

Malting barley varieties: Copeland

Bill Ladish

Cargill Malt, Specialty Products Group

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In a previous article we discussed the drop in acres planted to Harrington in Canada during the mid- to late-1990s and afterwards, after a long and distinguished reign atop international commerce. The declines were driven by the comparatively improved agronomics of newer lines of crops which compete with malting barley for average in Canada, and by the improved agronomics of newer 2-row malting barley varieties released in order to keep malting barley competitive with these other crops.

The newer 2-row malting barley varieties are primarily Metcalfe, Kendall, Stratus, and Copeland. Metcalfe and Kendall were discussed in previous articles. Stratus has not been successful in the marketplace compared to Metcalfe and Kendall. Here we discuss Copeland.

Copeland was developed at the Crop Development Centre at the University of Saskatchewan in Saskatoon by Dr. Bryan Harvey, and was registered in Canada in 1999. Its parentage is TR118 x WM861-5. TR118 derives from Harrington. Metcalfe was registered in 1994 and Kendall in 1995.

Garth Massie, the Senior Barley Supply Agronomist at Prairie Malt Ltd (PML), provides the following comparison of the agronomic performance of Copeland relative to Metcalfe:

- * Improved straw strength.
- * Improved net blotch resistance.
- * Greatly improved yield. 107% of Metcalfe.
- * Improved hull adherence.
- * Equal plumpness.
- * Slightly earlier.

In short, Copeland is a definite step forward in agronomic performance.

Comparisons of malt analytical data across varieties have to be done with great care. Typically maltsters have to work with a variety for a while to optimize processing conditions. When that is completed, different varieties tend to be selected for different major customers and processed differently. So, while great amounts of data are available, there is only limited data available when all varieties are processed under thoughtful generic conditions in an attempt to quantify differences across varieties. The writer is aware of only two such studies. One was done internally at PML in Biggar, Saskatchewan with brewing at the Great Western brewpub in Saskatoon using 1999 crop barley. The other is an extensive study done by our former colleague Dr. Yueshu Li and his colleague Aleksandar Egi at the Canadian Malting Barley Technical Centre in Winnipeg. They used barley from the 1999, 2000, and 2001 crops. More importantly, their study included Copeland, whereas the earlier PML study did not. This latter study has been published. Li & Egi: "New Canadian Malting Barley Varieties and Their Malting

and Brewing Characteristics,” Master Brewers Technical Quarterly, volume 41, number 2, (2004) pages 104-110.

Li & Egi report the following data from their pilot malting study.

	Harrington	Copeland	Metcalfe	Kendall
Friability, %	84.5	92.6	89.7	93.0
Extract, fine, dry, %	79.9	80.0	80.7	81.1
F-C Extract, dry, %	1.4	0.5	0.5	0.7
Total Protein, dry, %	12.4	12.6	12.5	12.2
Soluble Protein, dry, %	5.3	5.2	5.2	5.2
S/T (Kolbach Index), %	42.6	41.2	42.3	42.4
a-Amylase, DU	58.2	53.2	66.0	59.0
Diastatic Power, ASBC	137	134	159	157
b-Glucan, ppm	164	91	82	74
Wort Viscosity, cP	1.50	1.45	1.46	1.46
Wort Color, ASBC	2.13	1.95	2.24	2.10
Free Amino Nitrogen, mg/L	223	185	203	193

For Copeland:

- * Improved friability relative to Harrington and Metcalfe.
- * Extract similar to Harrington. Full 1% lower than Kendall.
- * Lower F-C and b-glucan than Harrington.
- * Slightly higher b-glucan than Metcalfe and Kendall.
- * Somewhat lower S/T than Metcalfe and Kendall.
- * Lowest a-amylase of the four varieties.
- * Lowest FAN of the four varieties, but sufficient.
- * Lowest wort color of the four varieties.

It is this tendency towards relatively low wort color that is the most interesting aspect of Copeland. Note the similar levels of total protein of the four varieties tested.

Li & Egi found the fermentation profiles of Copeland to be similar to those of Harrington.

During ongoing processing subsequent to the Li & Egi study, PML noted that the differences between the extract and b-glucan of Copeland as compared to Metcalfe and Kendall narrowed considerably.

At Cargill Malt, Specialty Products Group we are attracted to the relatively lower wort color of Copeland. We feel that this variety is well suited to the production of an all-malt pilsner-style beer. Accordingly we have reformulated our Cargill EuroPils to be made entirely from Copeland. The barley for Cargill EuroPils is selected at Prairie Malt Ltd in Biggar, Saskatchewan. Malting for Cargill EuroPils is performed there as well.