Brassica
Mustard
Brassica juncea

PLANT HARDINESS ZONE 6 DATASET

COVER CROP DESCRIPTION

“Mustard” encompasses several species including white/yellow mustard (Sinapis alba), Indian/brown mustard (Brassica juncea), and black mustard (Brassica nigra). Research and match varieties to your needs. Similar characteristics to other brassicas such as rapeseed/canola. Most commonly used for insect and disease suppression and adding diversity to mixes. Contains the most bio-toxic compounds, best brassica for bio-fumigation in zones with sufficient heat accumulation to support high biomass production (requires soil incorporation, etc.). Potential for fast fall growth and high biomass with good soil fertility. Well-documented for deep N scavenging in fall. Not known for subsoiling, some varieties may not have a taproot. Winter-hardiness, day-length response, other characteristics vary widely by cultivar. If planted in the spring, may bolt (flower) before it can produce much biomass. Can be a good alternative to buckwheat for weed suppression - slower to flower. Does not form associations with arbuscular mycorrhizal fungi. Host for insects of many related cash crop species used in vegetable crop production.


Mustard - Bjorkman [2020]


Mustard - Bjorkman [2020]


Mustard - Larson [2020]


Mustard - Larson [2020]

GOALS

Growing Window	Medium
Nitrogen Scavenging	●●●
Lasting Residue	●●
Prevent Fall Soil Erosion	●●●
Prevent Spring Soil Erosion	●●●
Forage Harvest Value	●
Penetrates Plow Pan	●
Reduces Surface Compaction	●●
Improve Soil Organic Matter	●●
Increase Soil Aggregation	●●
Good Grazing	●
Pollinator Food	●●●

WEEDS

Residue Suppresses Summer Annual Weeds	●
Outcompetes Summer Annual Weeds	●●●●
Suppresses Winter Annual Weeds	●●●●●
Persistence	●
Volunteer Establishment	●●●●●

ENVIRONMENTAL TOLERANCES

Low Fertility	●●●
Drought	●●●
Heat	●●●
Shade	●●●
Flood	●●
Salinity	●●

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Growth Traits

Duration	Annual
Zone Use	Emerging
Shape And Orientation	Erect
Dry Matter (Lbs/A/Yr)	500 - 2000
Soil Texture	Fine Medium
Soil pH	6 - 7.2
Soil Moisture Use	Medium
Hessian Fly Free Date?	No
Ease Of Establishment	
Establishes Quickly	
Early Spring Growth	
Flowering Trigger	
Root Depth	Medium

Soil Drainage

- Very Poorly Drained
- Poorly Drained
- **Somewhat Poorly Drained**
- **Moderately Well Drained**
- **Well Drained**
- Excessively Drained
- Saturated Muck
- **Well Drained Muck**

Planting

Seeds Per Lb	283000
Seed Price Per Lb	$$
Base Seeding Rate (Lbs/A)	5 - 15
Drilled Depth	0.25" - 0.5"
Can Aerial Seed?	No
Can Frost Seed?	No
Min Germination Temp (°F)	40

Termination

- Tillage At Vegetative
- Tillage At Flowering
- Freezing At Vegetative
- Freezing At Flowering
- Chemical At Vegetative
- Chemical At Flowering
- Mow At Flowering
- Roller-Crimp At Flowering

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Planting and Growth Windows

Frost Seeding	N/A
Reliable Establishment	03/01 - 08/31
Temperature/Moisture Risk	09/01 - 09/30
Active Growth Period	Fall, Spring, Summer
Winter Survival	Seldom
Can Interseed	N/A

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Extended Comments

Taxonomy: Distinguish biofumigant types?

Basic Agronomics: Dry matter highly dependent on planting and termination date and precipitation. For grazing purposes, restrict to 75% of total ration or mixing with a grass is recommended. High glucosinolates interfer with mineral metabolism. Nitrate poisoning is possible if fed to livestock.

Planting: In RI we found that 15 lbs/acre gave more biomass and better weed suppression when using mustard as a summer cover crop

Termination: if using as biofumigant terminate at pod fill (seed formed but still green) by flail mowing followed immediately by incorporation. Multiple species are called "mustard" - susceptibility to freezing in vegetative state varies widely.

Forage and Grazing: Contains high levels of glucosinulates. Do not feed to livestock.

Weeds: Many Brassicas have hard seed; Can bolt under certain conditions and become a serious weed if allowed to go to seed.

Disease: Many Brassicas have hard seed; Can bolt under certain conditions and become a serious weed if allowed to go to seed. Host for root-lesion nematode (P. penetrans).

Pollinators: Useful to pollinators since it flowers early in the spring. Don't plant if your goal is honey production (fouls the taste of the honey).

Nematodes: Host for root-lesion nematode (P. penetrans).

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References & Resources

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