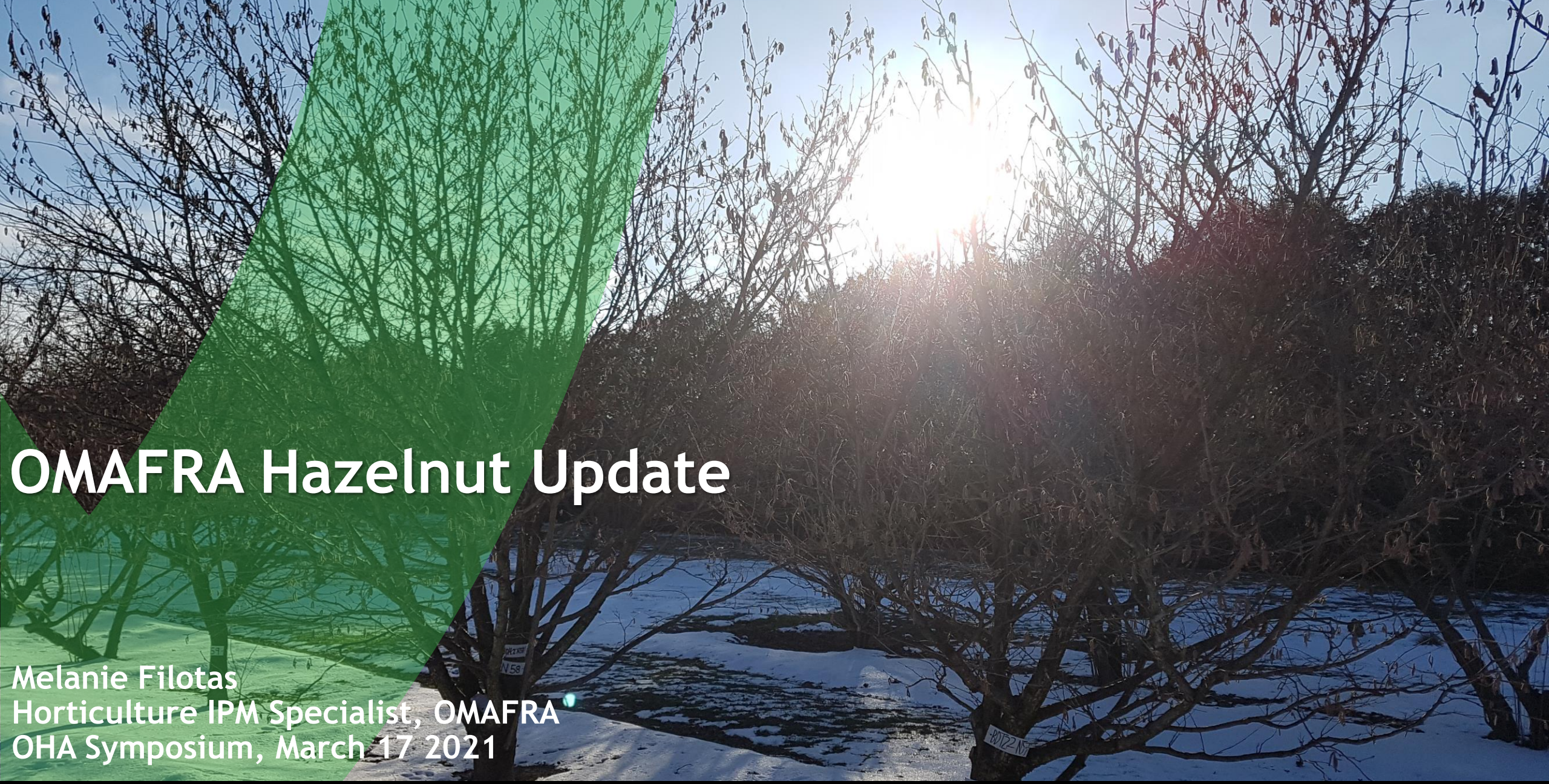
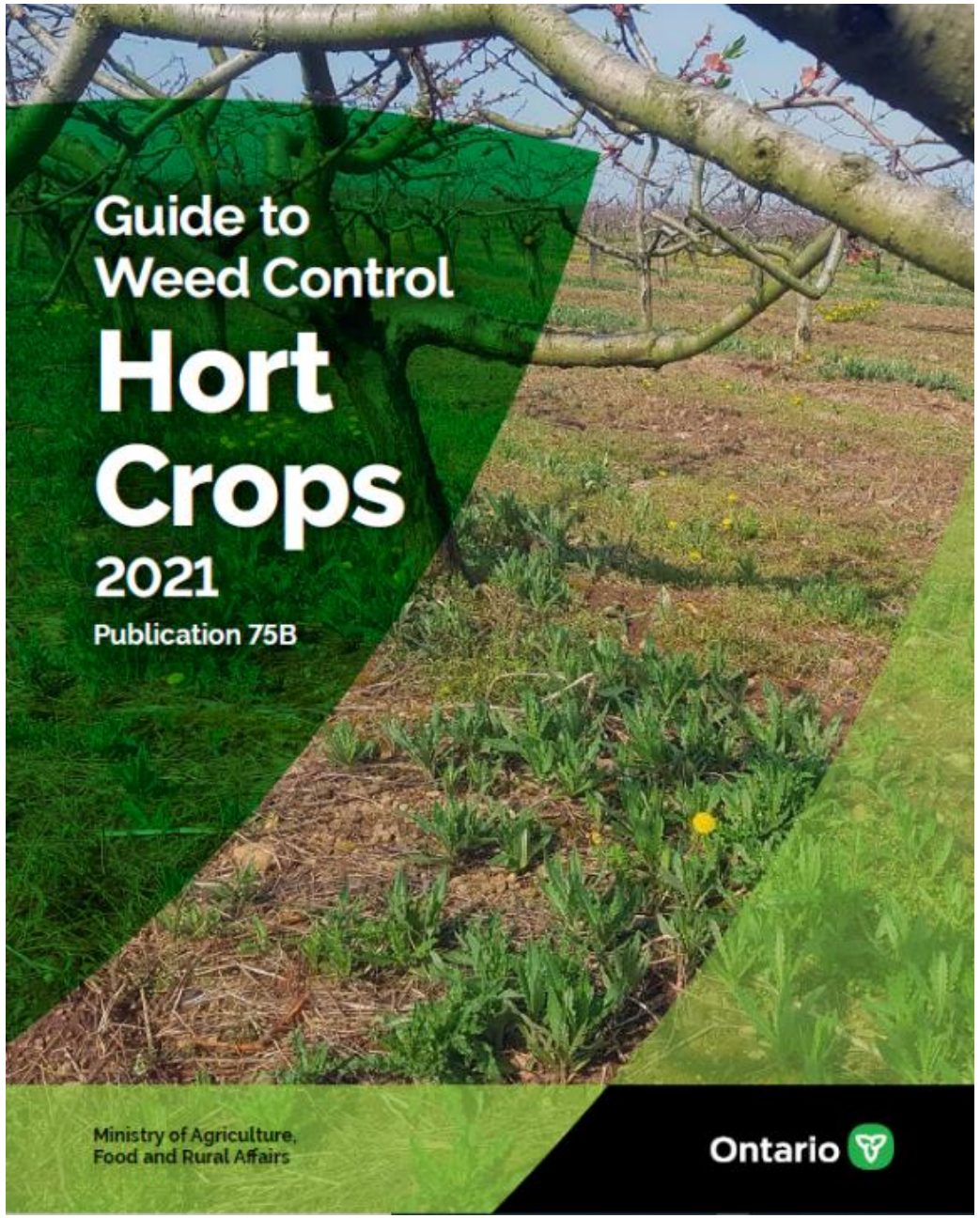


OMAFRA Hazelnut Update

Melanie Filotas
Horticulture IPM Specialist, OMAFRA
OHA Symposium, March 17 2021



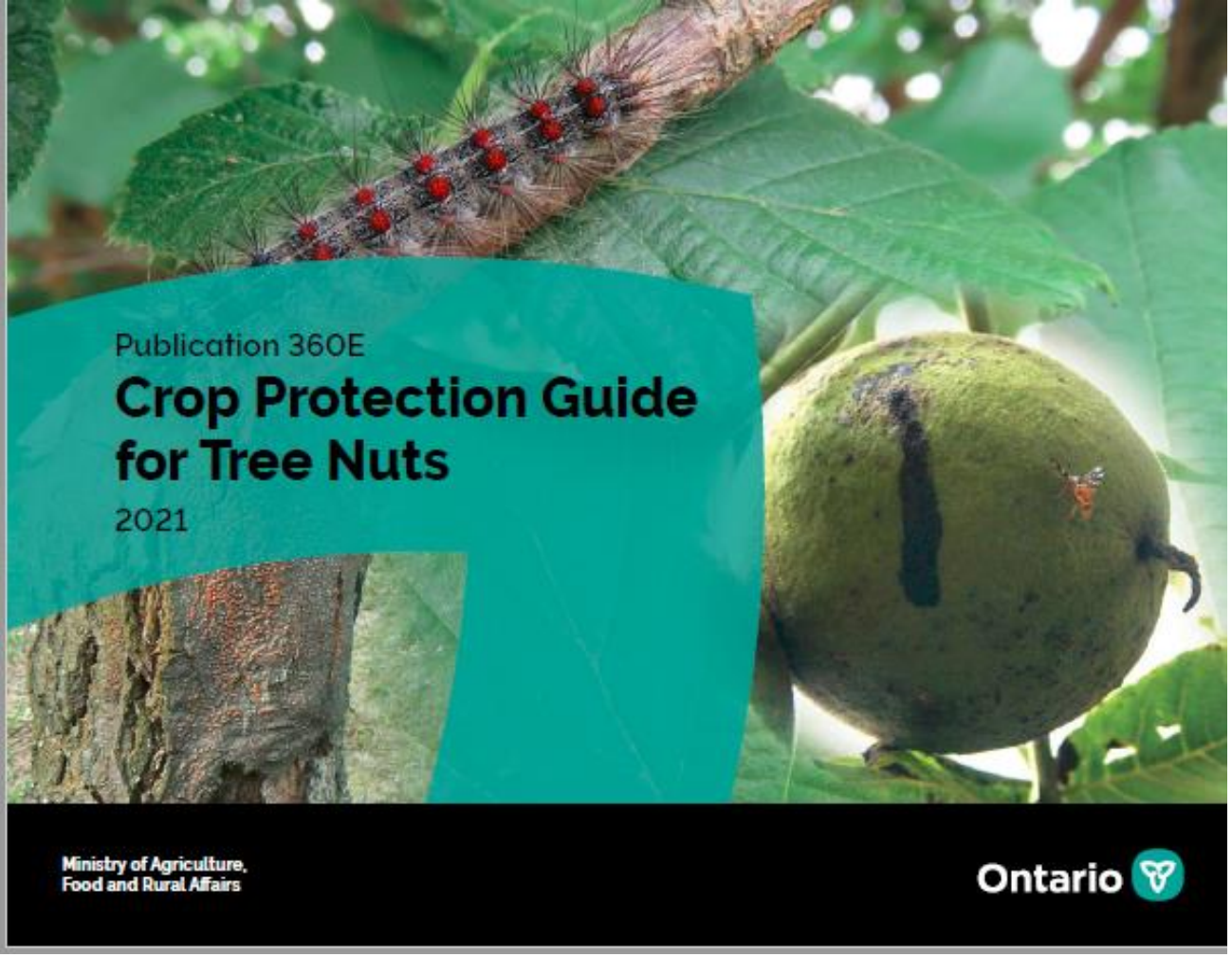
Guide to Weed Control for Hort Crops
2021 Publication 75B
Now Available

Free PDF download:
www.omafra.gov.on.ca/english/crops/pub75/pub75B/pub75Btoc.htm

Print copy:
www.ontario.ca/publications

New Herbicide = Aim EC (carfentrazone-ethyl)

- Group 14 herbicide
- Post-emergence broadleaf weed control and suckers
- REI = 12 hrs
- Coverage is important. Apply with surfactant
- **Severe injury** may result if spray comes into contact with green bark, leaves, bloom or fruit
- **Weed Control:**
  - PHI: 3 days, Maximum applications: 1/season
  - Apply with hooded sprayer between the row
  - For optimum performance apply to actively growing weeds up to 10 cm high
- **Sucker Control:**
  - PHI: 30 days, Maximum applications: 2/season
  - Directed spray at the tree base to young suckers that have not hardened off



Publication 360E Crop Protection Guide for Tree Nuts

Free PDF download available on OMAFRA website **mid April:**
http://www.omafra.gov.on.ca/english/crops/pub360/p360toc.htm

Print copy available at Publications Ontario **late April:**
www.ontario.ca/publications

Calendar and Products Used On

Read the product label and follow all safety precautions. Labels for registered pest control products are available at the Pest Management Regulatory Agency (PMRA) website at http://pr-rp.hc-sc.gc.ca/ls-re/index-eng.php. Many products listed are under re-evaluation with the PMRA and may change within the lifetime of this publication. Consult the most recent label on the PMRA website and/or product registrant for complete information.

Table 3–1. Hazelnut (Filbert) Calendar

Disease or Insect	Group	Product	Rate	Restricted Entry Interval (REI)	Preharvest Interval (PHI)	Product Specific Comments
Bud break (up to ¼-inch vegetative growth)						
Eastern filbert blight	**General Comments:** • Eastern filbert blight is the most significant disease of hazelnuts in Ontario. • Apply protective fungicides preventatively to protect new growth starting at bud break. Protective sprays should continue for at least 8 weeks or longer, if prolonged wet conditions persist. • Blight-tolerant cultivars may require fewer fungicide applications. • Rotate between different fungicide groups (M, 3, 7+3 and/or 11) for these sprays • For resistance management, do not make more than 2 consecutive applications of Group 3 or 11 products before rotating to a different group. • Copper products may not all be equally effective against filbert blight. • Fungicides should always be used in conjunction with cultural controls, in particular removing and destroying canker s prior to budbreak.					
	M	Bravo ZN/Bravo ZNC	6.72 L/ha	12 hours[1]/ 2 days[2]/ 10 days[3]/ 18 days[4]	120 days	Apply from bud break to shoot e longation. Do not tank-mix with oils, other pesticides, surfactants or fertilizers. Do not apply within 1 week of oil. Use caution when using in a spray program with Purespray Green Spray Oil. See label for details.
		Copper Spray * or Guardsman Copper Oxychloride	3–9 kg/ha	48 hours	2 days	Apply beginning at bud swell, when tissue is susceptible to infection. For Copper Spray and Guardsman Copper Oxychloride, use 3 kg/ha on small trees and up to 9 kg/ha on large trees. Apply in a high-volume spray to ensure thorough coverage. Do not use in combination with or closely following Vegol or Exirel. See product labels for details. When mixed with lime (if label permits), these products cannot be mixed with insecticide wettable powders. Cueva may cause leaf spots in copper-sensitive crops during excessive moisture and cold. If concerned about sensitivity of plants, apply first to small areas.
		Cueva *	1% v/v in 470–940 L water/ha	4 hours	1 day	
	3	Quash	245 g/ha	12 hours	25 days	**Suppression on**[5] Do not make alternate row applications. Most effective when a
	7+3	Miravis Duo	1.0 L/ha	12 hours	14 days	Apply at bud bre a spray volume rotate between

[1] General re-entry. [2] Orchard maintenance. [3] Transplanting. [4] Scouting activities. [5] Hand harvest, hand-line irrigation. [6] Thinning. [7] Mechanical harv
— = Information not applicable or not specified on product label. * = Potentially organic. Check with certifying body.

Table 3–2. Products Used on Hazelnuts

Use this table as a guide but refer to product label for specific information.
The preharvest interval (PHI) is the number of days between the last spray and first harvest.
The restricted entry interval (REI) is the minimum interval that must be observed between application of the pesticide and work in the treated crop without protective equipment. If no re-entry period is stated on the label, assume it is 12 hours. Where the REI exceeds the PHI, follow the REI.
The maximum number of applications is the labelled maximum number for the growing season and may be higher than what is recommended for resistance management or for the preservation of beneficial insects.
Products with a check mark may be acceptable for organic use based on the publication *Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ). Réseau d'avertissements phytosanitaires. 2020. RAP - Réseau Général. Bulletin D'information No. 1, Special phytoprotection bio. 18 juin 2020* or a letter of certification provided by the registrant. Check with certifying body to verify the acceptability of any product prior to using it.

Product Name	Registration Number	Common Name	Group	Preharvest Interval (PHI)	Restricted Entry Interval (REI)	Maximum Applications	Potentially Organic
Products for insect control or suppression							
Acramite 50 WS	27925	bifenazate	20D	14 days	12 hours	1	–
Admire 240 Flowable	24094	imidacloprid	4A	7 days	24 hours	2	–
Altacor	28981	chlorantraniliprole	28	10 days	12 hours	3 (max. 645 g/ha)	–
Bioprotec Plus	32425	*Bacillus thuringiensis*	11	0 days	4 hours	–	✓
Closer	30826	sulfoxaflor	4C	7 days	12 hours	2	–
Cygon 480-AG	25651	dimethoate	1B	45 days	5 days[1]/21 days[2]/ 34 days[3]	1	–
Danitol	33817	fenpropathrin	3	3 days[4]	24 hours[1]/7 days[5,6]/ 3 days[4]	1	–
Delegate	28778	spinetoram	5	14 days	12 hours	3	–
Dipel 2X DF	26508	*Bacillus thuringiensis*	11	0 days	4 hours	–	✓
Envidor 240 SC	28051	spirodiclofen	23	7 days	12 hours	1	–
Exirel	30895	cyantraniliprole	28	5 days	12 hours	4	–
Harvanta 50 SL	32889	cyclaniliprole	28	30 days	12 hours	3 (max 4.8 L/ha)	–
Intrepid	27786	methoxyfenozide	18	14 days	12 hours	max. 2 L/ha	–
Isomate DWB	30589	pheromone, dogwood borer	NC	–	–	–	–
Kanemite 15 SC	28641	acequinocyl	20B	14 days	12 hours	2 (max 4.1 L/ha)	–
Kopa	31433	potassium salts of fatty acids	NC	0 days	12 hours	3[7]	✓
Labamba	33576	lambda-cyhalothrin	3	14 days	24 hours	max 390 mL/ha	–

M = Multi-site fungicides. NC = Not classified by FRAC/IRAC, or group not indicated on product label.
– = Information is not specified on the product label. ✓ = Potentially organic. Check with certifying body.

[1] General re-entry. [2] Hand harvest, hand-line irrigation. [3] Thinning. [4] Mechanical harvest. Contact registrant for information on hand harvest PHI and REI. [5] Scouting activities. [6] Hand pruning.
[7] Maximum of 3 consecutive applications to ensure plant injury does not occur. Additional applications may be possible if previous experience with repeat applications of the product under the same conditions have not produced plant injury. [8] Maximum 2 dormant and 4 summer applications per year. [9] Orchard maintenance. [10] Transplanting.

Activity Tables

Notes on Hazelnut Insect and Disease Control Products

Use the information in the following notes to assist with choosing the best product for the pest complex present. Consider the life stage present and resistance management strategies, as well as the activity of each product to pests and beneficial insects.

Information in Table 3–3 is based partly on information from other tree fruit in Ontario and the northeastern United States. Impact on these insects in tree nuts is expected to be similar to that of apples. However, differences in production systems, timing of applications and other factors may change efficacy of these products.

Table 3–3. Activity of Insecticides and Miticides on Hazelnut Pests

Use products only for pests listed on the product label for the crop. The information provided in this table is intended to assist the grower in choosing the best insecticide for control of pests listed on the product label, while managing resistance and avoiding unnecessary sprays for non-target pests. Efficacy can be affected by rate of the product.

Insecticide	Brown marmorated stink bug	Japanese beetle	Oblique-banded leafroller	Potato leafhopper	Weevils[1]	Scale[2]	Spring-feeding caterpillar	Codling Moth	Aphids	Mites		
										Bud mite[3]	European red mite	Two-spotted spider mite
Acramite 50WS	–	–	–	–	–	–	–	–	–	–	C*	C*
Admire 240 Flowable	SC	–	–	S*	–	SC	–	–	C*	–	–	–
Altacor	–	SC	C*	–	–	SC	SC	C*	SC	–	–	–
Bioprotec Plus	–	–	C*	–	–	–	SC	–	–	–	–	–
Closer	SC	–	–	SC	–	C*	–	–	C*	–	–	–
Cygon 480 AG	–	–	–	SC	–	SC	–	–	C*	–	–	–
Danitol	–	SC	SC	SC	SC	–	SC	C*	–	–	–*	–*
Delegate	–	–	C*	–	S*	–	SC	C*	–	–	–	–
Dipel 2X DF	–	–	C*	–	–	–	SC	SC	–	–	–	–
Envidor 240 SC	–	–	–	–	–	–	–	–	–	SC[3]	C*	C*
Exirel	–	SC										

C = Control S = Suppression RD = Reduction in n
– = Not registered for control of this pest, or activit

[1] Efficacy based mainly on plum curculio in apples.

Table 3–4. Activity of Fungicides on Eastern Filbert Blight (EFB)

Use fungicides only for the disease listed on the product label for the crop. This table is intended to assist the grower in choosing the best fungicide for control of pests listed on the product label, while managing resistance and avoiding unnecessary sprays for non-target pests. The information provided in this table is based primarily on research done in Oregon hazelnuts. Efficacy in Ontario may be affected by rate of the product, fungal strains, environmental conditions, hazelnut cultivar or by the presence of resistant populations of fungi. The information provides guidelines on how fungicides may perform against some strains of the EFB fungus. However, growers may need to adapt their fungicide programs as they gain experience with the particular disease conditions present in their orchard.

Group	Fungicide	Active Ingredient	EFB Control
M1	Copper Spray	copper oxychloride	–[1]
M1	Guardsman Copper Oxychloride	copper oxychloride	–[1]
M1	Cueva	copper octanoate	0[1]
M5	Bravo ZNC	chlorothalonil	4
3	Quash	metconazole	3
7+3	Miravis Duo	pydiflumetofen + difenoconazole	3–4
11	Azoshy	azoxystrobin	2–3
11	Quadris Flowable	azoxystrobin	2–3
11	Flint	trifloxystrobin	3–4

0 = Not effective. 1 = Slight control. 2 = Fair. 3 = Good. 4 = Excellent. – = Information not available.

Adapted from *2019 Pest Management Guide for the Willamette Valley*, Oregon State University (OSU) Extension Service and information from OSU researchers. Ratings are relative and based on full application rates and proper coverage/spray timing. Actual control will be affected by these factors and others including pathogen strain, tree cultivar, disease pressure and weather conditions.

[1] Copper oxychloride was not evaluated in Oregon trials. Copper hydroxide was evaluated against Eastern Filbert Blight in Oregon and was found to provide good control (ranking = 3) relative to other products evaluated, while copper octanoate was not found to be effective under Oregon conditions.

NOTES ON HAZELTNUT PRODUCTS

Toxicity to Beneficials

NOTES ON TREE NUT PRODUCTS

Table 3–11. Toxicity of Pesticides to Honeybees and Mite/Aphid Predators

Product	Honeybees[1]	*Stethorus* (spider mite destroyer)	Predatory mites		*Aphidoletes* (Aphid midge)	Ladybugs	Minute pirate bugs	Lacewings	Fly and wasp parasitoids
			Typhlodromus pyri	*Amblyseius fallacis*					
Insecticides									
Admire 240 Flowable	VT	MT	ST	ST	ST	MT	MT	MT	MT
Altacor	NT	NT	NT	NT	NT	NT	NT	NT	NT
Bioprotec Plus	NT	NT	NT	NT	NT	NT	NT	NT	NT
Closer	VT	VT	ST	ST	MT	MT	MT	MT	VT
Cygon 480 AG	VT	MT	VT	VT	VT	—	—	—	—
Danitol	VT	VT	VT	VT	VT	VT	VT	VT	VT
Delegate	VT	ST	MT	MT	ST	ST	ST	ST	MT
Dipel 2X DF	NT	NT	NT	NT	NT	NT	NT	NT	NT
Entrust	VT	ST	ST	ST	ST	NT	NT	NT	ST
Exirel	VT	MT	ST	ST	ST	MT	ST	ST	MT
GF-120 Fruit Fly Bait	VT	NT	ST	ST	NT	NT	NT	NT	ST
Harvanta 50 SL	VT	—	—	—	—	—	—	—	—
Intrepid	NT	NT	NT	NT	NT	NT	NT	NT	NT
Labamba	VT	VT	VT	VT	VT	VT	VT	VT	VT
Lagon 480 E	VT	MT	VT	VT	VT	—	—	—	—
Matador 120 EC	VT	VT	VT	VT	VT	VT	VT	VT	VT
Movento 240 SC	VT[2]	ST	NT	NT	ST	ST	ST	ST	—
Sharphos	VT	MT	MT	MT	—	—	—	—	—
Sivanto Prime	MT	ST	NT	NT	ST	—	—	—	—
Surround WP	I[3]	MT	MT	MT	MT	MT	—	ST	MT
Warhawk 480 EC	VT	MT	MT	MT	—	—	—	—	—
Vayego 200 SC	VT	—	—	—	—	—	—	—	—
Versys	MT	—	—	—	—	—	—	—	—
Xentari WG	NT	NT	NT	NT	NT	NT	NT	NT	NT

NT = Non toxic. ST = Slightly toxic. MT = Moderately toxic. VT = Very toxic. I = Irritant. — = No information is available. Consult label or manufacturer for more information.

[1] Source: PMRA Environmental Assessment Division. For more detailed information on the toxicity of specific pesticides to honeybees, refer to the pesticide label.
[2] May be toxic to bee colonies exposed to direct treatment, drift or residues on flowering crops or weeds.
[3] White film barrier on plant tissue may act as a repellent to bees if used during bloom.

Only registered products with toxicity data available are listed in this table. Consult label or manufacturer for more information.
Adapted from *Cornell Pest Management Guidelines for Tree Fruit* and the *Pennsylvania Tree Fruit Production Guide* information on products registered on other tree fruit.

New Hazelnut Products

"Me-Too" Products:

- Labamba (lambda-cyhalothrin) for leafrollers and aphids
  - Similar to Matador
- Sharphos (chlorpyrifos) for aphids
  - Similar to Warhawk
- Azoshy (azoxystrobin) for filbert blight
  - Similar to Quadris

Formulation Changes:

- Bioprotec Plus (*Bacillus thuringiensis*) for leafrollers
  - replacing Bioprotec. Lower rate, shorter REI
- Bravo ZNC (chlorothalonil) for filbert blight
  - replacing Bravo ZN

New Active Ingredients:

- Danitol (fenpropathrin) new Group 3 insecticide for codling moth and mites
- Vayego 200 SC (tetraniliprole) new Group 28 insecticide for leafrollers, codling moth and aphids
- Miravis Duo (pydiflumetofen+difenoconazole) for filbert blight

New EFB Fungicide for 2021!

- Miravis Duo
- pydiflumetofen (group 7) + difenoconazole (group 3)
- First group 7 fungicide for EFB in Ontario. First product with difenoconazole registered in Ontario
- REI = 12 hrs, PHI = 14 days,
- Rate 1.0 L/ha, Max per season = 3.0 L/ha/season
- Surfactant not required
- Comments from Oregon:
  - Many group 7 fungicides do not work well on EFB. This product does have some activity but it is not clear how effective it is alone
  - Difenonconazole is excellent against EFB
  - Miravis Duo averaged 96% control in Oregon trials

Table 3–4. Activity of Fungicides on Eastern Filbert Blight (EFB)

Use fungicides only for the disease listed on the product label for the crop. This table is intended to assist the grower in choosing the best fungicide for control of pests listed on the product label, while managing resistance and avoiding unnecessary sprays for non-target pests. The information provided in this table is based primarily on research done in Oregon hazelnuts. Efficacy in Ontario may be affected by rate of the product, fungal strains, environmental conditions, hazelnut cultivar or by the presence of resistant populations of fungi. The information provides guidelines on how fungicides may perform against some strains of the EFB fungus. However, growers may need to adapt their fungicide programs as they gain experience with the particular disease conditions present in their orchard.

Group	Fungicide	Active Ingredient	EFB Control
M1	Copper Spray	copper oxychloride	–[1]
M1	Guardsman Copper Oxychloride	copper oxychloride	–[1]
M1	Cueva	copper octanoate	0[1]
M5	Bravo ZNC	chlorothalonil	4
3	Quash	metconazole	3
7+3	Miravis Duo	pydiflumetofen + difenoconazole	3–4
11	Azoshy	azoxystrobin	2–3
11	Quadris Flowable	azoxystrobin	2–3
11	Flint	trifloxystrobin	3–4

0 = Not effective. 1 = Slight control. 2 = Fair. 3 = Good. 4 = Excellent. – = Information not available.

- Rotate between fungicide groups!!!
- If efficacy is comparable in Ontario, Miravis Duo may be an option later spring due to its shorter PHI

Changes to OMAFRA Crop Protection Guides

COMING SOON!

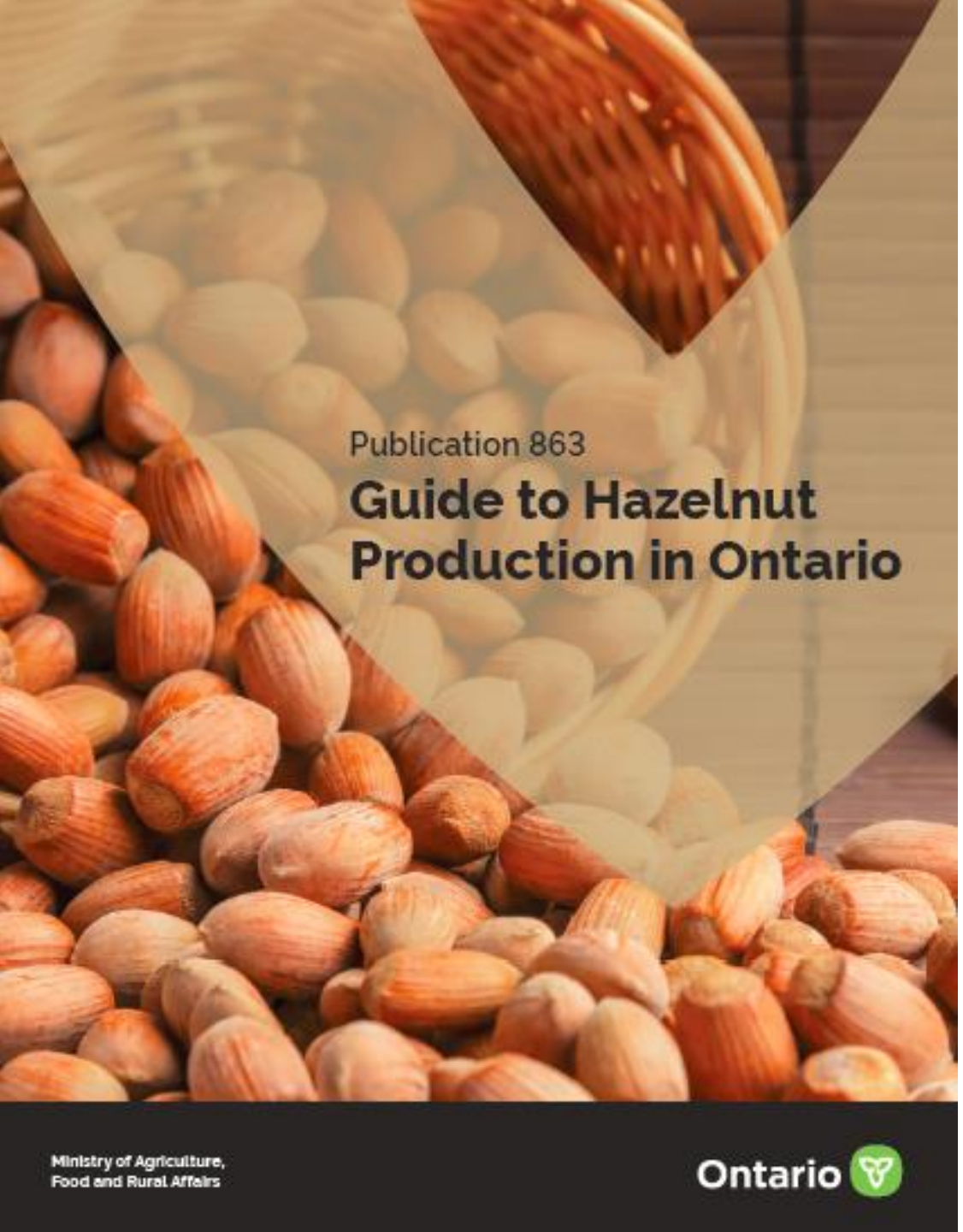
For the 2022 growing season, you will be able to access the information currently listed in this publication through a new, digital application.

The application will replace OMAFRA's crop protection publications and provide you with information in one single location.

This one-stop tool for crop protection information will allow you to:

- ✔ customize and navigate through information based on your specific needs;
- ✔ access information when you need it to make important business decisions; and
- ✔ access information digitally, either through desktop, tablet or mobile.

Updates can be found at:
ontario.ca/crops



COMING SOON…..

Publication 863
Guide to Hazelnut Production

Free printable download available Summer 2021!

Contents

Nut Development Calendar

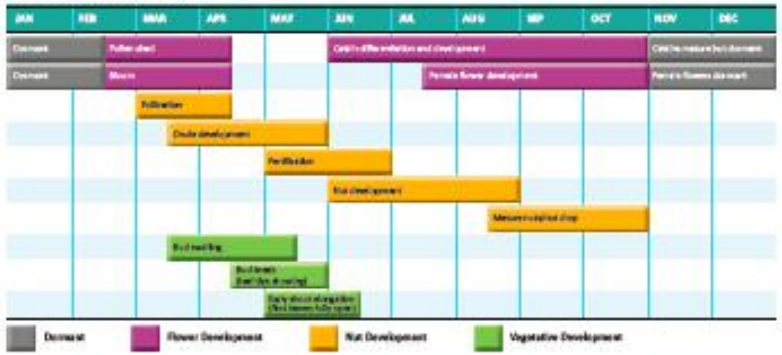


Figure 2-3. Nut, flower and vegetative bud phenology for hazelnuts in Ontario. Information is based on Ontario industry experience, University of Guelph research and Oregon State University factsheet EM9074, *Growing Hazelnuts in the Pacific Northwest: Pollination and Nut Development.*

Flower Development

Hazelnut trees have a complicated development with male and female flower formation beginning more than a year before harvest, and a significant gap between pollination and fertilization. Figure 2-3 provides a visual description of nut development from flower to mature crop.

Male Catkin Flowers

Male flowers are borne in catkins on the current season's stem (Figure 2-4). A small protective bract or pouch encases each individual male flower (Figure 2-5), and 150–200 male flowers on a single stem form the catkin. Inside the catkin, each male flower is encased in a protective bract (pouch). Each bract contains bun-shaped pollen sacs. Catkins develop rapidly from August (Figure 2-6) and reach maturity in December. Catkins remain dormant during the winter, as long as temperatures remain cold and temporary winter thaws do not occur.

Figure 2-4. Male catkin flowers of hazelnut.

Figure 2-5. Interior of elongating catkin.

Figure 2-6. Catkins begin to develop during July and mature by December. Catkins remain dormant during winter and shed their load of pollen in March the following year.

Female Flowers

Female flowers are very small and are borne in tight clusters at three locations: singly at the basal leaves on 1-year wood, in groups of one to six with catkins and on very short spurs on older wood. There is no visual difference on the outside between the flower buds and leaf buds until the female flowers emerge. Female flowers start to open in mid-March (Figure 2-3) as 4–18 red styles emerge at the tip of the bud (Figure 2-7). Initially, the styles appear as a small red dot and then continue to elongate, thread-like and splayed outwards.

Figure 2-7. Female hazelnut flower. Each red filament can produce a nut if a compatible pollen grain attaches.

Stigma, the portion of the flower that receives the pollen, develop on the surface of the styles as bumps. These mature first at the tip, and then progressively downwards as the style lengthens. Over 80% of the style length may be receptive. If unpollinated, stigmas may remain receptive for up to 2 months. If the exposed parts of styles are damaged by frost, have abrasions or are dried out by wind, the lower-protected parts may turn into functional flower tissue.

Pollination and Nut Set

Male and female flowers that develop on the same tree do not open together. Under Ontario conditions, female flowers bloom first in early March (called protogynous), and the male flowers open approximately 10 days later (Figure 2-3). In some varieties, however, the order of flower emergence is opposite, male first, female flowers second (called protandrous). The pollen sheds within a few days after the catkins open. Hazelnuts are pollinated primarily by wind.

Hazelnut has a sporophytic self-incompatibility system that is governed by a single gene having multiple forms of alleles (called S alleles). Therefore, hazelnuts must cross-pollinate with other hazelnut trees that are not genetically identical. In an orchard, there must be at least two or three compatible varieties spaced near enough to transfer pollen onto female flowers. To ensure that the combinations will cross-pollinate, growers must find varieties with different S alleles and plan the orchard design carefully. Pollen compatibility is explained later in more detail (see *Variety Selection*).

Pollen is released from catkins when the temperature warms above freezing and the relative humidity drops. In still air, released pollen will drop on top of the bracts below and be held there until it is blown off by the wind. When they are open, the catkins lose their rigidity and flex readily in the wind, which helps release the pollen. Once the female flowers are pollinated, the exposed parts of the styles wither and turn black.

Hazelnut pollination is a two-step process and differs from pollination in fruit crops. For most plant species, an ovary with egg cells is present in the flower at pollination. In hazelnut flowers, only the stigma, style and a small quantity of immature ovarian tissue are present at pollination. Once pollen has been transferred to a receptive female

Figure 6-1. (B) Calendar of disease activity for hazelnuts in Ontario. Timings are guidelines based on observations of disease activity in Ontario hazelnut orchards, and knowledge from related crops in Ontario and Oregon. These may vary considerably from year to year, depending on winter and in-season temperature and precipitation, crop management and other factors.

Because pest control products change frequently, specific chemical controls are not mentioned in this publication. In order to legally use pest control products in this province, all products must be registered by Health Canada's Pest Management Regulatory Agency (PMRA) for use on hazelnuts in Ontario. Pest control projects registered on hazelnuts in other growing regions (e.g., Oregon) are not always registered in Canada, or their rates or other label parameters may differ. Any use that does not match the Canadian label is not permitted on Ontario hazelnuts, and is illegal here. It is the grower and applicator's responsibility to ensure that they are applying a pest control product according to the Canadian label. For information on pest control products registered on hazelnuts in Ontario, pesticide applicator certification and other integrated pest management strategies, refer to the resources listed in Appendix B.

Diseases

Eastern Filbert Blight

Eastern filbert blight (EFB) is the most devastating disease of hazelnut and a major factor limiting commercial production in Eastern North America. It is caused by the fungus *Anisogramma anomala*, which develops underneath the bark and can cause cankers, dieback and death of susceptible hazelnut trees. EFB is native to Eastern North America and causes only minor symptoms on native American hazelnuts, which are a wild host for the fungus. However, it is lethal to the European hazelnut species often used by confectionary companies and is the main reason early attempts at commercial production of hazelnuts in Eastern North America were not successful.

Eastern filbert blight does not occur in Europe and was not present in northwestern North America until the 1960s, when the fungus was accidentally introduced. By the 1980s, EFB was causing significant losses in hazelnut orchards in Washington and Oregon. This spurred considerable research in these regions, focusing on the development of resistant varieties and other control practices for the disease. Consequently, most of the information on EFB control comes from the Pacific Northwest, which has different environmental conditions than Ontario. Additionally, research suggests that there are more strains of the fungus present in Northeastern North America than on the west coast. The differences between the two growing regions mean that management practices developed in the Pacific Northwest may not always be applicable to Ontario growing conditions.

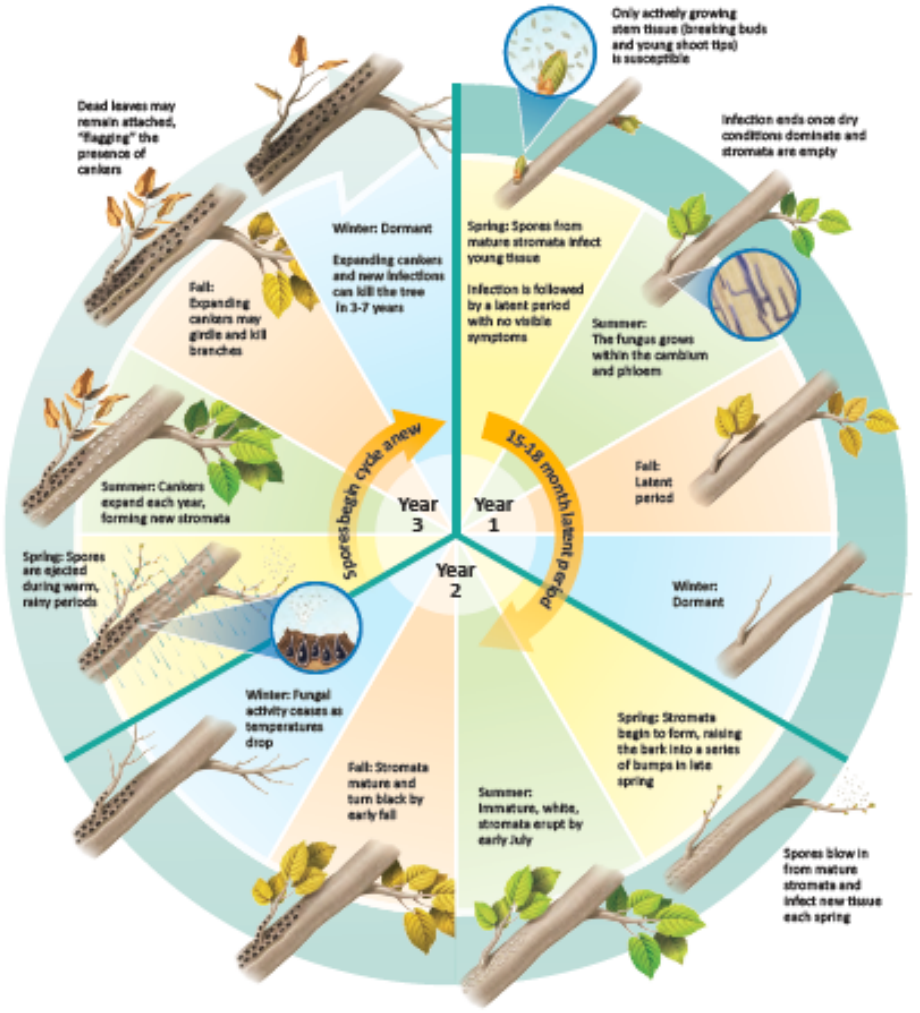
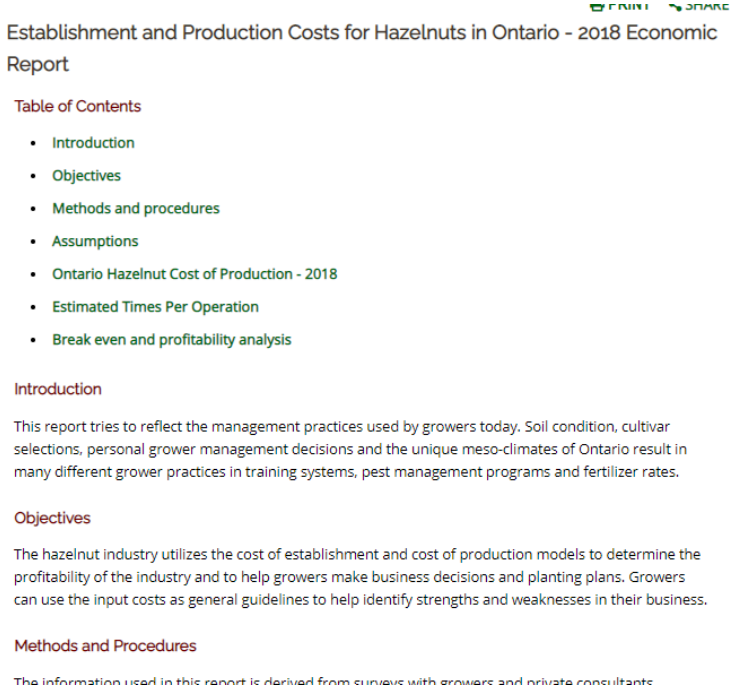


Figure 6-2. Life cycle of eastern filbert blight.

Hazelnut cost of production information available online

ontario.ca/agbusiness



Establishment and Production Costs for Hazelnuts in Ontario - 2018 Economic Report

Table of Contents

- Introduction
- Objectives
- Methods and procedures
- Assumptions
- Ontario Hazelnut Cost of Production - 2018
- Estimated Times Per Operation
- Break even and profitability analysis

Introduction

This report tries to reflect the management practices used by growers today. Soil condition, cultivar selections, personal grower management decisions and the unique meso-climates of Ontario result in many different grower practices in training systems, pest management programs and fertilizer rates.

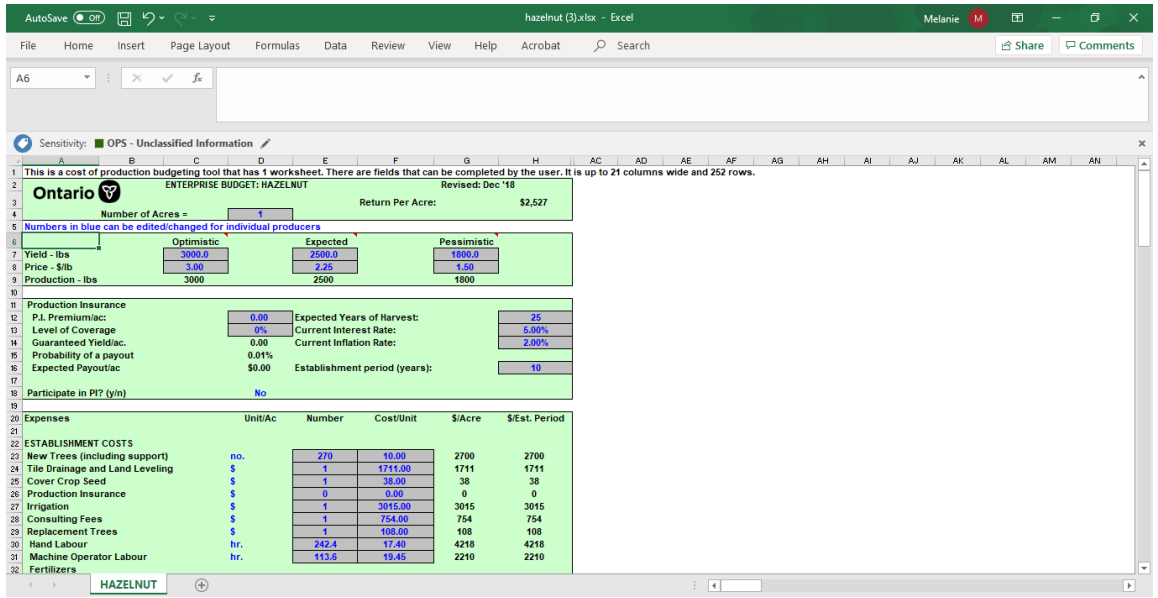
Objectives

The hazelnut industry utilizes the cost of establishment and cost of production models to determine the profitability of the industry and to help growers make business decisions and planting plans. Growers can use the input costs as general guidelines to help identify strengths and weaknesses in their business.

Methods and Procedures

The information used in this report is derived from surveys with growers and private consultants

Search “Establishment and Production Costs for Hazelnuts”



hazelnut (3).xlsx - Excel

This is a cost of production budgeting tool that has 1 worksheet. There are fields that can be completed by the user. It is up to 21 columns wide and 252 rows.

ENTERPRISE BUDGET: HAZELNUT — Revised: Dec '18

Ontario

Number of Acres = 1 — Return Per Acre: $2,527

Numbers in blue can be edited/changed for individual producers

	Optimistic	Expected	Pessimistic
Yield - lbs	3000.0	2500.0	1800.0
Price - $/lb	3.00	2.25	1.50
Production - lbs	3000	2500	1800

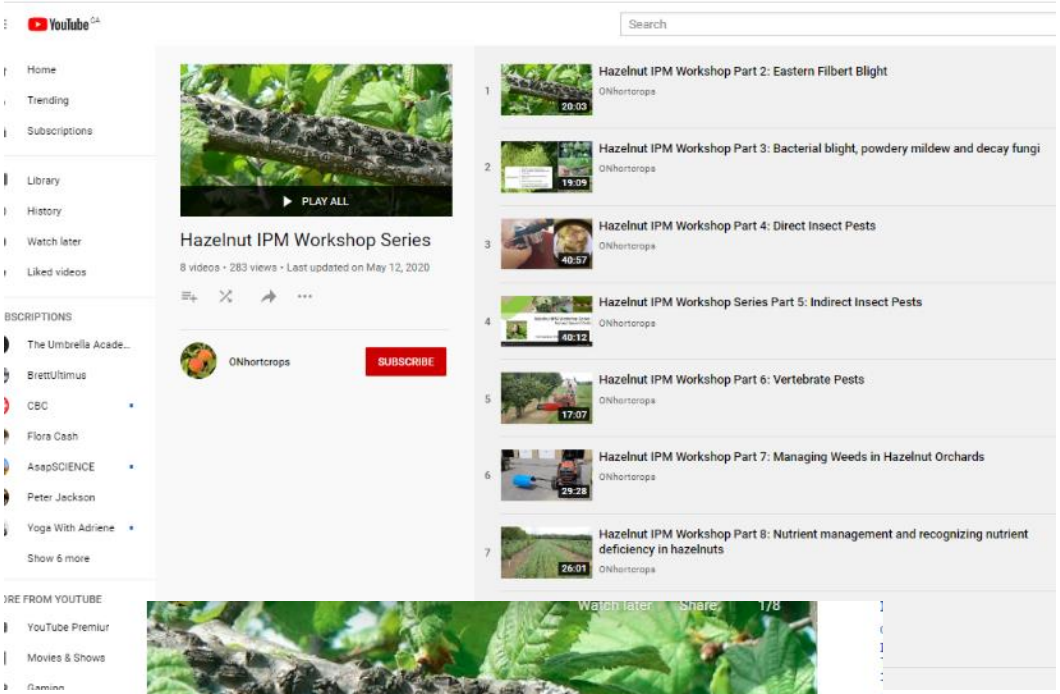
Production Insurance			
P.I. Premium/ac:	0.00	Expected Years of Harvest:	25
Level of Coverage	0%	Current Interest Rate:	5.00%
Guaranteed Yield/ac.	0.00	Current Inflation Rate:	2.00%
Probability of a payout	0.01%		
Expected Payout/ac	$0.00	Establishment period (years):	10
Participate in PI? (y/n)	No		

Expenses	Unit/Ac	Number	Cost/Unit	$/Acre	$/Est. Period
ESTABLISHMENT COSTS					
New Trees (including support)	no.	270	10.00	2700	2700
Tile Drainage and Land Leveling	$	1	1711.00	1711	1711
Cover Crop Seed	$	1	38.00	38	38
Production Insurance	$	0	0.00	0	0
Irrigation	$	1	3015.00	3015	3015
Consulting Fees	$	1	754.00	754	754
Replacement Trees	$	1	108.00	108	108
Hand Labour	hr.	242.4	17.40	4218	4218
Machine Operator Labour	hr.	113.6	19.45	2210	2210
Fertilizers					

HAZELNUT

Search “Budgeting tools tree nuts”

Hazelnut IPM Training 2021



Bacterial Blight, Powdery Mildew and Decay Fungi

- Videos to be updated and posted to YouTube by early April
- Check Specialty Crops blog for updates

onspecialtycrops.ca

For more information:

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