

Old World and New World Otters, barley, climate change, the Admiral, and beer flavor

Hoping this title caught your attention, we'll make try to make this story simpler with some up-front definitions.

Maris Otter: A famous “heirloom” 2-row malting barley variety from England. Maris Otter was released in 1966 – the year of the third and final US tour by The Beatles. The variety has sacred status for many brewers, who perceive that malt made from the variety does amazing things for beer flavor. The variety survives thanks to an envelope of intellectual property that limits its growth to a small area in England, where it is contracted by a limited number of firms and malted by a limited number of malthouses. Maris is the name of road near Oxford, where the former Plant Breeding Institute (the developer of Maris Otter) was located. An otter is, well, an otter. Old World otters belong to the genus *Lutra*.

Lontra: The genus of the New World otter and the name of a winter, 2-row malting variety released by Oregon State University in 2023. Clearly a new animal compared to its parent - Maris (*Lutra*) Otter.

Klamath Basin: A geographic designator for a large high desert area spanning the Oregon/California border that is drained by the Klamath River. It is home to large shallow lakes critical for wildlife habitat and highly productive irrigated crop production. Historically the Klamath Basin has been a famous producer of high-quality malting barley, but that stream has reduced to a trickle in favor of potatoes and alfalfa. Due to climate change and the resulting water limitations, agriculture is endangered: fall-planted barley, like Lontra, can help to lessen the pressure because it can use available precipitation and thus less irrigation water and bring barley back to the landscape.

Admiral Maltings: A craft malting facility in Alameda, California that specializes in floor malted sustainably grown California barley. Admiral contracts barley on the California side of the Klamath and are keen to use Lontra due to its water use efficiency, renowned Maris Otter parentage, and New World swagger.

Barley contributions to beer flavor: Could the barley variety, and where the variety is grown, contribute to the flavors of beer? The OSU Barley Project has been investigating this question for several years. A list of suggested readings follows.

With that background – on to the genesis of Lontra (the barley). We started out by crossing 04-028-36 (a 2-row winter malting variety from Ackermann Saatzeit GMBH & CO) and Violetta (a 2-row winter malting variety from Limagrain Cereal Seeds) with Maris Otter. We produced doubled haploids from these crosses, tested them in replicated trials, and winnowed the set down to four selections (aptly named “Romp of Otters”) based on agronomic performance and malting quality specifications. The Romp (as one properly refers to a group of otters) went through extensive malting, brewing, and flavor assessments (described in detail by Morrissy et al. 2021). Finally, we selected Lontra (DH142010; from the cross of 04-028-36/Maris Otter) based on additional agronomic, floor malting, brewing, and sensory data (Morrissy et al. 2022). This selection was increased at Tulelake, California (2022 harvest) in collaboration with the

University of California Intermountain Research and Experiment Center (IREC). Grain from that increase, along with grain from OSU Thunder (a 2-row winter malting barley variety) from the same increase, was malted in February/March 2023 in the OSU malthouse, and at Admiral Maltings, in order to directly compare pneumatic and floor malted barley in terms of brewing metrics. Deschutes Brewery of Bend, Oregon will brew four beers from these malts. Sensory analyses of beer flavor and aroma will be conducted at the 2023 Master Brewers Association of the Americas regional meeting in Hood River, Oregon and at pFriem Family Brewers, also in Hood River. Lontra seed from the 2022 IREC increase is also being used for a pre-commercial increase near Tulelake, contracted by Admiral Maltings under a research Materials Transfer Agreement. That grain (2023 harvest) will go into pre-commercial assessment with Admiral Maltings and their brewing partners. There are still many rivers for the Lontra to swim – but please join us in raising a glass to its success.

It takes a team to raise a Lontra:

- Harmonie Bettenhausen, Hartwick Center for Craft Food and Beverage – malt analysis and moral support
- Darrin Culp, UCANR-IREC – grain production and our man on the ground at Tulelake
- Curtis Davenport, Admiral Maltings – Malting and faith
- Tanya Filichkin, OSU – made the doubled haploid
- Scott Fisk, OSU – managed field trials, made the malts
- Patrick Hayes – OSU Principal Instigator
- Laura Helgerson, OSU – grew the doubled haploid, field note-taker and crew boss
- Campbell Morrissy – OSU Lontra research lead and pFriem, head brewer and prospective Lontra user
- Ron Silberstein, Admiral Maltings – The Admiral

Readings (citations in bold are those referenced in this article)

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