

# Can Tedera Supply Sheep Feed on Gutless Sand?



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## Key messages

- Tedera is a new forage species in development to be commercialised in coming years. This plant has been growing on Buntine sandplain for 6 years but has never been previously tested on poor gutless sand.
- 96% of seedlings have survived the first 3 months after transplanting however, by December (5 months after planting) there were no green leaves on the plants and small plants had died.
- It is unclear to why the plants now have no foliage. It is probably a combination of leaf drop due to drought stress and damage from locusts, rabbits and/or kangaroos.
- The Tedera plant material used in this demonstration was from an early, experimental stage of the project and there has now been a breeding program established to develop improved, commercially viable cultivars for the future.

## Aim

- To determine how much green feed forage tedera can produce on pale sandy soil.
- To determine if growing tedera can increase amount of soil organic carbon in pale sandy soil.

## Background

During a worldwide search for a drought tolerant plant to supply WA farmers with sheep feed during the autumn feedgap a team from the future farm industries CRC found a perennial forage legume in the Canary Islands. This plant persists with rainfall of 150mm and 3-5 months with no rainfall.

Since 2006 research on Tedera (*Bituminaria bituminosa* var. *albomarginata*) has been conducted at West Buntine on the Liebe Long Term Trial site where it has undergone grazing trials and shows excellent ability to produce green foliage in the middle of summer. However, the soil type at our Buntine site is good pear tree country where the economic returns are greater for crop production than perennial forage/sheep production. Growers wanted tedera put through its paces on land that was less suitable for cropping. An area of pale deep sand on the Martin's property near Watheroo was chosen to determine the plants suitability and ability to increase the soils organic carbon.

## Trial Details

<b>Property</b>	Martin Family, Watheroo
<b>Soil type</b>	Pale deep sand
<b>Soil pH (CaCl<sub>2</sub>)</b>	Topsoil: 5.2      Subsoil: 4.5
<b>EC (dS/m)</b>	0.03
<b>Sowing date</b>	15/08/2013
<b>Seeding rate</b>	10 kg/ha
<b>Soil amelioration</b>	15/08/13 1 L/ha Wetting agent irrigator after planting
<b>Fertiliser</b>	None
<b>Paddock rotation</b>	2010 to 2012: Pasture/weeds mainly ryegrass, blue lupins
<b>Herbicides</b>	Knockdown before planting 1.5 L/ha Roundup DST, ammonium sulphate and Li700
<b>Growing Season Rainfall</b>	257mm

## Comments & Observations

Seed and transplanted seedlings were planted on 15<sup>th</sup> of August 2013. Seeding rate was 10 kg/ha. By the beginning of October the seeds had germinated well. The smallest plants were the size of a 50c piece, the largest twice this size. Of the 64 tedera seedlings planted only 2 had died. This equates to a survival rate of 96% for the first 3 months. However, by 4<sup>th</sup> of December all the seedlings appeared to have lost their leaves and many of the smaller plants had died. This could perhaps be explained by grazing damage from locusts, kangaroos or rabbits, however, dead and dry leaves were observed in proximity to the plants which suggests that the foliage may have been shed by the plants as a response to water stress in the non-wetting soil. Plants were hand watered on 11<sup>th</sup> of December in an attempt to resurrect the plants.



**Figure 1:** Tedera seedling when planted in August 2013.



**Figure 2:** Seedling on 4<sup>th</sup> December, alive but without any foliage.



**Figure 3:** Potential of tedera, this well established plant is at the Liebe Long Term site in Buntine.

## Future plans

There is still relatively little known about how this plant will fit into the farming system and research is continuing across the state to find out more. Observations at this site will continue to see if the plants are able to grow back the grazed leaves and survive the summer. At the end of 2014 plants will be cut to determine the amount of sheep feed they are capable of producing and surrounding soil tested for organic carbon to determine if the plants have contributed to improving the soil.

Note that the Tedera plant material used in this demonstration was from an early, experimental stage of the project and there has now been a breeding program established to develop improved, commercially viable cultivars for the future.

## Acknowledgements

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**Paper reviewed by:** Simon Crane, Seednet

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