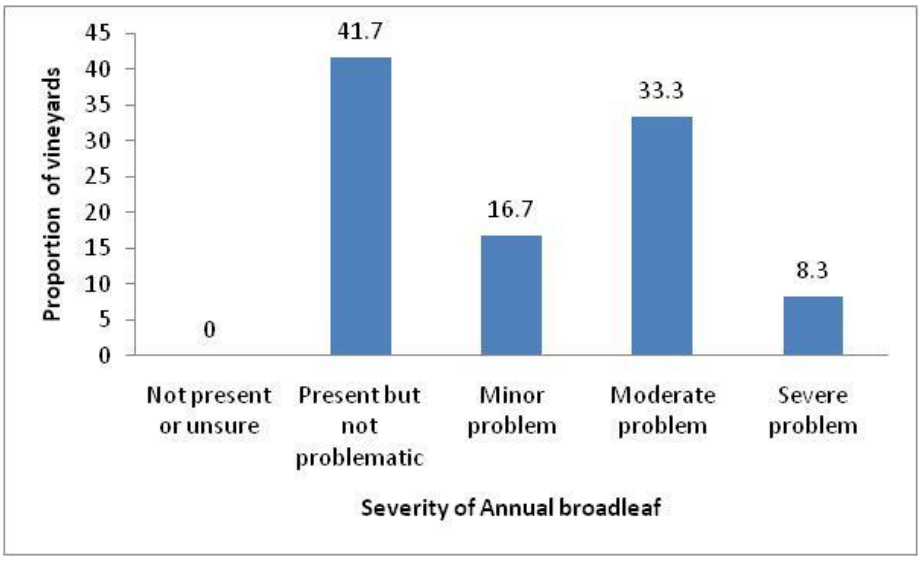
Vineyard Survey Summary

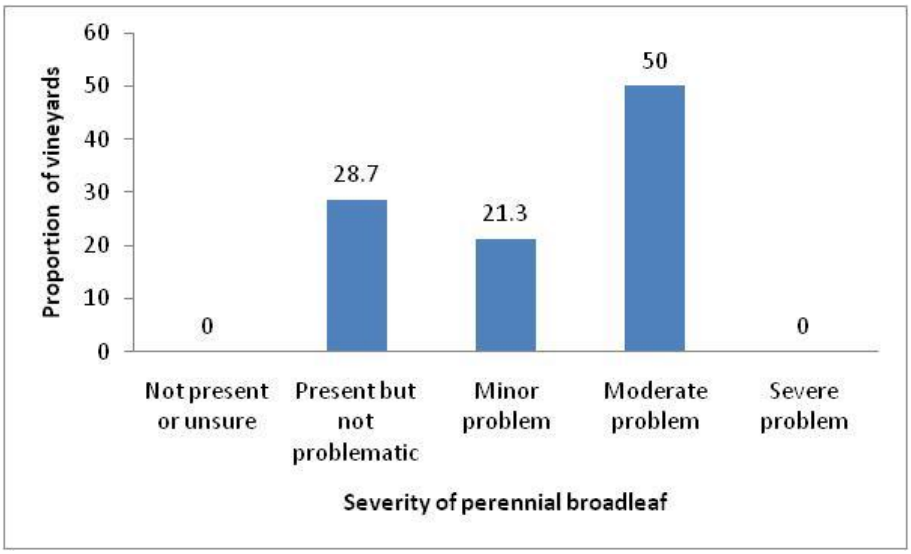
A total of 14 vineyards completed the survey. Almost 2/3 (9 out of 14) of vineyards currently use weather data as a tool for forecasting treatment. The highest ranked tool (64.3%) for treatment application was crop development, but a slight majority, 57.1% (8/14), uses thresholds to determine the application of a pesticide. Almost half (42.9%) of vineyards are adjacent to some form of agriculture, but the vast majority (12/14) are adjacent to wooded areas. Vine ages are highly variable (0 to 31 years), with half the vineyard over 20 years old. More than 75% (11/14) of grape varieties grown are for white wines, and the three vineyards growing red grapes do not use hybrids. Only one vineyard actually irrigates its crop. The average acreage is 20 (minimum 1, maximum 60), and the average yield is 30.75 tonnes (minimum 1, maximum 150). The vast majority (85.7%) of vineyards are full-time operations.

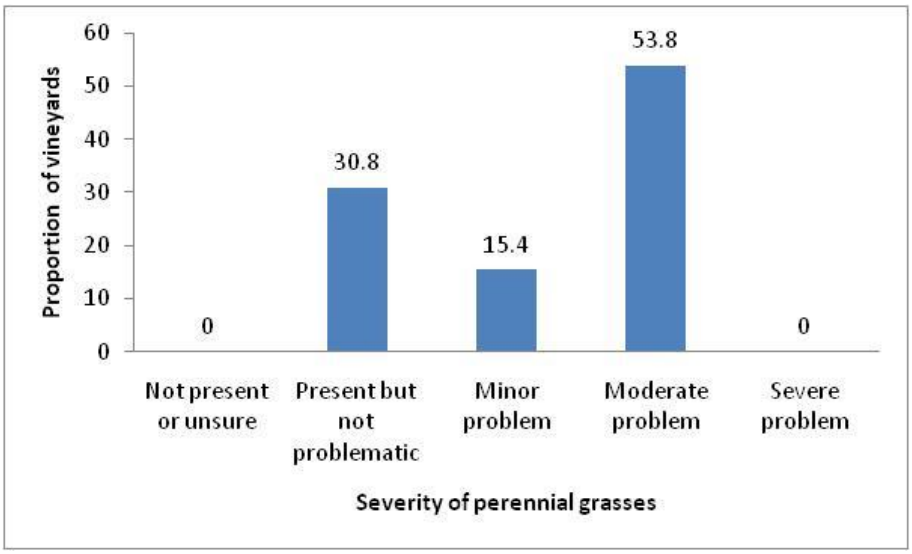
When asked the most limiting factor for yield, the answers were highly variable (nine different factors). The most common one was climate (3/14). The second most important factor was also highly variable (9), the most common being birds (3/14). Interestingly, birds came in second place (2/14) as the most important factor. The greatest biological threats to grapes were mildew (35.7%) and birds (21.4%). Mildew did not appear in the list of “most important factor”, and only once in the “second most important factor”. Inspection for insect varied greatly among vineyards (from every day to no scouting), and 50% of vineyards have observed insect activity on their grapes. There is no correlation between scouting activity and observation. The pest observed were: phylloxera (3/7), Asian lady bug (3/7), Erineum and European red mites (1/7) and ants (1/7). 57.1% of the infestation required control measures, from mechanical (fine mesh to catch insects) to chemical insecticide.

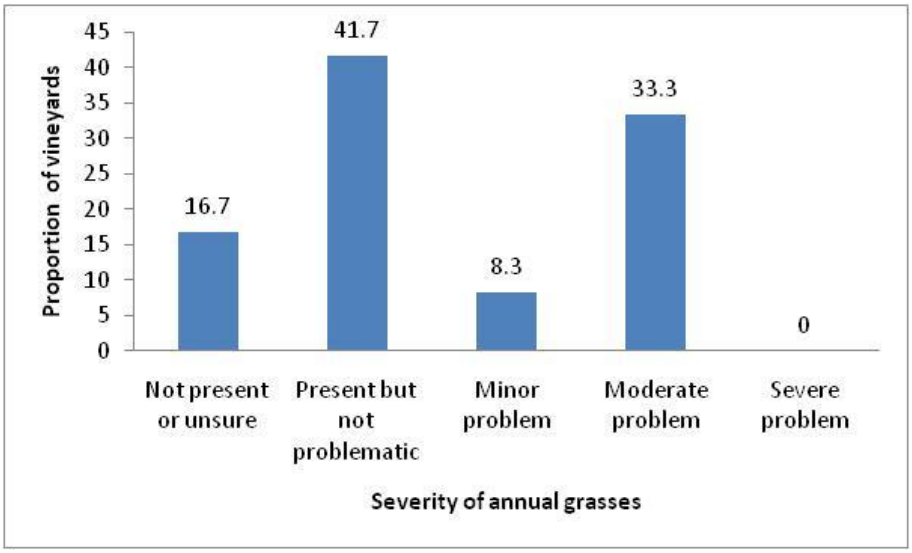
All vineyards were aware of the pheromone traps techniques, but they were used only in three vineyards: one as a study by Agriculture Canada, one for blueberry maggot and one for grape berry moth. Only 1/14 vineyards was not aware of biological control strategies, such as introduction of predators or parasitoid. Field monitoring is the method of choice (11/14) to assess insect infestation, and two vineyards actually do not monitor at all.

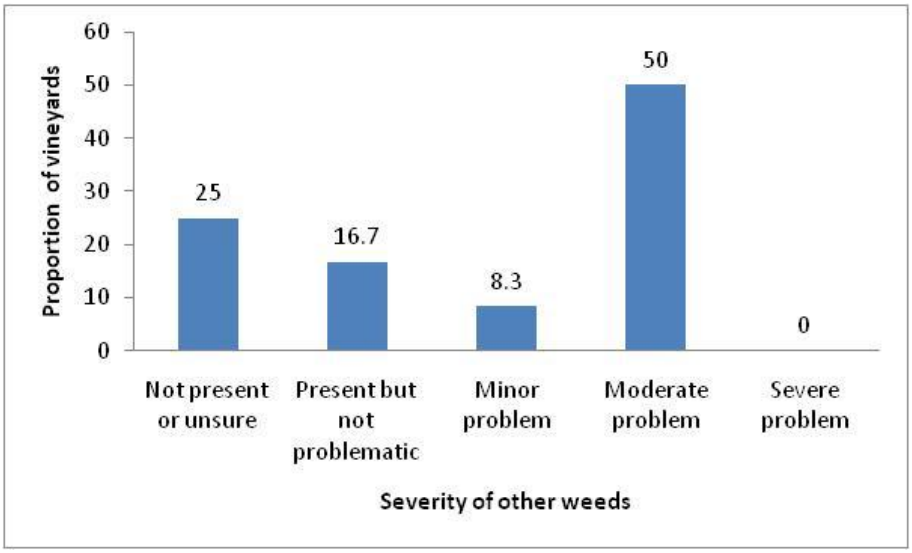
Pesticide used varied greatly, the most common were sulphur (21.4%) and “round up” equivalent (14.3%). A large variety of fungicide is also used.

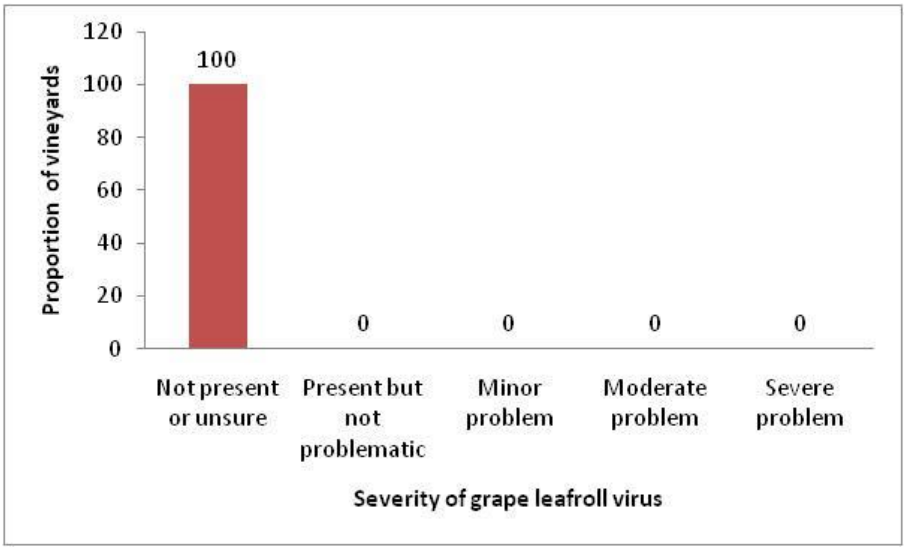

Proportion of vineyards
45
40
35
30
25
20
15
10
5
0
41.7
33.3
16.7
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of Annual broadleaf

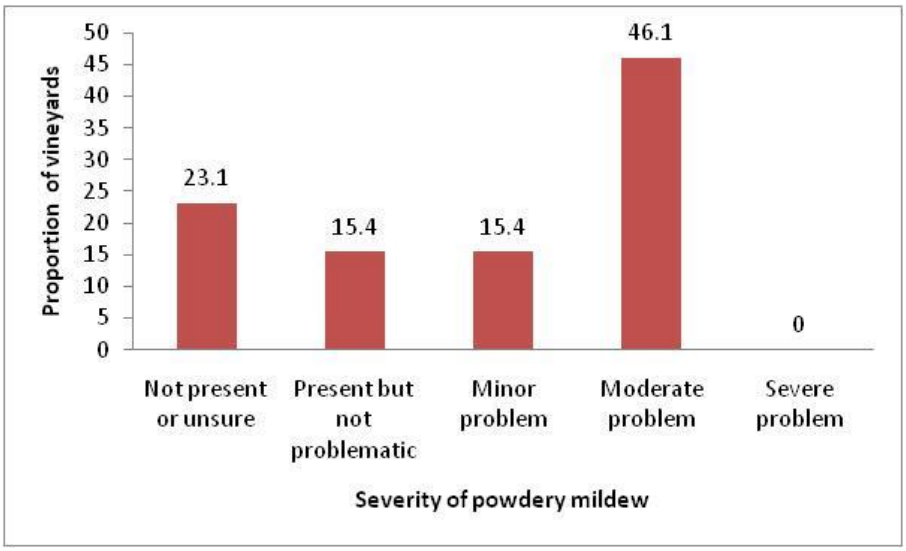

Proportion of vineyards
60
50
40
30
20
10
0
50
28.7
21.3
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of perennial broadleaf

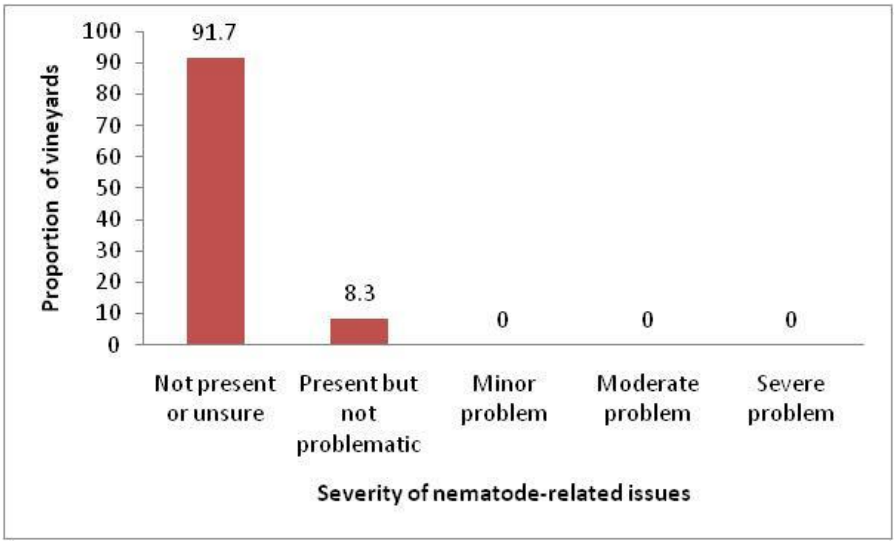

Proportion of vineyards
60
50
40
30
20
10
0
53.8
30.8
15.4
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of perennial grasses

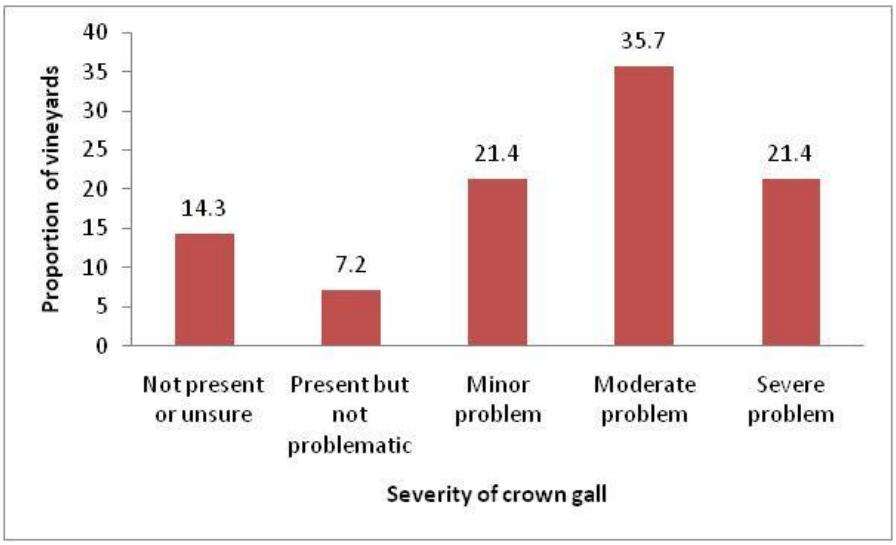

Proportion of vineyards
45
40
35
30
25
20
15
10
5
0
41.7
33.3
16.7
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of annual grasses

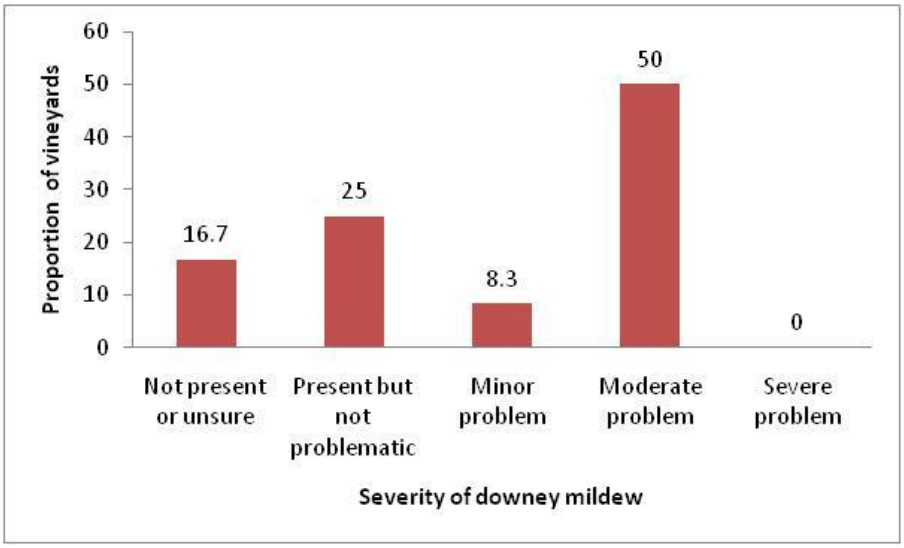

Proportion of vineyards
60
50
40
30
20
10
0
50
25
16.7
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of other weeds

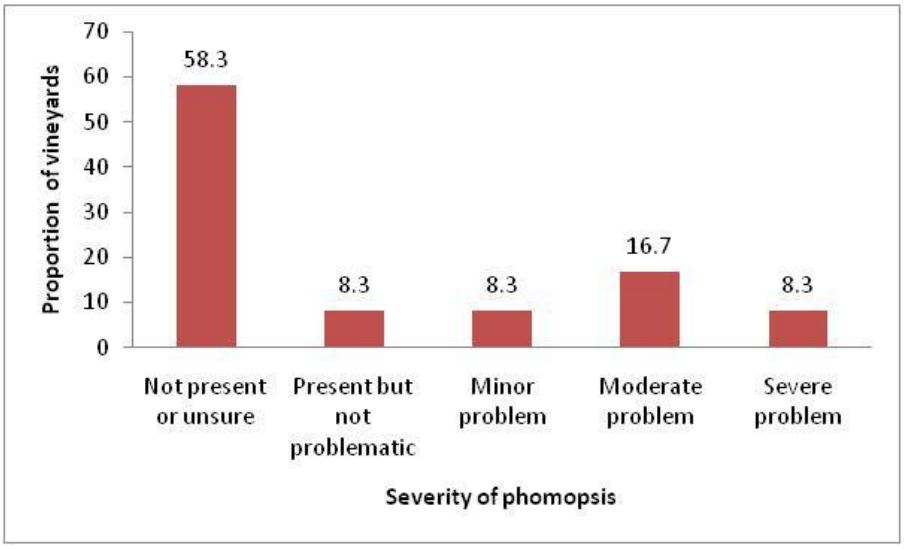

Proportion of vineyards
120
100
80
60
40
20
0
100
0
0
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of grape leafroll virus

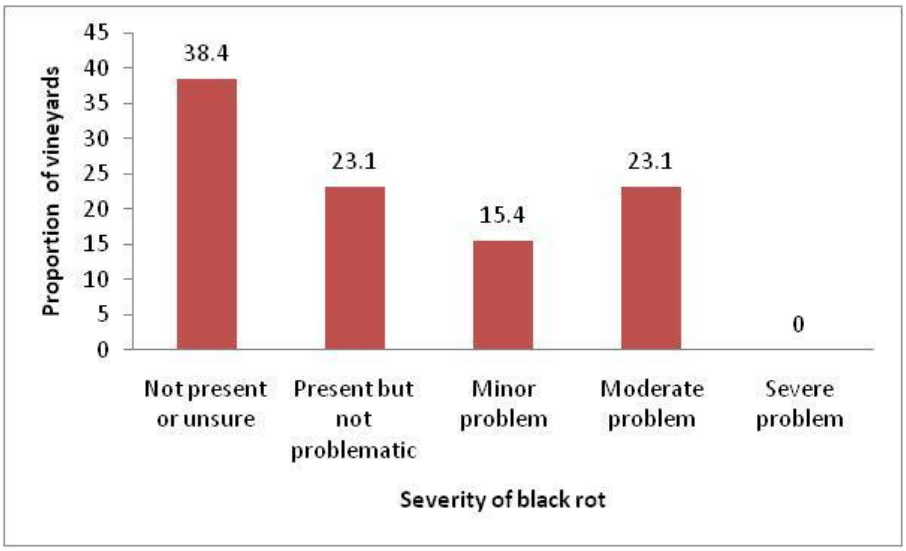

Proportion of vineyards
50
45
40
35
30
25
20
15
10
5
0
23.1
15.4
15.4
46.1
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of powdery mildew

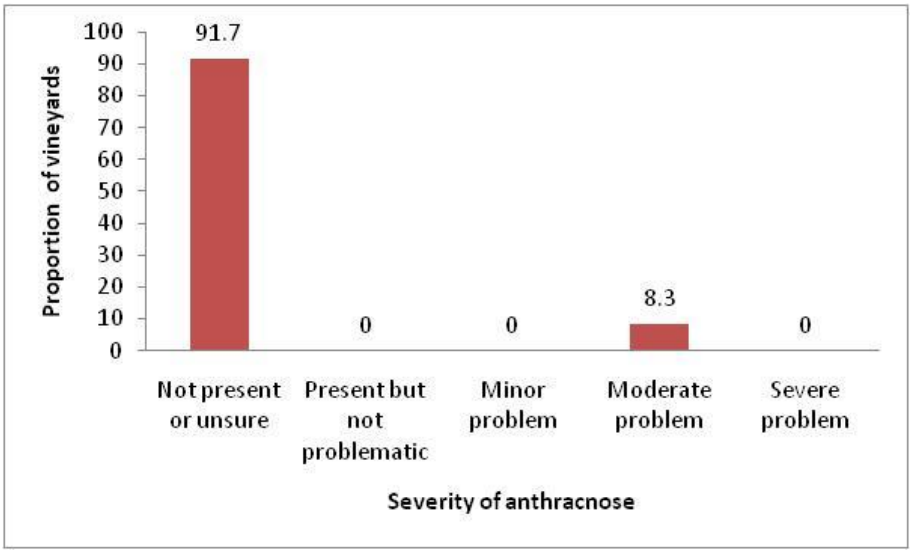

Proportion of vineyards
100
90
80
70
60
50
40
30
20
10
0
91.7
8.3
0
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of nematode-related issues

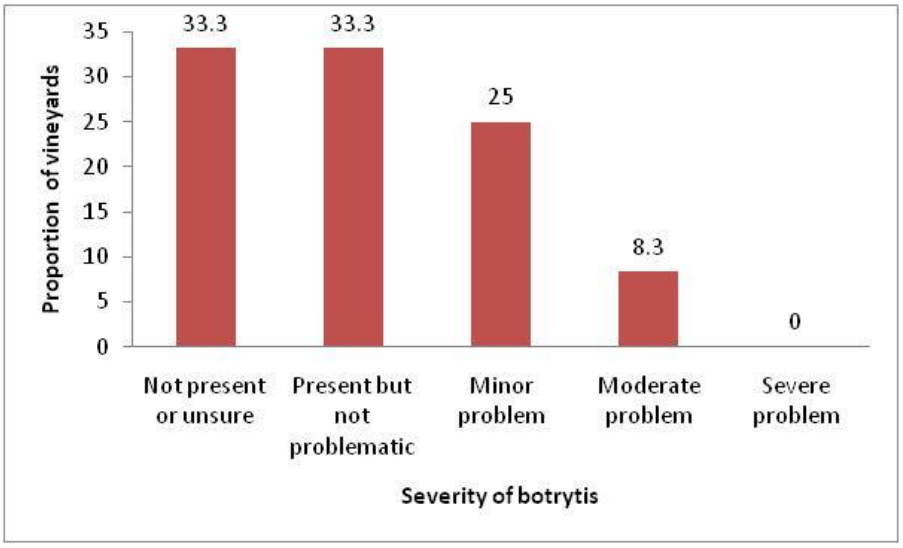

Proportion of vineyards
40
35
30
25
20
15
10
5
0
14.3
7.2
21.4
35.7
21.4
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of crown gall

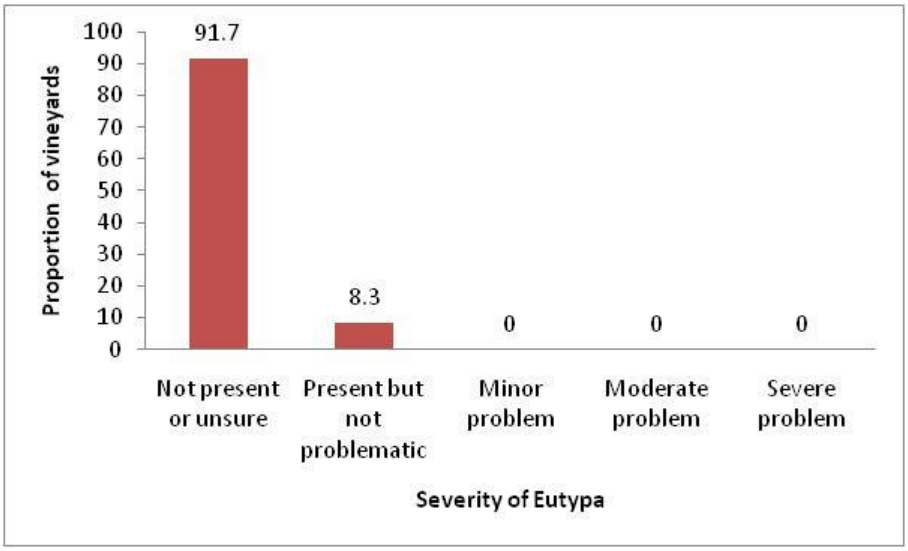

Proportion of vineyards
60
50
40
30
20
10
0
16.7
25
8.3
50
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of downey mildew

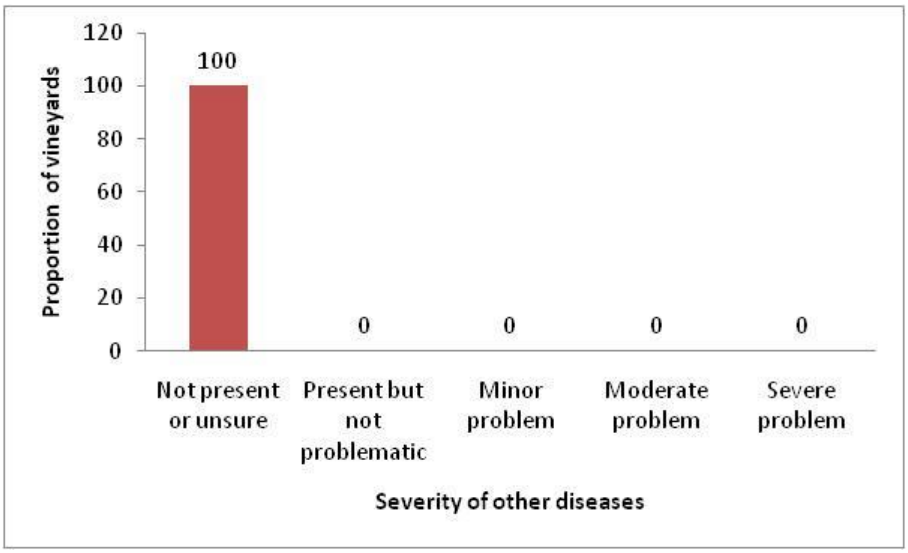

Proportion of vineyards
70
60
50
40
30
20
10
0
58.3
8.3
8.3
16.7
8.3
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of phomopsis

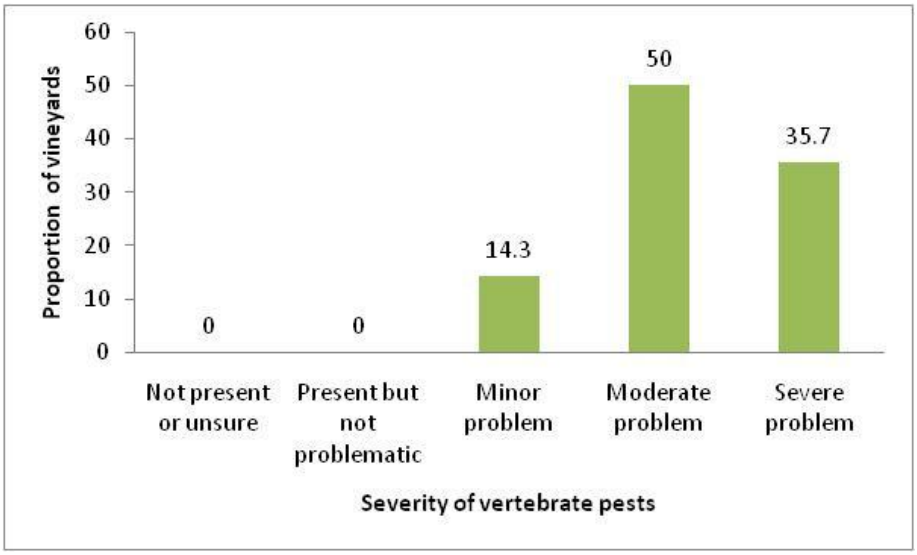

Proportion of vineyards
45
40
35
30
25
20
15
10
5
0
38.4
23.1
15.4
23.1
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of black rot

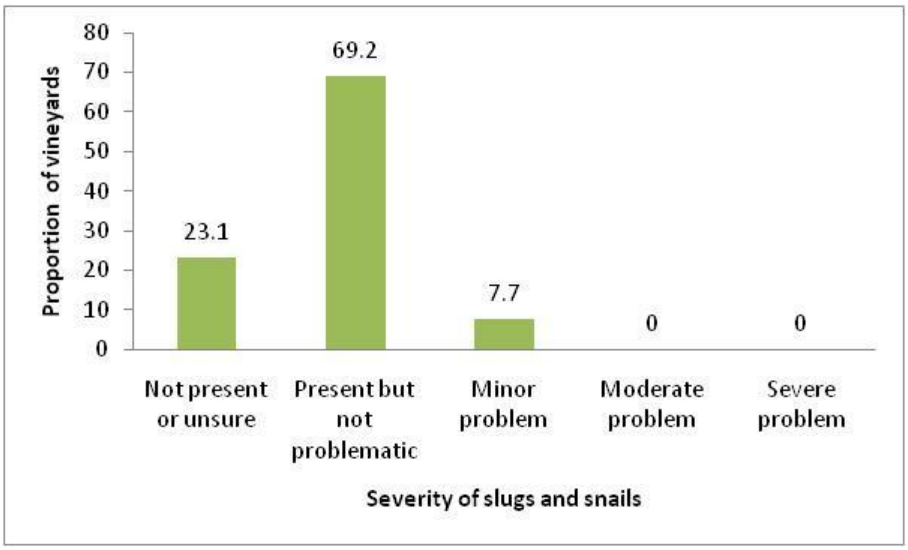

Proportion of vineyards
100
90
80
70
60
50
40
30
20
10
0
91.7
0
0
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of anthracnose

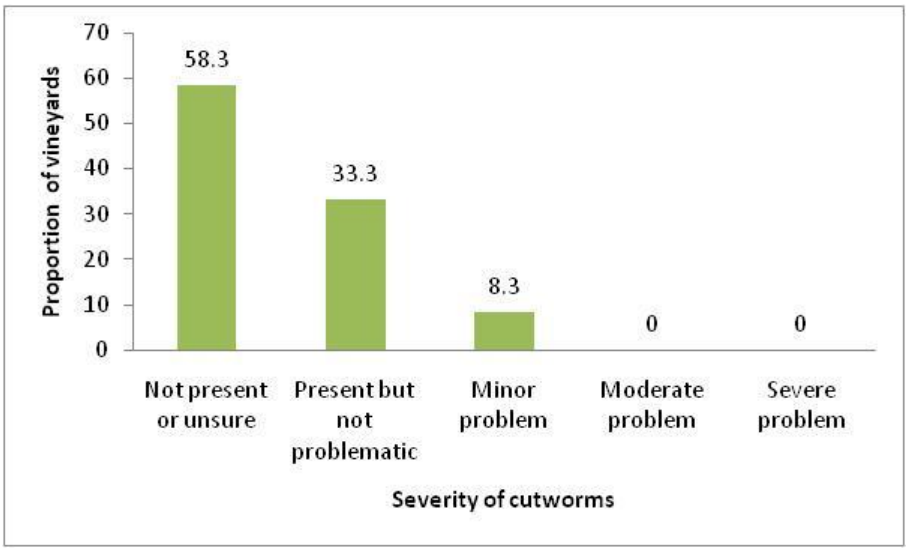

Proportion of vineyards
35
30
25
20
15
10
5
0
33.3
33.3
25
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of botrytis

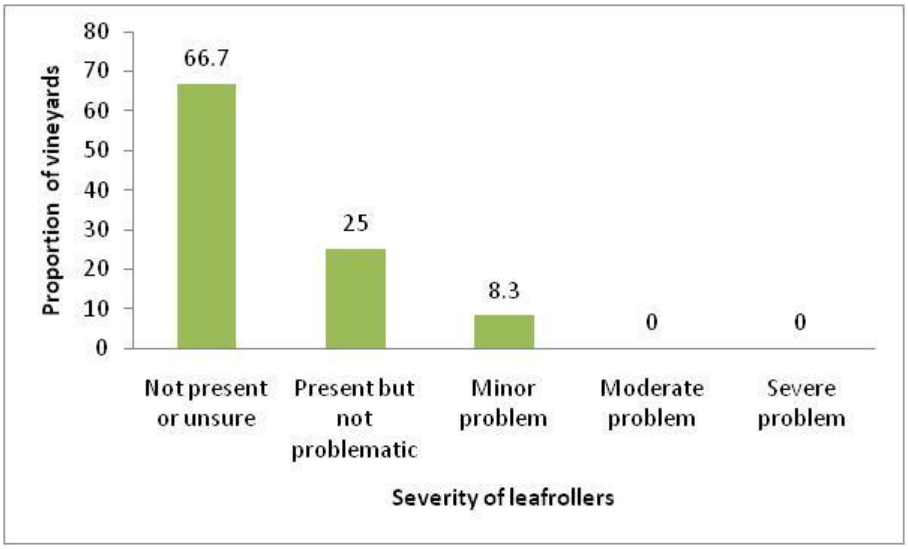

Proportion of vineyards
100
90
80
70
60
50
40
30
20
10
0
91.7
8.3
0
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of Eutypa

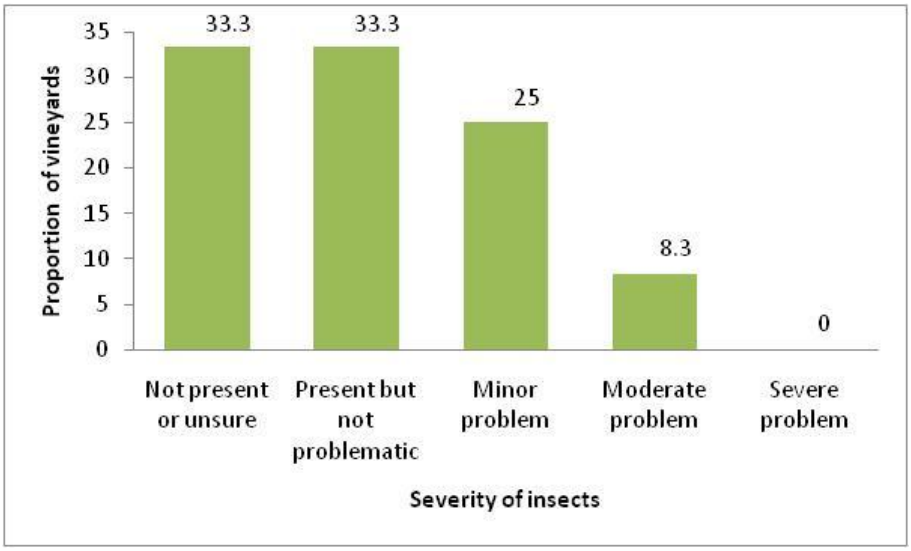

Proportion of vineyards
120
100
80
60
40
20
0
100
0
0
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of other diseases

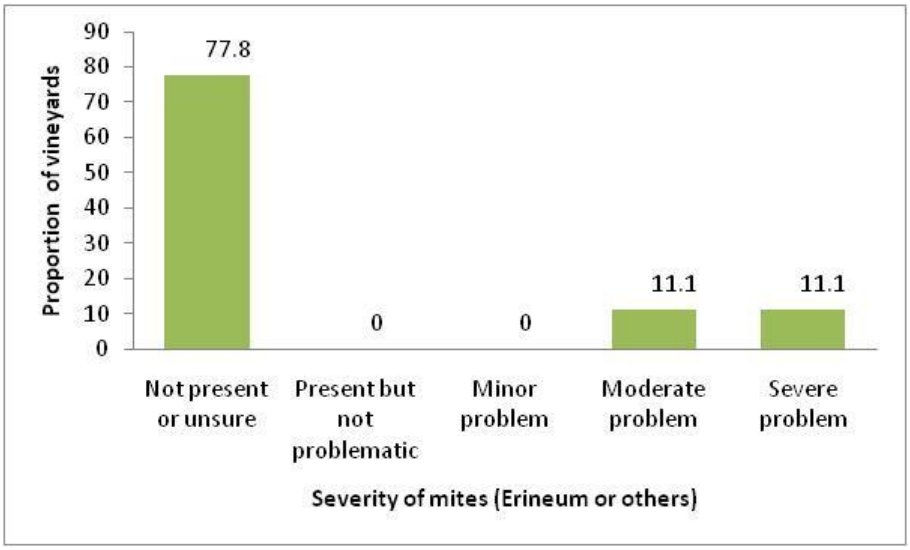

Proportion of vineyards
60
50
40
30
20
10
0
0
0
14.3
50
35.7
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of vertebrate pests

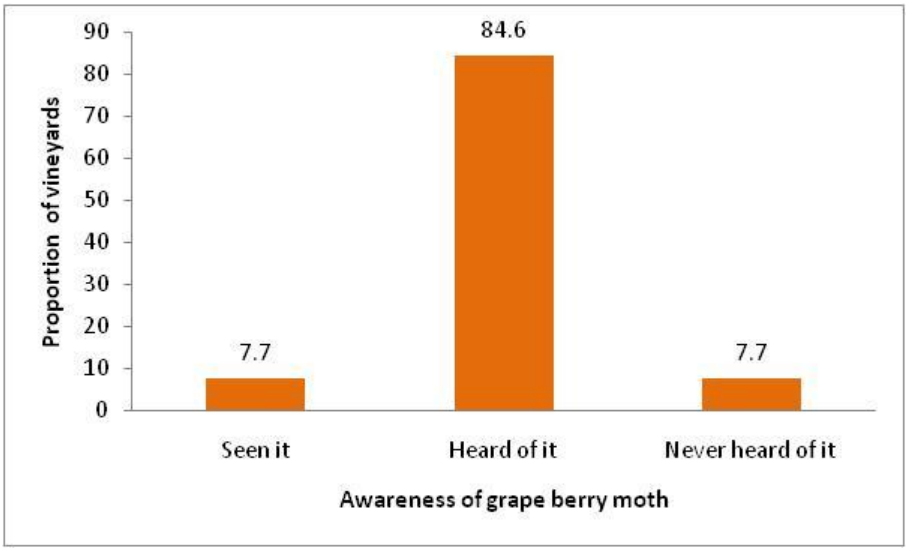

Proportion of vineyards
80
70
60
50
40
30
20
10
0
23.1
69.2
7.7
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of slugs and snails

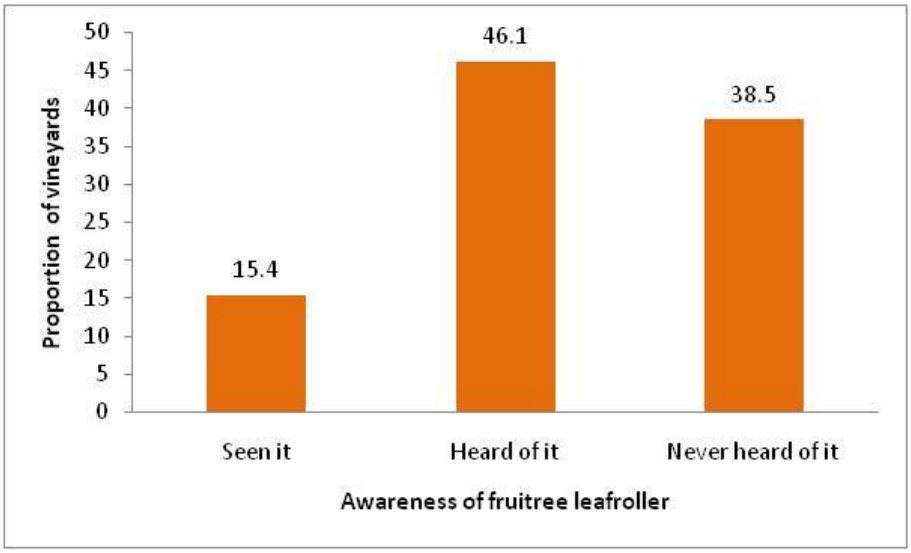

Proportion of vineyards
70
60
50
40
30
20
10
0
58.3
33.3
8.3
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of cutworms

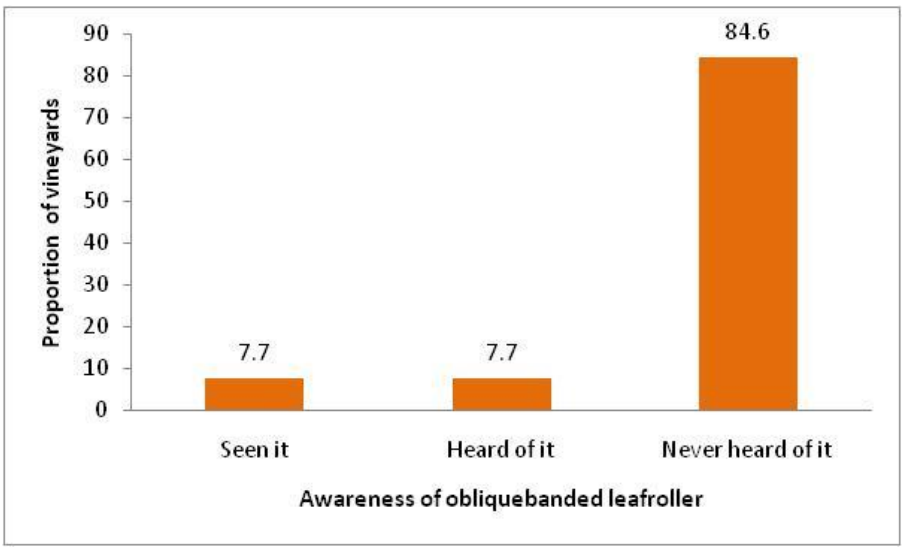

Proportion of vineyards
80
70
60
50
40
30
20
10
0
66.7
25
8.3
0
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of leafrollers

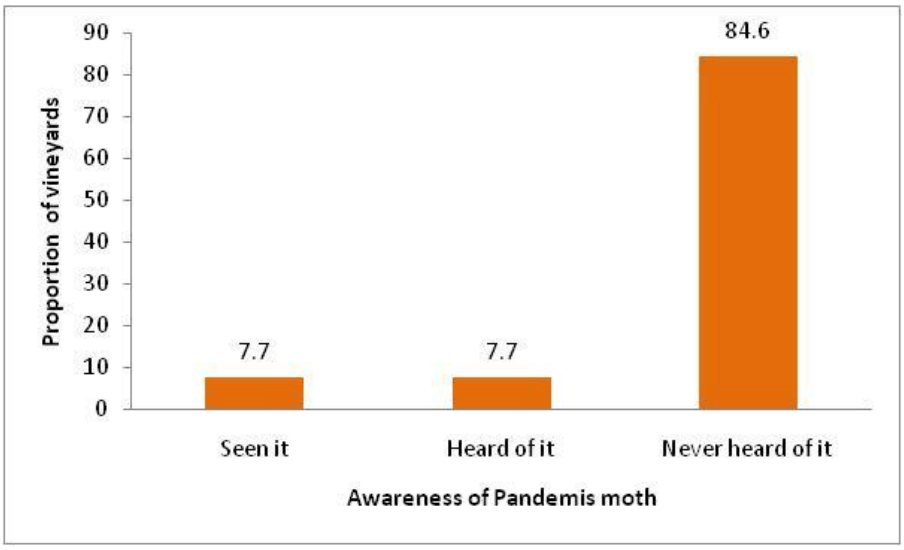

Proportion of vineyards
35
30
25
20
15
10
5
0
33.3
33.3
25
8.3
0
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of insects

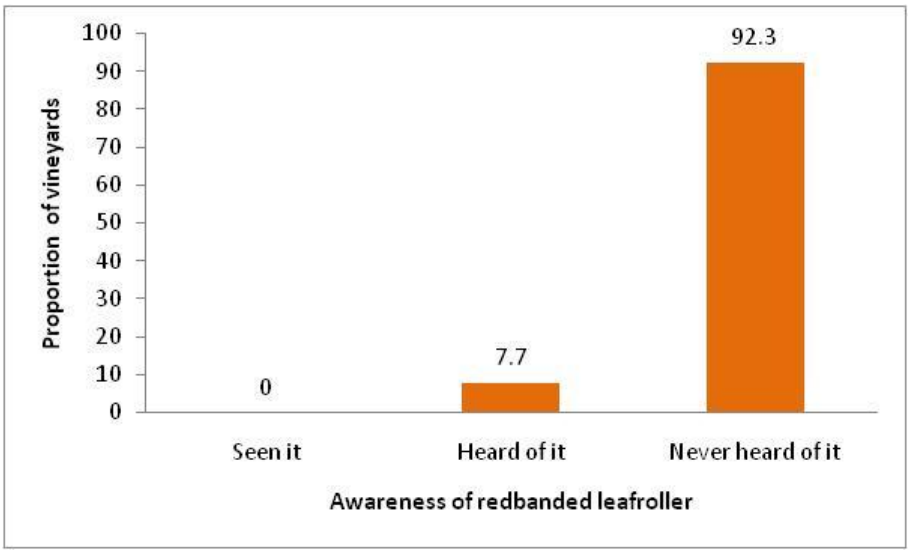

Proportion of vineyards
90
80
70
60
50
40
30
20
10
0
77.8
0
0
11.1
11.1
Not present or unsure
Present but not problematic
Minor problem
Moderate problem
Severe problem
Severity of mites (Erineum or others)

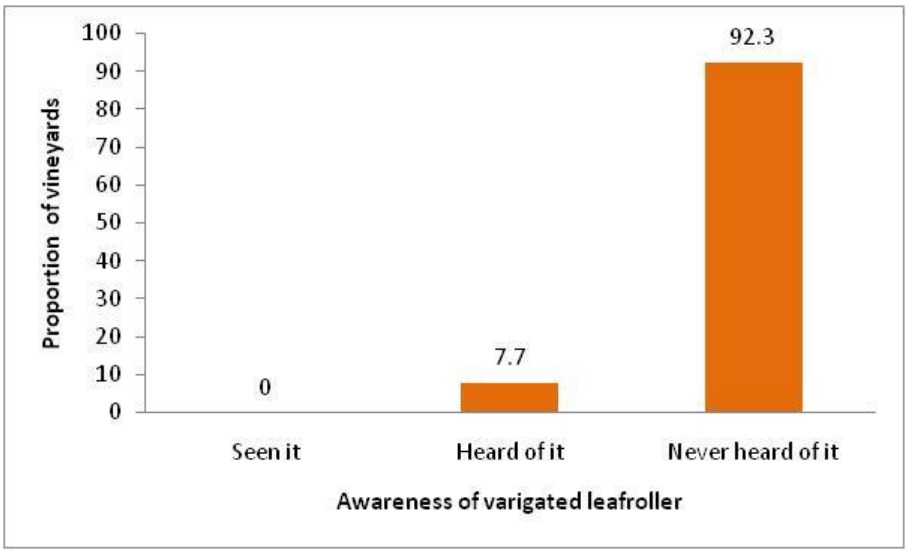

Proportion of vineyards
90
80
70
60
50
40
30
20
10
0
84.6
7.7
7.7
Seen it
Heard of it
Never heard of it
Awareness of grape berry moth

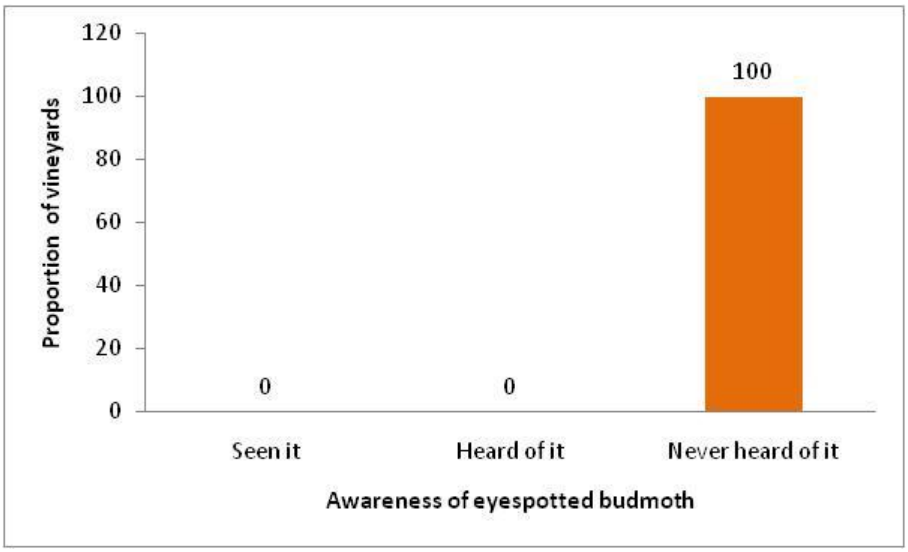

Proportion of vineyards
50
45
40
35
30
25
20
15
10
5
0
46.1
38.5
15.4
Seen it
Heard of it
Never heard of it
Awareness of fruitree leafroller

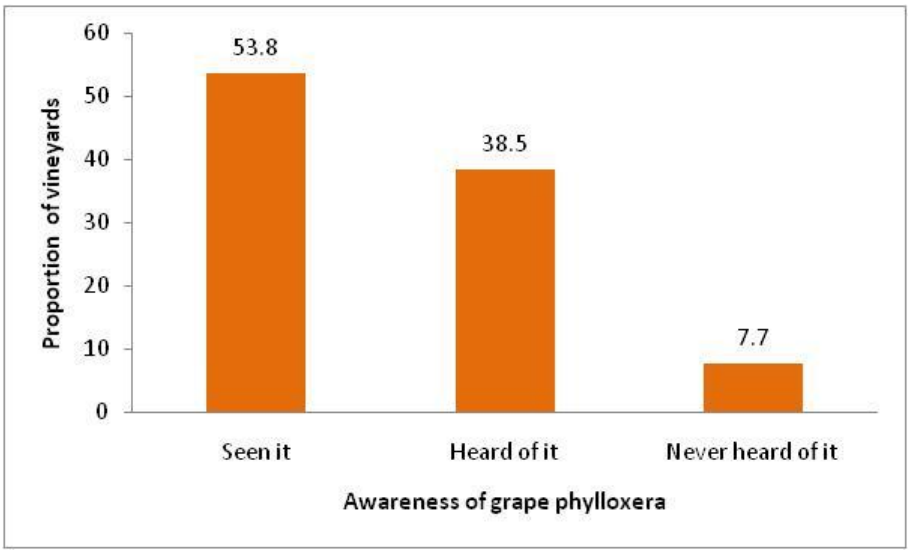

Proportion of vineyards
90
80
70
60
50
40
30
20
10
0
84.6
7.7
7.7
Seen it
Heard of it
Never heard of it
Awareness of obliquebanded leafroller

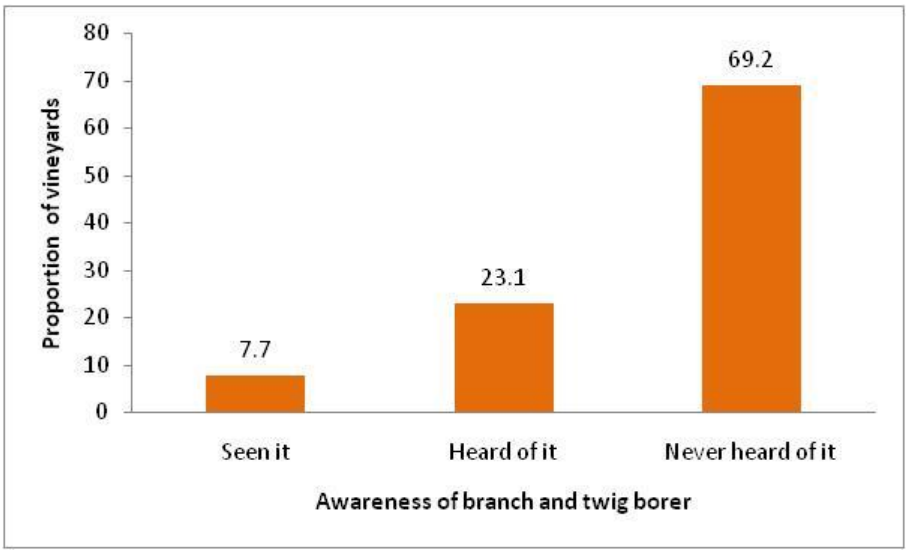

Proportion of vineyards
90
80
70
60
50
40
30
20
10
0
84.6
7.7
7.7
Seen it
Heard of it
Never heard of it
Awareness of Pandemis moth

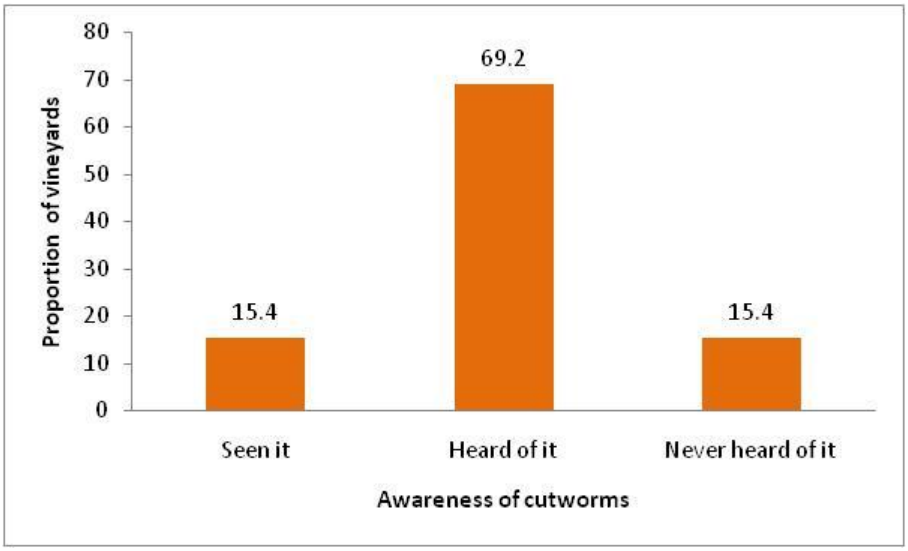

Proportion of vineyards
100
90
80
70
60
50
40
30
20
10
0
92.3
0
7.7
Seen it
Heard of it
Never heard of it
Awareness of redbanded leafroller

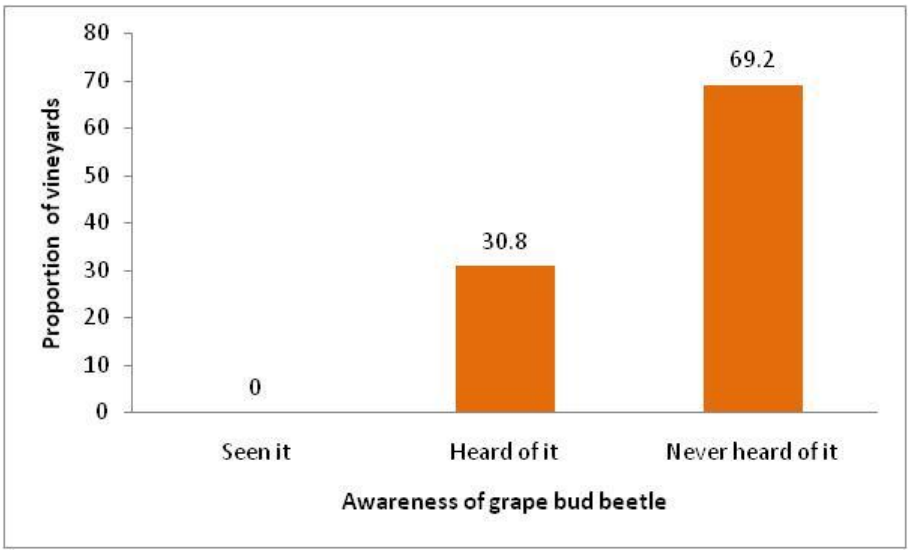

Proportion of vineyards
100
90
80
70
60
50
40
30
20
10
0
92.3
7.7
0
Seen it
Heard of it
Never heard of it
Awareness of varigated leafroller

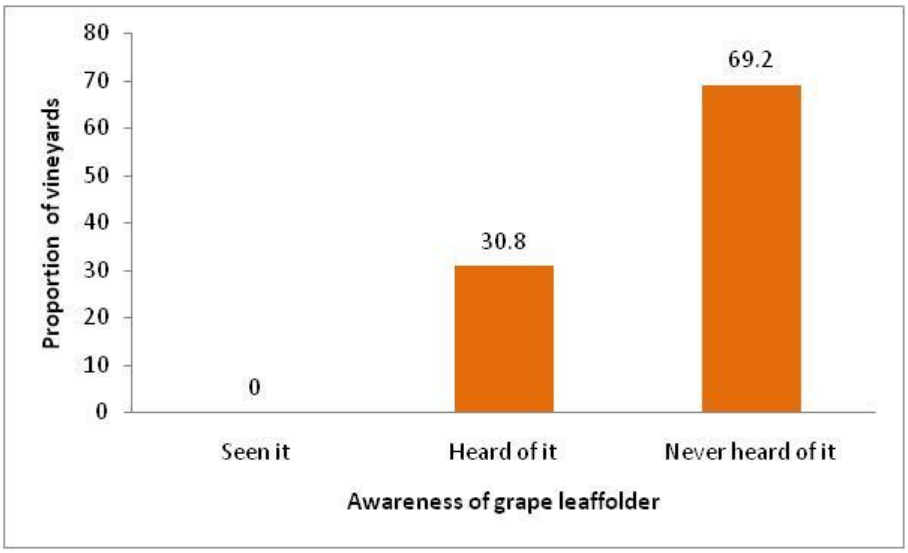

Proportion of vineyards
120
100
80
60
40
20
0
100
0
0
Seen it
Heard of it
Never heard of it
Awareness of eyespotted budmoth

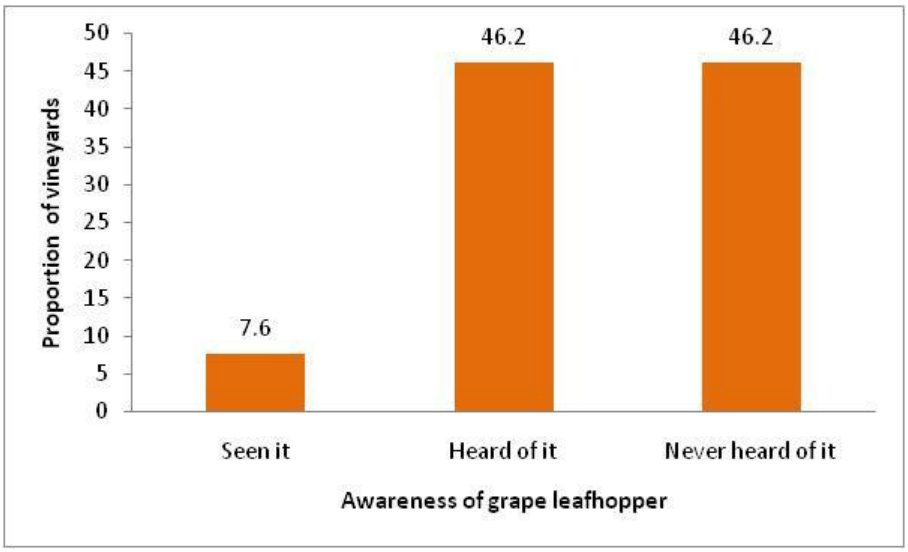

Proportion of vineyards
60
50
40
30
20
10
0
53.8
38.5
7.7
Seen it
Heard of it
Never heard of it
Awareness of grape phylloxera

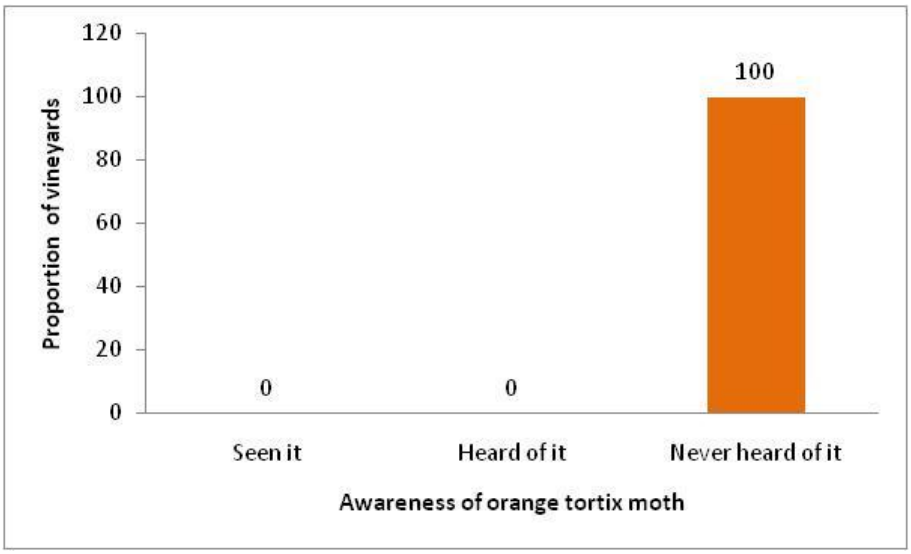

80
70
60
50
40
30
20
10
0
Proportion of vineyards
69.2
23.1
7.7
Seen it
Heard of it
Never heard of it
Awareness of branch and twig borer

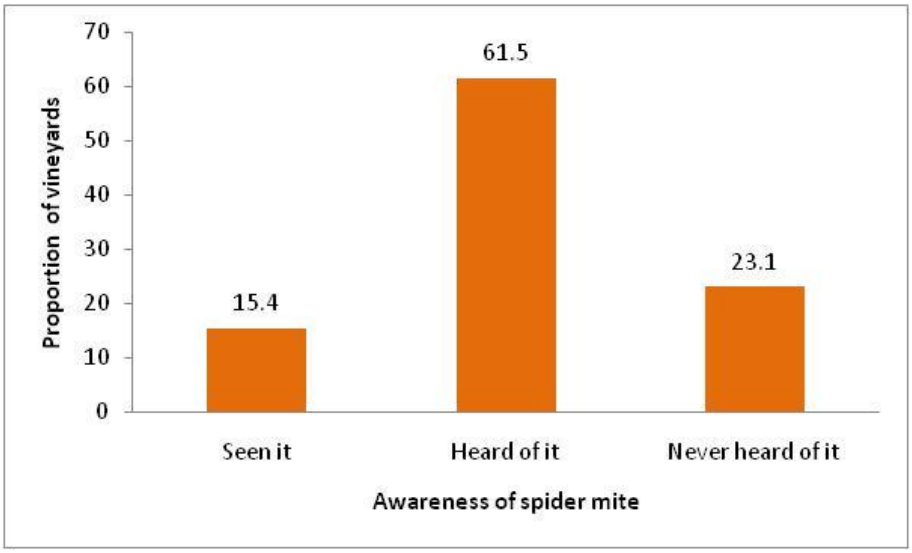

80
70
60
50
40
30
20
10
0
Proportion of vineyards
69.2
15.4
15.4
Seen it
Heard of it
Never heard of it
Awareness of cutworms

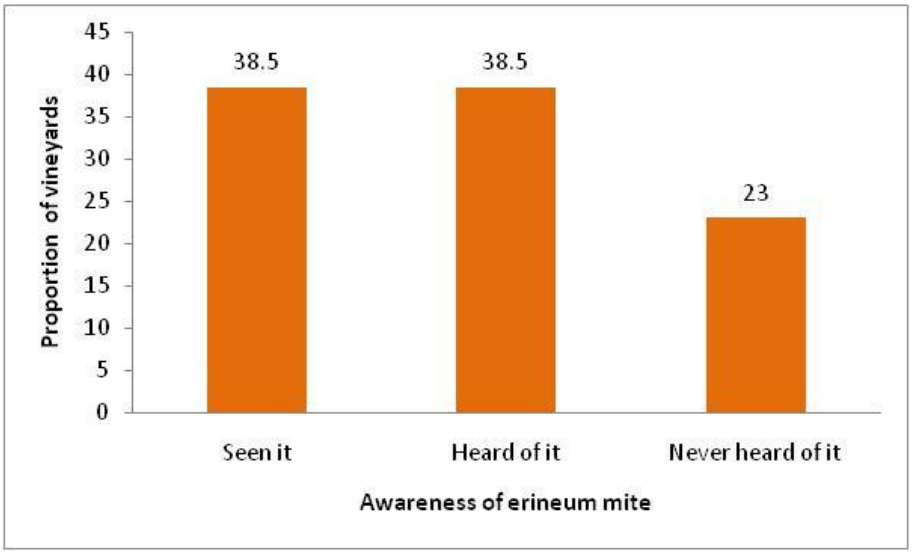

80
70
60
50
40
30
20
10
0
Proportion of vineyards
69.2
30.8
0
Seen it
Heard of it
Never heard of it
Awareness of grape bud beetle

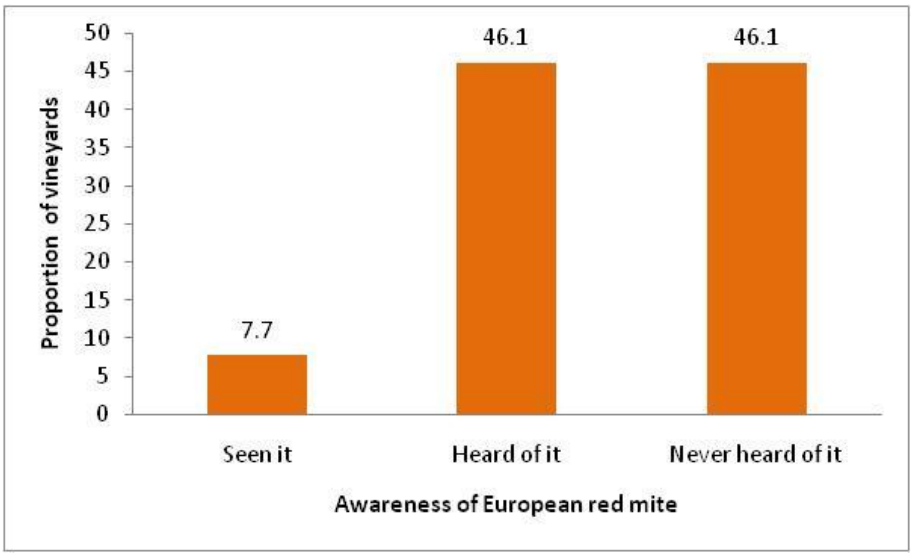

80
70
60
50
40
30
20
10
0
Proportion of vineyards
69.2
30.8
0
Seen it
Heard of it
Never heard of it
Awareness of grape leaffolder

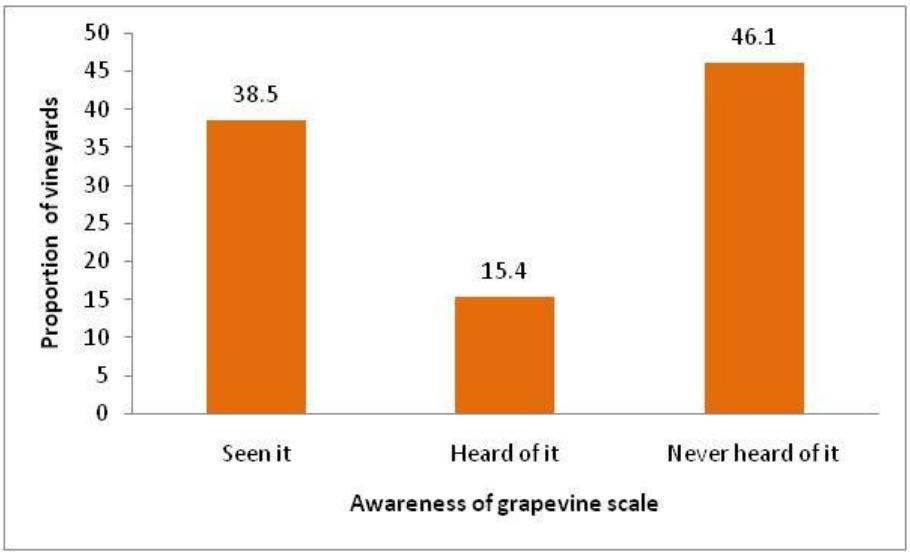

50
45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
46.2
46.2
7.6
Seen it
Heard of it
Never heard of it
Awareness of grape leafhopper

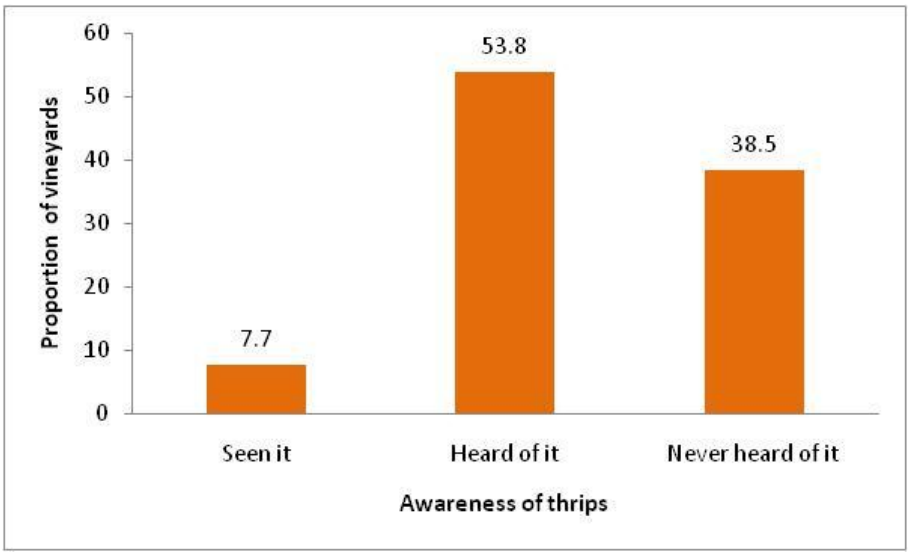

120
100
80
60
40
20
0
Proportion of vineyards
100
0
0
Seen it
Heard of it
Never heard of it
Awareness of orange tortix moth

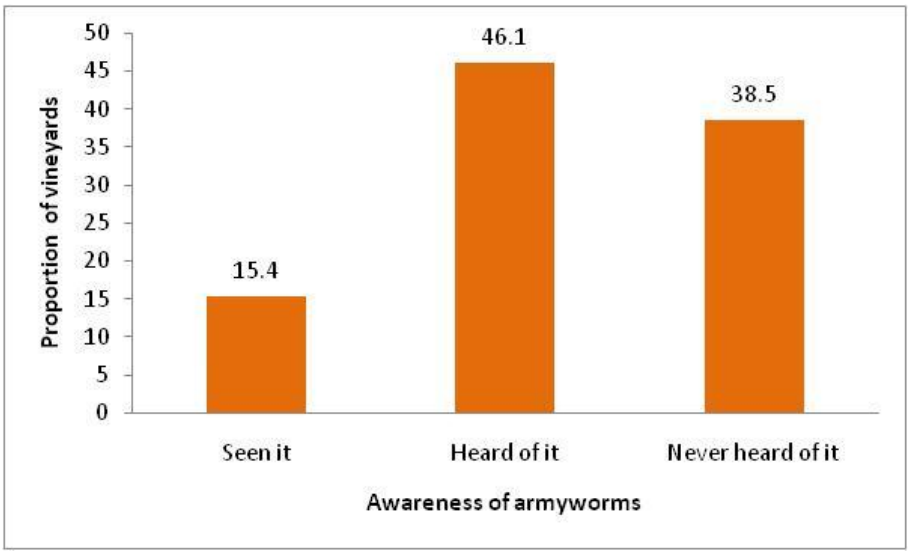

70
60
50
40
30
20
10
0
Proportion of vineyards
61.5
23.1
15.4
Seen it
Heard of it
Never heard of it
Awareness of spider mite

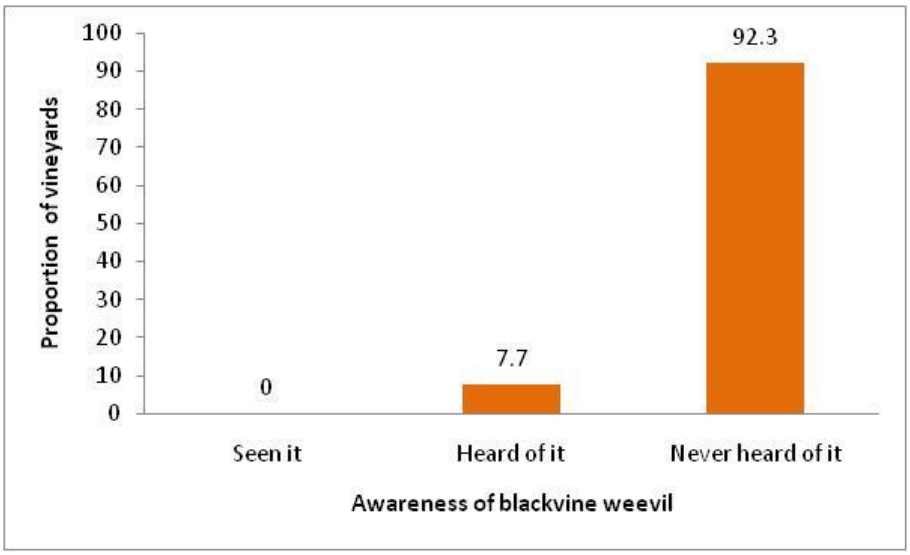

45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
38.5
38.5
23
Seen it
Heard of it
Never heard of it
Awareness of erineum mite

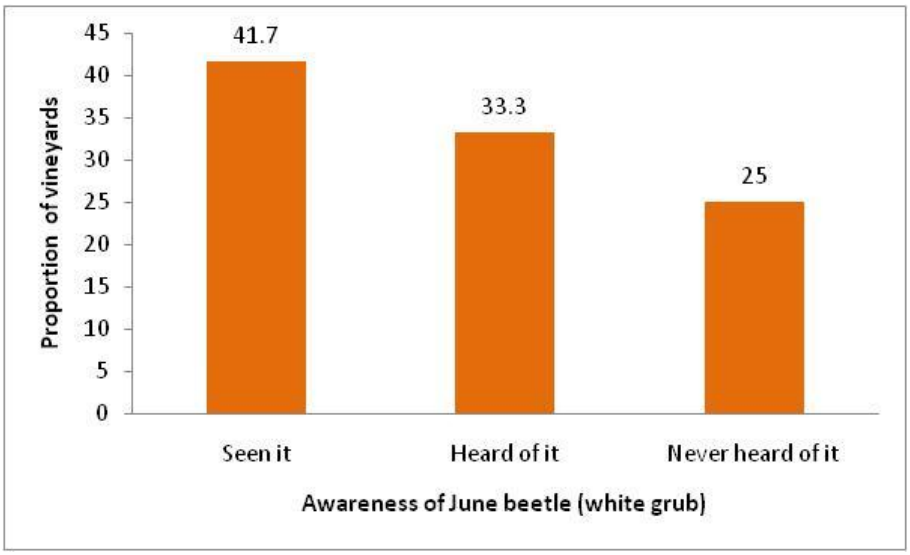

50
45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
46.1
46.1
7.7
Seen it
Heard of it
Never heard of it
Awareness of European red mite

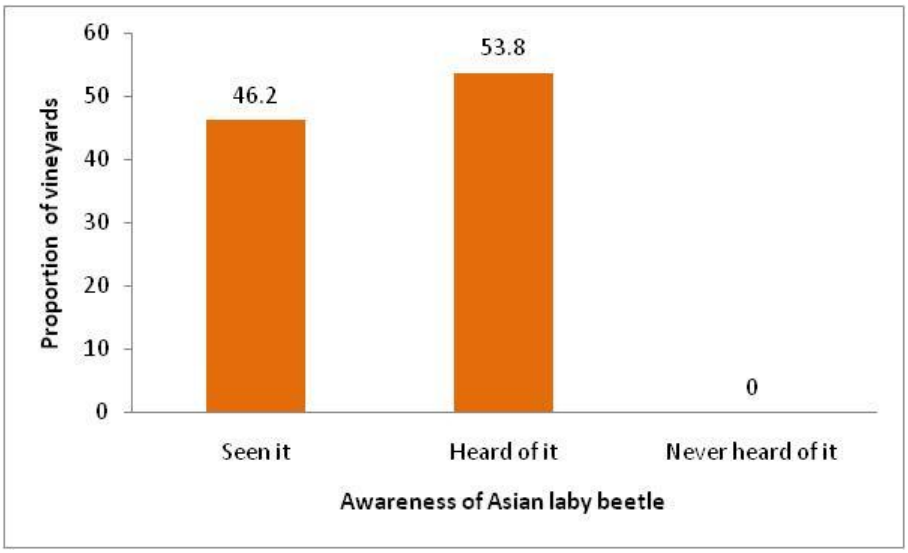

50
45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
38.5
15.4
46.1
Seen it
Heard of it
Never heard of it
Awareness of grapevine scale

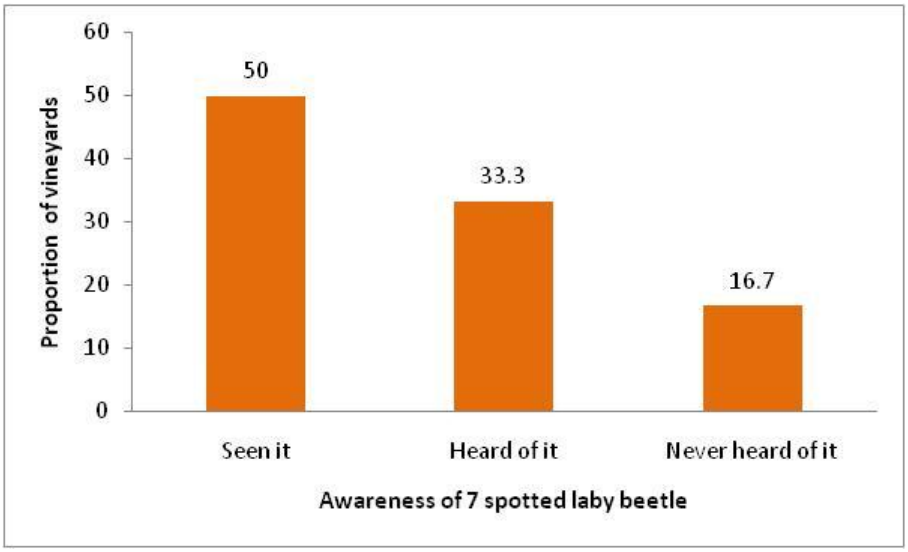

60
50
40
30
20
10
0
Proportion of vineyards
7.7
53.8
38.5
Seen it
Heard of it
Never heard of it
Awareness of thrips

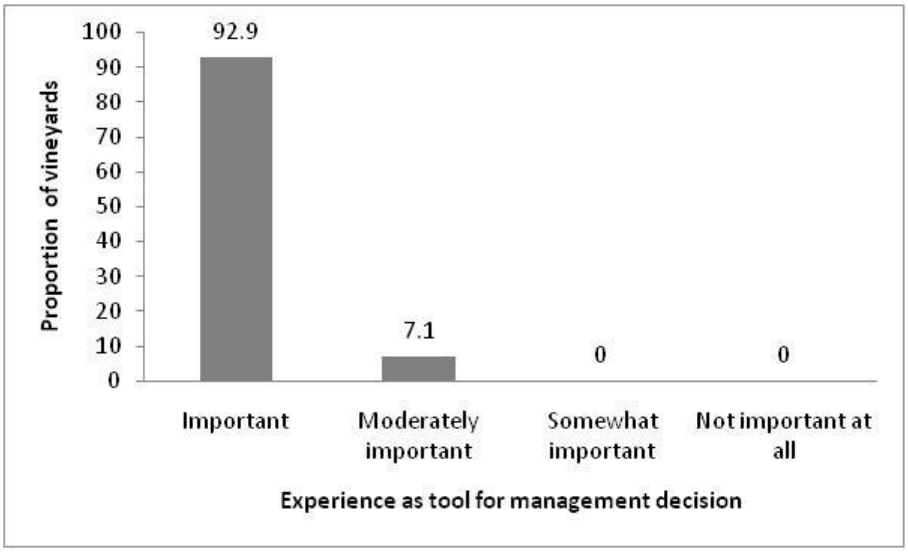

50
45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
15.4
46.1
38.5
Seen it
Heard of it
Never heard of it
Awareness of armyworms

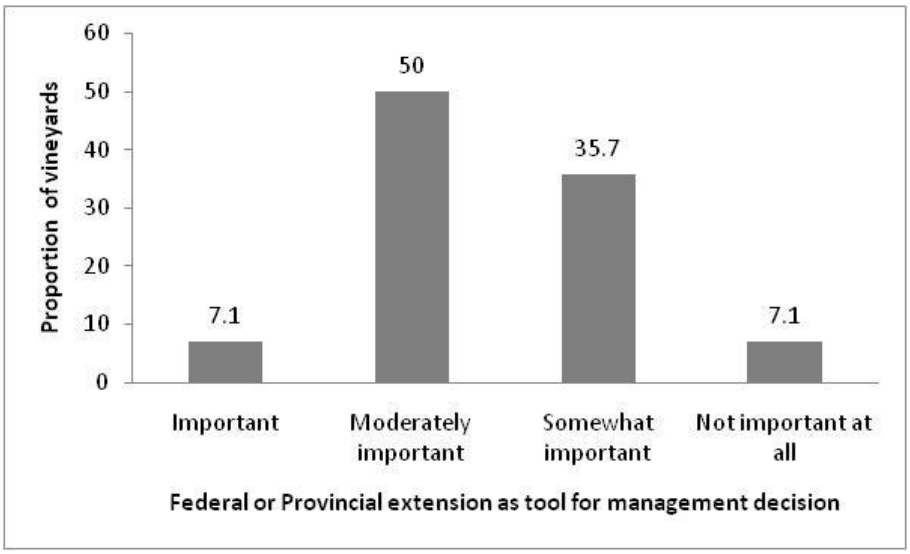

100
90
80
70
60
50
40
30
20
10
0
Proportion of vineyards
92.3
7.7
0
Seen it
Heard of it
Never heard of it
Awareness of blackvine weevil

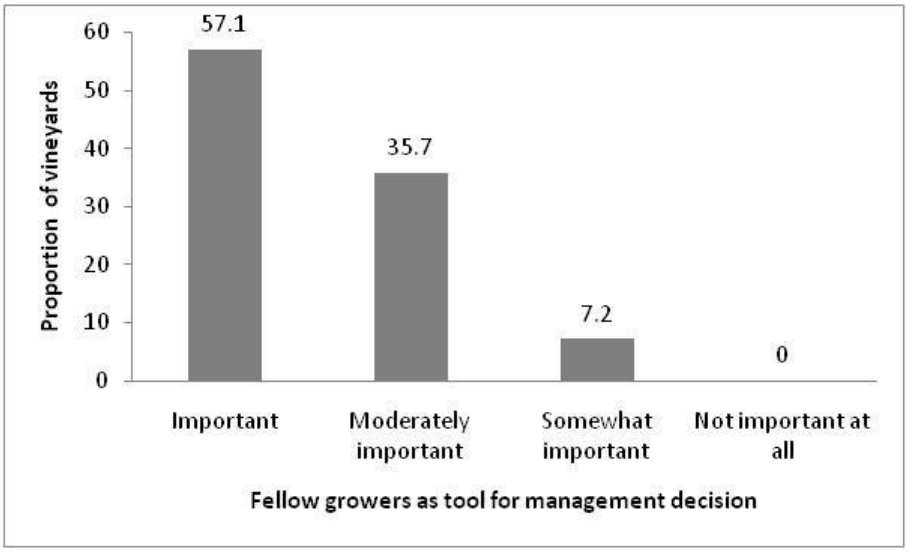

45
40
35
30
25
20
15
10
5
0
Proportion of vineyards
41.7
33.3
25
Seen it
Heard of it
Never heard of it
Awareness of June beetle (white grub)

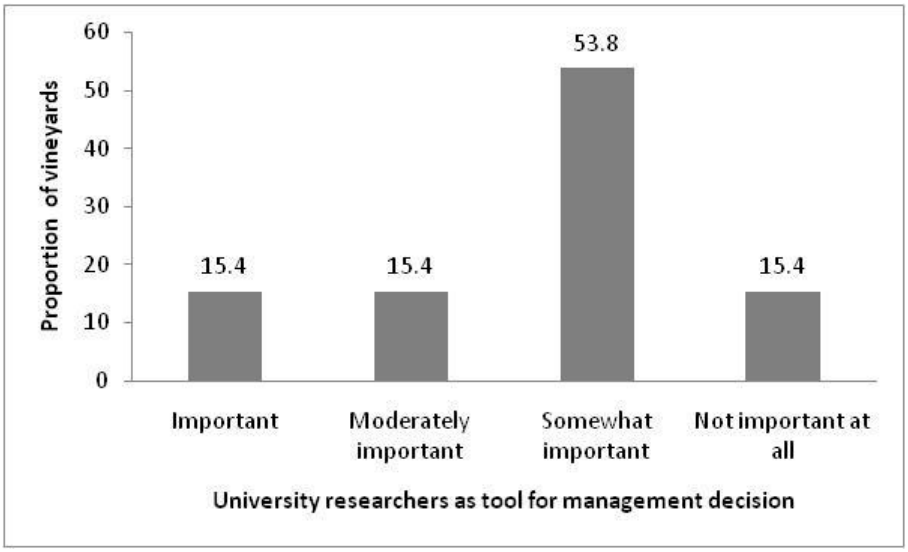

60
50
40
30
20
10
0
Proportion of vineyards
46.2
53.8
0
Seen it
Heard of it
Never heard of it
Awareness of Asian laby beetle

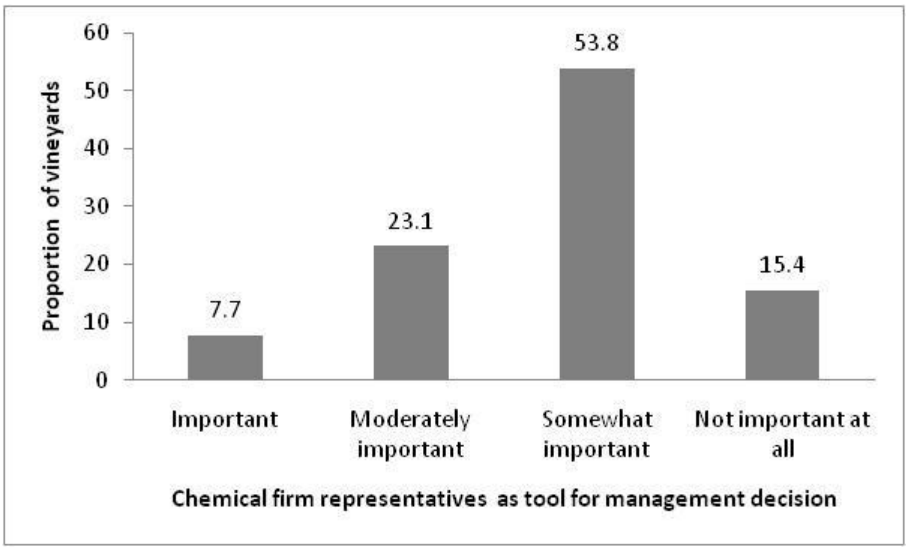

60
50
40
30
20
10
0
Proportion of vineyards
50
33.3
16.7
Seen it
Heard of it
Never heard of it
Awareness of 7 spotted laby beetle

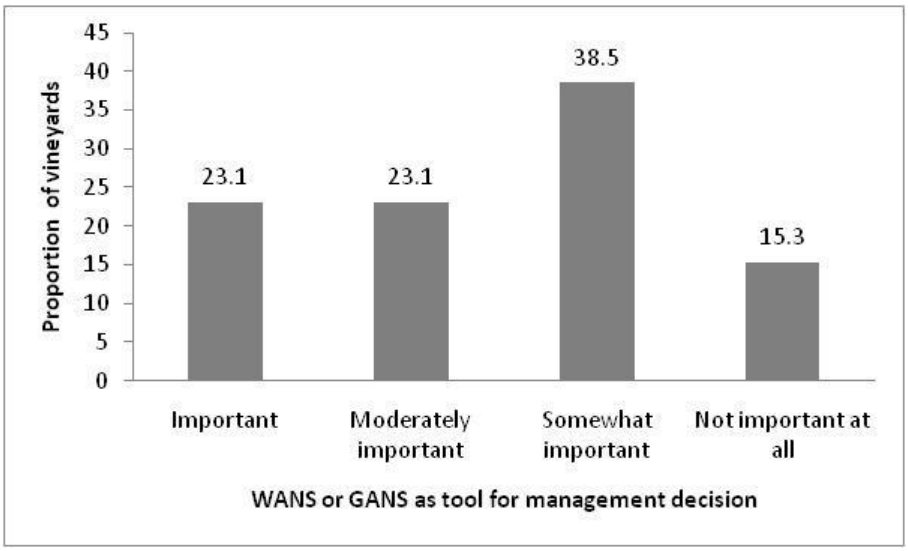

100
90
80
70
60
50
40
30
20
10
0
Proportion of vineyards
92.9
7.1
0
0
Important
Moderately important
Somewhat important
Not important at all
Experience as tool for management decision

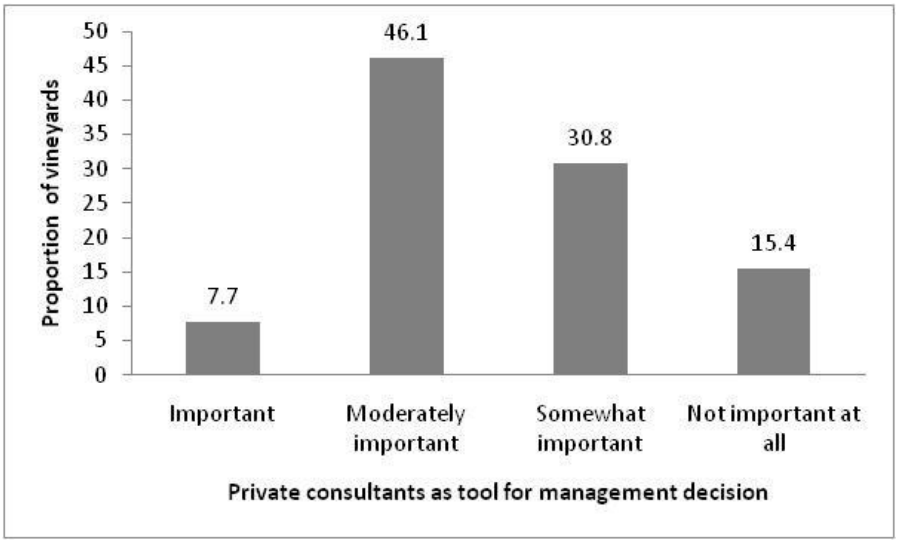

60
50
40
30
20
10
0
Proportion of vineyards
50
35.7
7.1
7.1
Important
Moderately important
Somewhat important
Not important at all
Federal or Provincial extension as tool for management decision

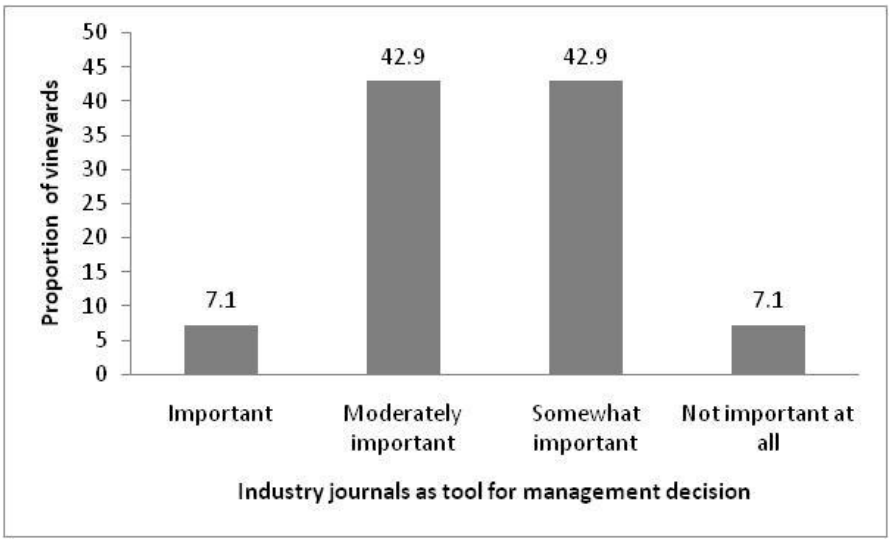

Proportion of vineyards
60
50
40
30
20
10
0
57.1
35.7
7.2
0
Important
Moderately important
Somewhat important
Not important at all
Fellow growers as tool for management decision

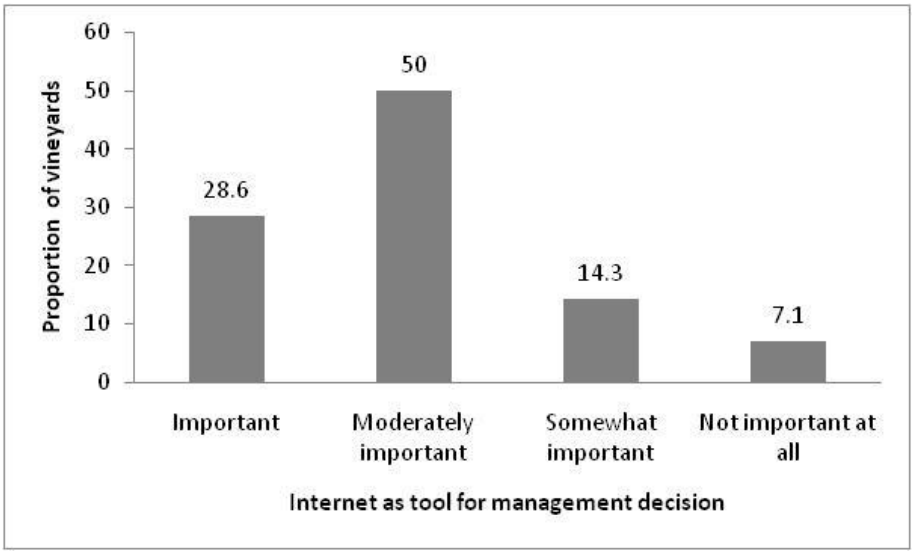

Proportion of vineyards
60
50
40
30
20
10
0
15.4
15.4
53.8
15.4
Important
Moderately important
Somewhat important
Not important at all
University researchers as tool for management decision

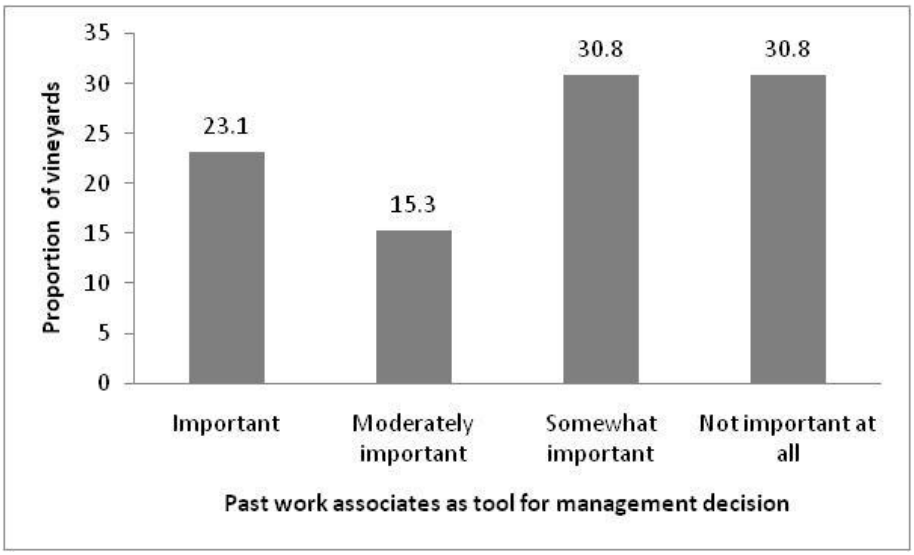

Proportion of vineyards
60
50
40
30
20
10
0
7.7
23.1
53.8
15.4
Important
Moderately important
Somewhat important
Not important at all
Chemical firm representatives as tool for management decision

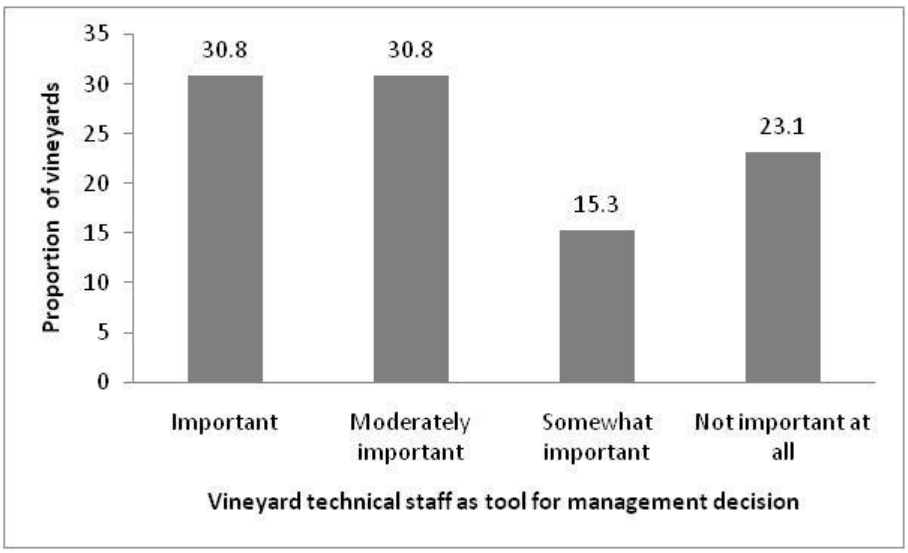

Proportion of vineyards
45
40
35
30
25
20
15
10
5
0
23.1
23.1
38.5
15.3
Important
Moderately important
Somewhat important
Not important at all
WANS or GANS as tool for management decision


Proportion of vineyards
50
45
40
35
30
25
20
15
10
5
0
7.7
46.1
30.8
15.4
Important
Moderately important
Somewhat important
Not important at all
Private consultants as tool for management decision


Proportion of vineyards
50
45
40
35
30
25
20
15
10
5
0
7.1
42.9
42.9
7.1
Important
Moderately important
Somewhat important
Not important at all
Industry journals as tool for management decision


Proportion of vineyards
60
50
40
30
20
10
0
28.6
50
14.3
7.1
Important
Moderately important
Somewhat important
Not important at all
Internet as tool for management decision


Proportion of vineyards
35
30
25
20
15
10
5
0
23.1
15.3
30.8
30.8
Important
Moderately important
Somewhat important
Not important at all
Past work associates as tool for management decision


Proportion of vineyards
35
30
25
20
15
10
5
0
30.8
30.8
15.3
23.1
Important
Moderately important
Somewhat important
Not important at all
Vineyard technical staff as tool for management decision