

# INTEGRATED BIRD MANAGEMENT

## BLUEBERRIES

### What is the Problem?

Birds eat about 10% of the blueberry crop in North America. Large flocks of birds are capable of destroying entire blueberry crops in a few days. Some bird damage is obvious—pecked fruit which is unsuitable for fresh market or clusters of ripening berries torn from the bush. Not as obvious is the loss of berries that are totally consumed by birds. Many farmers don't realize the extent of their crop losses—and lost profits!

Some of the techniques farmers use to keep birds away from their crops can be of concern to those living near farms. The noise of propane cannons can be disturbing as can the sight of birds entangled in protective netting.

Good bird management that minimizes crop losses and disruption to neighbours is critical to the operation of a profitable blueberry farm.

### What is Integrated Bird Management?

Good bird management, like managing other blueberry pests, requires an integrated approach. This approach requires knowing the birds that are damaging the crop and their behaviour patterns—information gained by yearly field observations. It also requires selecting the most appropriate combination of scaring devices or protective netting to keep the birds away from the crop, and using the devices effectively. And it requires evaluating and making necessary changes to the program to make sure it remains effective.

### Why an Integrated Bird Management Plan?

This guide is designed to assist in developing and maintaining an effective bird management plan on a blueberry farm. The enclosed form can be completed yearly and the previous years' plan kept for reference when making changes to the bird management program.

Planning for bird control well ahead of harvest season minimize the work needed during the busy harvest period. A well-planned program leads to better bird control and fewer crop losses, in addition to good neighbour relations.



BRITISH  
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# GUIDE TO AN INTEGRATED BIRD MANAGEMENT PLAN (“PLAN”)

Use this guide to complete the “Integrated Bird Management Plan” form accompanying this factsheet. The numbers below correspond to the numbers on the form. Also refer to the example on the back page.

## 1 FARM OR FIELD

- a **NAME.** Give the name you use to identify the farm. A separate form should be used for each field.
- b **LOCATION.** Give the street address or a descriptive location of the farm or field.
- c **CANNON CONTACT PERSON AND TELEPHONE NUMBER.** Assign a person who will attend to the propane cannon should it discharge during non-operating hours.
  - ♦ *To be protected by the Farm Practices Protection (Right to Farm) Act, cannons should not be operated before 6:00 a.m. or after 8:00 p.m.*
- d **DATE.** Give the Plan year.

## 2 FARM SIZE

- a **TOTAL ACREAGE.** Give the total acreage of blueberries in the field covered by the Plan
- b **ACREAGE BY HARVEST SEASON.** Give the number of acres planted to varieties that ripen in the early, mid and late seasons.
  - ♦ *Bird control will be first needed in the fields or areas planted to early season varieties—followed by areas planted to mid- and late season varieties. Bird damage is often more severe with late season varieties as the flocks of starlings get larger as the season progresses. Areas with late season varieties may require more protection to avoid crop losses.*

## 3 PEST BIRDS

- a **FRUIT DAMAGE.** Rate the severity of berry losses expected by the listed types of birds. Use your observations from past years to make this estimate. Use “L,” “M” or “H” to indicate low, medium and high pressure respectively.
  - ♦ *Starlings usually are the most destructive birds but robins, songbirds and crows can also reduce crop yields. Starlings gather in flocks of varying sizes—serious losses can occur quickly with large flocks. These birds eat whole berries from the bush—making yield losses difficult to estimate—or damage the fruit with peck marks. Robins and small songbirds do not flock and tend to be “ground-feeders,” eating berries that have fallen from the bush. Crop losses from robins or small songbirds is often less noticeable.*
- b **COMMENTS.** Make comments based on your observations about the types of birds present or the differences in numbers due to the time of day, areas within the field or year-to-year changes.

## 4 BIRD CONTROL TECHNIQUES

- a **NETTING.** Record the number of acres of blueberries covered by nets.
  - ♦ *Overhead nets are the most effective method to protect berry crops. A net size of 20 x 20 mm is best for excluding birds while minimizing the number of birds getting caught in the net. Good net maintenance is critical.*

- b **NOISE.** List the noise-scaring devices that will be used on the field.
  - ♦ *To be protected by the Farm Practices Protection (Right to Farm) Act, use no more than 1 propane cannon per 5 acres (1 per 2 ha) of cropland at any one time.*
  - ♦ *Devices with random, unpredictable sounds are more effective at scaring birds than ones with regular noises.*
  - ♦ *The noise of cracker or whistler shells occasionally fired near the birds helps to reinforce the scaring effect of propane cannons or electronic noise makers.*
- c **VISUAL.** List the number and types of visual scaring devices that will be used on the field.
  - ♦ *Visual devices are usually not effective unless used with noise devices. Visual devices help to increase the effectiveness of noise devices.*

## 5 BIRD CONTROL OPERATION

- a **NETTING.** Give the date you expect to install the nets. Name the person assigned to maintain the nets during the harvest period.
  - ♦ *Maintenance includes repairing holes in the nets, repositioning poorly hung nets to make sure birds cannot gain entry to bushes, making sure the nets are relatively tight to minimize the incidence of birds getting caught in the nets, and removing caught birds in a timely way.*
- b **NOISE DEVICES.** Give the date you expect to start the noise devices.
  - ♦ *Noise devices should be started when the berries begin to ripen and the birds first begin to visit the field. This will help prevent the birds from getting used to feeding from the field. It is more difficult to scare birds away once they establish a feeding pattern.*

Give the frequency—in days—that the devices will be moved to a new location.

- ♦ *Scaring devices should be moved frequently to prevent birds from becoming used to the noise location. This will help maintain the effectiveness of the devices.*

Give the expected setting for firing the propane cannon under low, medium and high bird pressure.

- ♦ *Start propane cannons with infrequent firings at the beginning of the harvest season. Increase the firing frequency as the feeding pressure increases—usually as the harvest season progresses. This should help maintain the effectiveness of the propane cannon in scaring the birds.*
- ♦ *Use less frequent firings during periods of the day when the bird pressure is low—such as in the mid-afternoon periods. More frequent firings are most necessary when bird pressure on the crops is more intense. Bird pressure is usually most severe in the early morning and again in the late afternoon through to dusk.*
- ♦ *Try to limit cannon firing when birds are not present in the field.*

Assign a person to setting up and maintaining the devices throughout the season.

- ♦ *Noise devices should be moved frequently throughout the harvest season, for best bird control. This helps to increase the randomness of the sound, thus increasing the effectiveness of the device.*
- ♦ *Locate noise devices to best scare the birds while minimizing the impact on neighbours. Propane cannons and speakers should be located above the bushes. Restrict the rotation of cannons or point stationary cannons away from neighbouring houses or work areas.*
- ♦ *Propane cannon maintenance includes checking timer to ensure proper functioning. When the propane is shut off at night to prevent the cannon from firing, close the valve tightly and make sure it doesn't leak. Disconnect the hose if the valve leaks.*

Name a person, and list their telephone number, who will attend to the cannon should it mistakenly discharge before 6:00 a.m. or after 8:00 p.m. (the same name as in "1.c" above).

- ♦ *This person should be able to attend to the propane cannon at any time during the off hours, if necessary.*

**6 VISUAL DEVICES.** Give the date you expect to install the devices.

- ♦ *Scaring devices should be installed when the berries start ripening to prevent the birds from getting used to feeding in the field. Once used to the field, the birds will be more difficult to scare away.*

Give the frequency—in days—that the devices will be moved to a new location.

- ♦ *Scaring devices should be moved frequently to prevent birds from becoming used to the noise location. This will help maintain the effectiveness of the devices. Flash tape does not have to be moved during the season.*

Give the name of the person assigned to putting the devices in the field and maintaining them throughout the season.

- ♦ *Maintenance includes changing the scaring devices. Do not always use the same scare device. The first response of birds to an unexpected object is to flee. As the birds get used to the object, they start to explore it, then finally the object is ignored. Visual scare devices should be removed as soon as they appear to lose effectiveness.*

- ♦ *Maintenance also includes moving scaring devices to new locations in the field throughout the harvest period.*
- ♦ *Scaring devices should also be checked frequently to ensure they remain in good working condition.*

**6 EVALUATION**

- a OBSERVATIONS.** Watch the birds throughout the season and note such items as changes in the type of birds in the fields, areas with intense bird pressure or little bird pressure, times of the day when birds are most present or are not present, places birds tend to perch in the day or roost at night, and scare devices that work well or appear ineffective.
- b PLAN REVIEW.** Make comments on the effectiveness of your bird control program. Include comments on the overall effectiveness of the combination of scaring devices used as well as comments on individual devices.
- c CHANGES FOR NEXT YEAR.** Make notes on changes you want to make in your strategy for next year based on your observations and Plan review. The notes can include new bird control techniques or locations for scaring devices as well as changes to modify perching sites. For example, a lone tree may need to be removed or strips of spikes placed along roof ridges. These changes will become part of next year's Plan.

**7 FIELD MAP**

Draw a diagram of the field that shows your Plan. Include buildings, neighbouring houses, blocks of early, mid and late season blueberries and bird perching sites (e.g. powerlines and trees). Also include the prevailing wind direction as noise is carried by the wind. Mark the location of the various scaring devices at the start of the season. Locate the scaring devices where high bird pressure is expected and birds perch.

**For more information...**

**BCMAFF contacts**

Mary-Margaret Gaye, Manager, Crop Protection Program.

Tel. 604-556-3064

Mark Sweeney, Provincial Berry Specialist. Tel. 604-556-3056

Bert van Daltsen, Mechanization Engineer. Tel. 604-556-3109

**BCMAFF publications**

Available from the BC Ministry of Agriculture, Food and Fisheries offices:

- ♦ *Berry Production Guide for Commercial Growers (2000/2001, pg. 16-19, \$20.00)*
- ♦ *Bird Control Supplies and Equipment for BC Growers (1998, no charge)*

♦ *Bird Netting – Catch the Profits (1998, no charge)*

♦ *Installation of Bird-proof Netting for Horticultural Crops (1992, Order No. 336-100-1, no charge)*

♦ *Bird Control Devices and the Farming Community (2000, no charge)*

Available from the BC Farm Practices Board (250-356-8946):

- ♦ *Review of BC Ministry of Agriculture and Food Wildlife Damage Control Guidelines as They Apply to the Operation of Propane Cannons (May, 1999)*

**June 2000**

# INTEGRATED BIRD MANAGEMENT PLAN

## BLUEBERRIES

**1 FARM OR FIELD**  
**NAME:** Blue's Berry Farm Ltd. **DATE:** May 15, 2000  
**LOCATION:** 321 Berry Road, Surrey  
**CANNON CONTACT PERSON AND TELEPHONE NUMBER:** Bob Blue, 604-909-1111

**2 FARM OR FIELD SIZE**  
 Acres

**3 TOTAL ACREAGE** 15

**4 ACREAGE BY HARVEST SEASON:**

Early season varieties	<u>10</u>
Mid season varieties	<u>0</u>
Late season varieties	<u>5</u>

**5 FRUIT DAMAGE: Low, Medium, or High**

H	<b>6 COMMENTS:</b>
M	<u>sometimes</u>
L	<u>get large flocks</u>
	<u>of starlings.</u>

**7 PEST BIRDS**

Starlings \_\_\_\_\_  
 Robins \_\_\_\_\_  
 Small song birds \_\_\_\_\_  
 Crows \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

**8 BIRD CONTROL TECHNIQUES**

**9 NOISE:**

Propane cannons	Number	<u>2</u>
Electronic noise makers		
Bird distress and predator calls		<u>1</u>
Orchard pistol		<u>2</u>
Other (specify)		

**10 NETTING:** 5 Acres

**11 VISUAL:**

Scarecrows	Number	
Scare-eye balloons		<u>3</u>
Streamers and flash tape (ft)		<u>4,000</u>
Hawk kites and plastic owls		
Other (specify)		

**12 BIRD CONTROL OPERATION**

**13 NETTING:** Estimated date of installation June 20  
 Maintenance by Pat Blue

**14 NOISE DEVICES:** Estimated start date June 24  
 Frequency of moving the devices, every 4-7 days  
 Maintenance by Pat Blue

**15 VISUAL DEVICES:** Estimated date of installation June 24  
 Frequency of moving the devices, every 4-7 days  
 Maintenance by Pat Blue

Propane cannon firing frequency (single or triple-fired)  
 Low bird pressure, fire 1-cycle per 8-16 minutes **setting # 3**  
 Medium bird pressure, fire 1-cycle per 4-8 minutes **setting # 2**  
 High bird pressure, fire 1-cycle per 2-4 minutes **setting # 1**

Maintenance by Pat Blue  
 Contact Bob Blue Telephone 604-909-1111

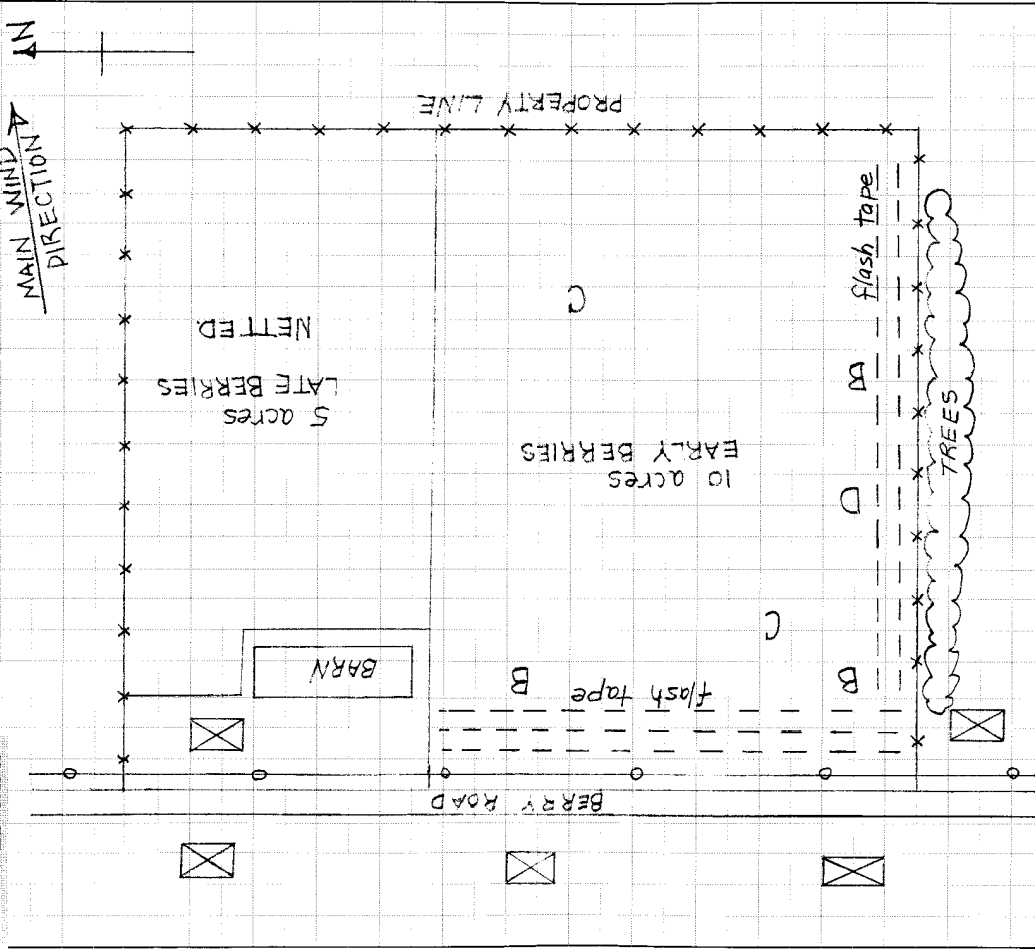
**16 EVALUATION** (to be completed by end of season).

**17 OBSERVATIONS:** \_\_\_\_\_

**18 PLAN REVIEW:** \_\_\_\_\_

**19 CHANGES FOR NEXT YEAR:** \_\_\_\_\_

## 7 FIELD MAP



Draw in the blocks of different varieties. Include tree, power-lines, buildings and other areas where birds perch. Locate the neighbouring houses. Mark prevailing wind directions (sound travels). Mark the areas where bird control devices are to be located.

- B = scare-eye balloon
- C = cannon
- D = bird distress or predator calls
- E = electronic noisemaker
- R = hawk silhouettes or stuffed owls
- X = house
- = powerline
- x— = property line
- ☁ = trees

# INTEGRATED BIRD MANAGEMENT PLAN

## BLUEBERRIES

### 1 FARM OR FIELD

**a** NAME: \_\_\_\_\_ **d** DATE: \_\_\_\_\_

**b** LOCATION: \_\_\_\_\_

**c** CANNON CONTACT PERSON AND TELEPHONE NUMBER: \_\_\_\_\_

### 2 FARM OR FIELD SIZE

Acres

**a** TOTAL ACREAGE

**b** ACREAGE BY HARVEST SEASON:

Early season varieties

Mid season varieties

Late season varieties

### 3 PEST BIRDS

**a** FRUIT DAMAGE: *Low, Medium, or High*

Starlings

Robins

Small song birds

Crows

Other (specify)

**b** COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### 4 BIRD CONTROL TECHNIQUES

**b** NOISE: *Number*

Propane cannons

Electronic noise makers

Bird distress and predator calls

Orchard pistol

Other (specify) \_\_\_\_\_

**a** NETTING:  Acres

**c** VISUAL: *Number*

Scarecrows

Scare-eye balloons

Streamers and flash tape (ft)

Hawk kites and plastic owls

Other (specify) \_\_\_\_\_

### 5 BIRD CONTROL OPERATION

**a** NETTING: Estimated date of installation \_\_\_\_\_

Maintenance by \_\_\_\_\_

**b** NOISE DEVICES: Estimated start date \_\_\_\_\_

Frequency of moving the devices, every \_\_\_\_\_ days

Propane cannon firing frequency (single or triple-fired)

Low bird pressure, fire 1-cycle per \_\_\_\_\_ minutes

Medium bird pressure, fire 1-cycle per \_\_\_\_\_ minutes

High bird pressure, fire 1-cycle per \_\_\_\_\_ minutes

Maintenance by \_\_\_\_\_

Contact \_\_\_\_\_ Telephone \_\_\_\_\_

**c** VISUAL DEVICES: Estimated date of installation \_\_\_\_\_

Frequency of moving the devices, every \_\_\_\_\_ days

Maintenance by \_\_\_\_\_

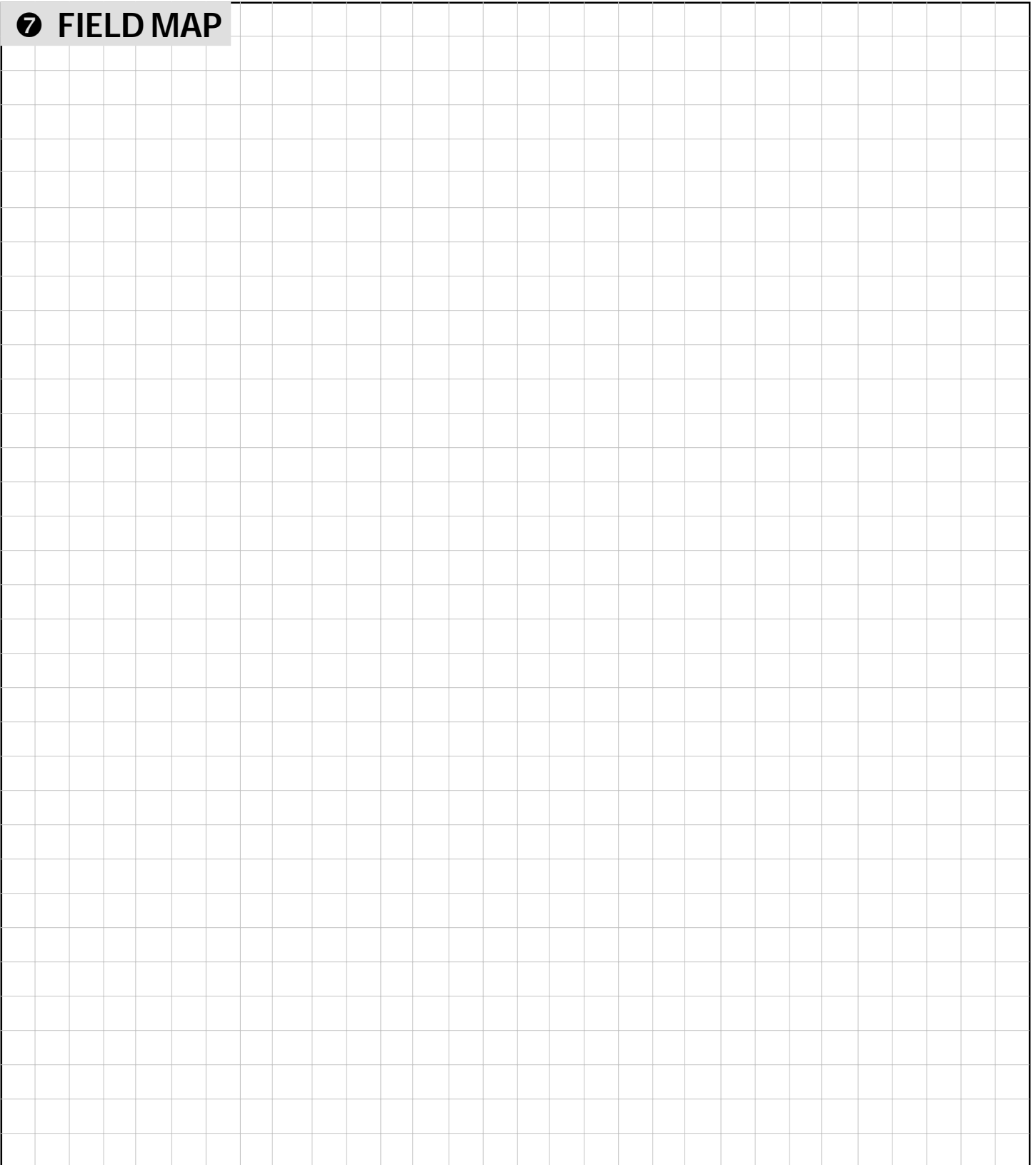
### 6 EVALUATION

**a** OBSERVATIONS: \_\_\_\_\_

**b** PLAN REVIEW: \_\_\_\_\_

**c** CHANGES FOR NEXT YEAR: \_\_\_\_\_

## 7 FIELD MAP



Draw in the blocks of different varieties. Include tree, power-lines, buildings and other areas where birds perch. Locate the neighbouring houses. Mark prevailing wind directions (sound travels). Mark the areas where bird control devices are to be located.


B = scare-eye balloon


C = cannon


D = bird distress or predator calls

E = electronic noisemaker

R = hawk silhouettes or stuffed owls

 = house

 = powerline

 = property line