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]

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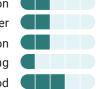
Mustard - Larson [2020]

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



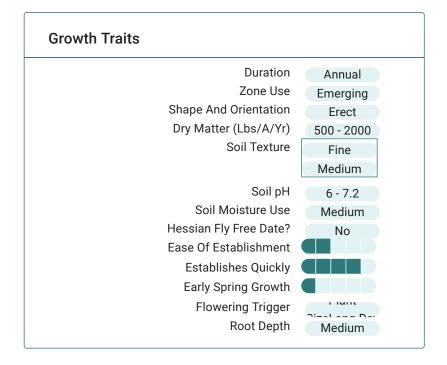
WEEDS

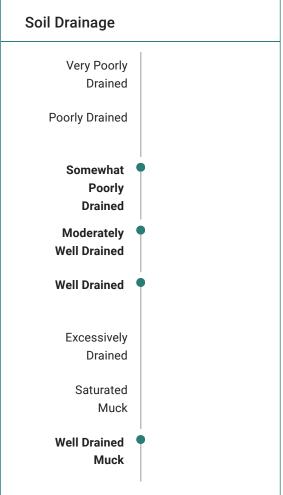
Residue Suppresses Summer Annual Weeds **Outcompetes Summer Annual Weeds** Suppresses Winter Annual Weeds Persistence Volunteer Establishment

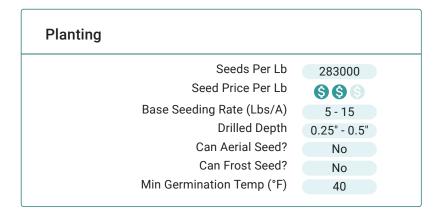
ENVIRONMENTAL TOLERANCES

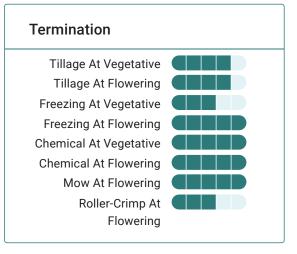
Low Fertility Drought Heat Shade Flood Salinity

♠ PLANT HARDINESS ZONE 6 DATASET



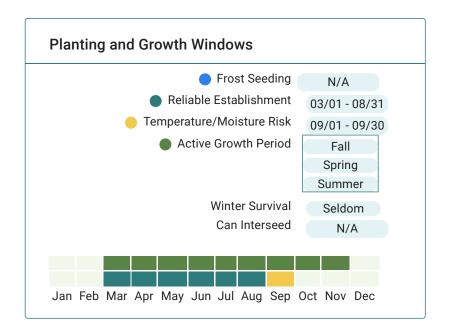








♠ PLANT HARDINESS ZONE 6 DATASET





PLANT HARDINESS ZONE 6 DATASET

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).

References & Resources

Spring Planted Cover Crops for Vegetable Rotations, University of Delaware Cooperative Extension

Cover Crops and Green Manures (New England Vegetable Management Guide), University of Massachusetts Extension

Cover Crops, Brassicas, University of Massachusetts Extension

Cover Cropping for Success, University of Maine Cooperative Extension

Spring Management of Overwintering Cover Crops - Don't Wait!, Cornell University Cooperative Extension

Fall Mustard, Cornell University Cooperative Extension

<u>Early Spring Seasonal Cover Crops.</u>, Cornell University Cooperative Extension

Late Summer Crucifers, Cornell University Cooperative Extension

Spring Mustard, Cornell University Cooperative Extension

Using Flowering Cover Crops for Native Pollinating Bee Conservation, Penn State Extension