



Science
Societies

Yield and Milling Quality Trade-Offs in Argentinian Flint Maize

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Commercial food-grade hard endosperm maize ears (left) and regular soft maize ones (right) harvested in Zavalla, Santa Fe, Argentina. Photo by Lucas Abdala.

Argentina is one of the five largest maize (*Zea mays* L.) producers globally. The country is also an exporter of non-genetically modified organism food-grade hard endosperm maize, known as *Plata* or flint maize. Food-grade maize supply chains currently face the challenge of increasing yield while maintaining quality standards for dry milling. Even though these trade-offs are common in maize, the magnitude of these correlations can differ depending on the specific trait.

Researchers tested maize hybrids, including food-grade hybrids, to quantify the relationship between yield and grain traits known to affect dry milling with a focus on describing the genetic control of the traits that show no negative yield effects. Commercial maize hybrids showed that grain hardness was negatively correlated to yield. Screen retention, a key trait for the milling industry that is based on the proportion of the grain's retention when sieving, showed no correlation with yield. This trait also showed a strong genetic control that can be exploited without yield penalties.

The researchers found that the trade-off between yield and grain quality was trait dependent. These findings may help predict expected yield gaps between regular and food-grade maize when selecting for high dry-milling quality.

Adapted from

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