

AAC Synergy

AAC Synergy is a two-row, hulled malting barley variety registered in Canada in 2012. A cross of TR02267 and Newdale, it was developed by Dr. Bill Legge at the Brandon Research Centre, Agriculture and Agri-Food Canada.

Highlights:

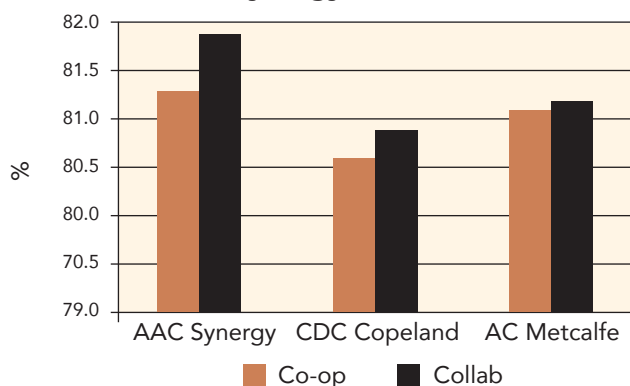
- ★ 13% higher yield than AC Metcalfe, 7% higher than CDC Copeland
- ★ Heavier and plumper kernels than AC Metcalfe and CDC Copeland
- ★ Extract yield higher than AC Metcalfe and CDC Copeland
- ★ Enzyme levels higher than CDC Copeland
- ★ Improved brewhouse yield, efficiency and attenuation limit compared with controls

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

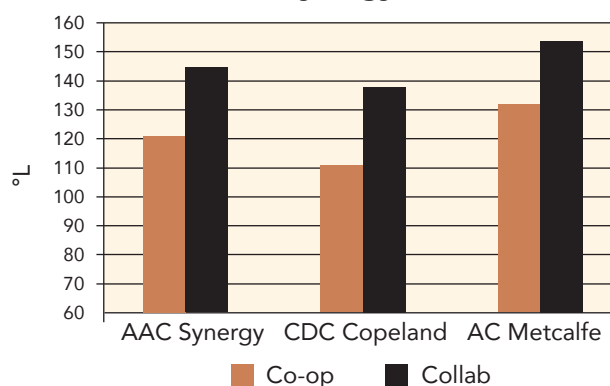
Malting quality traits:

- Extract yield higher than AC Metcalfe and CDC Copeland
- Comparable soluble protein and KI
- Enzyme levels higher than CDC Copeland
- Lower beta-glucan than AC Metcalfe and CDC Copeland

AAC Synergy Fine Extract



AAC Synergy DP



Agronomic traits:

AAC Synergy represents a variety with an excellent combination of agronomic traits, disease resistance and overall malt quality.

- 13% higher yield than AC Metcalfe, 7% higher than CDC Copeland
- Shorter and stronger straw
- Maturity date similar to AC Metcalfe
- Heavier and plumper kernels than AC Metcalfe and CDC Copeland
- Resistance to spot-form net blotch, netted blotch and spot blotch

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	1999	108	0	Good	Intermediate
AAC Synergy	2012	113	1	Good	Moderately Susceptible

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 contracting 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 Synergy Results in CMBTC Pilot Scale Trials

The data below represents average results generated by pilot scale trials at the CMBTC for samples of AAC Synergy from 2013 through 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

AAC Synergy malt exhibited very high extract yield. Enzyme levels are comparable to CDC Copeland, lower than AC Metcalfe. Soluble protein and KI were comparable to AC Metcalfe and CDC Copeland suggesting good protein solubilization, while FAN levels are comparable to CDC Copeland and lower than AC Metcalfe.

	AAC Synergy		CDC Copeland		AC Metcalfe	
	Avg	Range	5 yr avg	5 yr range	5 yr avg	5 yr range
Fine Extract, %	82.1	81.2 – 82.6	81.6	81.0 – 82.4	81.6	80.9 – 82.5
Color, EBC	4.4	3.4 – 4.8	4.2	3.8 – 4.4	4.9	4.6 – 5.8
Total Protein, %	11.0	10.2 – 11.9	11.3	10.8 – 11.7	12.0	11.5 – 12.6
Soluble Protein, %	5.08	4.57 – 5.57	5.14	5.0 – 5.4	5.40	5.3 – 5.6
Kolbach Index	46.8	40 – 52	46.1	44 – 48	45.0	43 – 48
Diastatic Power,	127	116 – 136	129	126 – 139	152	145 – 160
Wort Beta-glucan, ppm	78	64 – 100	119	85 - 198	149	137 – 170
FAN, ppm	208	166 – 247	212	182 – 230	223	204 – 247

Comparative brewing quality parameters

AAC Synergy had good overall brewhouse performance. It displayed a quick conversion time along with runoff time, time to clear and wort colour comparable to the 5 year averages of AC Metcalfe and CDC Copeland. Brewhouse yield, efficiency and attenuation limit were greater than the controls.

Parameter	AAC Synergy Average	CDC Copeland Average	AC Metcalfe Average
Conversion Time (min.)	15	19	13
Time to Clear (min.)	8	7	7
Runoff Time (min.)	46	46	46
Wort Colour (SRM)	4.43	4.25	4.95
Brewhouse Yield (min.)	72.7	69.1	71.3
Brewhouse Efficiency (%)	88.9	86.2	88.7
Attenuation Limit (%)	90.2	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.