compost for soils

Viticulture

Compost for Vineyard Renovation

Deep ripping and mounding are two common techniques that growers can use to renovate their soil in established vineyards. Using compost in conjunction with ripping and mounding can provide significant benefits. Compost can help to reduce some of the negative side effects of these techniques, whilst maximising their benefits.

Incorporating compost at ripping can prevent your soil from re-welding and make your renovation last much longer

Ripping

Deep ripping is often used as a means to increase vine root growth by breaking up compacted soil layers. Often when ripping is undertaken, soil moisture levels are ideal at the depth of ripping but the top soil can be too dry and suffer damage. To help combat this problem, compost can be added on the rip line and incorporated by discing. Applying compost at a rate of 5-10t/ha on the rip line will help your soil recover after ripping. It is also recommended that compost should be spread evenly across the mid-row at ~8t/ha and incorporated as deeply as possible - a cover crop should be established immediately to further stabilise the soil.

A rapid decline in soil structure is often seen after ripping has taken place, and this can be due to the re-welding of the soil fragments that are produced through ideal ripping (5-25mm diameter fragments). Re-welding can be prevented by placing a physical barrier between the fragments – and here is where compost can be of benefit. Applying 5-20t/ha of compost and mixing it in with the soil can help you avoid re-welding of your newly renovated soil. This will ensure that your renovation effort has not been wasted and will last much longer!

It is important that the ripping process is carried out correctly – compost can't help your renovation where ripping has produced dust and/or fragments less than 7mm in diameter. With a smaller particle size, there are many more contact points between soil fragments and more opportunities for re-welding than compost can alleviate.

Mounding

Mounding is a technique used to increase the volume of soil suitable for vine root exploration. In some cases this can be achieved using compost mulch without the need for mounding.

Compost mulch protects the soil surface and moderates fluctuations in soil moisture and temperature which increases the amount of top soil that is suitable for vine growth. The added benefit of reduced soil strength that mulch provides also means that the depth of the root zone is extended, allowing for optimum growth of fine vine roots.

Compost mulch may help you achieve your goal of increasing the soil volume for optimum vine growth, without the costly expense of mounding. Increasing your soil volume through deep ripping, to break up compacted layers, and the application of compost mulch should be your first option.

Mounding soil increases the surface area which is exposed to the atmosphere and creates large pores throughout the mound and at the soil surface. This results in increased evaporation of soil moisture – which is not a good outcome. Applying mulch to the mounded surface reduces evaporation, increases surface moisture content and cools the surface layers during the growing season.

The mulch layer also prevents the collapse of the large pores on the mound surface and prevents the formation of a surface crust.

Compost can increase the volume of soil available for root growth – mounding may not be necessary

The effect of compost mulch on soil moisture is more pronounced on mounded soils than on a flat surface.

Compost can be incorporated into the mounded soil for additional benefits. In cases where 60-100t/ha of compost (5% dry matter) was mixed with mounded soil or soil where the A1and A2 horizons had been mixed – root length was significantly higher than when no compost had been incorporated.

Soil structure and stability of the mounded soils with compost was significantly better - even after all signs of visible organic matter were gone at the end of the second season, the mounded soil with compost had remained friable throughout. More research is needed to determine more commercially acceptable application rates, but the signs are promising that compost incorporation in mounded soils can significantly enhance your renovation operation.

Reduce evaporation, increase surface moisture and prevent collapse of large pores in soil by applying mulch to mounds. This stops the formation of a surface crust and saves you water!

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