AAC Connect

Highlights:

- ☆ Very heavy, plump kernels
- ☆ High extract yield
- ☆ Moderate enzyme and FAN levels
- ☆ Good brewhouse performance and fermentability

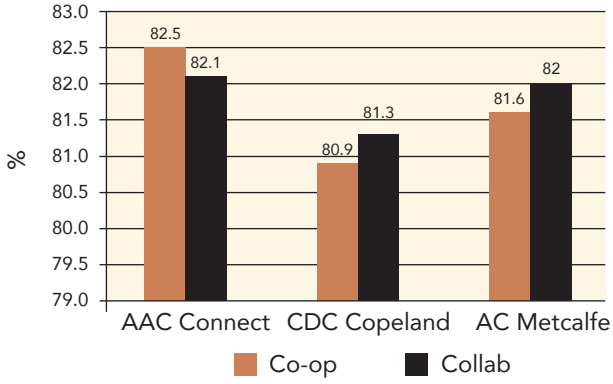
AAC Connect is a spring two-row, hulled malting barley variety, registered in Canada in 2016. A cross of TR04282 and BM9831D-229; it was developed by Dr. Bill Legge at the Brandon Research Centre, Agriculture and Agri-Food Canada.

As per the registration requirement, this barley has undergone a rigorous evaluation process prior to registration. The following are highlights of the results of the Cooperative and Collaborative trials[1] taken from the breeder's registration application.

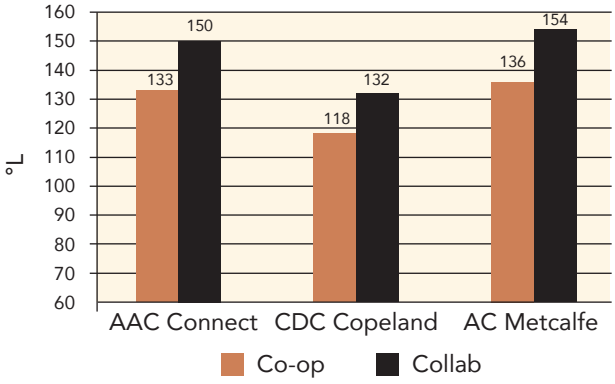
Malting quality traits:

- Extract yield higher than AC Metcalfe and CDC Copeland
- S/T ratio comparable to AC Metcalfe and CDC Copeland
- Malt enzyme levels comparable to AC Metcalfe, higher than CDC Copeland
- FAN levels similar to CDC Copeland
- Malt beta-glucan content similar to AC Metcalfe and CDC Copeland
- Malt colour similar AC Metcalfe and higher than 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 than 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 and CDC Copeland

[1] Near the end of the breeding cycle, selected lines enter the "Cooperative" testing program, coordinated by breeders, for two 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, the best lines from Cooperative trials 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 the recommendations for registration by the Canadian Food Inspection Agency.

CMBTC PILOT SCALE MALTING & BREWING RESULTS

Once varieties have been registered in Canada and supply begins to be scaled up by the corresponding seed company responsible for commercializing the variety or by a contracting party, representative barley samples are sent to the CMBTC for pilot scale malting and brewing trials under standard processing conditions [2,3].

Results of CMBTC Pilot Scale Trials

The data below represents average results generated by pilot scale trials[2] 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.

Table 1: Comparative malt quality parameters

AAC Connect barley performed well in the malting process. The malt exhibits very high extract yield as well as good enzyme levels that are comparable to AC Metcalfe and higher than CDC Copeland. Soluble protein is slightly higher than both control varieties, while FAN levels are comparable to CDC Copeland and lower than AC Metcalfe. Beta-glucan is similar to AC Metcalfe but higher than CDC Copeland.

	AAC Connect		CDC Copeland		AC Metcalfe	
	4 yr average (n=12)	4 yr range (n=12)	5 yr average (n=74)	5 yr range (n=74)	5 yr average (n=82)	5 yr range (n=82)
Fine Extract, %	82.5	81.7 – 83.3	81.8	80.1 – 83.8	82.0	80.6 – 83.1
Color, EBC	4.68	2.96 – 7.12	3.73	2.19 – 5.8	4.39	2.67 – 6.56
Color, ASBC	2.22	1.57 - 3.14	1.86	1.28 - 2.64	2.11	1.46 - 2.93
Total Protein, %	11.7	11.2 – 12.9	11.22	9.4 – 12.5	11.7	9.75 – 13.0
Soluble Protein, %	5.43	4.43 – 5.98	4.91	3.93 – 5.70	5.21	4.25 – 5.99
Kolbach Index	46.0	34.7 – 49.3	43.8	36.5 – 49.7	44.5	37.4 – 50.4
Diastatic Power, WK	473	407 – 553	443	327 – 510	500	443 – 560
Diastatic Power, L	146	126 - 170	137	102 - 157	154	137 - 172
Wort Beta-glucan, ppm	126	77 – 194	100	56 - 182	119	60 – 199
FAN, ppm	206	153 – 251	203	160 – 244	223	173 – 279

[2] Malting Process conditions: Steep: 38-42 hours at 14-15°C; Germination: up to 96 hours @14-16°C; Kiln: 21 hours with cure temperature @80-82°C for up to 4 hours.

Table 2: Comparative brewing quality parameters

AAC Connect performed well in the brewhouse. Conversion time, time to clear and runoff time are all comparable to AC Metcalfe and CDC Copeland. Wort colour is higher (darker) than CDC Copeland and comparable to AC Metcalfe. Brewhouse yield and efficiency are comparable to AC Metcalfe and CDC Copeland, while attenuation limit is higher than both.

	AAC Connect		CDC Copeland		AC Metcalfe	
	4 yr average (n=12)	4 yr range (n=12)	5 yr average (n=74)	5 yr range (n=74)	5 yr average (n=82)	5 yr range (n=82)
Conversion Time (min.)	15	8 – 25	17	7 - 33	14	6 - 22
Time to Clear (min.)	7	5 – 9	7	4 - 16	7	2 - 9
Runoff Time (min.)	49	38 - 57	49	40 - 55	49	40 - 58
Wort Colour (SRM)	4.27	2.86 – 6.13	3.71	2.29 - 7.03	4.37	2.59 - 10.11
Brewhouse Yield (min.)	71.8	68.9 – 73.8	71.5	66.5 - 74.1	71.8	66.5 - 75.2
Brewhouse Efficiency (%)	88.1	84.8 – 90.2	88.4	84.9 - 91.8	88.6	82.7 - 92.0
Attenuation Limit (%)	89.2	84.9 – 92.1	88.5	80.6 - 91.5	86.9	79.6 - 90.4

[3] 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.

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