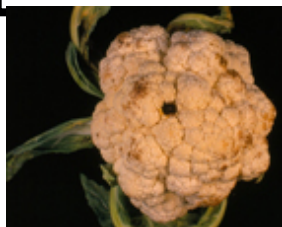
### Management:

- Some varieties may be more resistant to the pathogen and may be a good choice if this disease is an issue
- Start with disease-free seed
  - Seed treatments (hot water and fungicide) can reduce internal and surface-borne spores on seeds, with fungicide treatments controlling surface-borne infections
- Maintain a good rotation to non-cruciferous crops
  - Control cruciferous weeds to minimize introduction to fields and spread within the fields
- Ensure good air circulation within the plant canopy with appropriate plant spacing
- Avoid overhead irrigation if the disease has been identified within the field
- Incorporate crop residues to encourage decomposition and breakdown of tissues
- Straw mulch may be useful in reducing introduction of the pathogen from soil-borne infection
- Ensure that product going into storage (e.g. cabbage) is free from disease
  - Store cabbage below 4°C (39°C) to prevent new infections
  - Ensure that storages are properly cleaned and disinfected prior to storage
- Protective applications of fungicides may be used prior to disease detection and development



Alternaria leaf spot lesions on broccoli leaf

Photo by [www.omafra.gov.on.ca](http://www.omafra.gov.on.ca)



Black spot (Alternaria) on cauliflower head

Photo by [www.omafra.gov.on.ca](http://www.omafra.gov.on.ca)



Black, sunken Alternaria lesions on cabbage

Photo by [www.omafra.gov.on.ca](http://www.omafra.gov.on.ca)



## Late blight Update (all crops)

Over the last several 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*. 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 2017, this disease continues to be a risk for all Solanaceous crops (potato/tomato family) grown in Alberta.

### About the Disease

When the pathogen is present and weather conditions are favourable for disease development, commercial potato and market garden crops are at risk from Late blight, as are all other plantings of potatoes and tomatoes. There is also a risk of spread into greenhouse tomato operations. The risk of introduction comes from either infected transplant material (tomatoes or other host crops) or infected seed potato stock (either imported or carried over). During the season, if spore loads build up, there is a risk of introduction of the pathogen via wind-blown/storm carried transfer.

Late blight is a serious plant disease caused by the fungus-like microorganism, *Phytophthora infestans*, and is found in most potato and vegetable-growing areas of Canada, although historically it does not occur every year on the Prairies. Late blight is most damaging on tomatoes and potatoes, but may also affect eggplants, peppers, petunias and some related Solanaceous weeds, such as nightshade and wild tomato. Late blight is an aggressive disease that, if left unchecked, can cause significant and rapid crop losses in gardens, greenhouses, fields and in controlled environment storages, e.g. potato bins.

### Symptoms & Disease Spread

Initial symptoms of Late blight are typically noted on older leaves, appearing as dark, water-soaked areas (lesions), sometimes with yellow edges, that move in from leaf tips/margins, becoming brown and brittle within a couple days. Late blight lesions are not contained by the leaf veins, as they are with another common foliar disease called early blight (caused by the fungus *Alternaria solani*). Lesions may also develop on plant stems and on potato tubers and tomato fruit. A small amount of sporulation (observed as white, fluffy growth on the edges of lesions) may be visible in some cases on the underside of affected leaves at the edge of lesions. Late blight develops most quickly in warm, wet/humid conditions and can spread very rapidly through plantings. Plants may be rapidly defoliated, die and yields can be significantly reduced.

Potato tubers may be infected by spores produced on the foliage which are subsequently washed into the soil. Infected tubers may have irregular, sunken lesions that are often first found around the eyes. Tomato fruit and potato tuber rot can penetrate into skin of the fruit or tubers, causing rot and discolouration of the internal tissues. The rot often has a reddish-brown colour. Late blight can spread from diseased

to healthy fruit and tubers in stored tomatoes, in potato piles in storage and on seed potato pieces.

On the Prairies, Late blight does not form an overwintering spore, as this requires two different mating types, one of which is not present. Rather, the pathogen overwinters on living tissues. The disease will only survive without a living host for 5-7 days. The disease is carried forward from one season to another on infected seed potatoes, cull piles, volunteer potatoes or living host plants (e.g. tomato transplants).

In-season spread is by spores (sporangia) produced on infected tissues (infected transplants, volunteers, weeds and diseased crop debris). Spores spread within the fields by rain or water splash. Sporangia may also move short distances in soil water and spores may move between fields on equipment. Spores can move considerable distances on the wind

### **Management**

The priority for Late blight management should centre around efforts to reduce the introduction of the disease into plantings, either by avoiding overwinter survival or by monitoring for infected plant materials that might be brought in from other areas. Leaving potato cull piles or diseased materials in the open can lead to infection of healthy plants. Volunteer potato plants and Solanaceous weeds, such as nightshade and wild tomato, should be controlled. The use of LB-resistant tomato varieties in market and home gardens may assist in reducing disease levels.

Late blight can be managed in commercial crops using protective fungicidal sprays (with rotating chemistries), applied at regular intervals when conditions favour disease development. The use of cultural practices, such as drip or furrow irrigation and the adjustment of plant stand density, can be effective in reducing the risk or rate of disease development in alternative crops or smaller stands.

Infected plant material should be disposed of as soon as possible after detection, either by burying or freezing. If infected crop debris is composted, it should be covered with a tarp or soil until it has frozen to minimize the risk of spore survival and distribution. Killing potato tops can help to minimize tuber infection, as this encourages tuber skin set and stops top growth. Tubers can be harvested a couple of weeks after the tops are killed. Tubers should be heavily graded and culled before storage in an attempt to prevent entry of the disease into storage.

#### **Robert Spencer / Dustin Morton**

Commercial Horticulture Specialists  
Ag-Info Centre – 310-FARM (3276)

#### **Dr. Mike Harding**

Plant Pathology Research Scientist – CDC South  
403-362-1338

#### **Dr. Michele Konschuh**

Potato Research Scientist – CDC South  
403-362-1314

#### ***“Late blight is a community disease”***

For more information on Late blight, see the following resource:

[Late Blight of Potatoes & Tomatoes – FAQ](#)

**If you think that you might have Late blight, please contact 310-FARM (3276) for assistance with diagnosis and management**



# LATE BLIGHT OF POTATO & TOMATO

Lesions may have a yellow edge



Potato leaf lesions

In humid conditions, fluffy white growth may be visible on leaf undersides at lesion edges



Photo by Dr. K. Al-Mughrabi, Govt of NB



Photo by Dr. K. Al-Mughrabi, Govt of NB

Dark, water-soaked lesions (spot)

Lesions are not contained by leaf veins

Lesions become brown & brittle within a couple of days



Lesions on tomato leaves



Photo by Dr. K. Al-Mughrabi, Govt of NB

Plant foliage may die back rapidly

Disease develops rapidly under warm & wet/humid conditions

Lesions may also develop on stems, tomato fruit or potato tubers



Potato foliage

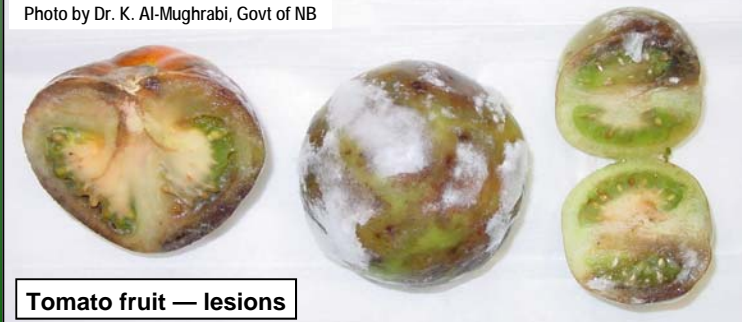
Rapidly advancing lesions

Tomato fruit & potato tuber rot may have reddish-brown lesions

Disease may spread from diseased to healthy tomato fruit & potato tubers in storage & between potato seed pieces

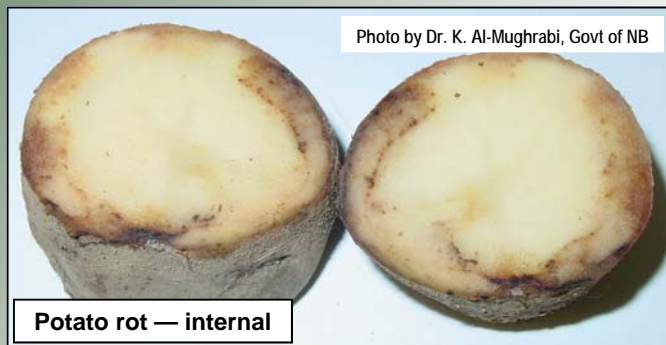
Rot can penetrate the skins of tomato fruit & tubers — causes rot & discoloration of the internal flesh

Photo by Dr. K. Al-Mughrabi, Govt of NB



Tomato fruit — lesions

Photo by Dr. K. Al-Mughrabi, Govt of NB



Potato rot — internal

## **Late blight in Greenhouse Crops**

Over the last several 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 fungus-like microorganism called *Phytophthora infestans*. The excellent conditions for disease development, combined with the presence of the pathogen, has resulted in continuing 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. Recently a specific strain (US23) of Late blight, which is particularly virulent on tomatoes, has become more prevalent, increasing the risk for greenhouse tomato growers. In 2013, Late blight advanced across southern Alberta, coming close to greenhouse tomato areas. For 2017, this disease continues to be a risk for all Solanaceous crops (potato/tomato family) grown in Alberta.

### ***Greenhouse Crops and Late blight***

While most of the attention and focus is placed on field-grown crops, due to the size and scale of the industries that may be affected (e.g. commercial potato, market gardens, etc.), greenhouse producers of tomatoes or tomato transplants, as well as eggplants and petunias, should be concerned about their ability to potentially impact other industries or be adversely affected by Late blight.

Producers should monitor for Late blight in their crops, from the perspective of buyers, sellers and producers of plants. As buyers, producers are at risk of receiving infected plants from other regions, which may significantly affect their own production. As buyer/sellers, receiving infected plants creates the possibility of introducing diseased plants into areas where it could easily spread to other crop industries, which can start the disease cycle locally. As producers, if the disease is introduced in the province, there is the potential of having their crops infected as the season progresses, either affecting production or furthering the spread into other crops.

While potatoes and tomatoes are generally considered the primary crops that are affected by Late blight, crops like petunias, peppers and eggplants may also be infected and/or can spread disease to other, more common host crops (e.g. tomatoes), particularly if they are housed in the same greenhouse. Spread between multiple host crops can certainly occur in greenhouse situations.

It has been suggested that crops such as petunia are not likely to be entirely wiped out by Late blight, unless they are young seedlings (highly sensitive). However, older plants can serve as inoculum for the spread of disease within and out of a greenhouse environment.

Growers and sellers of greenhouse ornamentals and vegetable bedding plants might consider the production and/or sale of one or more of the limited number of Late Blight-resistant varieties, including *Mountain Magic*, *Defiant PHR*, *Mountain Merit*, and *Iron Lady*. These varieties may reduce the development of disease in home and market gardens.

### ***What to Watch for in Greenhouse Crops***

Scouting / monitoring can be done at the same time as plants are monitored for insect pests and other diseases.

Initial symptoms of Late blight are typically noted on older leaves, appearing as dark, water-soaked lesions, sometimes with yellow edges, that move in from leaf tips/margins, becoming brown and brittle within a couple days. Late blight lesions are not contained by the leaf veins. In crops such as petunias, lesions may not develop as rapidly and may resemble other foliar leaf diseases, depending on the stage of the crop at infection and the level of infection.

In high moisture/humidity situations, a small amount of sporulation (observed as white, fluffy growth on the edges of lesions) may be visible on the underside of affected leaves. Other diseases will likely form spores much more rapidly than the Late blight pathogen (e.g. *Botrytis cinerea*, the gray mold pathogen). Late blight develops most quickly in wet/humid conditions and can spread very rapidly through tomato plantings or very young petunia seedlings. Plants may be rapidly defoliated and die.

Specific strains of *Phytophthora* are more aggressive on tomatoes (US 23), and will often attack the fruit readily; therefore, producers should watch plants for both foliar and fruit symptoms. Infected fruit may have irregular, sunken lesions. Tomato fruit rot can penetrate into skin of the fruits, causing rot and discolouration of the internal tissues. The rot often has a reddish-brown colour.

### ***Management Strategies***

Careful monitoring of incoming, growing and outgoing plant material is one of the best strategies for managing Late blight within a greenhouse. Producers should consider separating different host plants as much as possible, particularly if there is a risk of disease on one of the crops. Consider culling poorer quality plants or carefully screening for potentially infected material.

Dispose of diseased material by burial, burning or freezing. Dying plant material can still transfer spores to living plants, continuing the disease cycle.

The Late blight pathogen thrives in warm, wet and/or high humidity conditions; therefore, careful ventilation can help to keep humidity at reasonable levels and can prevent condensation and prolonged periods of leaf wetness. Overhead watering will increase disease spread; this should be addressed if there is a risk that disease is present.

Protective applications of registered fungicides are appropriate in high risk situations; however, applications are not curative.

Late blight is a community disease. It will require effort on the part of all industries to return Alberta to a Late blight-free status. If you want to know more about Late blight or have questions or concerns, please call 310-FARM (3276) for assistance.

For more information on Late blight identification and management, see the Frequently Asked Questions document – [Late blight in Potatoes and Tomatoes](#)



# LATE BLIGHT OF POTATO & TOMATO

## Primary Hosts

- ◆ Potato
- ◆ Tomato



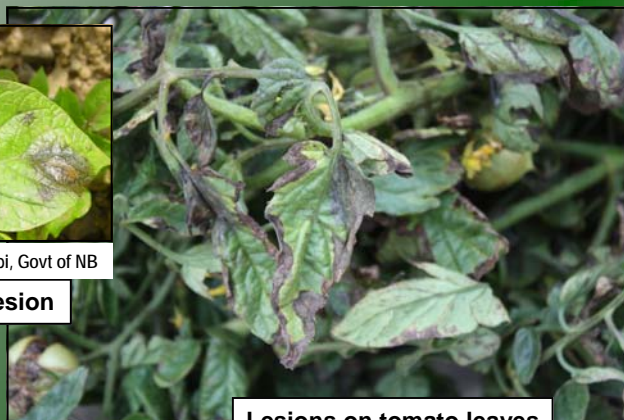
## Secondary Hosts:

- ◆ Eggplant
- ◆ Pepper
- ◆ Petunia
- ◆ Solanaceous weeds
  - ◆ Nightshade
  - ◆ Wild tomato



Photo by Dr. K. Al-Mughrabi, Govt of NB

Potato leaf lesion



Lesions on tomato leaves

## SYMPTOMS

- ◆ Dark, water-soaked lesions (spots)
- ◆ Lesions are not contained by leaf veins
- ◆ Lesions may have a yellow edge
- ◆ Lesions become brown & brittle within a couple of days
- ◆ Disease develops rapidly under warm & wet/humid conditions
- ◆ Plant foliage may die back rapidly
- ◆ Tomato fruit & potato tuber rot may have reddish-brown lesions
- ◆ Rot can penetrate the skins of tomato fruit & tubers — causes rot & discoloration of the internal flesh



Photo by Dr. K. Al-Mughrabi, Govt of NB

Tomato fruit — lesions



Infected tomato foliage



Potato rot — internal

## HOW THE DISEASE SPREADS

- ◆ ONLY overwinters & survives on LIVING plant tissue (seed potatoes, volunteers, potato cull piles, living plants, etc.)  
\*\*NOTE: applies to Prairies
- ◆ Spreads by spores (sporangia) between plants in fields by rain or water splash or short distances in soil water
- ◆ Spores may be carried long distances (100+ km) on wind or in storm fronts
- ◆ Disease may spread from diseased to healthy tomato fruit & potato tubers in storage & between potato seed pieces

## HOW TO PREVENT / MANAGE

- ◆ Avoid introducing the disease - only plant healthy potato tubers & tomato transplants
- ◆ Scout for infection early, regularly and thoroughly
- ◆ Rigorously cull out all infected or suspect material
- ◆ Do not leave infected plant material in the open – bag, bury or compost (covered) or freeze all infected material
- ◆ Top kill or remove tops of infected potatoes to reduce risk of spread to tubers

## **CERTIFIED SEED POTATOES = QUALITY CROP**

(Information provided by Deb Hart, Potato Growers of Alberta)

1. If you are growing in excess of 5 acres, or packing and selling potatoes, you must be licenced by the Potato Growers of Alberta.
2. Under the Alberta Pest Act, Certified seed is the lowest class authorized for planting crops in Alberta. If you are found to be planting uncertified seed you could be receive a fine from the province or be asked to destroy your crop.
3. Source your seed early to prevent disappointment.
4. Build a relationship with the seed grower.
5. Ask for and make sure you receive the field inspection and post-harvest test results for the seed lot you are planting.
6. Make sure the area where you store the seed before planting, and after the crop is harvested, is clean and disinfected. Equipment used for planting and harvesting should be included.
7. Don't plant or harvest too early or late.
8. Scout and rogue your fields for pests, weeds and disease.
9. Grade potatoes going into storage to prevent issues later.

**Have confidence you have a quality product to sell to your customers!**

### **Contact Information:**

Deb Hart  
Seed Coordinator - Potato Growers of Alberta

### **Located at:**

Crop Diversification Centre North  
Alberta Agriculture and Forestry  
17507 Fort Road  
Edmonton, AB T5Y 6H3  
Office: 780-415-2305  
Email: [deb@albertapotatoes.ca](mailto:deb@albertapotatoes.ca)  
[www.albertapotatoes.ca](http://www.albertapotatoes.ca)

# PrairieSaskatoon-QMOD

## Control Entomosporium Leaf and Berry Spot Disease Effectively and Predict Harvest Times



### Attention Saskatoon Orchard Managers

Protect your berry yields and predict harvest date with this disease model tool which has been extensively evaluated across the prairies for a number of years with amazing results.

“This model is a useful tool to help predict the pathogen *E. mespili*, which affects the majority of saskatoon crops,” said researcher Dr. Quinn Holtslag, “and serve as an operations planning tool for producers across the prairies.”

“This program should help producers’ bottom line and may also have environmental benefits,” he said, noting that there is potential for reduced fungicide applications. “In the end, customers should be more confident in the quality and consistency of saskatoon fruit.”

Simply enter into the model:

- Daily min and max temperatures from budbreak until fruit harvest (or Aug.1)
- Rainfall events during flowering
- Various plant growth stages (bud break, 50% flowering, fruit harvest)

The model will generate your orchard spray schedule and predict harvest date. The first fungicide spray of propiconazole-based products occurs after the first rain event that occurs 4 days after flowering.

What do you need:      1) MIN/MAX Thermometer in your orchard  
                                 2) Propiconazole-type fungicide  
                                 3) Access to the internet.

The program is accessed through: [www.prairiesaskatoon.com](http://www.prairiesaskatoon.com)

**FOR 2011 (and later) MODEL USERS: If you had an account last year, use the same login/password**

Simply contact your provincial horticulture specialist to confirm your provincial fruit grower membership status and to receive your PrairieSaskatoon-QMOD password. See below:

Alberta: [Robert.Spencer@gov.ab.ca](mailto:Robert.Spencer@gov.ab.ca)      Saskatchewan: [Forrest.Scharf@gov.sk.ca](mailto:Forrest.Scharf@gov.sk.ca)  
Manitoba: [Anthony.Mintenko@gov.mb.ca](mailto:Anthony.Mintenko@gov.mb.ca)

*For more information please contact your prov. rep. listed above.*