Maize to help prevent night blindness

A team of German and Spanish scientists has genetically modified a maize plant in a way that markedly increases the level of three vitamins in the maize kernels. The level of beta-carotene, the precursor to vitamin A, was raised by a factor of 169, the level of vitamin C increased six-fold and the level of folic acid, a vitamin of the B group, doubled. This is reported in the April 2009 issue of PNAS (Proceedings of the National Academy of Sciences of the United States of America).

The increase in the beta-carotene content is particularly significant in the light of World Health Organization (WHO) figures which estimate that 190 million children of pre-school age and 19.1 million pregnant women are affected by vitamin A deficiency. Some 5.2 million children of pre-school age and 9.8 million pregnant women suffer from night blindness, the principal cause of which is lack of vitamin A.

While the media herald the 'golden corn' as the successor to 'golden rice', the scientists describe their achievement in much more modest terms: "We do not refer to our corn as 'golden corn'. Rather it is a multivitamin-containing corn which is meant to demonstrate that it is indeed possible and efficient to build biofortified staple crops for further development and use", says Paul Christou, one of the research team. He has been carrying out research in this area for the last 27 years. "What we have achieved is only the first step in a long process to create a crop that when cleared through a sensible and science based regulatory system will be made available to the people who need it the most, through national local governmental agencies, free of charge."

But how does one get high-quality seed to the poor without creating dependencies or destroying existing markets? This issue is being addressed by staff at the International Maize and Wheat Improvement Center (CIMMYT), the Seed Trade Association of Kenya, the Kenya Agricultural Research Institute (KARI) and the International Food Policy Research Institute (IFPRI), supported by USAID and the American Seed Trade Association. The result is a pilot project in Kenya's Embu and Kisii regions with the title "Maize Seed for the Poor" (MSP). The farmers receive vouchers entitling them to discounts on modified maize seed, which many farmers would be unable to afford without financial assistance. These vouchers can be traded in with particular dealers. The dealers in turn cash in the vouchers at the Equity Bank in Kenya. MSP has opened an account for this purpose at the Equity Bank in Kenya, funded to the value of USD 19,350.

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Further information:
"Golden Corn" abstract:
http://www.pnas.org/content/early/2009/04/27/0901412106
WHO Global Database on Vitamin A Deficiency:
http://whqlibdoc.who.int/publications/2009/9789241598019_eng.pdf

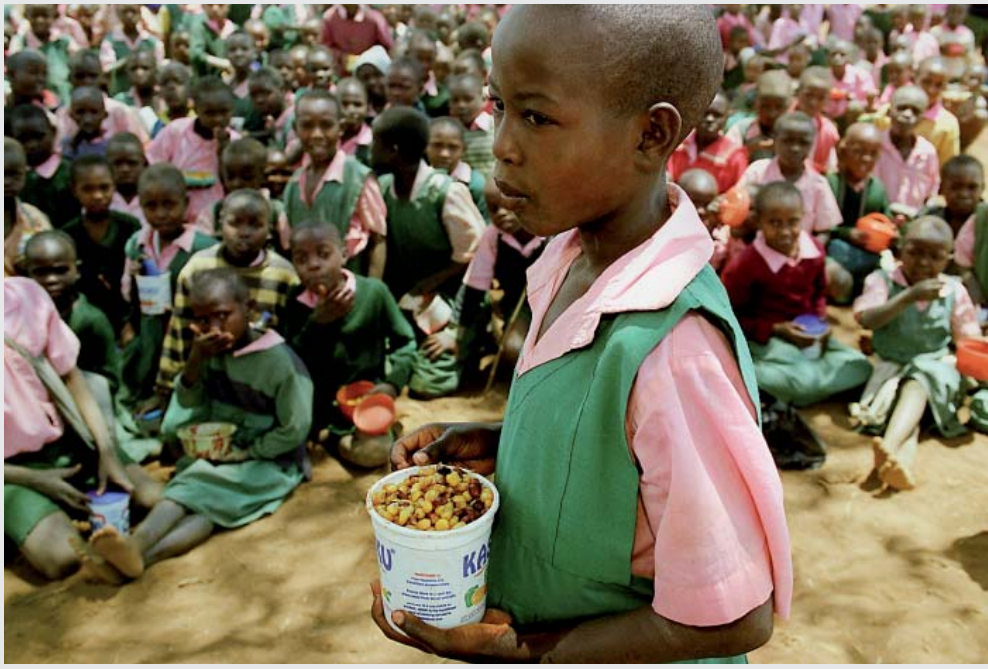

Photo: laif

School feeding programme in Kenya: For many children a cup of maize and beans is their only meal of the day. Vitamin-enriched maize could help raise their intake of essential nutrients.