



PepsiCo and Corteva Agriscience announce the first-ever sequencing of the full oat genome for use in open-source applications

(Based on a press release received from
Allison McEneaney, Communications Director, PepsiCo)

Today, June 23rd, 2020, PepsiCo and Corteva Agriscience announced the release of the first-ever publicly available hexaploid oat genome sequence. The primary project contributors included Corteva, applying its advanced sequencing technology and analytic capabilities; the University of North Carolina Charlotte, providing crucial sequence data and learnings; and the Crop Development Centre at the University of Saskatchewan, providing the oat variety, OT3098.

A [genome browser containing all of the data](#) is now available on the USDA Agricultural Research Service's GrainGenes website. The datasets can be downloaded from [here](#).

The work was completed in just four months, and will advance the resiliency of at-risk food systems, while leading to heartier oat varieties with improved sustainability, taste, and nutrition. It's part of PepsiCo's broader effort to use their scale and reach to help build a more sustainable food system – one that can provide nutrition and enjoyment, and drive economic growth and social development, while protecting and restoring the planet. You can read more about that work in their recently released [2019 Sustainability Report](#).

PepsiCo and Corteva are publicly releasing the genome sequence to continue to advance oat research. In addition, the release of the oat genome is aimed at spurring agronomic innovations globally that can improve the resiliency of the food system in the following ways:

- **Sustainability** – Breeding for better yield could produce more resilient varieties with improved disease resistance and guard against loss in the field, create longer root systems and healthier soils that sequester carbon and reduce water run-off, and reduce the amount of land and other resources needed to grow oats.
- **Nutrition** – Oat grains are already rich in fiber and essential nutrients. Understanding a full oat genome improves the ability to target these qualities, ultimately benefiting consumers looking for elevated nutrition profiles from their oats.
- **Taste** – The nutritional value of oats is well-documented and encouraging its consumption by potentially creating more flavorful varieties helps expand its appeal.

Members of the group responsible for this sequencing effort are very pleased with the results.

“Through our collaboration with Corteva and a number of key partners, we were able to unlock answers to the difficult problem of sequencing the entire oat genome in just a few months' time, a project that will benefit our own Quaker Oats brand and the broader oat community,” said Dr. René Lammers, PepsiCo Chief Science Officer. “With this open-source approach, we hope to advance the science of oat breeding and ultimately improve food and nutrition security and farmer livelihoods worldwide.”



“Corteva’s best-in-class agricultural genomics and data science capabilities came together to tackle this significant challenge, leveraging leading-edge science to crack this complex genome,” said Neal Gutterson, Chief Technology Officer at Corteva Agriscience. “This collaboration and the release of the reference genome represents Corteva’s commitment to working together to solve agricultural challenges.”

"We are at an exciting time in oat genomics as technological advances have taken the oat community to the forefront of understanding how complex polyploid genomes function. This public-private partnership with PepsiCo that continues to benefit the whole oat community," said Dr. Jessica Schlueter, Associate Professor, University of North Carolina Charlotte.

“We are so pleased that our breeding line was included in this effort,” said Dr. Aaron Beattie, Associate Professor, Crop Development Centre at University of Saskatchewan. “This line has a strong combination of quality attributes, including high beta-glucan, protein and milling yield, resistance to diseases like crown rust and smut, and good yield potential in a short plant stature. Its underlying traits can now be studied and understood, and will ultimately assist breeders in their efforts to improve oat.”