

COMPOSTING AT CASELLA

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I work for a company called Casella Family Brands, which is the largest single winery in the Southern Hemisphere and one of the biggest in the world. Casella crush over 10% of Australia's grapes each vintage at its Yenda winery.

Grapes come to the winery from around 300 growers and our own vineyards.

Grapes are tipped into bins at the receival area where they are augured into the crushers. There are 4 crusher/destemmers at this location, each capable of processing 90-100 tonnes per hour.

A perforated cylinder inside each crusher has a shaft through the centre with rotating metal paddles that to the processing area.

The stalks move through the cylinder to a conveyor transporting the stalks to a large holding bin.

White grapes move straight to an airbag press where the skins are separated from the juice. Red grapes are transported to fermentation tanks with the skins, to undergo fermentation. White wines are mostly fermented as clean juice (no skins).

After fermentation of red grapes, the skins are pressed after the free run juice is drained off. All skins white and red, are then taken to the Tarac distillery at the nearby village of Beelbangera, where they are processed to produce ethanol.

The stalks (2% -75t of last year's intake 177kt) are transported from the winery to our water recycling property 3 kms away, to be converted into compost.

The composting mixture for Casella vineyards contains the stalks, spent grain from our brewery on site, and white sludge containing filter material such as perlite, diatomaceous earth, and dry residue (belt press) from the water recycling process.

Each truck load of stalks is spread on the ground and would be 6 – 8 feet in height. A loader with a large bucket spreads 3m³ of the Brewers Spent Grain (BSG) over the heap. About 1m³ of the white sludge is then spread over the top.

The heaps are wet in the morning and mixed in rows in the afternoon using a large compost turning attachment. This is continued until the compost is well mixed, then stockpiled. It is spread along the vine rows in September, well before budburst.

Brewing removes the soluble part of the spent grain, thus concentrating insoluble material in Brewer's Spent Grain. This includes **15–26% protein and 35–60% fibre on dry basis**. Even though BSG contains significant levels of valuable protein and fibre, its main application is animal feeding, particularly cattle and thoroughbred horses. But it is a waste product for us, so we use it.

We use it in our compost as BSG is considered a rich source of fibre, protein, and phenolic compounds. Even though chook manure is readily available in the area, we use the spent grain as it is readily available and part of our recycling strategy.

The phenolic acids present in BSG are hydroxycinnamic acids (ferulic, p-coumaric, and caffeic acids), which have many biofunctions, such as antioxidant, anticarcinogenic, anti-atherogenic, (stops plaque forming in arteries) and anti-inflammatory activities.

The BSG is composed of **6.19% moisture, 4.01% ash, 8.80% crude fat, 16.80% crude fibre, 21.86% crude protein, 42.30% carbohydrate, 2.57 mg/g calcium, 3.16 mg/g magnesium, and 7.34 mg/g potassium.**



Some of the dry waste mentioned were:

PERLITE is a generic name for a naturally occurring siliceous volcanic rock. A unique property of perlite is that it expands up to twenty times its original volume when it is heated to its softening range.

DIATOMACEOUS EARTH consists of fossilized remains of diatoms, a type of hard-shelled algae. It is also known as **diatomite** or **kieselgur/kieselguhr**, is a naturally occurring, soft, siliceous sedimentary rock that is easily crumbled into a fine white to off-white powder.

Some vineyards have a cover crop of oats or cereal sown between vineyard rows in autumn. The crop is mowed, and the green matter spread along the vine rows about the time of vine budburst (Griffith about October). The mowing provides nitrogen to the soil and the cover reduces competition (weeds) for soil moisture and nutrients while lessening the risk of frost damage.

On Monday, 9 May 2022, Casella Family Brands announced that they will seek a strategic partner to own and operate a selection of its vineyard holdings in NSW and South Australia. Vineyards that feature established global wine brands will be retained. 5650Ha planted vineyards plus 1608Ha supporting land and property. 1700Ha retained. SPV Southern Premium Vineyards – Parent Company Canadian Public Sector Pension Board (PSB investments).

We'll still take grapes from the local contracted growers at our NSW and SA wineries.

That's about where we're at today and I want to thank you for inviting me to speak at the roadshow. It's been very interesting.