

Grazing hemp: forage yield

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If we graze hemp when it's young, how much biomass yield will we get?

To answer that question, we sowed experiments in 2020 and 2021 at one site in the north west and one in the central north of Tasmania. These experiments included five different industrial hemp cultivars from a range of different origins. The hemp plants were cut to simulate grazing at both 3 leaf-pair and 5 leaf-pair stage, dried and weighed to calculate the biomass.

Forage yield

The forage yield for hemp was greater in older plants, with 5 leaf-pair stage plants producing 1.1-2.7 t/ha and 3 leaf-pair stage plants producing only 0.07-0.73 t/ha (Table 1). The yield did vary between cultivars (Figure 1), but each cultivar behaved differently at the two locations, suggesting that environmental factors and genetic factors together have an impact on the forage yield.

Exactly what environmental factors are causing this impact is unclear- they could include rainfall, temperature and soil type, or a combination of these factors.

Table 1: Forage yield (t/ha) from industrial hemp at 3 leaf-pair and 5 leaf-pair stage and from lucerne and white clover. Sources: Hemp data Penrose (unpublished); lucerne and white clover: Norman et al (2021) Grass Forage Sci 76:134-158. <https://doi.org/10.1111/gfs.12527>

	Hemp: 3 leaf pairs	Hemp: 5 leaf pairs	Lucerne	White clover
Forage yield (t/ha)	0.07-0.73	1.1-2.7	5.1-9.6	4.5-5.3

Comparison to other common forages

The forage yield of industrial hemp at these early growth stages is significantly lower than the other dicotyledonous forages, such as lucerne and white clover (Table 1).

However, these other forages have been bred specifically with grazing in mind, which the hemp cultivars have not. Also, the lucerne and white clover yields are from mature plants, rather than very young ones.

Grazing hemp when it is young as a forage-only crop is unlikely to be commercially viable due to this low yield. However, the potential for grazing it when it's young and then harvesting the grain at maturity is potentially viable, and makes use of the vegetative growth of the plants.

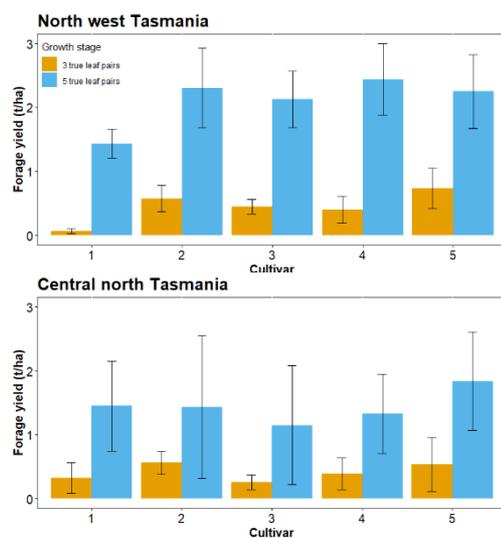


Figure 1: Forage yield of five varieties of hemp at 3 leaf-pair stage (orange) and 5 leaf-pair stage (blue) sown at sites in the north west and central north of Tasmania in 2020 and 2021. These are the combined data from both sowing years.

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