

# 2024 BARLEY PRODUCTION & SEEDING CONSIDERATIONS

**WITH LOW INPUT COSTS, EARLY MATURITY AND LIMITED PEST PRESSURES, BARLEY MAY BE A GOOD CROPPING OPTION FOR PRODUCERS IN 2024.**

**The following document offers considerations with respect to growing barley including:**

- Timing, Seeding Rates, Weed and Disease Management
- Soil Testing, Crop Protection and Certified Seed
- New Malting Barley Varieties – Agronomics and Quality
- End-User Desired Quality Traits

## KEY TAKE AWAYS

- Choose a malting barley variety to access an additional 2.5 million tonnes of demand. If it doesn't make malting barley, it can be sold into the feed sector, but feed barley cannot be sold as malting barley to the malting/brewing sector.
- New malting varieties yield comparably to many feed varieties and often command a premium of over \$1.00/bushel.
- With 10-14 days earlier maturity compared with wheat and canola, barley is an important rotation option to allow for staged seeding and harvest timing.
- Fertilizer costs can be significantly less than other cereals like spring wheat, particularly in the case of malting barley with lower targeted protein content.
- New malting varieties also meet end-use quality requirements with moderate protein content, plump kernels and good processing performance including high extract levels. Find out what end users are looking for and why.



# TIMING, SEEDING RATES, WEED AND DISEASE MANAGEMENT

**Seed early!** Early seeded barley tends to have a yield and quality advantage as the crop can capitalize on early spring moisture and increased early season crop competitiveness while reducing the risk of cool, wet weather at harvest.

**Target plant stand of 20-25 plants per/ft<sup>2</sup>** will help optimize yield and quality, and encourage kernel uniformity. Check this [seeding rate calculator](#) for additional information.

**Barley is not affected by wheat midge and wheat stem sawfly do not prefer barley.** Producers who have a prevalence of these issues in their area may consider barley in their rotation to help break the cycle.

A combination of environmental factors in recent years, improved management practices and new varieties with better disease resistance have resulted in **reduced Fusarium Head Blight (FHB) issues in barley**, particularly in prone areas of Manitoba and eastern Saskatchewan. Still producers must remain vigilant and follow the latest guidance on FHB monitoring and spray timing.

**Harvest early!** Malting barley should be harvested early to avoid moist weather which can lead to pre-harvest sprouting (and lower germination or vigour), greater microbial load and staining.



See the [CMBTC's 2024-25 recommended list](#) for the list of barley varieties that have the greatest potential to be selected for malting.



## CERTIFIED OR FARM SAVED SEED

- Malting barley buyers recommend that producers use certified seed to **help ensure quality and varietal purity**, and to increase the chances of malt selection.
- For all seed sources, it is very important for producers to know **seed germination, thousand kernel weight and disease analysis** from an accredited lab to ensure seed is not diseased and to calculate appropriate seeding rates.
- Most **seed sellers** will test each seed lot for thousand kernel weight and seed-borne disease, so be sure to ask.
- It is also important to note that it is illegal for producers to sell or trade varieties protected with [Plant Breeders Rights](#) (PBRs).

## SOIL TESTING FOR NUTRIENT LEVELS AND HERBICIDE RESIDUES

- Producers should conduct soil tests to optimize fertilizer rates. Follow this link for a helpful [guide on soil sampling](#) from Alberta Agriculture.
- When making nitrogen rate decisions for malt barley, producers are recommended to work with experienced agronomists to **mitigate the risk of over or under application of nitrogen fertilizer**. Over application can lead to excess lodging and grain protein content.
- Producers are recommended to follow **4R nutrient stewardship practices** when fertilizing malt barley. This will increase fertilizer use efficiency and mitigate fertilizer loss.

## CROP PROTECTION PRODUCTS

- Farmers should refer to the [Keep it Clean](#) campaign regarding acceptable crop protection products for malting barley.
- **Pre-harvest desiccants and glyphosate** are not accepted by the malting industry.
- Newly registered **plant growth regulators** in Canada may be accepted by some end-users, but farmers should check with their grain buyer before using these products.
- **Pesticides of concern** include fluopyram, chlormequat, Chloride, glyphosate and saflufenacil. Additionally, a new restriction on feed uses for lambda cyhalothrin should be considered when controlling insect pests. Applying this product to malt barley may limit marketing options for barley that is not selected for malt.



*Depending on soil organic matter and residual nitrogen, producers targeting malting barley specifically, and therefore lower protein content, may opt to minimize nitrogen use reducing costs, while optimizing malt barley quality.*



# NEW MALTING BARLEY VARIETIES - STRONG PERFORMERS

In addition to established varieties such as CDC Copeland and AAC Synergy, Canada has a suite of newer malting barley varieties in various stages of market development, including AAC Connect, CDC Fraser and CDC Churchill, all with strong agronomic and disease packages.

New Canadian malting barley varieties have been selected for:

- Much higher yields than older varieties like CDC Copeland.
- Shorter and stronger straw to reduce lodging.
- Improved disease resistance.
- Moderate protein content.

The tables below provide yield comparisons of the malting varieties contained on the CMBTC's recommended list from the provincial seed guides (note that CDC Austenson, a feed variety, is included for comparison purposes).

## SOURCES OF INFORMATION

To find the most up-to-date information for each variety, refer to your province's seed guide to find data and seed distributors.

- [Saskatchewan Seed Guide](#)
- [Alberta Seed Guide](#)
- [Manitoba Seed Guide](#)

## YIELD COMPARISONS

2024 SASKSEED GUIDE			ALBERTA 2024 SEED GUIDE		MANITOBA 2024 SEED GUIDE	
% AAC Synergy	Area 1 & 2	Area 3 & 4	% AAC Synergy*		% AAC Synergy**	
CDC Bow	94%	93%	CDC Bow	97%	CDC Bow	94%
AB BrewNet	97%	100%	AB BrewNet	100%	AB BrewNet	93%
CDC Churchill	105%	104%	CDC Churchill	103%	CDC Churchill	100%
AAC Connect	99%	95%	AAC Connect	97%	AAC Connect	96%
CDC Copeland	92%	93%	CDC Copeland	95%	CDC Copeland	89%
CDC Copper	104%	100%	CDC Copper	104%	CDC Copper	95%
CDC Fraser	100%	98%	CDC Fraser	102%	CDC Fraser	96%
CDC GoldStar	99%	95%	CDC GoldStar	104%	CDC GoldStar	N/A
AC Metcalfe	87%	86%	AC Metcalfe	91%	AC Metcalfe	87%
AAC Prairie	96%	97%	AAC Prairie	97%	AAC Prairie	96%
AAC Synergy	100%	100%	AAC Synergy	100%	AAC Synergy	100%
CDC Austenson	102%	103%	CDC Austenson	100%	CDC Austenson	102%

\*\*Base AAC Synergy yield 114 bushels/acre

## GENETIC DISEASE RESISTANCE

	CDC Copeland	AAC Synergy	AAC Connect	CDC Fraser	CDC Churchill
Scald	MS	S	S	MS	S
Spot form net blotch	I	R	MR	R	MR
Net form net blotch	I	MR	I	MR	MR
Spot blotch	S	R	MR	R	I
FHB	I	I	MR	I	MS

S = susceptible | MS = moderately susceptible | I = intermediate resistance | MR = moderate resistance | R = resistant

# DESIRED END USER QUALITY

New varieties also meet end-use quality requirements with moderate protein content, plump kernels and good processing performance including high extract levels. Here is what end users are looking for and why:

## Protein Content – It’s a balancing act

- Maltsters and brewers typically prefer protein content between 10-12.5%.
- Large (macro) brewers and off-shore markets such as China and Japan blend barley malt and alternative carbohydrates like rice and corn to keep costs down and achieve certain flavours. As a result, they prefer higher protein content (>11%) to provide adequate enzymes to break starch into simple sugars and to provide adequate N-nutrient to yeasts in fermentation and desirable proteins for development of beer foam and flavour.
- Craft or all malt brewers (using primarily barley malt) already have lots of enzymes so want lower protein (10-11.5%). Too much protein can create issues with processing (e.g. compromise yeast health) or the finished product (e.g. hazy or dark colour, off flavours).



MARKET	TARGET BARLEY PROTEIN RANGE
All Malt/Craft Brewers	10.0% - 11.5%
North American Brewers (adjunct)	10.5% - 12.5%
China Brewers	11.0% - 13.5%



## Germination – The higher the better

- Maltsters want minimum 95% germination in malting barley. During malting, barley germinates and the kernels “modify” as starches and kernel cell walls are broken down in preparation for brewing.
- The higher the germination, the higher the efficiency of the process and the quality of the finished product.
- Producers can ensure good germination by harvesting early to help avoid moisture during harvest, ensuring barley is harvested at 13.5% moisture or lower (or dried down to 13.5% after harvest), and properly stored.

## Varietal Purity – Helps produce high quality malt

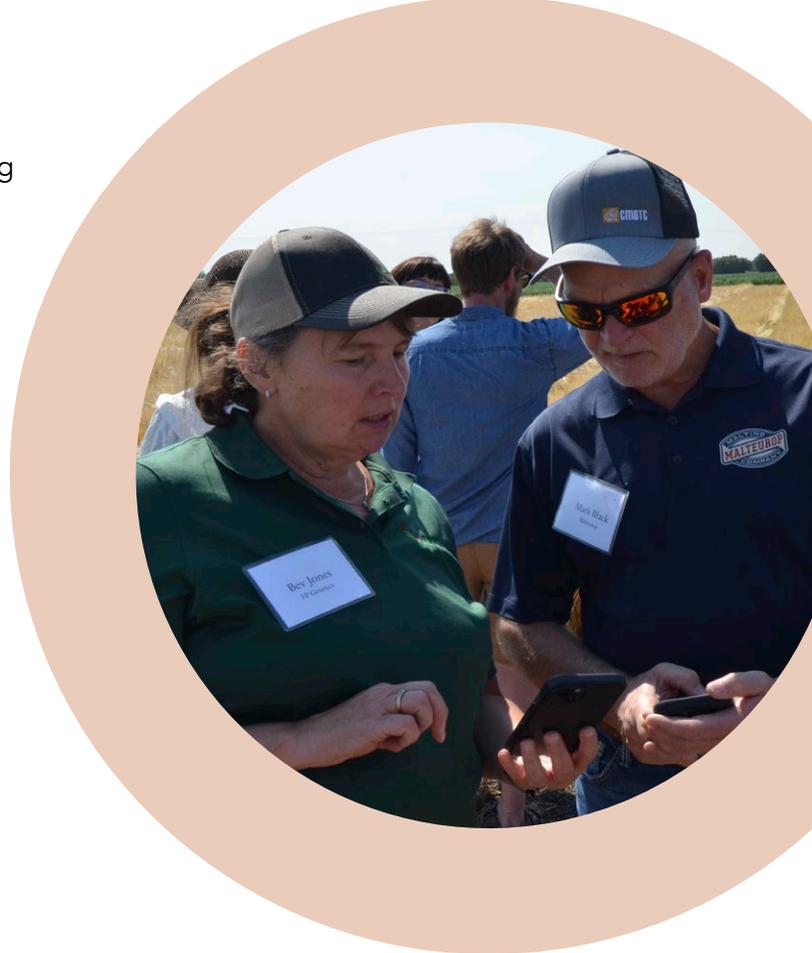
- Different malting barley varieties can process at faster or slower rates. Therefore high varietal purity is an important factor in producing malt with high homogeneity and uniform quality traits.
- Maltsters want minimum 95% varietal purity, and buyers typically include a minimum specification in contracts.

## Plump Kernels – Important for efficiency in brewing

- High plumpness and uniform kernel size are desirable quality characteristics as malt extract potential, i.e. the amount of sugar that can be extracted from malt, is correlated to barley kernel size.
- Uniform kernels allow for more efficient milling of malt, increasing efficiency in brewing. Minimum requirements are typically minimum 85% over 6/64” slotted screen for two-row malting barley,

## Peeled & Broken – Careful harvesting and moving your malting barley!

- No more than 5% of kernels should be peeled or broken, as husk and kernel damage affect the uniformity of barley water uptake during steeping (e.g. too much water is absorbed and soggy kernels may not germinate).
- Husk and kernel damage often occurs during combining, auguring or conveying during handling. Some varieties have better husk adherence than others.



*Producers should be sure barley meets varietal purity specifications on their contract — buyers generally require 95% or higher purity levels.*



*Taking care to meet these quality parameters will help ensure selection for malt, and meet the needs of our domestic and global malting and brewing customers.*

# DOMESTIC AND INTERNATIONAL ACCEPTANCE

AAC Connect and CDC Fraser continue to be two of Canada's most promising new malting barley varieties that are gaining traction with producers and processors.

Both varieties are now accepted by many maltsters and brewers both domestically and in our major international markets such as the United States and China. CDC Churchill has also begun to be tested in earnest on farm and in the malt house.



## VARIETY PROFILES\*



### AAC Connect

#### AGRONOMY & DISEASE:

- Yields 5% higher yield than CDC Copeland
- Shorter and stronger straw with good resistance to lodging
- 1 day earlier than CDC Copeland
- Moderate resistance to spot-form net blotch and spot blotch, resistant to other smuts
- Moderate resistance to FHB with lower DON accumulation
- High test weight

#### END-USE QUALITY:

- Moderate-high grain protein content
- Very heavy, plump kernels
- High extract levels, appealing to brewers big and small.
- Moderate enzyme package allows this variety to be used in a variety of brewery settings



### CDC Fraser

#### AGRONOMY & DISEASE:

- Yields 8% higher than CDC Copeland
- Strong straw with good lodging resistance
- Resistant to loose smut and spot blotch
- Maturity similar to CDC Copeland
- Moderately susceptible to scald
- High test weight

#### END-USE QUALITY:

- Moderate grain protein content
- Heavy, plump kernels
- High extract levels, appealing to brewers big and small
- High enzyme potential, important for large brewers using adjuncts (corn, rice) to convert starch to sugar
- Very low beta-glucans support ease of processing both in malting and brewing



### CDC Churchill

#### AGRONOMY & DISEASE:

- Yields 12% higher yield than CDC Copeland
- Shorter and stronger straw with good lodging resistance
- Maturity similar to CDC Copeland
- Test weight, kernel weight, plumps/thins similar to CDC Copeland
- Moderate resistance to spot-form net blotch and net form net blotch

#### END-USE QUALITY:

- Low grain protein ( $\leq$  CDC Copeland) and malt beta-glucan (similar to AAC Synergy)
- High extract ( $\geq$  AAC Synergy) and friability
- Low dimethyl sulfide for improved shelf life/taste in beer
- Moderate enzyme activity, comparable to CDC Copeland, indicates suitability for all malt brewer

\*Info drawn from breeder's support for registration.

# IF GROWING MALTING BARLEY

- Choose a newer variety with better agronomics and disease resistance to increase likelihood of selection for malt.
- Talk to your local maltster, grain buyer, seed grower, or the CMBTC, to discuss which varieties are most suitable to grow in your region.
- For newer malt varieties, secure a contract with a malting or grain company buyer.
- Conduct soil tests for residual nutrient availability to ensure appropriate nitrogen application levels.
- Use Certified seed at least every second year to minimize disease and ensure varietal purity.
- If using farm-saved seed, check seed quality (e.g. germination), disease levels and varietal purity at an accredited lab.



For more information:  
Visit [cmbtc.com](https://cmbtc.com) or contact:  
Peter Watts, Managing Director  
[pwatts@cmbtc.com](mailto:pwatts@cmbtc.com) or 204 983 1981



@canadianbarley



@MaltAcademy

