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A golden rice will finally be distributed to the farmers

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According to the World Health Organization, 250 million preschool children are vitamin A deficient. Between 250,000 and 500,000 children become blind annually and half of them die within 12 months of losing their sight. Even more shocking is that the deficiency leads to nutritionally acquired immune deficiency. Consequently, providing vitamin A to all children in undernourished settings could prevent an estimated 1.9–2.7 million child deaths annually from otherwise survivable infectious diseases. Golden rice is a variety of rice that has been engineered to biosynthesize beta-carotene, a precursor of vitamin A, in the edible parts of rice. There is no rational explanation for the long delay (around 12 years) in getting it to farmers, except the fact that green opponents are fanatically opposing the golden rice. The widespread fears about crops like golden rice are built on the erroneous premise that transgenic and non-transgenic crops are fundamentally different. But for decades it has been known that the molecular processes involved are the same natural molecular evolution of genetic variants, known now as the 'genomic misconception'. Farmers and scientists should also embrace organo-transgenic breeding strategies, beyond ideological barriers. More countries should follow the example of the Canadians and regulate crops based on the phenotype and character of the plant, independently of the breeding processes involved. However green activists such as Greenpeace and Friends of the Earth continue to push for process-based regulation, ignoring other techniques such as forced mutagenesis. A varied diet, including fruits, vegetables and especially animal products is the best way to avoid vitamin A deficiency. But addressing the underlying problem of poverty that prevents this is complex, involving many economic and social factors. Vitamin-A capsule programs cost around $1 billion a year and have undoubtedly saved millions of lives. Nevertheless, they do not change the underlying problem in populations and are not sustainable because of the recurring cost and in addition there are some controversies about vitamin-A evaluation related to the supply programs. Yellow maize will also not solve the problem, but Harvest-Plus is working on the development of a vitamin-A bio-fortified trait, which is still in its development phase. Sustainable solutions should include bio-fortified crops grown by smallholder farmers (as well as at other scales) and plant selection and crop breeding by various methods. Sustainability should be seen as a dynamic progress-oriented strategy after Gro Brundtland, not as a defense line against modern breeding, the reality beyond manipulated statistics looks different: It is important to change regulation worldwide, not by lowering safety standards – but by reinstalling good science. Fifteen years of intensive biosafety research should have diminished concerns about GM crops. Progress would be much faster if irrational fears about transgenic crops can be overcome at all levels and research and products are regulated based on their properties, not because of the technique that made them. Recently, there is hope coming from Bangladesh for a swift introduction of the golden rice, let's hope that those intentions are not stopped again by fundamentalist opposition.

Biography

Klaus Ammann is a Professor emeritus at University of Bern. Born: 6 December 1940 in Bern, Thesis: Vegetation and Glacier history, summa cum laude in 1972 Bern University. Assisting to Swiss Atlas of Plant Distribution, first Swiss research department on Lichenology (chemosystematics and bio-monitoring air pollution). Teaching in plant biodiversity and vegetation ecology, director of the Bern Botanic Garden 1996-2006 and Prof. h.c. 2000. Sabbatical stays: Bergen, Norway, Duke University in North Carolina, University of the West Indies in Jamaica, and Missouri Botanical Garden in St. Louis. Emeritus 2006, guest prof. Delft University of Technology, Sabanci University in Istanbul and Tehran 2017. Moderating 'Berne Debates', early blog on plant biotechnology, presently—ASK-FORCE at PRRI (Public Research and Regulation Initiative) FORUM at European Federation of Biotechnology, KLAUSBLOG at Black Sea Biotechnology Association and since 2017 frequent contributions for literature blog of Klaus Jany. Numerous committees: Chair European expert committee on plant conservation, Council of Europe, founding member Planta Europa, Swiss Biosafety Committee: Biodiversity Section of EFB. Several Swiss and European research projects on gene flow, plant conservation, lichen chemosystematics and monitoring air pollution. Publications on biogeography, vegetation history, vegetation ecology, plant systematics (monography on Bromus), gene flow of crops and their wild relatives and agricultural biodiversity. He also has a special interest in Pythagorean Harmonics science and holistic questions in evolution.

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