



## Mulch affects the growth of newly planted blueberries

### Blueberry establishment

This article describes how surface mulches and water storage crystals affect the growth of young blueberries in their first year.

#### Why is the establishment year so important?

##### •Cost

Blueberry plants cost around \$5 to \$6 each, take around 7 years to reach full production and can remain productive for around 30 years. With this level of investment in time and money, it is important that the young plants get the best start to create the best framework for the future

##### •A time of maximum vulnerability

A young blueberry plants has a small root volume. Its roots may also have been fumigated if it came from mainland Australia. This plant is vulnerable, living in the top 10 to 15 cm of soil. The surface soil can heat up and dry out rapidly. Mulching aims to buffer this zone against rapid changes in temperature and moisture. Water storage treatments should provide a reservoir of water close to the young plants roots.

#### Location

The site is Grove Research Station in the Huon Valley of Tasmania. It is an old orchard that has grown weedy pasture for a few years. The top soil is a sandy clay loam with a pH of 6.6 and organic carbon level of 1.8. This is NOT ideal blueberry growing soil. Blueberries prefer a pH under 5.5 and high organic matter levels.

#### Management

**June 2008:** Sulphur incorporated at a rate of 1 kg/m<sup>2</sup>. Aged sawdust at 330 m<sup>3</sup>/planted ha incorporated into the soil.

**May 2009:** 18 month old Brigitta blueberry plants were planted in 2 rows, each of 100 plants at 1.1m plant spacing and 3m between the rows.

### Treatments

#### **Compost**

Commercial compost (pine bark composted with horse, chicken and cow manure ) with a neutral pH applied to a depth of 10 cm over 1 m wide bed

#### **Sawdust**

Aged hardwood sawdust (10 years +) applied to a depth of 10cm over 1 m wide bed

#### **Weed Gunnel**

A commercially available degradable black polypropylene weed mat, permeable to air and water, 1.4 m wide

### Sub Treatments

#### **Hydrocell**

A commercially available produce 'Fytogreen hydrocell' was applied at a rate of 500 ml per plant into the planting hole.

#### **Water Crystals**

The commercially available product 'Gard'n'grow water crystals' were applied at a 60 g/plant into the planting hole.

#### **No treatment**

No water storage treatment applied (control).

### What was measured?

Plants were assessed in March 2007, 10 months after planting. The height of the tallest stem of each plant was measured and a count of the number of stems greater than 40cm was recorded. Weed infestation was based on the proportion of a 1m grid around each plant that was covered by weeds. In August 2007, a representative plant from each treatment was dug up to view root development.

### What happened?

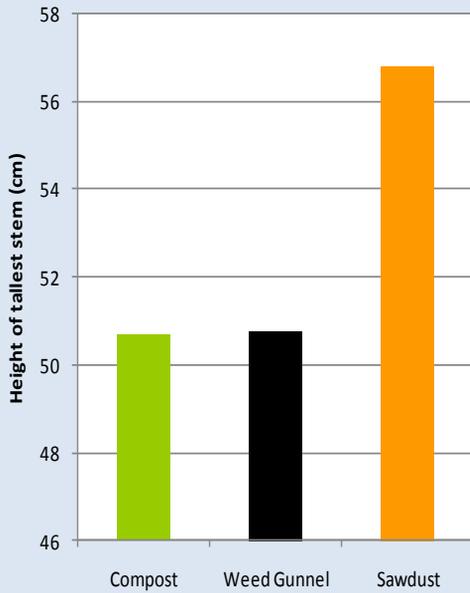
#### Blueberry Vigour:

The blueberry plants grew significantly taller and had significantly more stems when grown using sawdust mulch.

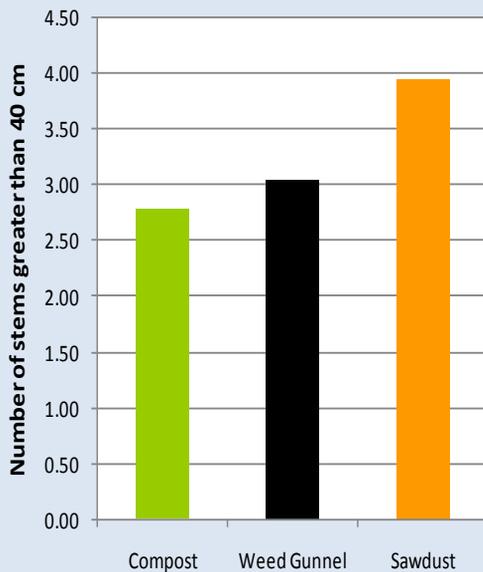
#### Weeds:

The weed coverage was significantly less in the sawdust treated plots compared to both weed gunnel and compost. Although the weed gunnel prevented weeds from growing up through the area covered by the matting, weeds from outside this area, particularly wireweed, were able to grow over the weed gunnel. In some cases, completely covering it.

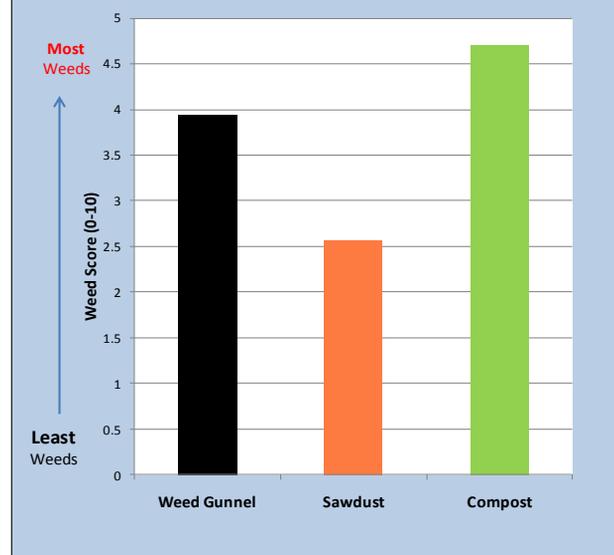
Effect of mulch on blueberry height



Effect of mulch on the number of blueberry stems



Weed infestation levels





1 Compost roots



2 Weed mat roots



3 Sawdust roots

*Root development:*

A visual observation of root development showed a much broader and extensive root development under the sawdust treatment. The roots under compost appeared as an inverted 'V' shape.

*Water storage amendments:*

Neither Hydrocell or water crystals had any significant effect on blueberry growth, but it did rain a lot! In fact, rainfall was 33% above average for the year (2009) with most falling from May to October with slightly below average rainfall in November and December.

*What does this all mean?*

***Mulching with aged sawdust had a very beneficial effect on the growth of young blueberry plants.***

Even though sawdust had been incorporated to all plots prior to planting, the addition of a surface sawdust mulch greatly improved blueberry root and shoot growth. The inverted 'V' shape of the compost plant roots may mirror water distribution from the individual dripper. The compost, although appearing excellent in the lab analysis, was quite coarse textured with large chunks of pine bark. The physical structure of the compost compared to the sawdust may have had a substantial impact on how well each performed. The blueberries indicated their preference for the finer sawdust mulch which possibly gave a better water distribution. Maybe this could also have been achieved with closer spaced drippers.

**In defence of compost**, not all composts are the same and it highlights the need to understand the properties both physical and chemical of any compost you intend to use. Composts can only be as good as what you put into them.

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