Genomic Hotspots Control Maize Leaf Angle

For the past 50 years, maize yields and planting densities in the United States have increased concurrently. During this time, breeders selected high-yielding hybrids under high planting densities that resulted in hybrids with smaller tassels, synchronized male and female flowering, and upright leaf angles. Higher planting densities combined with upright leaf angles improves light distribution and increases its interception within the canopy. The benefits of upright leaf angles have also been observed in other major crops, including barley, rice, sorghum, and wheat.

An article recently published in the Plant Genome conducted genetic linkage mapping across multiple populations and generations developed from three maize inbred lines that represent important groups of U.S. maize germplasm. The authors report the discovery of 12 genomic regions controlling leaf angle variation in the lower canopy. To gain a comprehensive understanding of natural variations underlying leaf angle, the team conducted a meta-analysis that uncovered 58 genomic hotspots that contain 33 candidate genes.

With a growing human population and dwindling amounts of arable land, it is crucial that more grain is produced on the same amount of land. This study advances our knowledge on leaf angle variation in maize, providing researchers with genomic hotspots to continue unraveling the underlying molecular mechanisms and to develop hybrids with ideal leaf angle architectures.

Adapted from Dzievit, M.J., X. Li, and J. Yu. 2018. Dissection of Leaf Angle Variation in Maize through Genetic Mapping and Meta-Analysis. Plant Genome. 11 View the full open access article online at http://dx.doi.org/doi:10.3835/plantgenome2018.05.0024

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Preferred Water Information Sources in the Pacific Northwest

After soils, water is America’s most important natural resource. The public is aware of the many water quality and water quantity issues that must be dealt with on a regular basis. However, many people are often overwhelmed by the sheer amount of water resource information that they are exposed to every day.

Researchers, educators, government officials, NGOs, and companies can convey water information to consumers via printed fact sheets, the internet, newspapers, television, radio, workshops, and displays. However, in our rapidly changing society, educators do not always know how to choose the best information outlet for specific client groups.

In the current issue of Natural Science Education, mail-based surveys were used to determine preferred water information sources used by consumers since 2002 in the Pacific Northwest states (AK, ID, OR, and WA). In 2002, television, newspapers, and printed fact sheets were preferred by consumers. Conversely, by 2017, the internet was the most preferred way of obtaining water information.

The study suggests that professional water educators should become more reliant on the internet compared with printed fact sheets, workshops, and newsletters.


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