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Iowa State University plant scientists begin to unravel the mystery of hybrid vigor

AMES, Iowa -- For nearly 80 years, corn breeders and producers have taken advantage of hybrid vigor to grow high-yielding crops. Yet this biological process remains a scientific mystery. No one really understands why crossing specific lines of corn that are genetically quite different can produce a hybrid that outperforms both parent lines.

That could change, however, thanks to ongoing research in Iowa State University's Plant Sciences Institute. Researchers have uncovered a key to understanding the complex molecular mechanisms of hybrid vigor, also known as heterosis, which affects most aspects of plant growth and development. Once the gene activity behind hybrid vigor is well understood, scientists could more rapidly create hybrids that confer desired traits like ethanol production into the germplasm.

The research team, led by Patrick Schnable, professor of agronomy and director of the Center for Plant Genomics, includes Dan Nettleton, associate professor of statistics; and graduate students Ruth Swanson-Wagner, Yi Jia, Rhonda DeCook and Lisa Borsuk.

Their research is published in the May 2 issue of the scientific

Hybrid vigor: Corn lines B73 (left) and Mo17 (right) produce the hybrid F1 (center). Print quality photos are available from tbarron@iastate.edu.