Little Weeds Cost Big Money in New Vineyards. By Graham Due, Judy Eastham, Alfred Cass. Australian Grapegrower and Winemaker April 1999, p18-19.

Little Weeds Cost Big Money In New Vineyards

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Weeds severely affect young vines. Once affected, the set-back carries through the season into subsequent years resulting in delayed and reduced first crops. These crop losses severely damage the profitability of young vineyards.

In 1995, the CRC for Soil and Land Management began a trial in the Barossa Valley. The soils were mounded. Mounds, when properly managed, have low soil penetration resistance that enables young roots to penetrate the soil and grow easily. Young vines thrive under these conditions.

The mounds were given three treatments: bare soil, mulch, and rye grass. The rye grass was planted in winter and sprayed with glyphosate on September 7. Vines were planted two weeks later on September 20. Two weeks after planting, the rye grass was not dead and glyphosate was reapplied. The rye grass then died.

Such a delay in achieving effective weed control is not uncommon in many commercial vineyards. Indeed, in some it is even tolerated. But the results of this accidental trial (presented below) clearly indicate the devastating impact of this kind of weed competition.

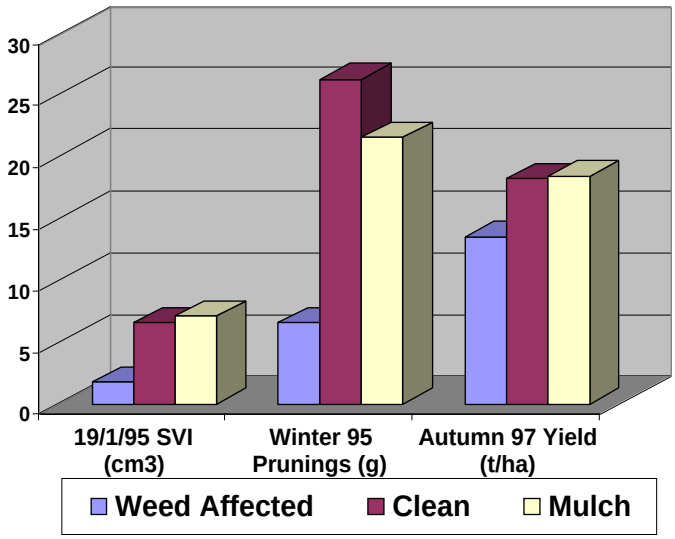
Just sixteen weeks after the vines were planted, on January 16, the vines had already been drastically set back. Out of 36 vines, six had died as a result of weed competition, compared with none in the "clean" and mulched treatments.

Shoot growth was assessed as "shoot volume index" (SVI), which is the product of basal area and shoot length. Of the 30 remaining vines in the weed affected treatment, SVI was just one quarter that of the 30 best vines in the "clean" and mulched treatments! (Taking the 30 best vines in each treatment is a simple way of dealing with the six deaths in the competed treatment).

This 75% loss of shoot growth carried right through the season: winter pruning mass for the weed affected vines was 6.5 g, compared with 21.6 g for mulched vines and 26.3 g for clean vines.

Perhaps the most alarming fact is that the effect of two weeks of weed competition in spring 1994 was still being felt at the first harvest in autumn 1997. Yield was 5 t/ha less in the weed affected vines: 13.5 t/ha, compared to 18.2 t/ha (clean) and 18.4 t/ha (mulch)!

Fig 1. Losses of several tons per hectare result from even brief lapses in weed control during the first year of a young vineyard.



This case illustrates the drastic effect of a two week delay in achieving good weed control. Just sixteen weeks after planting, shoot growth was already reduced to one quarter of its potential. The reduction persisted through the summer and autumn: winter pruning weights for the affected vines were one quarter of others. Two years later, the first crop of the affected vines was 5 t/ha less than weed-free vines.

These results show very clearly how competition from weeds for just a few weeks ended up costing 5 t/ha 30 months later!