

Quality of malting barley grown in New York

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Introduction

With the rapid growth in craft beer production, a demand for locally sourced malted barley has led to the establishment of new craft malt houses in New York and other states in the northeastern US. In New York legislation has provided some incentives to use locally produced barley for craft beer. Because of these factors, interest in malting barley production is increasing. However, most of the breeding efforts for malting barley varieties have been focused in other regions (western states, western Canadian provinces, and Europe). Little to no current data was available on the quality of commercially produced malting barley in New York.

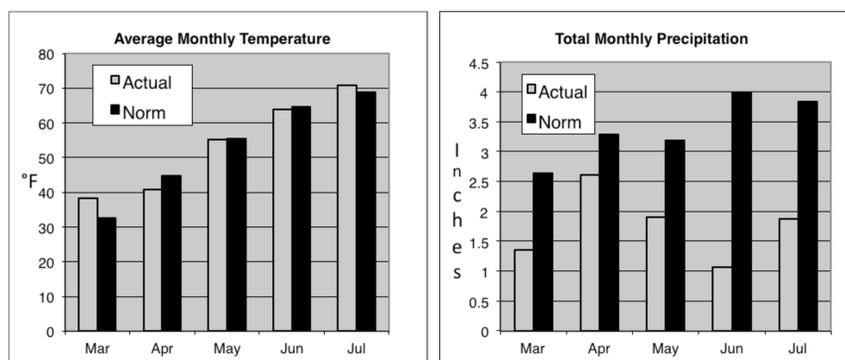
Methodology

A harvest survey of growers was conducted in 2016 crop year to collect malting barley samples from commercial production across New York state. Sixty (60) samples were obtained representing 10 different commercial varieties of malting barley of both spring and winter types. Samples were analyzed for grain quality parameters including protein, kernel size, test weight, germination energy, and pre harvest sprout damage according to ASBC Official Methods. Grain samples were also micromalted and malt quality was assessed using standard ASBC Methods.

Table 1. Malting barley varieties grown in NY

Variety Name	Head Type	Planting Type	Breeder
AAC Synergy	Two	Spring	Agriculture & Agrifood Canada
Newdale	Two	Spring	Agriculture & Agrifood Canada
Conlon	Two	Spring	North Dakota State University
LCS Genie	Two	Spring	Limagrain Cereal Seeds
Quest	Six	Spring	University of Minnesota
Endeavor	Two	Winter	USDA - ARS (Aberdeen, ID)
Wintmalt	Two	Winter	KWS
KWS Scala	Two	Winter	KWS
SY Tepee	Two	Winter	Syngenta

Figure 1. Average monthly temperature and precipitation in NY during 2016 growing season



Results

Figure 2. Comparison of barley quality parameters among varieties

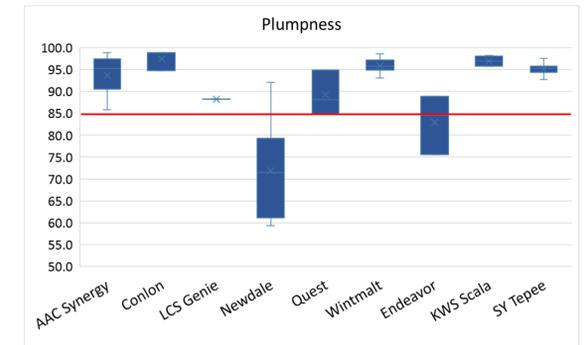
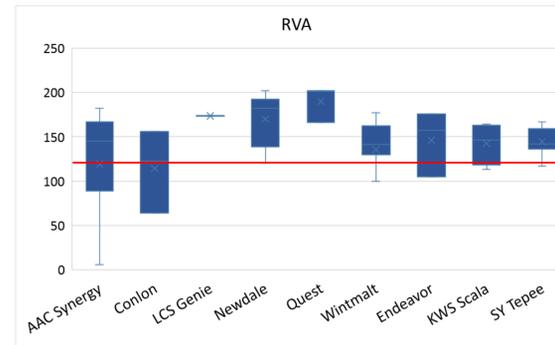
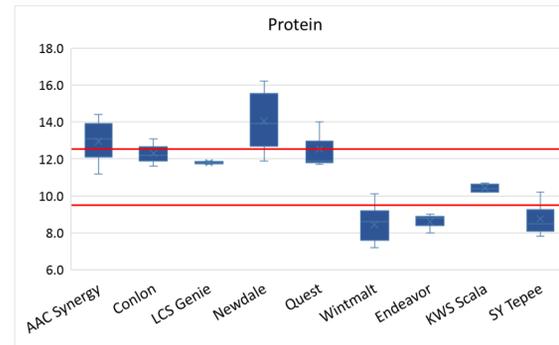
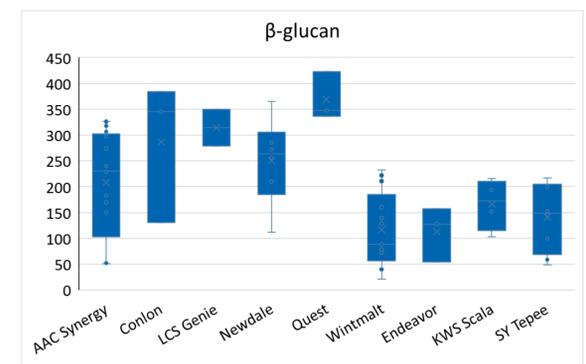
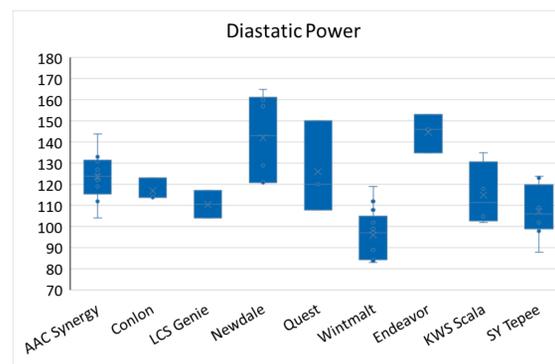
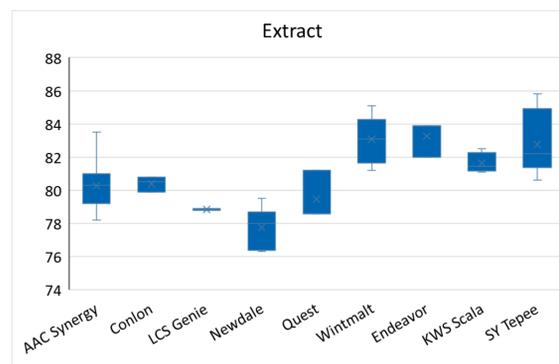


Figure 3. Comparison of malt quality parameters among varieties



Discussion

The 2016 growing season experienced close to normal temperatures (Figure 1) but significantly lower precipitation than average, resulting in draught conditions for spring planted cultivars which limited yield and increased protein levels in the grain.

Significant differences were seen in grain quality between spring and winter varieties especially protein content which affected the quality of the subsequent malt. Winter types had lower protein (Figure 2) content which created the potential for high extracts (Figure 3) but resulted in lower enzyme production. Spring types tended to higher protein content, which limited water uptake and modification potential.

Wet conditions during harvest are common experienced, which results in pre-germination in varieties lacking dormancy. The European type varieties had better resistance to pre-harvest sprout damage.

The study results demonstrate that a high quality malt can be made from barley grown in NY which meets standard specifications for malting. Lower protein winter and European varieties may additionally have benefits for craft brewers using all malt production practices

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References

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