



Ten Keys to Successful Malting Barley Production in New York

- 1) ***Malting barley should only be grown after you have a contract with a malthouse.*** The contract should be specific to the variety(s), acres contracted, and the grain quality required to fulfill the contract. Contracts allow 1) malthouses to secure the quality and quantity of barley they need and 2) growers security to have a home for the malting barley they grow, provided it meets quality standards.
- 2) ***Choose varieties based on Cornell University's variety-screening program to select modern varieties that have potential to perform well in NY.*** Cornell evaluates malting barley varieties for yield, grain quality, and lodging and disease resistance potential. Use certified seed to insure variety purity so that you deliver to the malthouse the variety for which you contracted. Using certified seed reduces the risk of introducing weeds and also reduces the risk of seed borne diseases that can affect yield and quality. Do not mix varieties in a field- malthouses are looking for lots of malting barley of the same variety so they can malt uniformly and sell a consistent product.
- 3) ***Choices between winter and spring malting barley should be based on understanding the risk, yield, grain quality and preferences of the malt house to which you are selling.*** On average, spring barleys yield 40-60 bushels per acre. Average winter barley yields are typically higher, at 60-80 bushels per acre- but they are also the least winterhardy small grain that can be grown in New York. Winter barley stands almost always suffer some degree of winter damage even if most of the stand survives. Snow cover is key in protecting winter barley from extreme temperatures, frost heaving, and drying winds. Growers should use varieties with high winter survival ratings. Growers should also consider spreading out risk by planting percentages of their malting barley acreage to both spring and winter varieties.
- 4) ***Plant malting barley on well-drained fields with a pH of 6.3 or greater.*** Compared to other small grains, malting barley is markedly less tolerant of wet soils and low pH. Malting barley should ideally be planted in soils that 1) have good soil health and a well-drained texture (good infiltration and percolation potential), 2) are not subject to a persistently high water table that inhibits drainage (despite well-drained soil textures), and 3) have a low chance for ponding (topography that allows for surface drainage). Winter barley can more commonly suffer from wet soils because of exposure to spring thaw conditions. Malting barley should not be planted without first soil testing potential fields for pH and other plant nutrients.
- 5) ***Planting date, rate, and seed depth are important to achieve your desired plant population.*** Winter barley should be ideally planted the second or third week of September. Spring barley should be planted in early April to strongly reduce summer weed pressure and maintain yield potential which drops by ~0.5-1 bushel per day after April 15th. Plant malting barley at a rate of two bushels (96 lbs) per acre. Higher seeding rates may increase lodging, disease potential, and lead to smaller and more variable kernels. Plant seed 1-1.5 inches deep with a grain drill. Shallow planting hinders proper root development; this is particularly crucial for winter barley. Do not broadcast seed of a malting barley crop as seed depth will be inconsistent and may result in stands that are too thick, thin, or variable.
- 6) ***Nitrogen fertility management is important for malting barley to yield well and meet malting quality standards.*** The protein content in malting barley should generally be >9% and <12.5%. Protein levels are dependent on available N. ***Targeting N fertility can be difficult though because of potential losses due to denitrification and leaching with high precipitation and variable soil drainage.*** Also, malting barley N fertility rates have not been thoroughly evaluated in the Northeast to date. Growers need to consider N contributions from previous crops, manure, and nitrogen fertilizer to preserve grain quality and avoid lodging. Given what is known, N fertilizer rates of 30-60 lbs/ac for spring barley and 60-90 lbs for winter barley may be targeted. Apply N fertilizer at planting for spring barley. Apply 20-30

lbs/ac of N at planting for winter barley and the remainder at green-up in early spring. Growers will need to adjust nitrogen rates for their situation to achieve the desired crude protein. Over-fertilizing with N can also make barley more prone to lodging. Because barley already has relatively soft straw, and our climate commonly has midsummer rain, dew, and wind that puts extra weight on grain heads, targeted N fertility is a key component of managing barley lodging. **All other nutrients** should be applied according to soil tests.

- 7) ***Use integrated strategies to control Fusarium head blight, other diseases, and their effects on grain.*** Malting barley markets are very stringent about the DON (deoxynivalenol, aka, “vomitoxin”) mycotoxin levels found in grains infected with *Fusarium*. Grain lots that test >1 ppm for DON concentrations are likely to be rejected for malting. The Fusarium head blight pathogen spreads mostly via the air and is common because many grasses and corn are hosts. Barley should not be grown continuously, but in rotation with non-grass crops. Fungicides to suppress Fusarium head blight should be applied immediately after the **seed head emerges from the boot**. For Fusarium, only use labeled, recommended triazole fungicides (Caramba, Prosaro). There are no varieties with high Fusarium head blight resistance, and no one management practice eliminates risk. Foliar fungal diseases may often require management by planting varieties with resistance to prevalent diseases and/or by spraying labeled fungicides at appropriate timing for disease control. Fungicide products that include a strobilurin ingredient should not be applied after the flag leaf is visible to avoid an increased risk of DON mycotoxin accumulation in grain.
- 8) ***Good weed control is essential to achieving high yields and allowing for the crop to be more easily combined and stored.*** Good pre-emergence weed control, timely spring seeding, strong crop competition (full, healthy, well-nourished stands), and weed seed bank control with herbicides and/or cultivation and crop rotations are important to **managing weeds in northeastern grains**. Herbicides such as 2,4-D and dicamba (Banvel, Clarity), bromoxynil (Buctril), and thifensulfuron (Harmony Extra) may provide annual broadleaf control. There are currently no products labeled for controlling grassy weeds in malting barley in NY. Read the Label before use for specific rates, application timing, and weeds controlled. If using 2,4-D apply before stem elongation. Weeds can also be controlled by cultivation with a tine weeder; typically at least two passes are used, with one just before seedling emergence and another at the 3 to 5-leaf stage.
- 9) ***Maturing malting barley should be harvested as close to maturity as possible to reduce pre-harvest sprouting.*** Pre-harvest sprouting or “pre-germination” occurs when the grain has begun to mature and dry in the field but moisture in the environment is sufficient for the kernel to begin germinating. Do not allow barley to dry and then gain moisture before harvest if possible. Monitor diligently for physical signs of maturity (green color disappearance from glumes and peduncle, nodding grain heads) and target **harvesting malting barley** between 16-20% moisture if you have sufficient grain drying capacity. Allowing malting barley to field dry to the 12-13% kernel moisture level needed for long-term storage will lead to pre-harvest sprouting if excess moisture is present. A germination rate of ≥95% is desired for malting. Pre-harvest sprouting damage also limits the length of time the seed may be viable even if germination is 95% or better at harvest. Growers can also use varieties with resistance to pre-harvest sprouting in addition to timely harvest.
- 10) ***Grain storage and cleaning and heated drying equipment key tools for northeastern malting barley production.*** Malting barley production is often compared to seed production; barley kernels need to be high quality, uniform, clean, and most importantly- alive. It will be rare to harvest without needing additional cleaning to remove weed seeds and green matter that impart moisture and (sometimes) off-flavors. Access to at least a rotary cleaner is a must, but more cleaning equipment may be needed. Grain cleaning can also cull out diseased kernels that are often lighter than healthy ones. Lodged barley may also need to be cleaned to remove stones after harvest. Harvesting at higher moisture levels requires growers to have a robust grain-drying system that can move sufficient air and/or provide low-grade heat (≤100°F, no greater) if needed. Adequate cleaning, drying and storage should be lined up well before harvest.