

THE EVOLUTION OF THE HARVESTPLUS CHALLENGE PROGRAM – PART 2

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The project was originally called the CGIAR Micronutrients Project. Initial funding of USD90,000 came from USAID but serious funding with which prebreeding could start came from DANIDA, about USD1million over four years. This allowed us to do the basic work on which the proposal to the Gates Foundation was predicated. Early collaborators were the Danes, Cornell/USDA-ARS, Adelaide University's Waite Institute, and CGIAR's IRRI, CIMMYT and CIAT, encompassing the major staples, wheat, rice, maize, beans and cassava. Our initial target nutrients were iron and vitamin A, which with iodine were the major concerns of the nutrition community (but iodine was already programmed). I persuaded breeders to keep material high in zinc and calcium (especially in rice) as the ICP-OES gave values for 16 minerals, and we used high aluminium concentration as an indicator of soil/dust contamination which is serious in the case of iron. The genetic potential for improving nutrient density was established early but genotype-environment interaction was an issue that needed serious study. The conclusion was that although GxE is a serious problem, especially for iron, it was not a fatal flaw and could be managed. Our ideas evolved over time, though there has never been total agreement on target nutrients and target levels of those nutrients. We proposed that iodine and selenium, each deficient in roughly 1 billion people each, be added to the program because all nutrients interact, and because generally organisms respond only to the nutrient most deficient in its tissues. This gives rise to massive interactions that cannot be ignored. Giving more iron to selenium or iodine-deficient people may decrease their overall wellbeing, but the mantra that prevailed at that time was to stay focused on as few targets as possible. This was the vision that we took to the Gates Foundation resulting in our first funding that in a serious way matched the magnitude of the challenge. Recently the Gates Foundation deemed that the groundwork had been done in Phase I sufficiently to justify delivery of new varieties - in hand and in train - to subsistence populations in several countries on two continents over the next five years.

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