AAC Connect

AAC Connect is a two-row, hulled malting barley variety registered in Canada in 2016. A cross of TR04282 and BM9831D-229, it was developed by Dr. Bill Legge at the Brandon Research Centre, Agriculture and Agri-Food Canada.

Highlights:

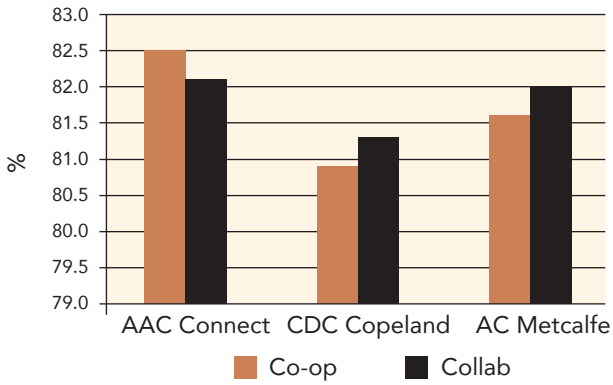
- 11% higher yield than AC Metcalfe, 5% higher than CDC Copeland
- Barley protein comparable to AC Metcalfe
- Enzyme levels comparable to AC Metcalfe, higher than CDC Copeland
- High fermentability
- Good overall brewhouse performance

Canadian malting barley varieties undergo a rigorous process of evaluation prior to registration. The following are highlights of the Cooperative and Collaborative trial results taken from the breeder's registration application.[1]

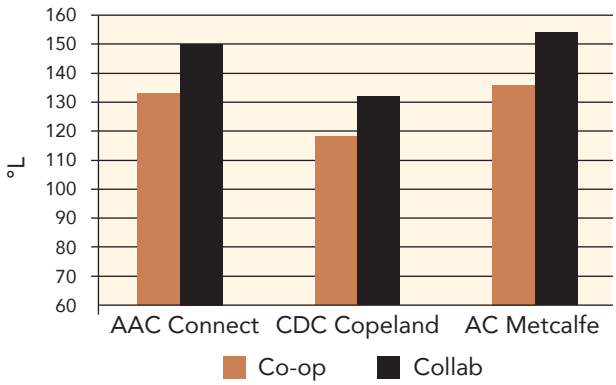
Malting quality traits:

- Extract yield higher than AC Metcalfe and CDC Copeland
- Comparable S/T ratio and higher FAN than CDC Copeland
- Colour comparable to AC Metcalfe, higher than CDC Copeland
- Enzyme levels comparable to AC Metcalfe, higher than CDC Copeland
- Malt beta-glucan comparable to AC Metcalfe and CDC Copeland

AAC Connect Fine Extract



AAC Connect DP



Agronomic traits:

- 11% higher yield than AC Metcalfe, 5% higher than CDC Copeland
- Shorter and stronger straw than AC Metcalfe and CDC Copeland
- Heavier and plumper kernels compared with AC Metcalfe and CDC Copeland
- Maturity date similar to AC Metcalfe
- Resistance to spot-form net blotch, surface-borne smuts and stem rust
- Moderate resistance to FHB with significantly lower DON accumulation than AC Metcalfe.

Variety	Year of Registration	Yield Index (% of AC Metcalfe grain yield)	Date to Maturity (+/- AC Metcalfe)	Lodging Rating	FHB Resistance*
AC Metcalfe	1997	100	0	Good	Intermediate
CDC Copeland	2003	108	1	Good	Intermediate
AAC Connect	2016	111	0	Very Good	Moderately Resistant

CMBTC PILOT SCALE MALTING & BREWING RESULTS

Once varieties have been registered in Canada and supply begins to be scaled up by the seed company responsible for commercializing the variety, or by a contraacting party, samples are sent to the CMBTC for pilot scale malting and brewing trials conducted under standard process conditions.

Malting Process conditions: Steep: 36-42 hours at 14-15C; Germination: up to 96 hours @14-16C; Kiln: 21 hours with cure temperature @80-82C for up to 4 hours.

Brewing Process conditions: Mash for 30 min. @ 48˚C, 30 min. @65˚C, 1 min. @77˚C using 3.75:1 Water grist ratio. 135L sparge. 90 min. boil. 15 min. whirlpool rest.

AAC Connect Results in CMBTC Pilot Scale Trials

The data below represents average results generated by pilot scale trials at the CMBTC for samples of AAC Connect from the 2015 and 2016 crop years. In the case of controls, the data represents five-year averages (2012-2016). Range figures derived from annual averages.

Comparative malt quality parameters

The malt exhibited very high extract yield with enzymes higher than CDC Copeland, comparable to AC Metcalfe; KI and beta-glucan comparable to AC Metcalfe and CDC Copeland while FAN levels higher than CDC Copeland.

	AAC Connect		CDC Copeland		AC Metcalfe	
	Avg	Range	5 yr avg	5 yr range	5 yr avg	5 yr range
Fine Extract, %	82.5	82.4 – 82.6	81.6	81.0 – 82.4	81.6	80.9 – 82.5
Color, EBC	4.9	4.4 – 5.4	4.2	3.8 – 4.4	4.9	4.6 – 5.8
Total Protein, %	11.9	11.6 – 12.1	11.3	10.8 – 11.7	12.0	11.5 – 12.6
Soluble Protein, %	5.66	5.6 – 5.7	5.14	5.0 – 5.4	5.40	5.3 – 5.6
Kolbach Index	47.0	46 – 48	46.1	44 – 48	45.0	43 – 48
Diastatic Power,	146	144 – 148	129	126 – 139	152	145 – 160
Wort Beta-glucan, ppm	129	122 – 136	119	85 - 198	149	137 – 170
FAN, ppm	221	215 – 228	212	182 – 230	223	204 – 247

Comparative brewing quality parameters

AAC Connect performed well in the brewhouse. Conversion time was quick and attenuation limit was good. Wort colour was higher (darker) than the checks with good overall brewhouse yield and efficiency.

Parameter	AAC Connect Average	CDC Copeland Average	AC Metcalfe Average
Conversion Time (min.)	12	19	13
Time to Clear (min.)	8	7	7
Runoff Time (min.)	48	46	46
Wort Colour (SRM)	5.45	4.25	4.95
Brewhouse Yield (min.)	71.4	69.1	71.3
Brewhouse Efficiency (%)	87.6	86.2	88.7
Attenuation Limit (%)	88.0	89.0	86.7

[1] Near the end of the breeding cycle, selected lines enter the "Cooperative" testing program, coordinated by breeders, for 2 years where they are grown in up to 20 sites across the Prairies alongside check varieties (AC Metcalfe, CDC Copeland and AAC Synergy). After the first year better lines also enter the "Collaborative" testing Program grown at 8 sites across the Prairies, alongside the same check varieties, for two years (coordinated by the Brewing & Malting Barley Research Institute). Cooperative and Collaborative test samples are evaluated for malting quality through micro-malting trials. Results are presented to the Prairie Registration Committee for Oats and Barley (PRCOB) leading to recommendations for registration by the Canadian Food Inspection Agency.

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