

CHALLENGE PROGRAMS

Technology Transfer and IP Workshop

IPGRI, Rome – June 28 – 30, 2004
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HarvestPlus: Breeding Crops for Better Nutrition

Goal: To combat micronutrient deficiencies through the development and diffusion of staple foods with enhanced levels of iron, zinc and β -carotene.



Products

◆ Phase 1 crops

- Rice
- Wheat
- Maize
- Beans
- Cassava
- Sweet potato

◆ Phase 2 crops

- Sorghum
- Millet
- Pigeon pea
- Barley
- Banana/Plantain
- Cowpeas
- Groundnuts
- Lentils
- Potato
- Yam



Phase 1

- ◆ Determine optimal breeding strategies
- ◆ Screen germplasm for high Fe, Zn, Vit. A.
- ◆ Document cultural and food processing practices to determine their effect on micronutrient content.
- ◆ Discern genetics of micronutrient levels. Identify markers to facilitate gene transfer.
- ◆ Carry out in vitro and animal studies to inform bioavailability
- ◆ Begin efficacy studies
- ◆ Engage endusers to inform the diffusion of biofortified crops.



Phase 2

- **Initiate farmer participatory breeding.**
- **Adapt biofortified lines to selected regions.**
- **Release biofortified varieties to farmers**
- **Unlock gene systems for transgenic nutrient enhancement.**
- **Produce transgenic lines on experimental basis and test for compliance with biosafety protocols and regulations.**
- **Implement marketing strategy of varieties.**
- **Scale up production and distribution**
- **Determine effectiveness of biofortified crops on nutritional and health.**
- **Add phase 2 crops**

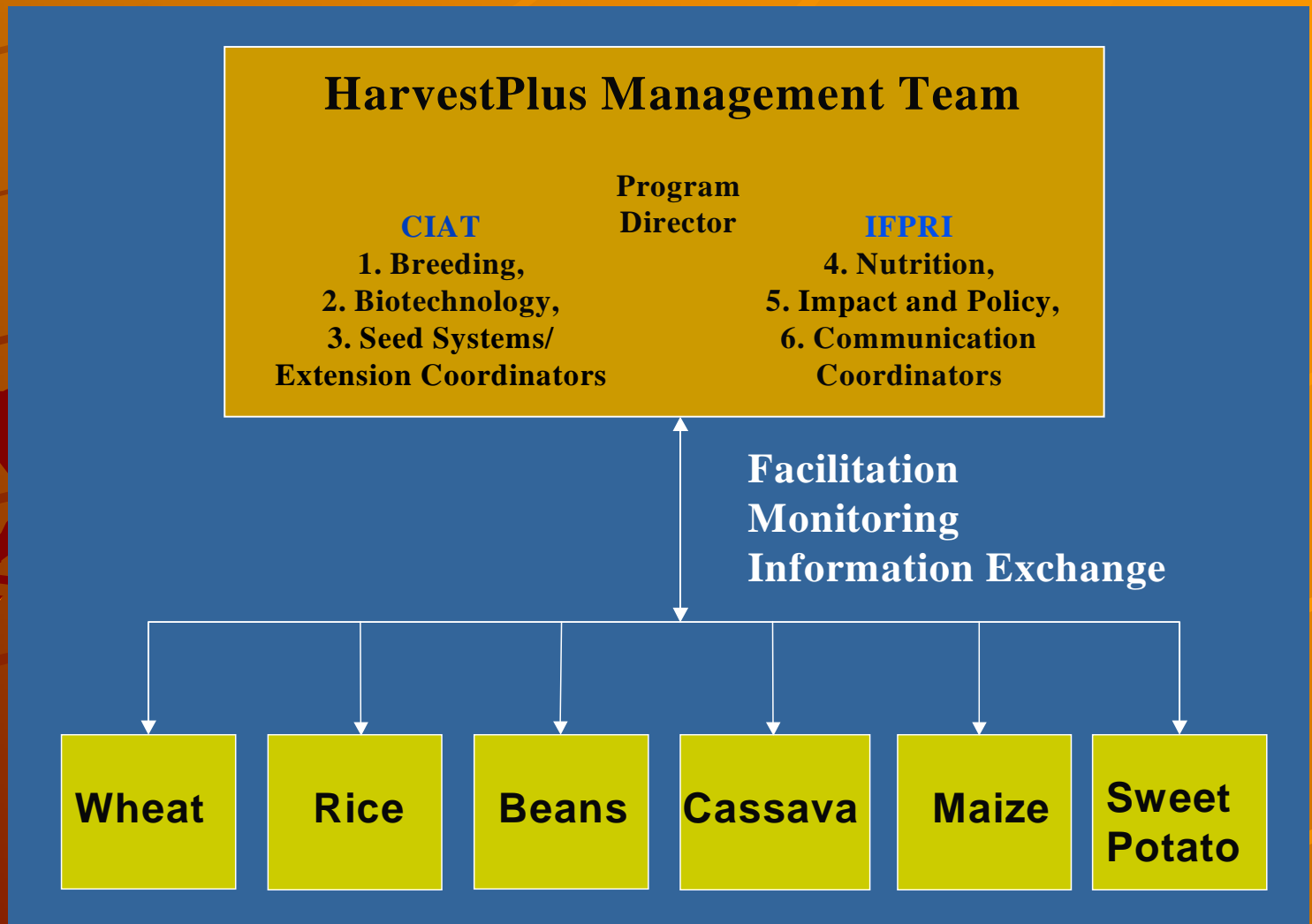


HarvestPlus Governance

- ◆ **Program Advisory Committee (PAC)** responsible for governance.
- ◆ **Comprised of leaders across the disciplines relevant to HarvestPlus including:**
 - human nutritionists with expertise in specific nutrients and regional diets, plant breeders and genomics experts, ethicists, NARS and University leaders, IP specialists, National Ministry and parliamentary officials.



HarvestPlus Management



The HarvestPlus Operational Matrix

By Crop By Function

Function	Rice	Maize	Wheat	Cass	SwPo	Bean
Breeding						
Biotechnology						
Food Processing						
Human Nutrition						
Behavior Change						
Engaging End User						
Impact/Policy						
Communication						





Over 70 Alliance members in Africa, Asia and Latin America

Regional Potato and Sweet Potato Improvement Network in East and Central Africa (PRAPA), Southern Africa Root Crops Research Network (SARRNET), Institut National des Etudes Scientifiques et Agronomiques (INERA), Regional Forum Association for Strengthening Agricultural Research in East and Central Africa (SARECA), EARO Maize, Ethiopian Health and Nutrition Research Institute, Melkassa Research Centre, International Institute of Tropical Agriculture (IITA), Crops Research Institute, Kumasi, Regional Nutrition Office, Cape Coast, Savanah Agricultural Research Institute, Institut de la Recherche Agronomique de Guinee (IRAG), KARI – Kakamega, National Institute for Research in Biotechnology Center, University Food Science and Nutrition Department, National Institute for Food Security and Nutrition, Chitedze Agricultural Research Station, National Institute for Agricultural Research, Ministry of Health, Nutrition Division, SG2000, Helen Keller International, JICA, Nutrition Centre, Pretoria, Nutrition Intervention Research Unit, Medical Research Council, Kwana, Nutrition Centre, Dar es Salaam, LZARDI kiriguru, Mwanza, Sugarcane Research Centre, Catholic Relief Services, World Vision International (WVI), University of Zambia, National Animal Production Research Institute, Department of Food Science and Technology, National Agricultural Research Organization (NARO), AfriCare, CARE International, Zambia, University of Zimbabwe ; Bangladesh Rice Research Institute Indian Council of Agricultural Research (ICAR), Agriculture Universities of India, Indian Agricultural Research Institute, Punjab Agricultural University, Agriculture Universities of India – CTCRI, Institute for Food Crops Biotechnology Research, University of Indonesia, National Agricultural Research Council, Philippine Rice Research Institute, University of the Philippines, Institute of Human Nutrition and Food, College of Human Ecology University of the Philippines, Delta Rice Research Institute, Agriculture University of Vietnam, Thai Nguyen University of Agriculture, Empresa Brasileira de Pesquisa Agropecuaria – EMBRAPA, Universidad de Cienfuegos, Fundación para la Investigación y el Desarrollo Agroindustrial Rural (FIDAR), University of Agriculture – “Liliana Dimitrova” Experimental Station, Secretaría de Fomento, Centro de Investigaciones Agrícolas del Sureste (SEA-CIAS), Centro Nacional de Investigación y Tecnología Agropecuaria (INIA), Instituto de Ciencia y Tecnología Agrícolas (ICTA), Organization for the Rehabilitation of Cereals (ORE), Centre Recherche de Agriculture (CRDA), World Vision Dirección de Investigación y Tecnología Agrícola (DICTA), Escuela Agrícola Panamericana (EAP), Instituto Nacional de Investigación y Tecnología Agrícolas y Pecuarias (INIFAP), Instituto Nacional de Tecnología Agropecuaria – Centro Nacional de Investigación y Tecnología Agropecuaria (INTA-CNIA), Cukurova University – Adana, NAR – Konya, Sabanci University

Seventeen Alliance members from Europe, North America and Australia

- Adelaide University School of Agriculture
- University of Freiburg – Germany;
- Division of Human Nutrition and Epidemiology, Wageningen U;
- Cornell University
- Division of Nutrition Science, PSNL – USDA/ARS,
- Iowa State University,
- University of Illinois,
- Michigan State University,
- Louisiana State University,
- Children’s Nutrition Research Center- USDA
- Baylor College of Medicine, Pennsylvania State University,
- Austrian Research Center Seibersdorf,
- Ryerson University, Toronto;
- Natural Resources Institute – UK;
- Syngenta - Switzerland,
- Catholic University of Leuven – Belgium,
- Royal Agriculture and Veterinary University - Denmark



Experience with TT/IP

- ◆ Program is composed of :
 - Commissioned projects (majority)
 - Competitive projects
- ◆ So far, no specific IP rules were imposed by donors (WB, USAID, Gates Foundation) but to produce public goods to benefit the resource-poor

Challenge Programs

Intellectual Property & Access and Benefit Sharing

(presented at the
PAC Meeting
Cali, Colombia
May, 2004)



Challenge Programs – IP & ABS

◆ Harvest Plus CP – 2003 – May 2004

◆ Informal discussions & formal Agreement template

– Agreement negotiation - members & IFPRI

◆ Exhibit 2 – clause 2. Intellectual property rights

- All IP shall be reported in writing to the Director
- Unless a separate agreement is made by the parties, IP shall be jointly owned by Recipient of grant, CIAT and IFPRI
- Parties shall be granted full access to use the IP via joint ownership or a royalty –free, irrevocable , non-exclusive license ... Recipient agrees to make IP freely available in any country both IFPRI and CIAT so desire (informed in 60 days)
- Who files where ? Who bears the costs ? (to be discussed)
- Third party licensing (to be discussed)
- Need for protective IP on a case by case analysis (to be discussed)



Challenge Programs – IP & ABS

◆ Harvest Plus CP

- ◆ Recipients agree to respect the IP and proprietary rights of others, for material and other goods, used in conjunction with this Agreement
- ◆ Rules decided by the Governing Body of the FAO International Treaty will be taken into consideration when available after November, 2004
- ◆ No further consideration was given to an eventual benefit share of royalty return, if any, at this point
- ◆ There is a need to study the impact of these basic rules of the Agreement when applied to the full set of on-going projects
- ◆ Previous experience shows it to be difficult and costly to manage jointly owned IP when different countries are involved
- ◆ Studies could be developed in collaboration with Generation CP – IP cluster

**MEMBER (BACKGROUND) IP
RULES FOR
FREEDOM TO OPERATE**

**THIRD PARTY
(BACKGROUND) IP
RULES
FOR LICENSING**

**CHALLENGE IP
RULES FOR
DEPLOYMENT**

**ALLIANCE/
CONSORTIUM
AGREEMENTS**

(NEED FOR HARMONIZATION OF RULES)

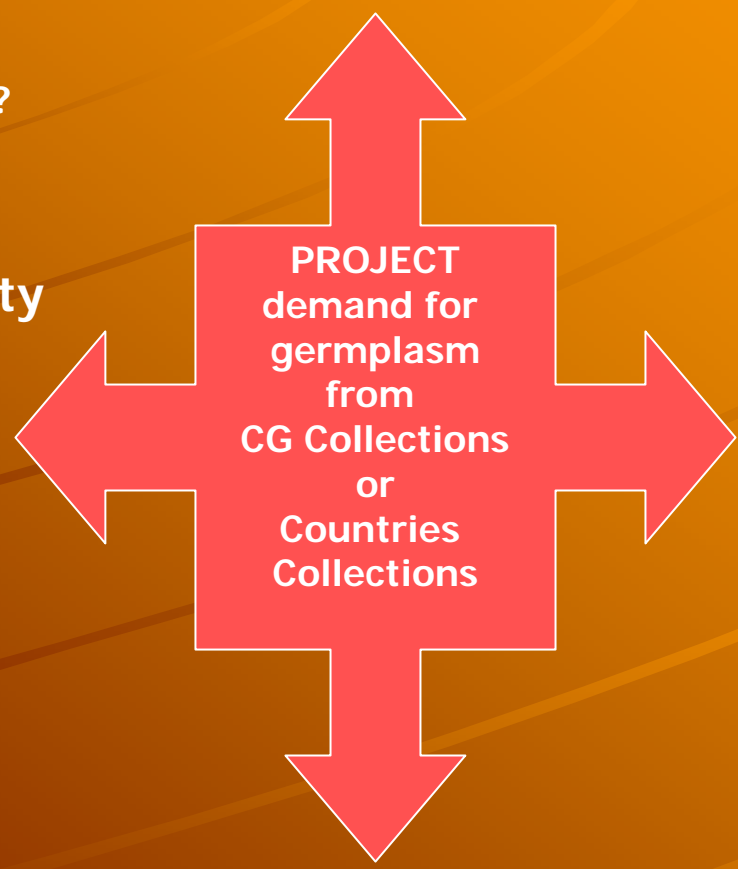


REGARDING GERmplasm ACCESSIONS:

WHAT SHOULD
BE CONSIDERED?
CENTERS OF ORIGIN ?
SAMPLES COLLECTED
BEFORE AND AFTER
CBD (1993) ?
HOW TO TREAT COUNTRY
SAMPLES & SAMPLES FROM
CG "IN TRUST" GENE BANKS ?

National Legislation on Access and Benefit Sharing

FAO International Treaty
(IT) rules
For Crops listed
in Annex I
For countries that
are parties



CGIAR rules on
germplasm
acquisition, storage
and distribution

Other crops
Countries outside the IT



Challenge Programs – IP & ABS

- ◆ From the CGIAR Genetic Resources Policy Committee
 - GRPC will commission a study on the “use of third parties IP” – state of the art and need for development of strategy in the CG – Centers (next meeting – Sept., 1st)
 - Policy on MTAs for products of Centers research proposed by ICWG-GR and GRPC were endorsed by CDC and CBC (May, 04)