Drought tolerant cowpea can improve crop yield in arid West Africa

November 3 2009

Even the highly drought-resistant cowpea (a long type of legume) now has an increasingly difficult time surviving in the Sahel countries where climate change has resulted in shorter and less frequent rainy seasons. Wageningen University, The Netherlands, scientist Eugene Agbicodo recently localised genes of the cowpea that contribute to an improved drought tolerance.

This will help breeders and farmers to produce crops with higher yields despite the changing climate. Agbicodo graduated from Wageningen University recently.

In cooperation with research institute IITA, Agbicodo performed tests in Nigeria with a drought-sensitive type and a drought-tolerant type of cowpea and 120 offspring of a cross-breed of the two. By comparing the DNA from the offspring that did poorly with those that did well, he traced the location of the drought-tolerant characteristic on the cowpea chromosome. Agbicodo also established that plants with leaves that age slower and stomata that stayed open longer had a higher legume and seed yield.

Cowpea is often one of the few crops that produces anything at all in drought-stricken areas with barren soil. In addition, the plant improves the soil's fertility because of its excellent nitrogen-fixing abilities. Poor harvests have a dramatic effect on over 200 million Africans who eat the legumes and feed the tops to their cattle.

Cowpea is a traditional crop that is cultivated on small farms and not economically viable for large corporations. This is why there has been very little detailed research into the crop. But that is now changing. Led from the United States and subsidised by the Bill & Melinda Gates Foundation, a research programme has been established via the Generation Challenge Program (GCP) to acquire more knowledge about the cowpea and increase the yield of the crops.

The close cooperation between scientists from Wageningen University, IITA and the scientists in the GCP program of the University of California (Riverside, USA) resulted in the localisation of genes that stimulate drought-tolerance in various types of cowpea. These results can now be used to secure the future of cowpea as a food source in arid areas of West Africa.

Provided by Wageningen University

Citation: Drought tolerant cowpea can improve crop yield in arid West Africa (2009, November 3) retrieved 24 April 2024 from https://phys.org/news/2009-11-drought-tolerant-cowpea-crop-yield.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.