For Immediate Release

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Scientists are Cracking the Genetic Code of Weeds

– *Research holds the potential to boost crop yields and impact our ability to feed a growing world population*

(LAWRENCE, Kansas) — When scientists identified the function of the 25,000 or so genes that make up human DNA, they unleashed a new wave of innovation in healthcare that is allowing physicians to tailor the treatment of diseases for better outcomes. The same type of genetic research is helping scientists do battle on a very different front – learning how to better control the invasive weeds that harm crops, reduce harvests and impact our ability to feed a growing world population.

"By bringing the same research principles used in the analysis of human DNA to the plant world, molecular biologists are developing a better understanding of how weeds work and how to control them more effectively," said Nilda Burgos, a weed physiologist in the Department of Crop, Soil and Environmental Science at the University of Arkansas. "We also hope to use what we learn about the genetic traits of weeds to determine how we can help food crops thrive under environmental stresses and poor growing conditions, just as weeds do."

One leading example of the impact of molecular research involves work underway on weedy red rice (*Oryza sativa*), a troublesome weed that plagues rice crops around the globe. An estimated six out of 10 rice fields in the southern U.S. alone are infested with weedy red rice, resulting in hundreds of millions of dollars in losses annually due to reduced yields.

Researchers have discovered that weedy red rice absorbs more nitrogen than the rice cultivated for food. This means that when nitrogen-rich fertilizers are applied to an infested field, the weed robs nutrients from the crop and grows even bigger.

"As a next step, we hope to determine which weed genes cause the weedy rice to use more nitrogen than rice," Burgos said. "If we can narrow that down, perhaps we can learn how to make crops more nitrogen efficient and produce higher yields. In the meantime, the practical lesson for farmers and gardeners is to control weeds so they don't steal the fertilizer meant for crops."

Similar research is helping scientists with the U.S. Department of Agriculture (USDA) explore the impact of dormancy in weedy rice, leafy spurge (*Euphorbia esula*) and other weeds.

"When seeds and vegetative buds are in a resting period, they are far harder to control," said Mike Foley, research leader for the USDA's Agricultural Research Service, Plant Science Research Unit. "By identifying the genetic triggers that keep seeds from germinating, we hope to find clues that will help us develop more effective control measures."

Though research on weed genes is taking off in labs around the world, much remains to be done.

"Ongoing molecular research into the genetic code of weeds is crucial," said Lee Van Wychen, director of science policy for the Weed Science Society of America. "By understanding more about the characteristics of weeds – both the good and the bad – we can identify new opportunities not only for agriculture, but for use in other fields, such as medical science."

For more information on genetic weed research, visit www.wssa.net. Or contact the Weed Science Society of America at 202-746-4686.

About the Weed Science Society of America

The Weed Science Society of America, a nonprofit professional society, was founded in 1956 to encourage and promote the development of knowledge concerning weeds and their impact on the environment. The Weed Science Society of America promotes research, education and extension outreach activities related to weeds, provides science-based information to the public and policy makers, and fosters awareness of weeds and their impacts on managed and natural ecosystems. For more information, visit www.wssa.net.

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