

Ancient wheat relative Kernza resists diseases and pests without gene manipulation

Kernza's arrival has been a [long time coming](#). The new grain variety from the [Land Institute](#) is derived from an ancient form of intermediate wheatgrass, a perennial that is actually a distant relative of wheat.

Kernza can be grown year-round, with roots that live on in the ground through winter. Corn, wheat, and most of the other grains we eat, on the other hand, are annual crops, which must be replanted anew every year, and require seeds, fertilizers, and pesticides for each planting. But Kernza's most important difference—and the reason so many people have been waiting for its arrival—is the way it interacts with the soil.

Because its root system is dense, growing down into the earth up to 10 feet, Kernza can respond to shifts in soil and temperature quickly, taking in water, nitrogen, and phosphorous. Annual wheat doesn't live long enough to develop thick roots, and requires soil tilling before each planting. But Kernza's roots hold soil in place, preventing erosion.

In the near future, the Land Institute hopes to see thousands of acres of farmland planted with perennials. But first they must perfect the seed.

Land Institute scientist Lee DeHaan and his team are still working on breeding Kernza for increased seed size, yield, and what's called a "non-shattering hull." Because it's a wild grass, the seeds are naturally small, which means more bran and fiber, but lower yield overall.

While some modern wheat varieties have been bred to resist disease—like leaf and stem rot, DeHaan explains that over evolutionary time, the perennials have learned to live with disease and pests. Although some of his plants are susceptible to bacteria leaf streak, DeHaan says, Kernza "is phenomenally clean."

While the breeder uses DNA sequencing to help get to the varieties and traits that matter, his team is not taking genes from other organisms.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: [Superwheat Kernza Could Save Our Soil and Feed Us Well](#)