



## VINEYARD BIRD-DAMAGE 'QuikCARD'

The Winegrowers Association, in collaboration with Lincoln University, has implemented a *QuikCARD* to enable growers to assess bird damage in their vineyards\*.

Filling out the *QuikCARD* is a way to help **you** keep a record of bird problems as they develop in your vineyard each year. Standardising the way this information is collected will also, over time, help **us** to determine the broad extent of bird damage in the nation's vineyards. This information will be used to help fund and guide future research efforts to develop better bird management techniques.

Following research funded by the Sustainable Farming Fund the *QuikCARD* is now more accurate. Part of this increased accuracy is gained by more samples, and part by systemising the method of bunch selection.

### WHAT WE WOULD LIKE YOU TO DO

- 1) Select one or more blocks of your vineyard that you would like to monitor for bird damage.
- 2) Approximately one week before harvest, fill out a *QuikCARD* damage assessment on each of those blocks.
- 3) At the end of each season, keep the original *QuikCARDS* for your own records and email a .pdf copy to [saxtonv@lincoln.ac.nz](mailto:saxtonv@lincoln.ac.nz), or fax to 03 3253843.

### WHAT WE WILL DO FOR YOU

- 1) The *QuikCARDS* received by Winegrowers will be analysed each year to determine broad regional trends in bird damage. All information received from *QuikCARDS* will remain confidential.
- 2) Feedback on the analyses and other information on advances in bird management will be posted on the Winegrowers of NZ website regularly.

**QuikCARDS and instructions for their use are attached.**

If you have any queries please contact:

Valerie Saxton, Centre for Viticulture and Oenology, PO Box 84, Lincoln University.  
[saxtonv@lincoln.ac.nz](mailto:saxtonv@lincoln.ac.nz)

You can also check out the 'Frequently Asked Questions' page on our website:  
[www.lincoln.ac.nz/v&o/birddamage.htm](http://www.lincoln.ac.nz/v&o/birddamage.htm)

\*Based on Saunders and Tracey, Orange Research Institute, NSW, Australia

## QuikCARD INSTRUCTIONS

- 1) **One week prior to harvest, select one or several blocks within your vineyard that you would like to score.** For the purposes of scoring a ‘block’ means all the adjacent rows of vines within some kind of well-defined physical boundary (i.e, fences, tracks or shelterbelts). There may be several varieties or vine ages within a block. For *scoring*, ignore any perceived differences in damage levels within the block .
- 2) **Fill out a separate *QuikCARD* for each block.** Please be sure to fill out ALL the information asked for on the card, and briefly sketch a map of the block’s layout including its edges, sides and interior (see below) and any trees, water, buildings, neighbouring activities or other features that may affect bird movements. *On the map* indicate areas where damage seems heavier, or identified as due to a particular bird species.
- 3) **Record four separate estimates (see below) of % grape damage in the block – one for each ‘side’ and one for each ‘end’.**

**This is the first stage of assessment. If any of these four damage estimates is higher than 5%, then proceed to a second stage, which is a fifth estimate from the ‘interior’ of the block.**

The edges of the block are the two outermost rows on each side of the block.

The ends of the block are the first two, and last two, vines in each of the intermediate rows between the sides.

The remaining vines are all considered to be within the interior of the block.

Do not worry about any changes in grape variety within the block.

- 4) **Each of these estimates of % damage is obtained by scoring 1 bunch from each of 10 vines.**

To ‘sample’ means to inspect one bunch from each vine selected using a systemised method to avoid individual personal bias and ensure a more accurate sample. The method is described briefly below.

To begin sampling walk into the interrow between the side edge row and the second edge row. Select a vine at random and sample one bunch from this and the subsequent ten vines, return along the other row sampling one bunch from each vine. This gives 20 samples, 10 from each side of the edge 2 rows.

On each end of the block, select a row at random and sample one bunch from this and the second end vine, and from two vines in each of the next nine rows (i.e., giving a total of 20 bunches on each end).

The damage score for each bunch is *your estimate* of what proportion of the berries on that bunch have been either removed or pecked by birds.

- 5) **Add up the bunch scores separately for each side, divide this by 20, and enter these four damage estimates on the QuikCARD. This completes the first stage.**

*e.g. At the north end of the vineyard the bunches you inspect are scored as follows:*

*10%, 5%, 0%, 20%, 15%, 30%, 10%, 0%, 0%, 20%, , 0%, 20%, 15%, 10%, 10%, 0%, 0%, 20%, 0%, 2%*

*Summing these gives 187. Dividing this sum by 20 gives a damage estimate of 9.35%.*

- 6) **If the damage to any side or edge of the block exceeds 5% proceed to the second stage: which is to estimate damage from the interior of the block. Select a total number of samples from the table below according to the highest damage level from the first stage (interior damage is expected to be lower.)**

Table 1. Total number of vines to be inspected in the interior during Stage 2

%Damage (Stage 1)	5-10	20	30	40	50	60	70	80	90+	
No. of vines	10	30	50	65	70	65	50	30	10	

- 7) **In the interior of the block, choose adjacent rows more-or-less randomly and adjacent vines randomly along each row – inspect one bunch from each of these vines. The total number of samples (rows x vines) should equal the sample number selected from the table. Sum all the bunch scores and divide by the number of samples. Enter this %figure, plus the number of bunches inspected, on the QuikCARD. This completes the second stage.**

Email this completed QuikCARD page in .pdf format to saxtonv@lincoln.ac.nz, or fax to 03 3253843.

**QuikCARD**

Vineyard Name.....block name.....size(Ha).....

Address.....Phone.....

Assessment date..... Cultivar 1..... °Brix at assessment date. ....

Cultivar 2.....°Brix ..... Cultivar 3.....°Brix .....Projected date of harvest.....

<b>Edge:</b>  <b>10 vines from two rows</b>  <b>%</b>  <b>Damage</b>  .....	<b>Side: two vines from ends of 10 rows % Damage</b>  .....	<b>Edge:</b>  <b>10 vines from two rows</b>  <b>%</b>  <b>Damage</b>  .....
	<b>Interior rows (if sampled) % damage from ..... vines:</b>  .....	
	<b>Side: two vines from ends of 10 rows % Damage</b>  .....	

**Block map: Please indicate cultivars, trees, power lines, water, buildings, adjacent activities, and areas of greater damage. Also indicate areas where type of damage suggests a particular bird species.**

## **Method of bunch selection**

(For the full report see WINZ website – research – bird damage).

‘Random selection’ is often poorly defined. Although ‘random’ has a specific statistical meaning the word is often used when sampling is actually haphazard. Haphazard sampling is subject to individual bias, in the case of bird damage this may be looking for damaged (or undamaged) bunches to sample, choosing external bunches, large bunches, bunches low down or higher in the canopy, or some other tendency that means inaccuracy in the final figure. When multiplied through 80 or 100 samples this inaccuracy gets larger. Therefore a systematic way of selecting bunches is needed.

To be sure that sampling is equally from each part of the canopy, a device with letters can be used. A metre rule or similar, marked off from 10 cm mark at 20cm intervals (i.e. 10, 30, 50, 70, 90cm) with A,B,C,D and E (see the photograph below). Holding the metre rule with one end at the trunk, and starting at any of these letters, follow the sequence of letters, which will result in 4 samples from each of the 5 letters, an equal sample from each part of the canopy. Once the position is defined by a letter, follow the string down and sample the first bunch in that position. (If the grapes are at different heights in the canopy then a second systematic sampling of height will be necessary, but most vineyards have a narrow bunchline so that a horizontal measure is all that is needed.)

## **Accuracy of estimation**

The accuracy of visual estimation is another source of error. To correct for this, calibrate your guesstimates by collecting every 10<sup>th</sup> bunch and taking them back for closer inspection. Count the number of damaged and whole grapes on each bunch and compare this with your estimate. A full description of this procedure and a chart for calculating can be found on the WINZ website.

