

Sunn Hemp – *Crotalaria juncea*

Sunn Hemp is an erect, herbaceous annual shrub. It is a summer legume crop with a well- developed taproot system. It is primarily used as a cover crop or as green manuring to improve the nitrogen status of the soil. It can also be used as a source of fibre, but has limited use as a forage crop. This is mostly due to the palatability, digestibility and alkaloid toxicity of the crop. It requires a minimum rainfall of 300 mm per annum.



Strengths

- Yields 5-18 t DM/ha/season
Depending on environmental conditions and management
- Drought tolerant
- Fixes high levels of Nitrogen
- Adapted to low fertility soils
- Suppresses nematodes
- Suppresses weeds

Limitations

- Not worth much as a forage crop
- Frost sensitive
- Disease and insect susceptible
- Intolerant of poor drainage



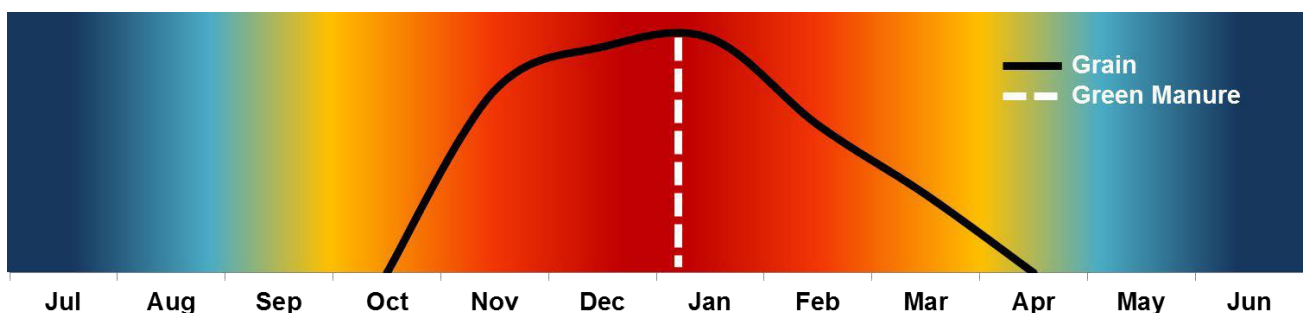
What can it be used for?

Cover Crop: Sunn Hemp is a legume and fixes atmospheric N. It also improves soil quality by suppressing nematodes, adding organic material, preventing erosion, conserving soil moisture and recycling nutrients. It also extracts some heavy metals and suppresses diseases in the soil, and weeds on the surface.

Fibre crop: Twine, cord, pulp, paper and other products.

Forage: Although most livestock species find this crop unpalatable, game will consume it readily. The palatability can be improved with salt.

Production potential: This fast growing crop can yield 2 t DM/ha when cut at 6 – 8 weeks after planting and 5 t DM/ha when cut at 10-12 weeks. Production as high as 18 t DM/ha/season can be expected if soil fertility, climatic- and management conditions are suitable (1, 2, 3).



Relative growth curve of a Sunn Hemp stand - one year cycle

Establishment

Climate: Adapted to hot, arid and semi-arid areas. Tropical and sub-tropical climates are more ideal.





- Moisture:** Under dryland conditions it requires at least 300mm per annum, but good moisture conservation and deep soils with good water retention will be beneficial. High production is achieved under irrigation, partly due to good Nitrogen fixation.
- Soil:** Does well on sandy soils or any well drained soil. A soil pH (KCl) levels > 5.5 is recommended for optimum P availability and survival of its bacterial symbionts. Has moderate salt tolerance.
- Fertilization:** Sunn Hemp is a legume and therefore fixes atmospheric N into a usable form of N. For this reason, no N need be applied when cultivating this crop. A soil analysis before establishment is essential (1,2,3).

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment	0	30	120
Seasonal application (kg/ha)	0*	NA	

*Fixed from atmospheric-N in symbiosis with *Rhizobium*

- Methods:** Establish on a firm, fine, weed free seed bed. Plant seed 1 – 2 cm deep or broadcast, followed by lightly covering it and good seedbed consolidation. Seed can be inoculated with bacteria (Cowpea strain) before planting. It is compatible with various *Rhizobium* bacterial species. Inoculating seed prior to planting can be beneficial but is not necessary.





Our prescribed seeding rate:	Rows (20-30cm) ^(1,2,3)	Broadcast ^(1,2, 3)
	25-50 kg/ha	35-60 kg/ha

Higher seeding rates are beneficial when material is to be incorporated within 6 – 8 weeks after planting. Higher seeding rates will also ensure thinner stems and therefore more rapid decomposition when used as green manuring or cover crop.

Planting time: The ideal establishment time for Sunn Hemp is in October and November, but plantings as late as January have been successful.

Management

Utilisation: Incorporate material into soil as soon as 6-8 weeks after planting or before it comes into full bloom and stems become too fibrous: between 10-12 weeks after planting in most cases.

Resources

1. Tillage Sunn: Sunn Hemp Warm Season Legume
2. Tropical Forages: http://www.tropicalforages.info/key/Forages/Media/Html/Crotalaria_juncea.htm
3. USDA-NRCS - Plant fact sheet- Sunn Hemp

