

Equinom brings back genomic diversity to legumes

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According to data from the Center for Strategic and International Studies, nearly 80% of people in the developing world rely on farming for their livelihoods. Yet the impacts of climate change and the damage caused by pests and diseases leave millions of farmers struggling to grow sufficient crops to put food on the table.

Highly nutritious, locally grown, strictly non-GMO food

The current pandemic has reaffirmed the importance of providing highly nutritious, local food sources to relieve the currently strained supply chain. On April 21, the United Nations projected that the number of people facing severe food insecurity worldwide could double to 265 million.

Equinom expressed its committed goal to help sustain productive agricultural ecosystems by bringing back the quality and genomic diversity in food crops lost or neglected over the past 100 years as the agriculture industry shifted its focus on

cultivation to animal feed rather than human consumption.

“By diversifying the seed gene pool we can boost crop performance even in the face of extreme climate conditions, improving yields as well as enhancing nutrient scores, protein load and nutrient diversity,” says Gil Shalev, CEO of Equinom. Since 1900, there has been a significant global trend toward diet simplification with reliance on just a few crops to feed the world. This has led to a genetic erosion of the earth's plants' nutritional base, which scientists have warned is having considerable implications for food security, nutrition, and health.

Learning from Great Irish Famine of 1845

Using its patented computational seed breeding technology, Equinom targets multi-trait properties by combining traditional germplasm with exotic varieties and screens their DNA material in order to build the perfect seed. This is achieved without the need for gene editing or modification.

“Relying on a narrow genetic base for nutrition makes society considerably vulnerable to risks of food scarcity,” explains Shalev. “There are many examples of how monoculture agriculture has led to crop failures due to genetic uniformity.” He recalls the Great Irish Famine of 1845 in which heavy reliance on a mere one or two high-yielding types of potato made them vulnerable to an infestation that spurred the demise of an entire crop, leading to a devastating famine that persisted seven years.

12 plant crops, 14 animal species, 7 billion people

“Today, 12 plant crops, and 14 animal species, provide 98% of world's food needs,” explains Itay Dana, VP of Marketing for Equinom. “The food industry has focused on very few, heavily processed high yielding protein crops — largely soybean and wheat, which have lost much of their nutritional value and batch-to-batch variation overtime. Protein content has especially suffered as a consequence.”

The agricultural world is facing multiple challenges. Farmers are expected to feed more people on less land. They also are increasingly aware that they cannot continue to provide “empty crops” to health-conscious consumers demanding more choice. Equinom applies its breeding techniques to a broad spectrum of less-established protein sources, such as fava beans, mung beans, and cowpeas, which innately carry superior nutritional values.

Environmental barriers also strain efforts to expand world food production. This encompasses issues connected to limited water supply and accelerated land degradation, with nearly a third of the world's cropland losing topsoil faster than it is reforming it. This reduces the terrain's inherent fertility with knock-on effects on crop yield potential.

Nourishing the land

Equinom currently is screening and selecting legume grains rich in rhizobium, gram-negative soil bacteria that fix nitrogen. “Fixation converts nitrogen in the atmosphere into forms that plants can absorb through their root systems,” explains Shalev. “This is crucial for maintaining productive and healthy ecosystems. Via such measures we can better nourish the land, generate long-term soil fertility, and improve output for the following harvest, bringing significant improvements to crop rotation.”

Equinom is concurrently ramping up its global presence to support farmers and agricultural stakeholders during the COVID-19 epidemic, strategically working to bring seeds “closer to home” and shorten supply chains. This also boosts traceability, vital to assuring overall food safety and building better consumer trust.

“We deliver more nutritional value per square meter by encouraging more effective land use,” says Dana. “Farmers can now enjoy the economic fruits of producing voluminous outputs from highly nourishing plants and using less resources while adopting sustainable solutions that are kinder to the planet.”