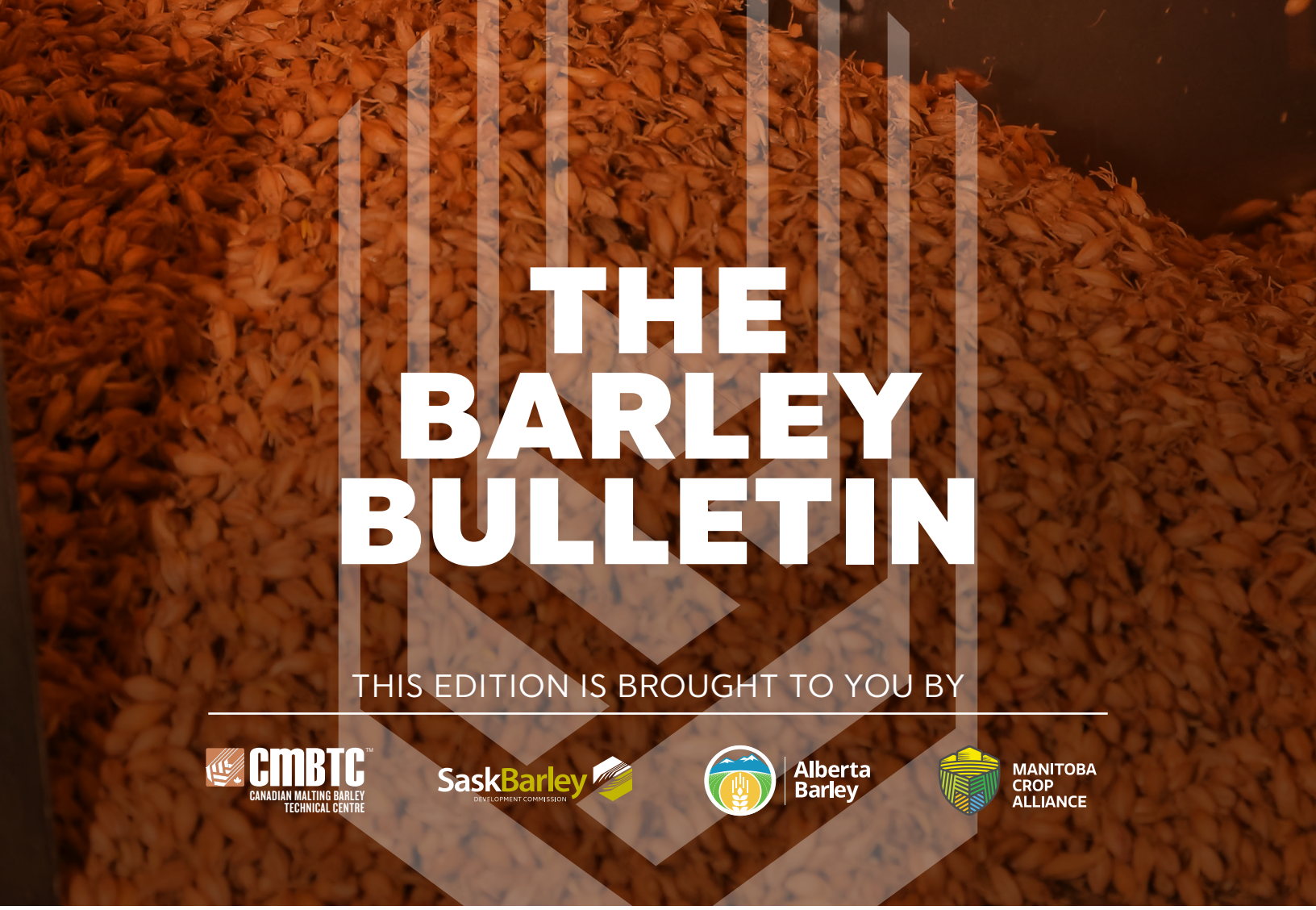

THE BARLEY BULLETIN

THIS EDITION IS BROUGHT TO YOU BY

CMBTC CANADIAN MALTING BARLEY TECHNICAL CENTRE

SaskBarley DEVELOPMENT COMMISSION

Alberta Barley

MANITOBA CROP ALLIANCE

2023 Malting Barley Seeding & Production Considerations

By now, producers have made most of their cropping decisions for 2023. For those that have chosen to include malting barley in their rotation, this article offers some information and tips to consider for seeding and growing malt barley to optimize yields and quality, and to help increase the chance that your barley is accepted for malt after harvest. The following topics are addressed:

- *Consult your Buyer, Test for Varietal Purity*
- *Timing, Seeding Rates, Weed & Disease Management*
- *Certified vs Farm Saved Seed*
- *Soil Testing for Soil Nutrient Levels & Herbicide Residues*
- *Crop Protection Products*
- *New Malting Barley Varieties — Considerations & Profiles*

Consult your Buyer, Test for Varietal Purity

Farmers are encouraged to consult their local maltster, grain company and/or seed supplier when deciding which malting barley to grow. Certain varieties tend to grow better in particular environments, and each malting and grain company has their preferred varieties.

When growing a new variety, it is recommended that producers have a contract. They should talk to their local malting barley about contracting programs, and at the same time inquire about any agronomic information (or product restrictions) relevant for their growing area.

Varietal purity for all malting barley is important and producers should be sure of what they are planting so the grain meets varietal purity specifications on their contract (buyers generally require 95% or higher purity levels). Those producers utilizing legacy varieties are highly recommended to ensure varietal purity prior to seeding.

The past couple of years have seen an increase in issues with varietal purity in malting barley and in January 2023, a review process was started with the Canadian Grain Commission (CGC) testing commercial seed samples, and verifying results from private labs. There are various DNA based testing methods, and the CGC has concluded that some tests have likely had inaccurate purity results.

Producers who have questions about their varietal purity results should contact the CMBTC.

Timing, Seeding Rates, Weed & Disease Management

Early seeded barley tends to have a yield and quality advantage on the Prairies because the crop can capitalize on early spring moisture and avoid the risk of frost, cool and wet weather at harvest. Early seeded crops also tend to increase the likelihood of producing plump and uniform kernels.

Seeding at 300 live seeds/m^2 optimizes yield and quality, including improved kernel uniformity.

Timing of harvest is very important with malting barley. Barley should be harvested as early as possible as delays can rapidly impact quality due largely to moist weather. Late harvested barley tends to be less bright, have greater microbial load, and is more likely to have pre-harvest sprouting and therefore have lower vigour (i.e., germination energy) for malting.

Malting barley may require some additional steps and costs in terms production, such as fungicide spraying for FHB management, as well as timely harvest and optimal storage considerations to ensure quality for malt selection, although the overall return on investment should be higher with premiums for malt.

Barley is a competitive crop, which can be a useful tool in an integrated weed management plan. Barley yields will be optimized when weeds are controlled with timely and effective herbicide applications.

Certified or Farm Saved Seed

Certified seed availability will vary by geography so farmers should speak to their local seed suppliers early. To find seed, producers can consult provincial seed guides check the CSGA seed locator link or go directly to a seed company's web site.

Malting barley buyers recommend that producers use *certified seed* to help guarantee 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.[1]

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). There are significant fines associated with buying and selling PBR protected seed for planting when the seller is not authorized to sell the seed.

As mentinoed above, end-users require a minimum 95% varietal purity, a producer risks not being selected for malt if they do not meet this threshold. If a producer is concerned, they can have their barley tested (see link to more informaion on varietal purity).

Soil Testing for Nutrient Levels & 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. Under application of nitrogen can lead to profit loss while over application can lead to excess lodging and grain protein content.

It's important for producers to understand that the marketplace accepts a range of protein levels. Malting companies in Canada, and the craft industry, tend to prefer low to moderate protein, but malt barley that is destined off-shore will be accepted at higher protein levels.

DESIRED PROTEIN RANGES BY END USER

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% - 13.0%

Producers are recommended to follow 4R nutrient stewardship practices when fertilizing malt barley. This will increase fertilizer use efficiency and mitigate fertilizer loss.

---

[1] Certified seed must be tested for germination, but thousand kernel weight and disease screening are optional by strongly recommended.

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, 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.

New Malting Barley Varieties — Considerations & Profiles

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** and **CDC Fraser**, as well as newer varieties **CDC Churchill**, **AB BrewNet** and **AAC Prairie**, all with strong agronomic and disease packages.

New Canadian malting barley varieties…

- have seen considerable agronomic improvements in recent years with better yields, straw strength and disease resistance.
- tend to have shorter and stronger straw and are less likely to lodge. These new varieties were bred to have moderate protein content, and as a result, producers may be able to push nitrogen fertilizer rates to maximize yield without developing excessive protein levels. Maltsters and brewers prefer protein content between 10-12.5%; however, certain end-users will accept upwards of 13.5% so producers should shop around.
- have improved disease resistance compared with CDC Copeland for spot form net blotch and spot blotch. AAC Connect has moderate genetic resistance against fusarium head blight (FHB).

GENETIC DISEASE RESISTANCE					
	Scald	**Spot form net blotch**	**Net form net blotch**	**Spot Blotch**	**FBH**
CDC Copeland	S	I	I	S	I
AAC Connect	S	MR	I	MR	MR
CDC Fraser	MS	MR	MR	R	I
CDC Churchill	S	MR	MR	I	MS

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

As with the adoption of any new crop genetics on farm, producers are recommended to assess the agronomic and disease package of the variety. Disease resistance, straw strength (lodging resistance), height, and yield potential should all be considered as they relate to a farm's specific growing environment.

The new varieties also meet end-use quality requirements with moderate protein content, high extract levels and plump kernels.

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.

Farmers should check their provincial seed guides for more information on new varieties. 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).

Yield Comparisons

AB 2023 SEED GUIDE

% OF CDC COPELAND*	
CDC Bow	101%
AB BrewNet	107%
CDC Churchill	110%
AAC Connect	101%
CDC Copeland	100%
CDC Copper	108%
CDC Fraser	106%
AC Metcalfe	98%
AAC Synergy	106%
CDC Austenson	107%

**Base CDC Copeland yield = 110 bushels per acre*

MB 2023 SEED GUIDE

% OF AAC SYNERGY*	
CDC Bow	94%
AB BrewNet	94%
CDC Churchill	99%
AAC Connect	95%
CDC Copeland	88%
CDC Copper	95%
CDC Fraser	96%
AC Metcalfe	87%
AAC Synergy	100%
CDC Austenson	103%

**Base AAC Synergy yield = 111 bushels per acre*

2023 SASKSEED GUIDE

% OF AAC SYNERGY	AREA 1 & 2	AREA 3 & 4
CDC Bow	94%	93%
AB BrewNet	97%	100%
CDC Churchill	105%	104%
AAC Connect	99%	95%
CDC Copeland	92%	93%
CDC Copper	104%	100%
CDC Fraser	100%	98%
AC Metcalfe	87%	86%
AAC Synergy	100%	100%
CDC Austenson	102%	103%

VARIETY PROFILES: AAC CONNECT, CDC FRASER & CDC CHURCHILL

AAC CONNECT

(info drawn from breeder's support for registration)

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

(info drawn from breeder's support for registration)

Agronomy & Disease

- Yields 8% higher than CDC Copeland
- Strong straw with good lodging resistance
- Resistant to loose smut and spot blotch
- Maturity date 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 start to sugar
- Very low beta-glucans support ease of processing both in malting and brewing.

CDC CHURCHILL

(info drawn from breeder's support for registration)

Agronomy & Disease

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

End-Use Quality

- Low grain protein (≤ CDC Copeland) and malt β-glucan (similar to AAC Synergy).
- High extract (≥ AAC Synergy) and friability.
- Low DMS/DMSP
- Moderate enzyme activity, comparable to CDC Copeland, indicates suitability for all malt brewer.

PREPARING FOR 2023 SEEDING, THE CMBTC RECOMMENDS THAT PRODUCERS:

- Choose a malting barley variety to increase marketing opportunities. Feed barley cannot be sold as malt to the malting/brewing sector but malt barley varieties can be sold into the feed sectorr.
- Talk to your local maltster, grain buyer, seed grower, or the **CMBTC**, to discuss which varieties are most suitable to grow in their region.
- For newer malt varieties, secure a contract with a malting or grain company buyer.
- If using farm-saved seed, check seed quality (e.g. germination) and varietal purity at an accredited lab.
- Conduct soil tests for residual nutrient availability.

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. Variety selection should consider yield, agronomic and disease indicators that align with farm-specific needs.

››› ***Saskatchewan Seed Guide*** ››› ***Alberta Seed Guide*** ››› ***Manitoba Seed Guide***

See also the ***CMBTC's 2023-24 recommended list*** for the list of barley varieties that have the greatest potential to be selected for malting.