LEAFROLL CONTROL STRATEGY

5. SPREAD OF LEAFROLL DISEASE IN SOUTH AFRICA

5.3 Random occurrence of leafroll in young vineyards

A third spatial pattern observed during the study is the presence of randomly distributed leafroll infected grapevines (or foci of grapevines) within young vineyards (Fig. 1).

This may be due to primary spread (brought from outside the vineyard) due to the establishment of planting material already previously infected by leafroll disease.

It could also be due to secondary spread (spread within the vineyard) from a) leafroll infected volunteer grapevine plants, or b) leafroll infected roots left behind in the soil, or c) virus carrying mealybugs retained in the soil, all from a previous leafroll infected vineyard at that site.

The random spread of infected plants can be ascribed with certainty to infected planting material only when found in newly established vineyards on formerly virgin soils or where the presence of these random foci of infection can be correlated with a specific clone/rootstock combination at that site (Fig. 1).

Figure 1: Aerial image of distribution (red diamonds) of leafroll infected grapevines detected by ELISA one year after establishment of the vineyard. (Image: G. Pietersen, ARC-PPRI)

Random distribution of infected grapevines due to a) leafroll infected volunteer grapevine plants, or b) leafroll infected roots left behind in the soil, or c) virus carrying

mealybugs retained in the soil, all from a previous leafroll infected vineyard at that site is difficult to confirm, and generally requires a difference of parts of the new vineyard to allow inferences to be made e.g. Figure 2, where an unusual random distribution of leafroll infected grapevines detected in half of one vineyard suggested that the origin of leafroll spread to a new vineyard was due to virus carrying mealybugs coming from the previous vineyard in that half.

Control of this means of spread requires control of the vector in the previous old vineyard, very thorough removal of all plant material (roots and canes) before establishing the new vineyard, and stringent vector control in the new vineyards.

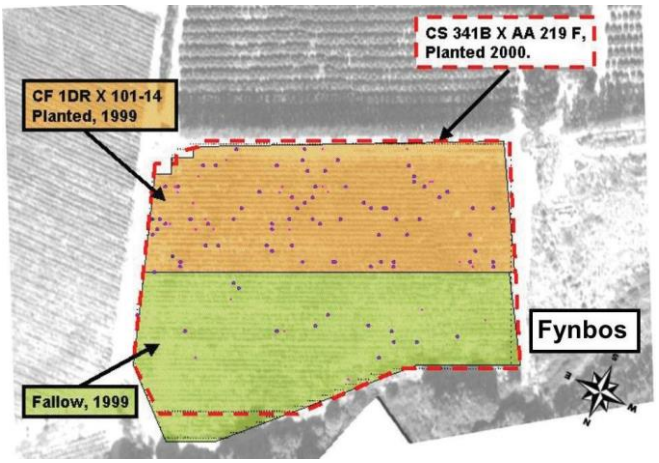

Figure 2: An example where random distribution of grapevines, differing in number, in two halves of a vineyard may be due to the reinfection of grapevines in the vineyard from mealybugs on infected remnant roots or volunteer plants, or surviving, virus-carrying mealybugs from the previous, removed vineyard. (Image: G. Pietersen, ARC-PPRI).

This research was funded by

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