

## Project: Vines with short shoots

### Background

The short shoot project was initiated after a large number of Marlborough grapegrowers reported a high incidence of vines with short, weak-growing shoots in the spring of 2004.

A number of issues could arise from stunted growth. These include:

- inability of affected vines to carry adequate crop loads during the season
- inability of affected vines to ripen the fruit they do carry
- increased variability in fruit ripening
- poor cane choice for the next season and, hence, a carry-over effect on crop quantity and quality in subsequent seasons
- spread of the symptoms (if they are pathogenic) to other vines in subsequent seasons
- adverse and uninformed publicity about an unknown “problem” with Marlborough sauvignon blanc

After discussion with industry and local researchers, three hypotheses were developed as potential causes of restricted growth:

1. That the cause(s) was the result of pathogens. In this case it was hypothesised that vines would express similar symptoms between seasons.
2. That the cause(s) was largely physiological - for example, a lack of carbohydrate reserves following a high crop. In this case, it was hypothesised that over-cropped vines would show stunted growth symptoms in the following season, whereas after a low crop they would not. In this case, the symptoms of poor growth should not persist from season to season on individual vines, but may become apparent on “healthy” vines in the same vineyard, reflecting over-cropping of those vines.
3. That pathogens were debilitating the vine, effectively over-cropping it even at relatively low yields.

### Key results from this year

At three of the five sites studied, the number of vines with short shoots decreased in 2005. Many of the vines in the second season of the study could not be distinguished from the surrounding vines (Figures 1 and 2). At one site, the number of vines with short shoots increased, but very few vines had short shoots in both seasons. At the fifth site, the number of vines with short shoots increased and almost all the vines with short shoots in 2004 were also short in 2005. The same symptom of short shoots, seemed to be the result of different types of stress on the young vines. Each site seemed to have a different set of conditions that led to the short shoot symptom. This meant that at least one example of each of the three hypotheses was observed.

The main outcome of the research and discussion with industry partners was a set of recommendations and comments for growers with young vines on how to avoid short shoot symptoms. These were:

1. Prevention of short shoots is best achieved by not stressing young vines the year before.
2. Growers need to make use of the expertise of consultants and viticulturists to answer vineyard problems.
3. Short shoots are likely to be the result of different stresses at different sites.
4. Young plants are particularly susceptible to stress. This should be reduced as much as possible.
5. Growers should remember that different rootstocks have different irrigation management requirements. Water stress during establishment can be a major source of problems for young vines.

### Publications

- Article written for *New Zealand WineGrower*

### Key funding source

- New Zealand Winegrowers

### Key staff involved

- Dion Mundy  
HortResearch Marlborough

### Contact

dmundy@hortresearch.co.nz

Figure 1: Short shoot grapevine Site 1 November 2004



Figure 2: Short shoot grapevine Site 1 November 2005

