



Table of contents

Chapter 1	
Why Garden Without Chemicals	1
Chapter 2	
Getting Started	7
Chapter 3	
Growing Healthier Plants	15
Chapter 4	
Controlling Weeds Without Chemicals	35
Chapter 5	
Controlling Insects Without Chemicals	49
Chapter 6	
Controlling Diseases Without Chemicals	63
Chapter 7	
Lawns	71
Chapter 8	
Vegetables	85
Chapter 9	
Flowers, Bulbs and Vines	137
Chapter 10	
Trees and Shrubs	159
Chapter 11	
Fruit	203
Bibliography	233
Index	237
Acknowledgements	244
In Memoriam - Brian Baldwin	248

Vegetable varieties recommended by the University of Saskatchewan

The varieties listed below have been tested over two decades and are recommended based on superior yield, taste, disease and insect resistance, ease of culture and other factors. Although they were originally tested with market gardeners and commercial growers in mind, these varieties are of equal value in the home garden. They are generally available from retail outlets and seed catalogues across the prairies.

BEAN: Delinel, Matador, Strike, Goldrush, Gold Mine, Nash, Provider, Royal Burgundy, Tema

BEAN - BROAD: Broad Bean Express, Aquadulce

BEE: Red Ace, Alto, Merlin, Detroit Supreme, Moneta, Pablo, Formanova, Carillon, Cylindra, Ruby Queen

BROCCOLI: Arcadia, Captain, Eureka, Belstar

BRUSSELS SPROUTS: Diabolo, Jade Cross, Oliver

CABBAGE: Gonzales, Blue Vantage, Platinum Dynasty, Tobia, Huron, Loughton, Megaton, Multikeeper, Princeton, Cairo, Parcel, Bronco, Buscaro, Super Red, Copenhagen Market

CANTALOUPE: Athena, Jaipur, Passport, Aphrodite, Dove, Fastbreak, Goddess, Halona, Gourmet

CARROT: Bolero, Evora, Nantes Coreless, Vitana, Yaya, Royal Chantenay, Sunrise, Uppercut, Magnum, Sugarsnax, Eagle, Enterprize, Tendersnax, Apache, Arrowhead, Rainbow, Napoli, Nelson

CAULIFLOWER: Cumberland, Freedom, Artica, Caspar, Graffiti, Cassius, Minuteman, Wentworth, Sympathy

CELERY: Tango, Picador

CORN: Earlivee, Early Sunglow, Frisky, Polka, Revelation, Geronimo, Trinity, Navajo, Northern Extra Sweet, Passion, Awesome, Seneca Horizon, Fastlane, Optimum, Seneca Tomahawk

CUCUMBER: Cool Breeze, Cross Country, Eureka, Fancipak, Homemade Pickles, Fanfare, Dasher, General Lee, Indio, Marketmore, Speedway, Calypso, Raider, Salad Bush, Morden Early, Dasher II, Potluck, Zapata

EGGPLANT: Black Beauty, Black Bell, Night Shadow, Dusky

KALE: Blue Ridge, Winterbor

KOHLRABI: Early White Vienna

LETTUCE: Salad Bowl, Green Towers, Romulus, Freckles, Tibor, Green Forest, Little Gem, Paris Island Cos, Prizehead, Great Lakes, Cos, Bon Vivant, Buttercrunch, Green Bay, Two Star

ONION - BUNCHING: Alpine, Evergreen, Ishikura, Tokyo Long White, Talon

ONION - RED: Mars, Mercury, Red Beauty

TOMATO: Celebrity, Matina Organic, Sunchief, Sunrise, Lemon Boy, Mama Mia, Roma, Viva Italia, Classica, Daiquiri, Hy-Beef, Mountain Fresh, Sunbrite, Ultra Sonic

TOMATO - HERITAGE: Black Prince, Black Russian, Red Currant, Oxheart

TURNIP: Purple Top White Globe

WATERMELON: Sangria, Sweet Favorite, Crimson Sweet, Sugar Baby, Lantha, Vista, Vanguard

ZUCCHINI SQUASH: Spineless Beauty, Bobcat, Payroll, Onyx, Sungreen



If you wait to sow your onion seeds until after caragana has begun to bloom, the onion maggot fly will have already laid her eggs on your neighbours' onions.

Timing

Timing works through avoidance. Sow seeds and put in transplants so that your vegetables develop when pest populations are at a low level. Use short-season varieties – varieties that require the fewest number of days from sowing or transplanting to harvest – recommended for your area. Try to plant a week or two earlier or later than “normal.” This is not always easy on the prairies, where our season is already short.

The classic example of avoidance through timing is the onion maggot. The same number of heat units is required for the adult onion fly to emerge as for caragana and dandelion to begin to flower. Use onion sets or early-maturing onion varieties, and transplant or sow seeds *after* caragana and dandelion have begun to flower. By that time, the fly will have laid her eggs on your neighbours' onions.

If specific pests have been a problem in your garden, find out when they usually emerge in your area by consulting your local agricultural or horticultural extension specialist, Master Gardener Program liaison, or garden centre.

DIAGNOSTIC CHART

Common insects, diseases and disorders of fruit

PLANT	PART AFFECTED	SYMPTOMS	LIKELY PROBLEM
Apple	foliage	brown, retained through winter	Fireblight (Diseases)
	stems	curled at end	
Apple	foliage	silver sheen	Silverleaf (Diseases)
Apple	foliage	yellow blade, dark green veins	Lime-induced chlorosis (Disorders)
Apple	fruit	round, corky lesions	Apple scab (Diseases)
Apple	fruit	winding trails through flesh but not core	Apple maggot/rail-road worm (Insects)
Cherry	fruit	prematurely red, shrivelled; exit holes	Cherry fruit fly (Insects)
Chokecherry	shoots, foliage	silken tent in crotch, caterpillars within	Tent caterpillar (eastern) (Insects)
Chokecherry	stems, branches	dark encircling growths; dieback beyond	Black knot (Diseases)
Chokecherry	fruit	red, swollen, pear-shaped; fall prematurely	Fruit gall midge (Insects)
Currant	shoots, foliage	stunted, yellow; dieback; late to leaf out	Currant borer (Insects)
Currant	foliage	defoliation	Imported currant worm (Insects)
Currant	fruit	blotched; ripens prematurely	Currant fruit fly (Insects)
Pear	foliage	brown, retained through winter	Fireblight (Diseases)
	stems	curled at end	
Plum	fruit	enlarged, hollow	Plum pocket (Diseases)



Be discerning as to where you purchase hostas, buying from reputable nurseries, although even this is no guarantee your hosta will be virus-free.

SOLUTIONS:

Cultural method:

- If you suspect a hosta is virus-infected, remove all of it (including root pieces), and place it in a plastic bag in the garbage. Do not compost it. Use bleach to disinfect the tool that you used to dig it up.

Powdery mildew

AFFECTS: aster, delphinium, *monarda*, phlox, others

Powdery mildew is a fungal disease with fairly obvious symptoms. It is caused by various genera and species and is highly weather dependent. Although it seems like a contradiction, most powdery mildews are promoted by high humidity but low rainfall. The reason? The conidia (asexual spores) are easily damaged by raindrops.



A white powdery coating on the leaf surface indicates powdery mildew. To reduce its incidence, give delphiniums generous spacing with good air circulation.

Spores of powdery mildew are spread by wind and air currents in spring. The disease appears worse during periods of warm days and cool nights when dew is present, or when plants are under moisture stress. It is generally worse in shaded areas. Bee balm (*Monarda*) and garden phlox are among the most susceptible perennials, but fortunately many resistant cultivars have been introduced in the last few decades.

WHAT TO LOOK FOR: A white powdery coating on the leaf surface. On severely infected plants, leaves will drop and plants will be weakened.

PREVENTION:

Cultural methods:

- Use resistant varieties. The following are hardy to zone 3:
Monarda: 'Coral Reef,' 'Grand Marshall,' 'Grand Parade,'



Many newer varieties of Monarda have been bred with powdery mildew resistance.

'Gardenview Scarlet,' 'Jacob Cline,' 'Marshall's Delight,' 'Mohawk,' 'Petite Delight,' 'Petite Wonder,' 'Raspberry Wine,' 'Violet Queen.'

Phlox: 'Purple Flame,' 'Spinners,' 'Laura,' 'David,' 'Delta Snow,' 'Franz Schubert,' 'Nora Leigh.'

- Grow plants in full sun.



Older varieties of garden phlox may be more susceptible to powdery mildew.

- Water the soil rather than the foliage; ensure even moisture; irrigate early in the day so foliage dries quickly.
- Ensure adequate spacing for good air circulation.

SOLUTIONS:

Cultural method:

- Clean up and destroy fallen leaves and infected plant material.

Less toxic alternatives:

- Apply sulphur.
- Apply baking soda (sodium bicarbonate and potassium bicarbonate).
- For additional information, see Chapter 8, Vegetables and Chapter 10, Trees and Shrubs.

Disorders

Fasciation

AFFECTS: delphinium, hosta, *Veronicastrum* (culver's root)

Generally a "once in the life of the plant" occurrence, fasciation is almost always due to cold weather in early spring that caused irregularities in cell division. Fasciation has also been attributed to viral infection, heavy manuring or a soil bacterium, *Corynebacterium fascians*. It seldom repeats itself. If it shows up continually in the same plant, it's due to a genetic mutation. Such was the case with *Veronicastrum virginicum* 'Fascination,' now a much sought-after cultivar!