Non-GM cassava research outclasses GM

1.Breeding Cassava to Feed the Poor
2.Non-GM research on cassava outclasses GM without the hype

NOTE: SciDev.net has a piece based on the Scientific American article below, titled 'A quiet cassava revolution'.
http://www.scidev.net/en/features/a-quiet-cassava-revolution.html

The reason that this remarkable success in breeding more productive and nutritious varieties of cassava is a 'quiet revolution', of course, is because it doesn't involve GM. Item 2 brings this out very clearly, contrasting the excitement over a GM development that is much less significant than the non-GM work.

For more GM cassava hype, see also: GM cassava: "our only hope"
http://www.gmwatch.eu/gm-myths/11156

1.Breeding Cassava to Feed the Poor
Nagib Nassar and Rodomiro Ortiz
Scientific American Magazine, May 2010
http://www.scientificamerican.com/article.cfm?id=breeding-cassava

The world's third-largest source of calories has the potential to become a more productive and more nutritious crop, alleviating malnutrition in much of the developing world

Key Concepts

* Cassava roots are the main source of calories for millions of people living in the tropics, but they are poor in protein, vitamins and other nutrients.

* Scientist have created cassava varieties with improved nutritional value, higher yields, and resistance to pests and disease.

* A combination of traditional breeding, genomics and molecular biology techniques could lead to further breakthroughs.

The diet of more than 800 million people revolves around neither wheat, nor corn, nor rice. Instead in many countries the main staple consists of the starchy roots of a plant variously called cassava, tapioca, manioc or yuca (not to be confused with the succulent plant yucca). Indeed, cassava contributes more to the world's calorie budget than any other food except rice and wheat, which makes it a virtually irreplaceable resource against hunger. Throughout the tropics, families typically cultivate it for their own consumption on small parcels of land, although in Asia and in parts of Latin America the plant is also grown commercially for use in animal feed and starch-based products. The root's nutritional value, however, is poor: it contains little protein, vitamins or other nutrients such as iron. Better varieties of cassava could thus effectively alleviate malnutrition in much of the developing world.

Because of that promise, the two of us and our colleagues at the University of Brasilia and others are devoted to creating hardier, more productive and more nutritious varieties and making them widely available to farmers in developing countries. Our team focuses largely on applying traditional breeding techniques to form hybrids between cassava and its wild relatives, taking advantage of traits that have evolved in the wild plants over millions of years. This approach is less costly than genetic engineering and does not raise the safety concerns that make some people wary of genetically modified crops. Meanwhile researchers and nonprofit organizations in the developed world have begun to take an interest and have produced genetically modified cassava varieties for the same purposes. The recent completion of a draft genome sequencing of cassava may open the way to further improvements.

2.Non-GM research on cassava outclasses GM without the hype

Super-sized cassava "could help alleviate hunger"
GM Myths
http://www.gmwatch.org/gm-myths/11212

When researchers genetically modified cassava plants to produce roots that were "dramatically bigger" than normal, this was press released as a super-sizing breakthrough that "could help alleviate hunger in developing countries".[1]

A team led by Richard Sayre, a professor of plant cellular and molecular biology at Ohio State University, had inserted into the cassava's DNA a bacterial gene that affects starch production. The modified plants' roots were said to be more numerous and up to 2.6 times larger than in normal plants.[2] Sayre leads a multi-institution programme to improve cassava funded by the Bill and Melinda Gates Foundation to the tune of $7.5 million.[3]

But Nagib Nassar, Professor of genetics at the University of Brasilia, responded to an article about the super-sized cassava ("GM cassava has 'super size' roots") by pointing out that he and his colleagues had produced cassava "with roots that are ten times the normal size without resorting to genetic modification." He also noted, "The cost of our research was extremely low. We simply hybridised cassava (Manihot esculenta) with the related wild species Manihot caerulescens. No foreign genes were inserted."[4]

An image of the University of Brasilia researchers' cassava roots, which are around four times the size of the "dramatically bigger" GM super-sized roots, is available online here. [5]

Notes

[1] Wagdy Sawahel, "GM cassava has 'super size' roots", SciDev.net, 15 May 2006

[2] "Super-sized cassava may help fight hunger in Africa", Ohio State University, 24 May 2006

[3] "Research Team Receives $7.5 Million To Study Cassava", Ohio State University, 28 June 2005

[4] "Boosting cassava roots the non-GM way", Nagib Nassa, SciDev.Net, 31 May 2006

[5] Photo gallery UNB 120, Gene Conserve website