

MISCANTHUS

Miscanthus is related to sugarcane. A perennial sterile plant, it grows 3 - 4m high annually. Once established, annual harvesting is the only input needed. At the first frost, Miscanthus transfers nutrients from its leaves to its rhizomes readying them for regrowth in spring. Miscanthus needs little fertiliser. Its roots can extend to 2 metres depth.

Miscanthus has the ability to intercept nitrogen that would otherwise leach from the soil. A hectare of Miscanthus also annually removes more CO₂ from the atmosphere than a hectare of pine trees.

Miscanthus can be harvested using conventional agricultural equipment. The commercial life span of a Miscanthus stand is at least 25 years.



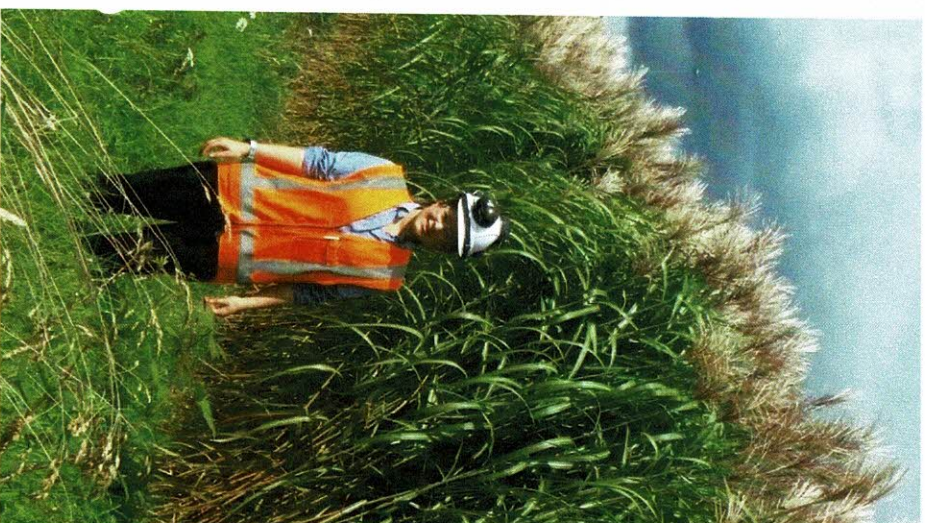
Miscanthus in the Waikato – April 2016

Where to Grow

Miscanthus can grow throughout New Zealand. At 1m square spacing it takes approximately 3-5 years to reach full production. Commercial production starts in year 2. Miscanthus does not require a high quality soil to grow but does benefit from adequate rainfall.

Miscanthus Uses

Miscanthus has many uses and can be grown with its end use predetermined. It requires little input after the first two years.



Miscanthus in Autumn

Plant Mulch

Miscanthus mulch is very effective, boosts earthworm populations, can be organically certified and contains no weed or other seeds.

Stock Nutrition

The potential benefit of Miscanthus for stock feed is being assessed. So far this looks promising. Trials of Miscanthus for feed production are being carried out by the Foundation for Arable Research.

Animal Bedding

Miscanthus is used for high quality race horse bedding. It can last 8-12 weeks with no turning and minimal spot top-up. Only removal of the droppings is needed. There is no ammonia smell even beyond 8 weeks. Dust is extracted during manufacture. It has been shown in the UK to significantly reduce mastitis infection in lactating dairy cows. It makes excellent bedding for chickens.

Boiler Fuel

Miscanthus is an excellent source of boiler heat. Commercial customers are currently assessing the use of miscanthus to replace or coal. Demand for this use will require extremely large quantities of Miscanthus.



May 2013 after the Hawkes Bay drought

Renewable Diesel

Miscanthus can be used to produce renewable diesel - a drop-in fuel that meets the NZ diesel fuel specifications. The renewable diesel technology also permanently sequesters about 15% of the biomass as high quality biochar—a co-product.

This high temperature Miscanthus biochar, is also showing promise in possibly increasing cattle growth rates while at the same time, reducing greenhouse gas emissions from these cattle. It has several other high value uses.

The renewable diesel process can produce wood vinegar (pyroigneous acid), heat and some CO₂, all being useful in commercial green houses.

Research

Lincoln University has shown that Miscanthus can be effective in providing shelter and increasing bio-diversity on farms. It does not impede travelling irrigators. This shelter increases downwind grass production. Miscanthus increases the soil's organic matter significantly. The deep tap root system of Miscanthus can also allow it to access deeper water or even the water table — helpful during droughts.

Miscanthus stands have been shown to reduce annual nitrogen leaching to less than 0.5 kg/ha even when irrigated with dairy factory effluent.

NOTES

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Miscanthus at Helensville in January

**Miscanthus
New Zealand
Limited**