On the Road to the Holy Grail of the Sesame Industry



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Sesame has a rich history, with evidence of cultivation dating back 3000 years. While appetites for this superfood have grown across the world, the crop itself was stuck in time, requiring manual harvesting due to the fragility of the pods. In addition, the very few commercial sesame varieties in the market were optimized over decades for agronomic traits such as high yield and disease resistance, but not for taste, texture, or nutrition, which are critical for food applications

But with major technological advances such as, AI and gene sequencing, cultivating better source crops became possible, and today, the industry has new sesame varieties that are fit for mechanical harvest, offer high yields, are disease and drought tolerance, are mild-sweet in flavour, and high in oil and protein for ideal taste and texture in food.

Leading innovation in this space is Equinom, an Israeli food-tech company which began its sesame breeding project in 2014 with a revolutionary goal: to create the first sesame variety with both elite agronomic traits and food functionality bred into the seeds – without genetic modification. The company's Manna[™] technology platform uses AI to identify desirable traits for food applications and predict optimal cross-breeding matches for better varieties across multiple traits.

Equinom Smarter Sesame™ features shatter-resistant pods that retain the seeds until the plants are completely dry ready for harvest. Unlike traditional varieties, shatter resistant sesame can be harvested mechanically, reducing reliance on manual labour. This feature also enables sesame to be grown in areas that were not previously accessible, including the US, Australia, and Europe. New growing regions can drastically reduce transport costs and supply chain complexity for those markets - which have proven particularly beneficial in current market conditions.

In addition to being non-shattering, Equinom varieties deliver on agronomic traits including disease resistance and competitive yields to ensure profitability and efficiency for growers. Some of these varieties have reached record yields up to 2.0MT/ha and more in commercial fields. Beyond yield, the company's unique technology enables mapping of traits that are the most desirable for food applications, including high oil content, light colour, high protein content and mild-sweet taste to the genome of the seeds. In this manner, the company was able to identify the most desirable varieties that exist in nature and determine the most promising matches to breed new super varieties that perform optimally for both growers and food manufacturers.



Equinom Sesame -shatter-resistant pods

NOT MADE



First Commercial Varieties and Production

In June 2018, after four years of breeding efforts in Israel, the US, and Australia, Equinom released its first three patented varieties for commercial production in the US. Each variety had its own unique plant architecture and time to mature, in order to give growers options to grow sesame under diverse growing conditions and in different farming systems.

The first commercial fields were planted on hundreds of hectares around Lubbock, West Texas by five ambitious growers willing to grow an entirely new crop which some had never seen before. With the support of the Equinom agronomy team, the growers overcame many challenges and in November 2018, successfully harvested Equinom Smarter Sesame at a commercial scale for the first time. The success solidified confidence in the new sesame varieties, resulting in a large (20X) expansion in 2019 with fields planted around South and West Texas, Oklahoma, and Queensland, Australia.







Global Expansion

In 2020, after gaining experience and confidence in large-scale commercial sesame production, Equinom decided to take the next strategic step toward its goal - fully mechanizing sesame production worldwide. This step required Equinom to enter new growing locations with commercial sesame production and trials in Latin America, Africa, Asia, and Europe. Today, by working closely with local partners, Equinom sesame varieties are grown in 20 different countries worldwide.

In traditional sesame growing regions like Africa, Equinom sesame varieties are bringing change to common farming practices, many of which have been in place for thousands of years. Both traditional smallholder growers and large-scale farming operations benefit from nonshattering sesame pods and highyielding plants that fit both fully and semi-mechanized growing practices.

Even traditional sesame growers with small farms are seeing increased efficiency from using mechanical threshers to extract seeds out of mature pods and plants. Higher yields, premium grain quality, and a high and stable germination rate also contribute to more stable, sustainable production season after season.

Large-scale producers with modern machinery can now add sesame to their crop rotation and grow it in vast agricultural areas where the climate and environmental conditions are optimal for sesame production. This creates an abundant and stable sesame supply source upon which traders can rely. Traders, processors, and buyers also benefit from fully traceable, highquality products that consistently meet industry specifications.

In relatively new and developing sesame growing regions like Latin America, the volume of sesame production has increased significantly, and the demand for new varieties with high-quality seeds and high yield potential is getting stronger from season to season. Today, Equinom varieties are grown in Argentina, Paraguay, and Brazil. The premium grain quality and traceability, alongside the legitimacy of the varieties granted by their registration and patent protection, make them perfect for export and international trade. These advances have contributed to Latin America's status as a rising power in the global sesame industry.



Next Generation of Sesame Varieties

Equinom is continuously working on the next generation of elite sesame to maximize yield stability and potential, plant structure, plant maturity, and pest and disease resistance, along with seed size, colour, protein, and oil content, all key to achieving the crop's potential in each of the diverse growing regions.

This breeding work has yielded a large catalog of elite sesame varieties with premium characteristics designed to positively impact the sesame supply chain, from grower to end consumer. With this portfolio, Equinom can provide suitable varieties for diverse growing regions, from short growing seasons like Northwest China and the US to tropical regions with long growing seasons like Mato Grosso and Brazil, all while keeping the grain quality at a premium standard for the world market.





Equinom Second Generation Variety

Today, new sesame varieties are being sent from Israel to field tests worldwide, promising a future of fully mechanized and sustainable sesame production. Equinom is pursuing similar advances on other crops, including the largest sources of plant proteins: yellow pea and soy. Equinom also has active breeding programs for chickpeas, mung beans, cowpeas, and fava beans. With the game changing combination of strong agronomic and food functionality traits, the company believes it can make plant-based eating more delicious, nutritious, sustainable, and affordable for a growing population. Established in 2012 and based

in Israel and the US, Equinom is a company on a mission to cultivate plant-based ingredients that are truly better for people and our planet. Equinom uses its Manna[™] technology platform and vast seed vault to restore natural biodiversity to our existing food supply by breeding higher quality, non-GMO crops optimized for food. With superior crops at their core, Equinom ingredients require minimal processing and thereby create shared value throughout the supply chain to enable food companies to make plant-based food more delicious, nutritious, sustainable, and accessible for everyone.