

White mustard – *Sinapis alba*

Black mustard – *Brassica nigra*

Mustard is a broadleaf, cruciferous, cool-seasoned annual economic cash crop that has a short growing season. Mustard cover crops are known for their rapid fall growth, great biomass production and nutrient scavenging ability. As a result, they are commonly grown in rotation with small grain.

Mustards are attracting renewed interest primarily because of their pest management characteristics. Most *Brassica* species release chemical compounds that may be toxic to soil borne pathogens and pests, such as nematodes, fungi and some weeds. The different varieties of mustard vary in physical appearance and can grow to heights of 75-115cm.





Strengths

- 400kg-1t DM/ha/season dryland
Depending on environmental conditions and management
- Pest management
- Erosion control and nutrient scavenging
- Suppress weeds

Limitations

- Sensitive to frost
- Black mustard is hard-seeded and could cause weed problems in subsequent crops

What can it be used for?

Cover Crop: Mustards are used as a Biofumigant as they contain high amounts of glucosinolates. When the mustard plant is incorporated in the ground and decomposition starts, glucosinolates are released into the soil.

Forage: Can be fed to cattle - given that certain precautions are taken. While these crops make palatable feed, cattle have to become accustomed to the taste. Mustard must only be fed on a dry matter basis.

Silage: Mustard hay or silage should consist of no more than 40 to 50 percent of the total feed intake. Silage pits can be filled with alternating layers of canola and cereals to diversify feed.

Production potential: Yields of 400kg-1t DM/ha/season can be achieved. This depends on a variety of factors such as type of cultivar planted, soil fertility, environmental conditions and frequency of utilisation.





Metabolic disturbances in animals on cultivated pastures:

When eaten in large quantities, the seed and pods have sometimes proved toxic animals

Establishment

- Climate:** Mustard is a cool season crop and does well in temperatures ranging from 12-22°C. Does not tolerate frosting.
- Moisture:** Grows well in areas receiving annual rainfall of 625mm-1000mm
- Soil:** Mustard can be grown on variable soil types with good drainage, but is best adapted to fertile, well-drained, loamy soils. This crop does not tolerate waterlogged soils.
- Fertilization:** Mustards need adequate Nitrogen and Sulphur - for glucosinolate production. Nitrogen (N) is essential for vigorous growth, high yield and quality of mustard.

	N (kg/ha)	P (mg/kg soil)	K (mg/kg soil)
Requirement for establishment***	22-36	20-25	20-25
Seasonal application (kg/ha)	50	Use removal rates	
Sulphur 40 units per hectare			

*Fertilizer just after establishment (kg/ha)

**Selected rate should maximise profit (150 kg/ha preferably under irrigation)

***Determined by production potential





Methods: The seedbed should be firm, moist, relatively level, and free of weeds and previous crop residue. A firm seed bed will provide good seed-to-soil contact. Mustard is a small seeded crop making shallow seeding important for even emergence and crop establishment. It is recommended that mustard be seeded at a depth of 1.5 to 2.5 cm.

Seeding rate: Seeding rate range from 2kg / ha (in a cover crop mixture), to 12kg / ha (broadcasted, under irrigation).

Planting time: Early seeding is recommended and will be beneficial to obtaining full yield potential. Plant during the months of April – May.

Management

Utilisation: Mustard plants should be chopped or mowed before or at flowering and immediately be incorporated into the moist soil.





Resources

1. Reddy, J. 2015. Mustard farming information detailed guide. <https://www.agrifarming.in/mustard-farming-information> (Access date: 23 April 2020).
2. Saskatchewan. N.d. Brassica Crops for Hay and Silage. <https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/agribusiness-farmers-and-ranchers/livestock/pastures-grazing-hay-silage/brassica-crops-for-hay-and-silage> (Access date: 23 April 2020).
3. [Curell, C.](https://www.canr.msu.edu/news/mustard_as_a_cover_crop) 2011. Mustard as a cover crop. https://www.canr.msu.edu/news/mustard_as_a_cover_crop (Access date: 23 April 2020).
4. Oplinger, S, E., Oelke, A, E., Putnam, H, D., Kelling, A, K., Kaminsid, R, A., Teynor, M, T., Doll, D, J. and Durgan, R, B. 1991. Alternative field crop manual. <https://hort.purdue.edu/newcrop/afcm/mustard.html> (Access date: 23 April 2020).
5. Sask mustard .2019. Mustard Production Manual https://saskmustard.com/production-manual/Mustard-Production-Manual_2019.pdf (Access date: 23 April 2020).

