Bird Deterrent Methods for Horticultural Crops

RESOURCE GUIDE








BRITISH COLUMBIA WINE GRAPE COUNCIL

BC FRUIT GROWERS' ASSOCIATION est. 1889

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SIR

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- *Vineyard Netting, Chris Stenberg*
- *Male House Finch, Tania Simpson*
- *Predator Kite, Chris Stenberg*
- *Cedar Waxwing, Tania Simpson*
- *Sonic Net Deterrent, Bird Stoppers*

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Credit: Tania Simpson

1. INTRODUCTION

Bird damage is a significant challenge for BC tree fruit and wine grape producers, causing crop losses, reduced fruit quality, and increased production costs. Effective bird management can be difficult because bird pressure varies between crops, farms, seasons, and species, and no single deterrent method is effective in every situation.

Successful bird management requires an understanding of the bird species present on your farm and the factors that contribute to crop damage. The most effective programs use a combination of deterrent methods, monitoring, and adaptive management to reduce crop damage while balancing cost, practicality, regulatory requirements, and neighbour considerations.

This guide provides practical information on common bird pests, deterrent methods, best management practices, and bird management planning tools to help BC producers develop effective, site-specific bird management programs.

KEY MESSAGE

Effective bird management is not about finding the "best" deterrent. It is about selecting, combining, and adapting multiple tools to fit *your* farm, crop, bird species, and level of pressure.

2. UNDERSTAND YOUR BIRD PRESSURE

Effective bird management begins with understanding which species are causing damage, when they are present, and how they behave. Different bird species respond differently to deterrents and can vary significantly in their feeding habits, flocking behaviour, and crop preferences. Identifying the species present on your farm is an important first step in developing an effective bird management plan.



Credit: Tania Simpson

2.1 PRIMARY SPECIES OF CONCERN


Credit: BC Grapegrowers' Association

EUROPEAN STARLING *(Sturnus vulgaris)*

Medium-sized black bird with an iridescent green-purple sheen and yellow bill during the breeding season. Often observed in large, tightly coordinated flocks.

FEEDING BEHAVIOUR:

- Feeds in large flocks (100s-1000s)
- Can strip fruit rapidly from entire blocks
- Consumes fruit and leaves peck marks that make crops unmarketable
- Frequently moves between livestock operations and fruit-growing areas

RISK LEVEL:

- HIGH

PREFERRED CROPS:

- Wine grapes
- Cherries
- Apples
- Other soft tree fruits


Credit: Tania Simpson

AMERICAN ROBIN *(Turdus migratorius)*

A large songbird with a distinctive orange-red breast, grey-brown back, and yellow bill.

FEEDING BEHAVIOUR:

- Typically feeds individually or in small groups.
- Commonly attacks ripening fruit along block edges.
- Can establish feeding habits early and repeatedly return to productive sites.
- Often active during early morning and evening feeding periods.

RISK LEVEL:

- HIGH

PREFERRED CROPS:

- Wine grapes
- Cherries
- Berries
- Other soft tree fruits


Credit: Tania Simpson


Credit: Tania Simpso


Credit: Tania Simpson


Credit: Tania Simpson

CEDAR WAXWING *(Bombycilla cedrorum)*

A sleek brown bird with a prominent crest, black facial mask, and yellow-tipped tail.

FEEDING BEHAVIOUR:

- Highly dependent on fruit for food.
- Often feeds in small flocks.
- Moves frequently between food sources.
- Strongly attracted to ripe, high-sugar fruit.

RISK LEVEL:

- MODERATE TO HIGH

PREFERRED CROPS:

- Wine grapes
- Cherries
- Other soft fruits and berries


Credit: Tania Simpson


Credit: Tania Simpson

BOHEMIAN WAXWING *(Bombycilla garrulus)*

A large, grey-brown songbird with a prominent crest, black facial mask, rust-coloured undertail coverts, and distinctive white and yellow markings on the wings.

SEASONAL NOTE:

Bohemian Waxwings are most likely to affect crops that grow later into the fall and winter such as apples or wine grapes. They are generally less likely to affect early season crops such as cherries because these crops have typically been harvested before large flocks arrive.

FEEDING BEHAVIOUR:

- Highly dependent on fruit for food.
- Often feeds in medium to large flocks.
- Can consume large quantities of fruit in a short period of time.
- Frequently moves between orchards, vineyards, ornamental plantings, and natural food sources.
- Most observed during fall and winter, although abundance varies between years.

RISK LEVEL:

- MODERATE

PREFERRED CROPS:

- Wine grapes
- Apples
- Other late-season crops

2.2 OTHER COMMON SPECIES



AMERICAN CROW *(Corvus brachyrhynchos)*

A large all-black bird with a thick bill and distinctive caw.

FEEDING BEHAVIOUR:

- Highly intelligent and adaptable.
- Feeds in small family groups.
- Can peck at fruit and cause damage that reduces marketability.
- Learns to avoid deterrents if they are predictable.

RISK LEVEL:

- MODERATE

PREFERRED CROPS:

- Cherries
- Apples
- Other tree fruit



BLACK-BILLED MAGPIE *(Pica hudsonia)*

A black-and-white bird with long tail feathers and iridescent blue-green highlights.

FEEDING BEHAVIOUR:

- Opportunistic feeder.
- Commonly feeds from trees, trellises, and other perches.
- Can repeatedly revisit productive feeding areas.

RISK LEVEL:

- MODERATE

PREFERRED CROPS:

- Cherries
- Apples
- Other tree fruit


Credit: Tania Simpson

HOUSE FINCH
(Haemorhous mexicanus)

A small finch with a stout bill; males have red colouring on the head and upper breast.

FEEDING BEHAVIOUR:

- Feeds in small flocks.
- Often targets ripening fruit and berries.
- Common around vineyards and orchard edges.

RISK LEVEL:

- MODERATE

PREFERRED CROPS:

- Wine grapes
- Cherries
- Other small fruits and berries


Credit: Tania Simpson

WILDLIFE MANAGEMENT NOTE:

Most bird species are protected under provincial or federal legislation. European starlings, crows, magpies, house sparrows, and rock pigeons are exceptions. Always confirm current regulatory requirements before undertaking any control activities.

REGULATORY RESOURCE:

Environment & Climate Change Canada

Most bird species are protected under provincial or federal legislation. Environment and Climate Change Canada provides information on migratory bird protections and permit requirements.

QUICK REFERENCE

SPECIES	RISK LEVEL	TYPICAL GROUP SIZE	PREFERRED CROPS
European Starling	High	Large flocks (100s-1000s)	Grapes, cherries, apples
American Robin	High	Individual / Small flocks	Cherries, grapes, berries
Cedar Waxwing	Moderate-High	Small flocks	Cherries, grapes, berries
Bohemian Waxwing	Moderate	Medium to large flocks	Late season crops
American Crow	Moderate	Small flocks	Cherries, apples
Black-billed Magpie	Moderate	Small flocks	Tree fruits
House Finch	Moderate	Small flocks	Grapes, cherries

Bird pressure varies between species, crops, seasons, and locations within a farm. Understanding which species are present and how they behave will help producers assess risk and select appropriate management strategies. The next section outlines a simple framework for developing a bird management plan tailored to local conditions.



Credit: Tania Simpson

3. DEVELOP A BIRD MANAGEMENT PLAN

Effective bird management begins with a plan. Bird pressure varies between farms, crops, seasons, and bird species, so management strategies should be tailored to local conditions rather than relying on a single deterrent method. The most successful programs assess bird pressure early, combine multiple management tools, and adapt throughout the season.

STEP 1: ASSESS YOUR FARM

Start by identifying the factors that influence bird pressure on your property. Understanding these conditions will help you select appropriate deterrents and target management efforts where they will have the greatest impact.

FACTORS TO CONSIDER:

- Crop type and variety
- Field or block location
- Historical bird damage
- Nearby perching and roosting sites (powerlines, trees, outbuildings)
- Nearby water sources
- Alternative food sources (wild berries, ornamental fruit trees, livestock feed)
- Neighbouring residences and other sensitive areas (campgrounds, public trails, parks, wineries)
- Existing bird deterrent infrastructure

Mapping these features can help identify high-risk areas and support more effective placement of deterrents.

TOOL SPOTLIGHT

Google Earth

Google Earth can help identify potential bird attractants and high-risk areas on your property, including shelterbelts, water sources, powerlines, neighbouring crops, and roosting locations. Aerial imagery can also be used to support property mapping and bird management planning.



Credit: Tania Simpson

STEP 2: DETERMINE BIRD PRESSURE

Evaluate which bird species are present, where they are feeding, and the level of crop damage they may cause.

FACTORS TO CONSIDER:

- Bird species present
- Flock size and frequency of activity
- Time of day when feeding occurs
- Crop stage and ripeness
- Locations where birds enter the field
- Areas of repeated damage

Use these observations to estimate bird pressure:

BIRD PRESSURE	TYPICAL INDICATORS
Low	Occasional bird activity, limited feeding damage, small numbers of birds present.
Moderate	Regular bird activity, localized damage, increasing flock sizes as fruit ripens.
High	Frequent bird activity, large flocks, widespread or significant crop damage.

Bird pressure should be reassessed regularly throughout the season because feeding activity can change rapidly as crops mature.

STEP 3: SELECT APPROPRIATE DETERRENTS

Choose deterrent methods based on the level of bird pressure, crop value, farm layout, and operational and economic considerations. In most situations, a combination of deterrents will provide better results than relying on a single tool.

BIRD PRESSURE	SUGGESTED APPROACH
Low	Visual deterrents combined with limited acoustic deterrents and regular monitoring.
Moderate	Multiple deterrent methods, increased monitoring, and strategic deployment of acoustic and visual tools.
High	Integrated approach using multiple deterrents, enhanced monitoring, and consideration of exclusion methods such as netting.

WHEN SELECTING DETERRENTS, CONSIDER THE FOLLOWING:

- Effectiveness for the target species
- Cost and labour requirements
- Regulatory requirements
- Potential impacts on neighbours
- Ease of maintenance and operation

The next section of this guide provides detailed information on available deterrent methods and their appropriate use.


Credit: Tania Simpson

STEP 4: MONITOR AND ADAPT

Bird management is not a one-time activity. Birds can quickly adapt to deterrents, and pressure levels often change throughout the growing season. Regular monitoring allows producers to evaluate what is working and make adjustments before significant crop losses occur.

CONTINUE TO MONITOR YOUR RESULTS AND ADAPT YOUR STRATEGY BY:

- Rotating or relocating deterrents
- Increasing management efforts during peak pressure periods
- Adjusting deployment times or settings
- Combining additional deterrent methods where necessary
- Modifying deterrent placement based on bird activity

At the end of the season, record bird pressure, crop damage, and the effectiveness of each deterrent method used. These observations can be used to refine future bird management plans and improve long-term results.

A **Bird Management Plan template** is provided in **Appendix A** to help producers assess bird pressure, document management activities, and select appropriate deterrent methods. A completed example plan is included in **Appendix B** to demonstrate how the template can be applied in a practical farm setting.

4. BIRD DETERRENT METHODS

No single deterrent method is effective in every situation. The following sections describe the most common bird deterrent methods available to BC producers, including how they work, when they are most effective, and important operational considerations.

4.1 ACOUSTIC DETERRENTS

Acoustic deterrents use sound to alter bird behaviour and discourage feeding, roosting, or occupancy of an area. Because acoustic methods vary significantly in how they work and how birds respond to them, each method is described separately below.

PROPANE CANNONS

Propane cannons produce loud explosive sounds intended to startle birds and force them to leave an area. They typically operate at repeated intervals, creating a highly visible and audible disturbance that can be effective initially but may lead to habituation if the pattern becomes predictable.

FACTOR	RATING
Effectiveness	Moderate
Cost	Low
Labour Requirements	Low
Neighbour Impact	High
Habituation Risk	High
Scalability	High



When to Use It:	• Moderate to high bird pressure • Large vineyard or orchard blocks • Peak feeding periods during fruit ripening • Situations where neighbour impacts can be appropriately managed
Cost:	**Low** ($300-$1,500 per unit plus propane)
Advantages:	• Low equipment cost • Covers large areas • Immediate bird response • Widely available
Limitations:	• Birds quickly habituate • Noise complaints from neighbours are common • Less effective when operated continuously • Less suitable near residential areas
Practical Tips:	• Start before feeding patterns establish • Move cannons regularly • Adjust firing frequency throughout the season • Avoid operation when birds are absent
BC Regulatory Considerations:	• Subject to municipal noise bylaws • Protected in some circumstances under the Right to Farm Act • Follow provincial bird scare device guidance



Credit: Tania Simpson

BIRD BANGERS

Hand-launched pyrotechnics produce loud sounds directly above feeding flocks.

FACTOR	RATING
Effectiveness	High (short-term)
Cost	Low
Labour Requirements	High
Neighbour Impact	Moderate-High
Habituation Risk	Moderate
Scalability	Moderate



Credit: Birdzout

When to Use It:	• High-value crops • Active management situations • Short periods of intense bird pressure
Cost:	**Low** equipment cost but **high labour requirement**
Advantages:	• Immediate response • Highly effective against active flocks • Useful as reinforcement for other deterrents
Limitations:	• Labour intensive • Requires operator presence • Short-duration effect • Potential fire risk
Practical Tips:	• Use strategically rather than continuously • Most effective when combined with other deterrents
BC Regulatory Considerations:	• Subject to municipal noise bylaws • Protected in some circumstances under the Right to Farm Act • Follow provincial bird scare device guidance

BIO-ACOUSTIC SYSTEMS

Broadcasts distress calls, predator calls, or species-specific sounds that trigger a fear response. Examples include Phoenix Agritech (NS), Bird Gard (USA), distress call systems.

FACTOR	RATING
Effectiveness	Moderate-High
Cost	Moderate
Labour Requirements	Low
Neighbour Impact	Low
Habituation Risk	Moderate
Scalability	High



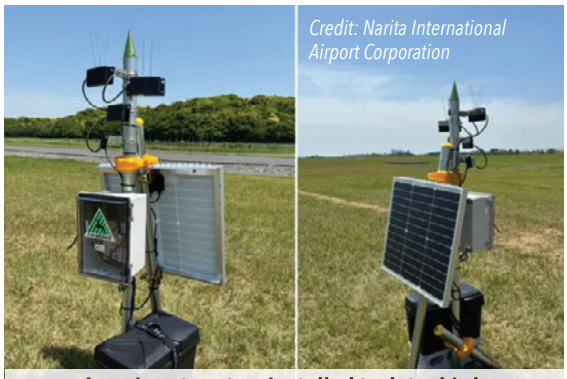
Credit: Bird Gard

When to Use It:	• Moderate to high pressure • Locations where propane cannons are undesirable • Sites with known target species
Cost:	**Moderate** ($1,000-$10,000+ depending on system)
Advantages:	• More targeted than propane cannons • Lower neighbour impact • Automated operation • Can cover large areas
Limitations:	• Species-specific effectiveness • Habituation still occurs • Requires proper speaker placement • Less effective if poorly programmed
Practical Tips:	• Rotate call libraries • Use random intervals • Match sounds to target species • Combine with visual deterrents
BC Regulatory Considerations:	• May be subject to municipal noise and nuisance bylaws • Follow applicable farm practice guidelines and local regulations

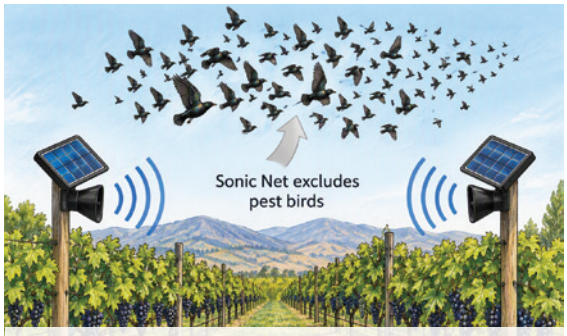
COMMUNICATION DISRUPTION TECHNOLOGIES

Uses broad-spectrum sound to interfere with bird communication and feeding behaviour rather than triggering a fear response. This is an emerging technology that is still being evaluated using research. Examples include Sonic Nets and sound masking systems.

FACTOR	RATING
Effectiveness	Emerging
Cost	High
Labour Requirements	Low
Neighbour Impact	Unknown
Habituation Risk	Low (being evaluated)
Scalability	High



A sonic net system installed to deter birds at Narita International Airport in Japan.



Note: This is an AI generated image.

When to Use It:	• Emerging technology currently being evaluated • Sites with chronic bird pressure • Applications where long-term exposure is possible
Cost:	**Moderate to High** ($1,000-$10,000+ depending on system)
Advantages:	• Novel mode of action • May reduce habituation • Can be targeted to specific areas
Limitations:	• Limited commercial availability • Long-term effectiveness still being evaluated • Higher equipment costs • Limited field validation in horticultural systems
Practical Tips:	• Focus coverage on high-risk areas • Monitor bird behaviour to confirm effectiveness • Consider exposure to workers and livestock
BC Regulatory Considerations:	• Not specifically addressed in current regulations due to emerging status

4.2 VISUAL

Visual deterrents use movement, light, colour, or predator imagery to trigger avoidance behaviours in birds. Examples include reflective tape, scare-eye balloons, predator kites, owl decoys, and scarecrows.

FACTOR	RATING
Effectiveness	Low-Moderate
Cost	Low
Labour Requirements	Low
Neighbour Impact	Low
Habituation Risk	High
Scalability	Moderate


Credit: Rise Tape


Credit: Chris Stenberg


Credit: Chris Stenberg

When to Use It:	• Low to moderate bird pressure • Early-season deployment • Supplementary support for other deterrents
Cost:	**Low** ($5-$500+ depending on method)
Advantages:	• Low cost • Easy to install • Minimal regulatory concerns • Low neighbour impact
Limitations:	• Rapid habituation • Weather damage • Limited effectiveness as a stand-alone solution
Practical Tips:	• Move frequently • Replace damaged materials • Use multiple visual devices • Combine with acoustic methods
BC Regulatory Considerations:	• No significant regulatory considerations

4.3 LASERS

Laser deterrents use moving beams of light to create the perception of a physical threat, encouraging birds to leave an area. Unlike many traditional visual deterrents, lasers can be automated, cover large areas, and have demonstrated strong effectiveness in orchards, vineyards, and other agricultural settings.

FACTOR	RATING
Effectiveness	High
Cost	High
Labour Requirements	Low
Neighbour Impact	Low
Habituation Risk	Low-Moderate
Scalability	High



Credit: Gayle Krahn

REGULATORY RESOURCE:

Pesticides Regulatory Directorate

The Pesticides Regulatory Directorate (PRD), formerly Pest Management Regulatory Agency (PMRA), maintains current information on pest control product registrations, including proposed changes affecting bird deterrent technologies such as lasers.

When to Use It:	• Moderate to high bird pressure • Large blocks • Operations seeking low-noise alternatives • Dawn and dusk conditions
Cost:	**High** ($5,000-$30,000+)
Advantages:	• Strong evidence of effectiveness for reducing bird presence and crop damage • Effective at dawn and dusk and can also perform in daylight when higher-powered systems are used • Can provide continuous, automated protection • Low noise impact compared to acoustic deterrents • Scalable for large areas
Limitations:	• High capital cost • Performance can vary by species and environmental conditions • Safety considerations related to eye exposure and fire risk • Requires training, proper setup, and adherence to safety requirements
Practical Tips:	• Use automated schedules • Focus on known flight paths • Maintain proper alignment • Follow all safety procedures
BC Regulatory Considerations:	• Currently regulated as pest control devices under the Pest Control Products Act • Proposed shift to conditional authorization for some lasers under regulatory proposal PRO2025-02 • Class 3B lasers currently excluded from the proposed authorization pathway ***IMPORTANT NOTE ℹ: As of 2026, laser bird deterrents are regulated as prescribed devices under the Pest Control Products Act and require full registration by Health Canada's Pest Management Directorate before they can be legally marketed or used in Canada. Proposed amendments under regulatory proposal PRO2025-02 may introduce a conditional authorization pathway for certain lower-risk laser devices in the future.***

4.4 FALCONRY AND BIRDS OF PREY

Falconry uses trained raptors to create a real predation threat, triggering a strong fear response in pest birds. Unlike many visual deterrents, the presence of an active predator can remain effective over longer periods because birds perceive the threat as genuine.





Merlins and Cooper's Hawks (left) are natural predators of many fruit-feeding bird species, including waxwings (right). Falconry-based bird management mimics this predation risk to deer birds from crops.

FACTOR	RATING
Effectiveness	High
Cost	High
Labour Requirements	High
Neighbour Impact	Low
Habituation Risk	Low
Scalability	Low-Moderate

When to Use It:	• Harvest periods • High-value crops • Severe bird pressure
Cost:	**High** (service-based pricing)
Advantages:	• Highly effective fear-based deterrent • Low habituation compared to most other methods • Particularly effective against flocking species • Can complement other deterrent methods in an integrated program
Limitations:	• Requires specialist operators • Availability may be limited during peak demand periods
Practical Tips:	• Deploy during peak pressure • Coordinate with other methods • Focus efforts during harvest windows
BC Regulatory Considerations:	• Falconers must be appropriately licensed • Wildlife permits may be required depending on the activity and species involved

4.5 EXCLUSION

Exclusion methods physically prevent birds from accessing crops, most commonly with netting (overhead, side, or drape). When properly installed and maintained, netting is generally considered the most effective means of preventing bird damage.

FACTOR	RATING
Effectiveness	High
Cost	High
Labour Requirements	Moderate-High
Neighbour Impact	Low
Habituation Risk	None
Scalability	Moderate


Credit: Chris Stenberg


Credit: SL Fruit Service

When to Use It:	• High-value crops • High bird pressure • Repeated annual damage
Cost:	**High** (varies significantly by crop and installation)
Advantages:	• Provides season-long protection • Minimal neighbour impact
Limitations:	• Labour-intensive installation and maintenance • May impact pollination, harvest access, or equipment movement
Practical Tips:	• Inspect nets regularly for tears, gaps, or loose edges • Repair damage promptly to prevent bird entry • Ensure nets remain properly tensioned to reduce bird entanglement • Remove or store nets appropriately after harvest to extend lifespan
BC Regulatory Considerations:	• Widely accepted with no significant regulatory barriers • Generally considered a non-lethal bird management method

4.6 CHEMICAL

Chemical bird deterrents use compounds that make crops, surfaces, or treated areas unattractive to birds through taste, smell, or sensory irritation. In Canada, the most used active ingredient for bird repellency is **methyl anthranilate**, a naturally occurring compound found in grapes and other fruits. Chemical deterrents play a relatively minor role in BC fruit production and are typically used as a supplementary management tool.

FACTOR	RATING
Effectiveness	Low-Moderate
Cost	Moderate
Labour Requirements	Moderate
Neighbour Impact	Low
Habituation Risk	Low
Scalability	Moderate



When to Use It:	• Supplementary management • Specific high-risk periods • Situations where other tools need reinforcement
Cost:	**Moderate** (varies by product and application frequency)
Advantages:	• Non-lethal • Can be applied strategically • May reduce feeding pressure in some situations
Limitations:	• Variable effectiveness and may decline during periods of high bird pressure • Reapplication may be required • Potential impacts on crop flavour or marketability • May face public perception challenges
Practical Tips:	• Follow label directions carefully • Apply before damage becomes severe • Use with other deterrents • Monitor effectiveness closely
BC Regulatory Considerations:	• Must be Pesticide Regulatory Directorate registered products • Subject to federal and provincial pesticide regulations

REGULATORY INFORMATION:

Avicides are different than chemical deterrents. They are products designed to reduce bird populations through **lethal control** rather than deterrence. Their use in Canada is highly regulated under federal and provincial pesticide legislation and is generally limited to specific pest species and specialized management programs. As a result, avicides currently play a limited role in BC fruit and grape production, where non-lethal deterrent methods are the primary approach to bird management.



Credit: Tania Simpson

5. STARLING MANAGEMENT


Credit: James Lees

European starlings (*Sturnus vulgaris*) are among the most significant bird pests affecting vineyards and orchards in the Okanagan-Similkameen region. Unlike many native birds, starlings are an invasive species that form large, highly mobile flocks capable of causing extensive crop damage in a very short timeframe. They are strongly attracted to ripening grapes, cherries, and other soft fruits, and once feeding begins, flocks often return repeatedly and attract additional birds.

DID YOU KNOW

A UBC Okanagan study found that approximately **80% of starlings in the Okanagan-Similkameen were born and raised within the region**. This finding suggests that regional management efforts, including nesting-site reduction and coordinated population control, can have a meaningful impact on future starling pressure. Scan to read more!

WHAT MAKES STARLINGS DIFFERENT?

- **Large flocks:** Starlings often feed in coordinated flocks ranging from dozens to thousands of birds, allowing them to overwhelm individual deterrent methods.
- **Rapid crop loss:** Significant damage can occur within days as birds remove fruit or create peck damage that reduces marketability.
- **Roosting and nesting behaviour:** Starlings readily use barns, sheds, vents, rooflines, and other structures for nesting and shelter, supporting persistent local populations.
- **Highly mobile populations:** Birds move freely between urban areas, livestock operations, orchards, and vineyards, meaning pressure on a single farm is often influenced by activity across the entire region.
- **Predictable seasonal pressure:** Populations increase through spring and early summer, with crop damage peaking during fruit ripening when juvenile birds join feeding flocks.

OKANAGAN-SIMILKAMEEN STARLING CONTROL PROGRAM

The BC Grapegrowers' Association (BCGA) coordinates a regional Starling Control Program that works to reduce starling populations and crop damage across the Okanagan-Similkameen. The program recognizes that starlings move across both agricultural and urban landscapes and effective management requires a coordinated regional approach.

The program focuses on three primary areas:

TARGETED TRAPPING

Regional trapping efforts are focused on source populations, particularly around feedlots, livestock operations, and other areas that support large numbers of starlings. Traps are generally not placed in orchards or vineyards because doing so may attract additional birds into production areas.

NESTING SITE REDUCTION

The program works with farmers, businesses, homeowners, and property managers to reduce nesting opportunities by identifying and blocking access to common nesting locations such as vents, rooflines, and farm buildings.

EDUCATION AND OUTREACH

Educational materials, property assessments, and outreach activities help support farm and community participation in regional starling management efforts.



Credit: BC Grapegrowers' Association



BC Grapegrowers' Association presents trapping program to local government staff and elected officials at Cross-Commodity Agriculture Bus Tour in April 2025.


Credit: Tania Simpson

HOW CAN YOU SUPPORT THE PROGRAM?

Producers can support regional starling management by:

- Report significant starling activity to the BCGA
- Identify and reduce nesting opportunities on their own properties
- Maintain buildings and infrastructure to prevent nesting access
- Participate in regional outreach and management initiatives
- Incorporate starling management considerations into their bird management plans
- Support the program through donations on the BCGA website: **www.grapegrowers.bc.ca/trapping-program**

KEY TAKEAWAY

Because starlings are highly mobile, locally established, and capable of causing rapid crop losses, effective management requires both farm-level action and participation in coordinated regional efforts such as the Okanagan-Similkameen Starling Control Program.

6. BEST MANAGEMENT PRACTICES

Selecting the right bird deterrent is only one component of an effective bird management program. The success of any deterrent method depends on when it is used, how it is deployed, and how well it is integrated with other management practices. The following best management practices can help producers maximize deterrent effectiveness, reduce crop losses, limit habituation, and develop bird management plans that remain effective over time.

6.1 USE AN INTEGRATED APPROACH

No single bird deterrent method provides complete or permanent protection. The most effective bird management programs combine multiple deterrent types, such as acoustic, visual, exclusion, and chemical methods, to create a more complex and unpredictable environment for birds. Even highly effective tools such as netting may benefit from supplemental deterrents in areas of intense bird pressure. By combining complementary approaches, producers can increase overall effectiveness and reduce the likelihood that birds become accustomed to any one deterrent.

6.2 START EARLY AND RESPOND TO BIRD PRESSURE

Bird deterrence is most effective when implemented before birds establish feeding patterns within a crop. Once birds recognize a crop as a reliable food source, they become significantly more difficult to displace. Deterrent programs should be implemented as crops begin to ripen and adjusted as bird pressure changes throughout the season. Attention should be paid to peak feeding periods, which often occur during the early morning and late afternoon. **Producers should monitor crop development closely and ensure deterrent systems are operational before significant bird activity begins.**



Credit: Tania Simpson

6.3 MINIMIZE HABITUATION AND REDUCE ATTRACTANTS

Birds are highly adaptable and can quickly become accustomed to predictable sounds, movements, or visual cues. To maintain effectiveness, deterrent methods should be rotated, moved regularly, or operated using randomized patterns. Combining multiple sensory deterrents, such as sound, movement, and visual stimuli, can further reduce habituation and prolong effectiveness.

Producers should also consider reducing attractants that encourage birds to remain on or return to a property. Where practical, this may include removing or modifying roosting and perching sites, managing nearby shelter habitat, reducing access to food and water sources, cleaning up fallen fruit, and maintaining buildings to reduce nesting opportunities. These actions can help lower local bird pressure and improve the effectiveness of deterrent methods, particularly for species such as European starlings.

Successful bird management requires ongoing adaptation rather than a static deterrent program.

6.4 DEVELOP SITE-SPECIFIC BIRD MANAGEMENT PLANS

Bird pressure varies significantly between farms, crops, seasons, and even individual blocks within the same operation. Effective management begins with understanding the local environment, including the bird species present, common flight paths, nearby habitat features, and locations where feeding activity is concentrated. Mapping these factors can help identify high-risk areas and guide the placement and intensity of deterrent measures.

Crop type and variety can also influence bird pressure. Earlier-ripening or highly attractive crops may experience greater damage and require additional management efforts. Understanding when crops are most vulnerable can help producers prioritize monitoring and deploy deterrents more effectively.

Because bird pressure is influenced by a combination of environmental, operational, and biological factors, bird management plans should be tailored to the unique conditions of each farm rather than relying on a standardized approach.

To support this process, **a fillable Bird Management Plan template is provided in APPENDIX A and a completed example in APPENDIX B**. Producers can use the template to assess bird pressure, document deterrent methods, identify high-risk areas, and track management activities throughout the season.

6.5 MAINTAIN AND MONITOR EQUIPMENT

Even the most effective deterrent methods require ongoing monitoring and adjustment throughout the season. Bird activity, crop vulnerability, weather conditions, and feeding patterns can change rapidly, reducing the effectiveness of static management programs. Producers should routinely inspect deterrent systems, confirm they are operating as intended, and make adjustments in response to changing conditions.

Regular maintenance helps ensure equipment remains functional, while active monitoring helps identify when deterrents are losing effectiveness or when additional measures may be required. Detailed maintenance recommendations for individual deterrent methods are provided in Section 4.

6.6 BE A GOOD NEIGHBOUR

Some bird deterrent methods, particularly acoustic devices, can affect neighbouring residents and contribute to nuisance complaints. Using the least disruptive effective tool, limiting high-impact methods to periods of active bird pressure, and following applicable guidelines can help reduce conflicts. Proactive communication with neighbours can also improve understanding of agricultural practices and support the long-term acceptance of bird management activities. Maintaining good neighbour relations is increasingly important as agricultural and residential areas continue to interface.

6.7 EVALUATE AND ADAPT

Bird management should be viewed as an ongoing process rather than a fixed set of actions. Throughout the season, producers should record observations related to bird activity, crop damage, and deterrent performance. At the end of the season, this information can be reviewed to identify which strategies were most effective and where improvements may be needed.

Questions to consider include:

- Which bird species caused the most damage?
- Which deterrents were most effective?
- When did bird pressure peak?
- Were there specific high-risk areas within the farm?
- What changes could improve next year's program?

An adaptive approach helps ensure that management strategies remain effective as bird behaviour, crop conditions, and available technologies evolve.

7. WHO TO CONTACT

Bird management issues can involve technical, regulatory, wildlife, neighbour-relations, and crop-specific considerations. The organizations listed below can provide support, guidance, and additional resources for BC producers.

ORGANIZATION	ROLE	WEBSITE / CONTACT INFORMATION
BC Cherry Association	Cherry-specific production and industry resources	admin@bccherry.com www.bccherry.com
BC Farm Industry Review Board (BCFIRB)	Information regarding farm practice complaints, Right to Farm legislation, and neighbour concerns	firb@gov.bc.ca 250-356-8945 www.bcfirb.ca
BC Fruit Growers' Association	Industry support, extension resources, and advocacy for tree fruit producers	info@bcfga.com 250-826-3030 www.bcfga.com
BC Grapegrowers' Association	Regional starling management, trapping program, nesting-site reduction, and producer support	bcga@grapegrowers.bc.ca 1-877-762-4652 www.grapegrowers.bc.ca
BC Ministry of Agriculture and Food	Farm practices guidance, extension resources, and agricultural production information	AgriServiceBC@gov.bc.ca 1-888-221-7141 www.gov.bc.ca/agriculture
BC Wine Grape Council	Technical resources, grower support, and industry information for wine grape producers	info@bcwgc.org www.bcwgc.org
Conservation Officer Service	Wildlife conflicts, permits, and protected species information. Report all poachers and polluters.	1-877-952-7277
Environment and Climate Change Canada	Migratory Birds Convention Act information and federal wildlife permits	www.canada.ca/environment
Invasive Species Council of BC	Information on invasive species management and reporting	info@bcinvasives.ca 250-305-1003 www.bcinvasives.ca
Local Governments and Regional Districts	Municipal bylaws related to noise, nuisance, pyrotechnics, and bird deterrent devices	Contact your local municipality or regional district
Okanagan and Similkameen Invasive Species Society	Prevention, detection, and management of invasive species in the Okanagan-Similkameen region.	oasiss@shaw.ca www.oasiss.ca
Regional Agrologists and Crop Advisors	Farm-specific advice on bird management planning, deterrent selection, and crop protection	Contact your local agrologist or crop advisor

TOOL SPOTLIGHT

Tree Fruit & Wine Grape Production Guides

For additional production and pest management information, producers may wish to consult:

- BC Tree Fruit Production Guide: **bctfpg.ca**
- BC Production Guide for Grapes: **bpg.bcwgc.org**

These guides provide crop-specific information that complements bird management planning.



Credit: Tania Simpson



Credit: Tania Simpson

APPENDICES

BIRD MANAGEMENT TEMPLATE



Credit: Tania Simpson

APPENDIX A:

BIRD MANAGEMENT PLAN TEMPLATE

This template is designed to help producers assess bird pressure, select appropriate deterrent methods, identify high-risk areas, and document bird management activities throughout the growing season.

BIRD MANAGEMENT PLAN

Farm Name: _____

Owner/Operator: _____

Date Completed: _____

Crop(s): _____

Total Acreage: _____

Contact Information: _____

STEP 1: ASSESS YOUR FARM

CROP INFORMATION

Block	Crop	Variety	Acres	Expected Harvest

HIGH-RISK FEATURES

☐ Powerlines
☐ Treeline or shelterbelt
☐ Roosting sites
☐ Nearby water source
☐ Livestock operation nearby
☐ Neighbouring orchard/vineyard
☐ Residential neighbours nearby
☐ Other: _____
☐ Other: _____

STEP 2: IDENTIFY BIRD PRESSURE

SPECIES PRESENT

Species	Low	Moderate	High
Starling	☐	☐	☐
Robin	☐	☐	☐
Cedar Waxwing	☐	☐	☐
Bohemian Waxwing	☐	☐	☐
Crow	☐	☐	☐
Magpie	☐	☐	☐
House Finch	☐	☐	☐
Other: _____	☐	☐	☐
Other: _____	☐	☐	☐
Other: _____	☐	☐	☐

PEAK ACTIVITY PERIODS

☐ Early Morning
☐ Mid-Day
☐ Late Afternoon
☐ Evening

DAMAGE LOCATIONS

☐ Field edges
☐ Near trees
☐ Near powerlines
☐ Throughout block(s): _____, _____, _____
☐ Near water
☐ Other: _____

OVERALL BIRD PRESSURE

☐ Low
☐ Moderate
☐ High

STEP 3: SELECT MANAGEMENT ACTIONS

DETERRENT METHODS

Acoustic

☐ Propane cannons
☐ Bird bangers
☐ Bio-acoustic systems
☐ Communication disruption systems
☐ Other: _____

Visual

☐ Reflective tape
☐ Scare-eye balloons
☐ Predator kites
☐ Owl decoys
☐ Scarecrows
☐ Other: _____

Lasers

☐ Laser deterrents
☐ Other: _____

Falconry

☐ Falconry / birds of prey
☐ Other: _____

Exclusion

☐ Netting
☐ Other: _____

Chemical

☐ Methyl anthranilate
☐ Other: _____

OTHER MANAGEMENT ACTIONS

Habitat Management

☐ Remove roosting sites
☐ Remove nesting sites
☐ Maintain buildings
☐ Remove fallen fruit
☐ Reduce access to standing water
☐ Other: _____

Starling Control

☐ Participate in BCGA Starling Control Program
☐ Reduce nesting sites in outbuildings
☐ Report repeated large flocks
☐ Support regional trapping efforts
☐ Other: _____

STEP 4: MONITORING & EVALUATION

WEEKLY MONITORING

Date	Bird Species Observed	Bird Pressure	Notes

EFFECTIVENESS REVIEW

Which methods worked well?

_____

_____

Which methods were less effective?

_____

_____

Changes for next season:

_____

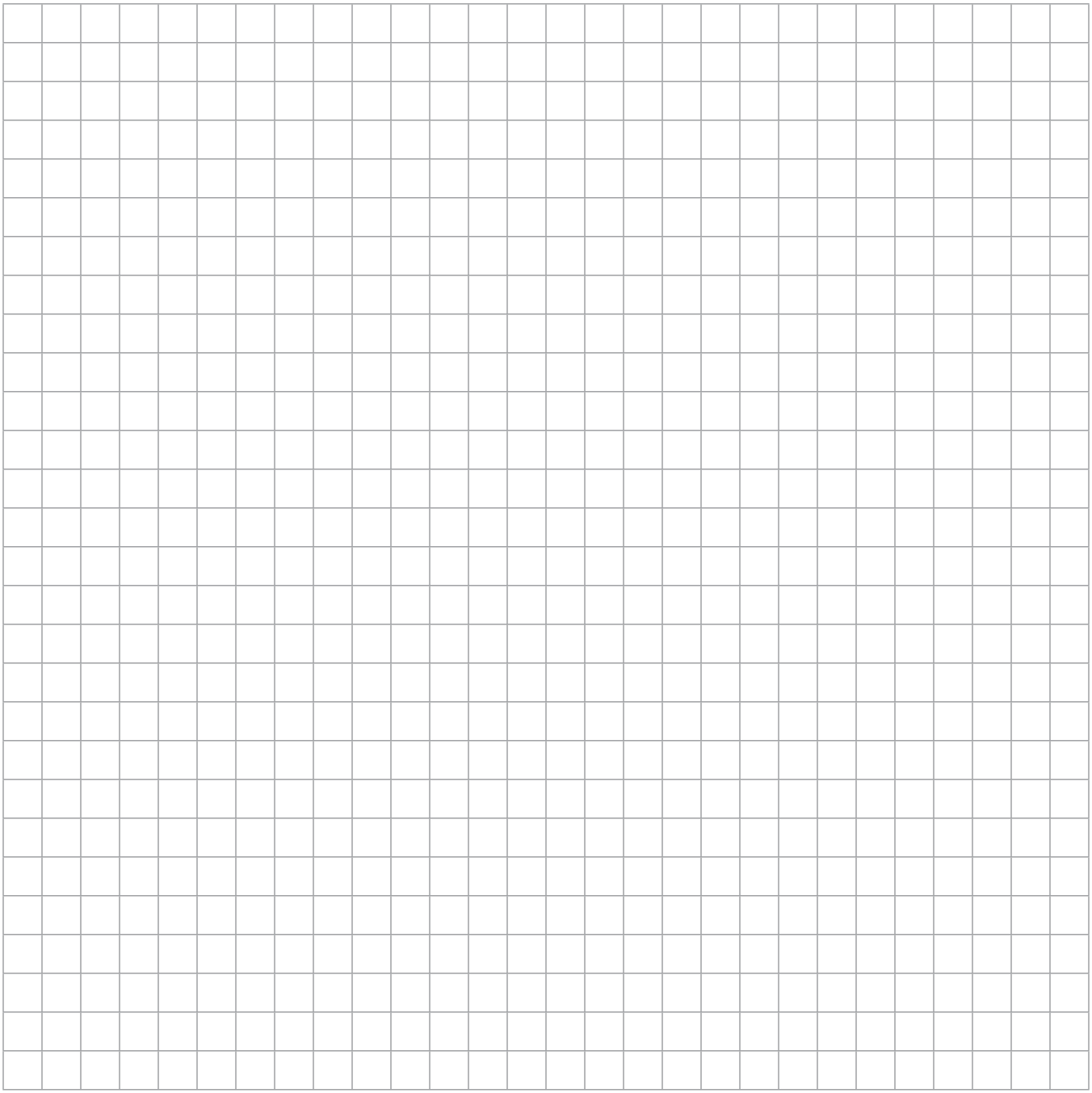
_____

_____

PROPERTY MAP

Include:

- Block layout
- Sensitive neighbour locations
- Powerlines
- Water sources
- Roosting/perching sites
- High damage areas
- Deterrent locations



TIP: Google Earth or other aerial imagery tools can help identify high-risk areas, roosting sites, water sources, neighbouring crops, and other features that influence bird activity.

APPENDIX B:

COMPLETED BIRD MANAGEMENT PLAN TEMPLATE

This completed Bird Management Plan is provided as an example only to illustrate how the template can be completed. The information presented is not intended to reflect actual bird pressure, weather conditions, crop timing, or management requirements for any specific farm or season. Producers should tailor their plans to the unique conditions of their operation.

BIRD MANAGEMENT PLAN

Farm Name: Similkameen Sun Farms

Owner/Operator: J. Thompson

Date Completed: July 15, 2026

Crop(s): Cherries and wine grapes

Total Acreage: 15 acres

Contact Information: 250-555-4302

STEP 1: ASSESS YOUR FARM

CROP INFORMATION

Block	Crop	Variety	Acres	Expected Harvest
A	Cherries	Lapins	3	July 25
B	Cherries	Sweetheart	2	August 5
C	Wine Grapes	Pinot Gris	4	August 25
D	Wine Grapes	Chardonnay	3	September 5
E	Wine Grapes	Merlot	3	September 20

HIGH-RISK FEATURES

☑ Powerlines
☑ Treeline or shelterbelt
☑ Roosting sites
☐ Nearby water source
☐ Livestock operation nearby
☑ Neighbouring orchard/vineyard
☑ Residential neighbours nearby
☑ Other: Abandoned barn on property
☐ Other: _____

STEP 2: IDENTIFY BIRD PRESSURE

SPECIES PRESENT

Species	Low	Moderate	High
Starling	☐	☐	☑
Robin	☐	☑	☐
Cedar Waxwing	☐	☑	☐
Bohemian Waxwing	☐	☐	☐
Crow	☐	☑	☐
Magpie	☑	☐	☐
House Finch	☑	☐	☐
Other: House sparrow	☐	☑	☐
Other: European blackbird	☑	☐	☐
Other: _____	☐	☐	☐

PEAK ACTIVITY PERIODS

☑ Early Morning
☑ Mid-Day
☑ Late Afternoon
☐ Evening

DAMAGE LOCATIONS

☑ Field edges
☑ Near trees
☑ Near powerlines
☑ Throughout block(s): A, B, _____
☐ Near water
☐ Other: _____

OVERALL BIRD PRESSURE

☐ Low
☐ Moderate
☑ High

STEP 3: SELECT MANAGEMENT ACTIONS

DETERRENT METHODS

Acoustic

☑ Propane cannons
☐ Bird bangers
☑ Bio-acoustic systems
☐ Communication disruption systems
☐ Other: _____

Visual

☑ Reflective tape
☐ Scare-eye balloons
☑ Predator kites
☐ Owl decoys
☐ Scarecrows
☐ Other: _____

Lasers

☐ Laser deterrents
☐ Other: _____

Falconry

☐ Falconry / birds of prey
☐ Other: _____

Exclusion

☑ Netting (cherry blocks A & B)
☐ Other: _____

Chemical

☐ Methyl anthranilate
☐ Other: _____

OTHER MANAGEMENT ACTIONS

Habitat Management

☑ Remove roosting sites
☐ Remove nesting sites
☑ Maintain buildings
☑ Remove fallen fruit
☑ Reduce access to standing water
☑ Other: Remove remaining peach trees around barn area

Starling Control

☑ Participate in BCGA Starling Control Program
☑ Reduce nesting sites in outbuildings (old barn)
☑ Report repeated large flocks
☐ Support regional trapping efforts
☐ Other: _____

STEP 4: MONITORING & EVALUATION

WEEKLY MONITORING

Date	Bird Species Observed	Bird Pressure	Notes
July 15	Robin, Cedar Waxwing	Moderate	Feeding activity observed in Lapins block
July 22	Starling, Robin	High	Large flocks using nearby powerlines
Aug 1	Starling, Cedar Waxwing	High	Increased pressure as Sweetheart cherries ripened
Aug 15	Starling	High	Flocks shifting into Pinot Gris block following cherry harvest
Sept 1	Starling, House Finch	Moderate	Feeding concentrated on vineyard edges

EFFECTIVENESS REVIEW

Which methods worked well?

- Netting provided near-complete protection for cherry blocks.
- Bio-acoustic systems reduced feeding activity along vineyard edges.
- Reflective tape and predator kites improved deterrent effectiveness when used alongside acoustic methods.

Which methods were less effective?

- Propane cannons became less effective when operated repeatedly in the same location.
- Scare-eye balloons required frequent relocation to remain effective.

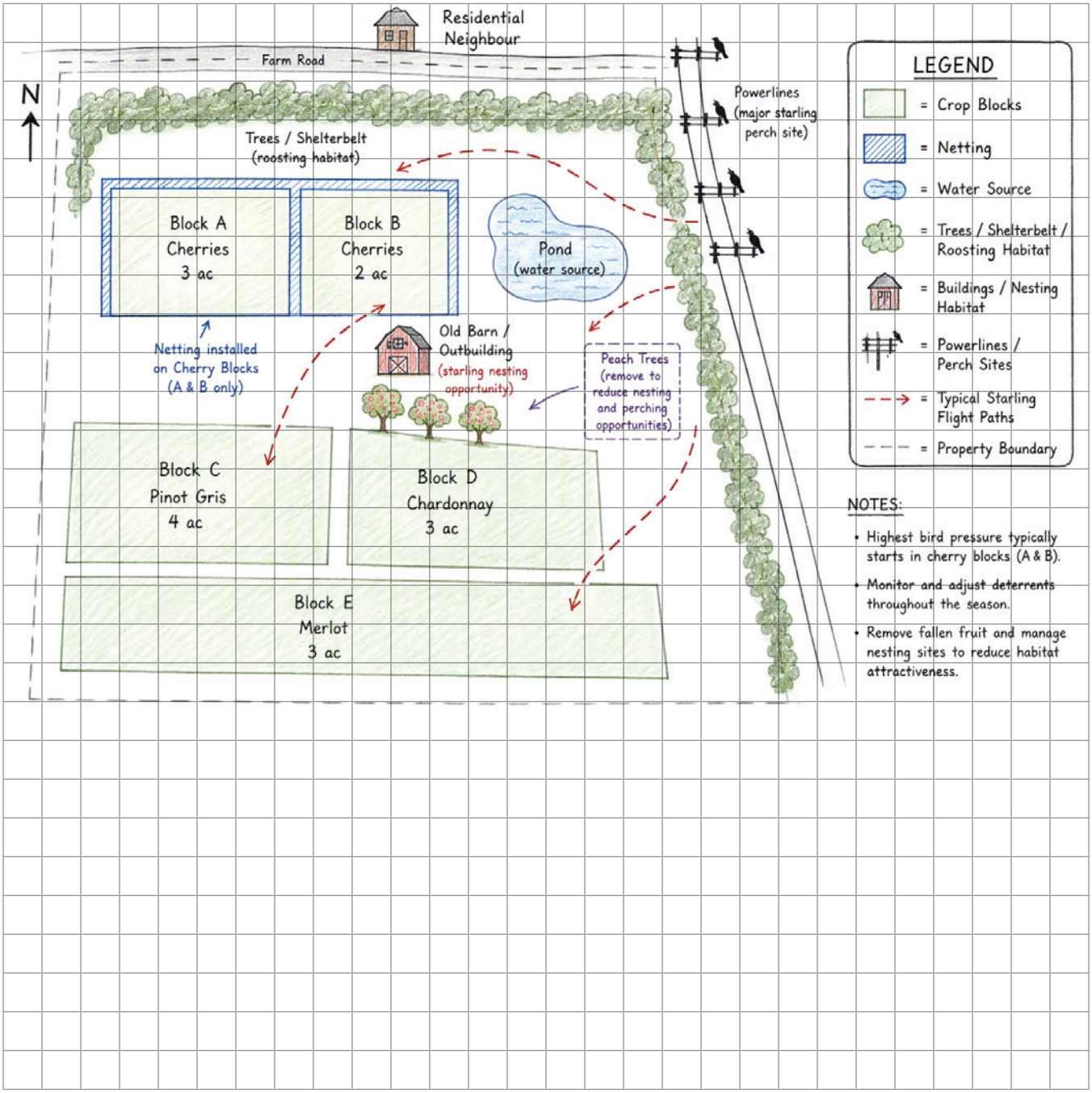
Changes for next season:

- Install additional netting on the western edge of Block B.
- Deploy bio-acoustic systems one week earlier.
- Improve building maintenance to reduce nesting opportunities.
- Continue participation in the BCGA Starling Control Program.

PROPERTY MAP

Include:

- Block layout
- Sensitive neighbour locations
- Powerlines
- Water sources
- Roosting/perching sites
- High damage areas
- Deterrent locations



TIP: Google Earth or other aerial imagery tools can help identify high-risk areas, roosting sites, water sources, neighbouring crops, and other features that influence bird activity.













Bird Deterrent Methods for Horticultural Crops

RESOURCE GUIDE

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- *Orchard Netting, Apple and Pear Australia Limited*
- *Laser, Gayle Krahn*
- *Red Tailed Hawk, Tania Simpson*
- *Male and Female House Finch, Tania Simpson*
- *Magpie, Tania Simpson*
- *Scare Eye Balloon, Rise Tape*