

## **GM golden rice is no response to world hunger**

Developing a new variety of rice would not tackle the key cause of vitamin A deficiency. The real causes of hunger and malnutrition are poverty, poor food distribution, lack of land and resources to grow food, and a failure of political will. Experience with 'green revolution' crop varieties suggests that their introduction often results in the use of expensive external inputs - fertilisers and chemical pesticides, without which the crops fail. So for poor people who have land, vitamin A rice might not be of any benefit at all even if companies like Astra-Zeneca give Third World farmers free access to the grain.

Golden rice is not yet ready. In 1999, it was announced that the rice would be in the hands of farmers within two to four years. However, golden rice does not exist outside the laboratory. It will take years and a great deal of money to develop and test the final products both for the availability of the beta-carotene, a precursor for Vitamin A, and its performance in the field in a wide variety of environments. There is no guarantee that the plant will perform as predicted, or even hoped, because of the complex genetic engineering involved.

Golden rice would also need to be rigorously tested for any health side effects. Because a high proportion of people's diets are made up of rice, small changes in its nutrient or toxicant composition could have serious health consequences. It will be many years, therefore, before golden rice is actually available. This raises the danger that its development will be a distraction, providing an excuse for inaction and diverting resources away from existing solutions.

### **Solutions to vitamin A deficiency (VAD)**

Simple, effective, and inexpensive ways of ending VAD already exist. In the Southeast Asian countries where VAD is most concentrated, supplementation - administering high dose capsules twice yearly - is the favoured short term option. And progress is being made. Programmes in the Philippines, Vietnam and Indonesia have virtually eliminated clinical signs of VAD. According to UNICEF, it costs less than 50 cents a year to provide effective treatment as an integrated part of a health monitoring system.

The WHO, together with UNICEF and other groups, has a comprehensive initiative in place in 70 countries around the world. The World Bank considers investment in these programmes among the most cost-effective interventions to improve health. Indeed, the WHO had an aim to eliminate this problem entirely by the year 2000 through improved health education and hygiene practices. It has failed to meet this deadline not because solutions are not available, but because of inadequate resources and a lack of political will.

There are many sources of vitamin A and its precursors. The notion of delivering one vitamin through special rice is fundamentally misguided, both from a health and an environmental viewpoint. A diverse diet rich in a range of vitamins and minerals also makes for a diverse agricultural land less prone to health and pest epidemics and ensuring long-term food security. The lasting solution to VAD, therefore, is to reverse dependence on a single sources of food and promote balanced diets.

Golden rice is an expensive distraction from the real agenda, which is to end Vitamin A deficiency as quickly as possible using existing solutions and to diversify agricultural systems to provide a diet rich in all nutrients necessary for health.