

Netting for Bird Control in Grapes – A Decision-making Guide

Grape Industry FACTSHEET

What is the Problem?

Birds eat an estimated 10% of the wine grape crop in British Columbia each year. Losses vary significantly from year to year, as well as between locations and grape varieties (red grapes are more vulnerable). Large flocks of birds are capable of consuming a major portion of the crop, which is thousands of dollars per acre in lost revenue.

Why Net?

Visual and noise scaring devices keep most birds out of the crops, when properly used. However, birds can get used to these deterrents and their effectiveness is reduced. Properly installed netting gives much more protection and saves growers the frustrations they can face protecting fields that are not netted.

Noise devices that scare birds away from the crops can be annoying to residents living in the area – including urban and farming neighbours. Also, growing grapes for icewine extends the time that noise scaring devices must be used to protect the crop. Netting is a noiseless and effective way to protect grapes — while promoting good neighbour relations.

Making the Best Economic Decision for Netting

This factsheet will help growers assess the economic costs and benefits of netting grapes on their farm, using the envelope system. Other factors — such as the suitability of nets to the overall farm management as well as the impact of noise devices on neighbour relations – should also be considered when reaching a decision on netting the crop.

Follow the following steps while filling out the worksheet on the last page with information specific to your farm. The last step will show you if it will pay to install netting.

STEP #1

Investment Costs

How much money will it cost to set up the nets?

This is the starting point in making the decision for envelope netting. This system does not use a permanent support system so the only ‘up-front’ investment costs are the netting and the attachments needed to distribute the nets over the vines.

An acre is about 209 feet by 209 feet. Calculate the amount of netting needed by dividing 209 by the row width and then multiplying by 209 to obtain the total length of netting required for each acre. Finally, double the amount to allow for covering both sides of the row. Net suppliers can help calculate the exact amount of netting required. Nets cost about \$2,500 per acre, and the equipment needed to place and remove the nets costs about \$1,200. These costs must be recovered over the life of the netting. But don't count all these costs in one year – see the next step.



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STEP #2

Annual Depreciation and Interest Costs **What is the yearly cost of the investment?**

These are the costs to consider when calculating the annual investment costs. In this step, take the costs of buying the nets and installing the equipment, and spread them over their expected life. **Annual depreciation** is an estimate of the yearly loss in the net's and installation value as they wear out. The easiest way to estimate this cost is to divide the value of the nets and installation costs over the expected years of use. Do the same for the equipment.

Interest cost is the interest paid on the money borrowed for netting or on the interest income that could have been earned from a different investment (e.g. another project, or bonds or term deposits). Annual interest costs vary but a typical interest rate is used in the example on the last page. The interest is usually paid on the average value of the investment over its lifetime – i.e. halfway between the new value and the totally depreciated value.

STEP #3

Yearly Costs **How much will it cost to use the nets each year?**

These are the costs for putting up and removing the nets each year, and for any repairs and maintenance. Estimate these costs using a percentage of the investment costs. Usually 3% is used for investments such as netting. Labour for repair work is about one-half hour per acre per year. Unexpected costs always come up. Plan for these costs with a 5% contingency allowance.

STEP#4

Risk **How much extra is needed for uncertainty?**

Farming is always uncertain. Grape prices and yields change with annual markets and growing conditions. Also, unexpected damage can occur to the nets. But payments must still be made. Allow for these risks to make sure that payments can still be kept up should there be a minor setback.

Budget for risk as a percentage of the expected costs. This can be as little as 5% of costs for a low risk investment – or as high as 50% for high risk investment and a high debt.

STEP #5

Total Annual Netting Cost **What are all the annual costs for netting?**

Add up the costs in Steps #2, 3, and 4 to get total cost.

REMEMBER CASH FLOW

If you take out a loan for netting, be sure to look at how the payments affect your entire operation. Make sure you have sufficient funds and credit in place so you don't face a "cash crunch" situation.

If the project provides a net benefit in the long term, financing the project out of your own resources will eliminate any loan payment requirements.

STEP #6

Added Annual Return **Will more money be made with nets?**

Consider the value of the extra grapes harvested from a field protected by netting, and the additional costs to harvest and sell the grapes. Work through the two tables on the next page.

Table 1 shows the grapes saved by netting one acre. For harvested yield per acre on mature vines, use your average yield from the last five years. For younger vines, average the expected yields over the next five years. A well-managed mature vineyard can produce three or four tons of high quality wine grapes per acre.

Table 2 gives the added annual gross returns from netting. Grape prices vary, but a price range of \$900 – \$1,400 /ton is used as an example.

CASH FLOW PROBLEMS?

- If you do the work yourself, omit a portion of the labour cost when calculating the annual netting cost (see worksheet on the last page).
- If you are currently using other crop protection devices, subtract this cost from the annual netting cost. This could be as much as \$200/acre/year.

Table 1. Grapes Saved by Netting (tons/acre)

Harvest tons/acre	Grape loss without nets (tons)				
	5 %	10 %	15 %	20 %	25 %
2.0	0.10	0.20	0.30	0.40	0.50
2.5	0.125	0.25	0.375	0.50	0.625
3.0	0.15	0.30	0.45	0.60	0.75
3.5	0.175	0.35	0.525	0.70	0.875
4.0	0.20	0.40	0.60	0.80	1.0
4.5	0.225	0.45	0.675	0.90	1.125
5.0	0.25	0.50	0.75	1.0	1.25

Table 2. Break-even Point and Added Annual Gross Return by Netting (\$/acre)

Added netting cost/ac		\$679	Price (\$/ton)	900	1,000	1,100	1,200	1,300	1,400
			Picking (\$/ton)	85	85	85	85	85	85
			Return after harvest cost	815	915	1,015	1,115	1,215	1,315
Grapes saved by netting (tons/acre) e.g. 10%	1.05			856	961	1,066	1,171	1,276	1,381
	0.90			734	824	914	1,004	1,094	1,184
	0.75			611	686	761	836	911	986
	0.60			489	549	609	669	729	789
	0.45			367	412	457	502	547	592
	0.30			245	275	305	335	365	395
	0.15			122	137	152	167	182	197

NET
BREAK EVEN POINT

DO NOT NET

STEP #7

Break Even Point

Will the nets pay?

The break even point is where the added annual cost of netting just equals the added annual gross return of netting. Nets are worth the investment if the added return is greater than the annual cost of netting.

It pays to net if your added annual gross return is in the unshaded area of Table 2. Subtract the annual netting cost of \$679/acre (from Step #6, Column (6) on the next page) to find out how much extra money (net return) would be made by netting.

Will Nets Pay on Your Farm?

This is an example for budgeting the cost of netting one acre of grapes*. Use this worksheet and fill in your costs to see if netting will pay for you.

STEP #1 AND #2. INVESTMENT COSTS, ANNUAL DEPRECIATION, AND INTEREST

Item	(1) Investment Costs		(2) Expected Life (years)	(3) Annual Depreciation (1) ÷ (2)		(4) Annual Interest @ 6% (1) x 50% x 0.06	
	Example (\$/acre)	Your Farm		Example (\$/acre)	Your Farm	Example (\$/acre)	Your Farm
Nets	2,500		7	357		75	
Equipment	120**		5	24		4	
Labour - cutting	40		7	6		1	
TOTAL	2,660		19	387		80	

STEPS #3, #4, AND #5. TOTAL ANNUAL NETTING COST

Item	Calculation	Annual Operating Cost	
		Example (\$/acre)	Your Farm
Labour – pre-harvest	2 hr. x \$10/hr	20	
Labour – post-harvest	4 hr. x \$10/hr	40	
Repair and maintenance	\$2,660 x 3%	80	
Depreciation	From above table	387	
Interest	From above table	80	
SUBTOTAL		607	
Contingency	\$607 x 5%	30	
Risk	\$607 x 7%	42	
TOTAL		679	

STEP #6. ADDED ANNUAL RETURN

	(1) Grapes Saved by Netting	(2) Grape Price	(3) Picking Cost	(4) Grape Price minus Harvest Cost (2) – (3)	(5) Added Annual Return (1) x (4)	(6) Annual Netting Cost (from above table)	(7) Net Return Over Costs (5) – (6)	(8) Net? Yes if (7) positive, No if (7) negative
Example	0.80*** (t/acre)	1,200 (\$/ton)	85 (\$/ton)	1,115 (\$/ton)	892 (\$/acre)	679 (\$/acre)	213 (\$/acre)	Yes
Your Farm								

* Costs are based on netting a 10-acre block using the envelope system. For smaller acreages, irregular-shaped fields or challenging topography, the annual netting costs will be higher.

** Equipment costs are estimated at \$1,200 or \$120/acre/10-acre block.
*** 20% loss on 4.0 ton/acre yield.

For more information...

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BCMAFF references on bird netting (available from the Abbotsford Agriculture Centre):

- Suppliers of Bird Control Materials and Equipment for B.C. Growers. 1998.
- Installation of Bird-Proof Netting for Horticultural Crops. Engineering Notes. 1992.
- Integrated Bird Management – Blueberries. June 2000.
- Netting for Bird Control in Blueberries – A Decision-making Guide. January 2002.
- Netting for Bird Control in Cherries – A Decision-making Guide. January 2002.