


**Consortium Research Program (CRP3.4)
on Roots, Tubers, and Bananas
For Food Security and Income**

CIP, IITA, CIAT, Bioversity International




Research
Program on
Roots, Tubers
and Bananas

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Roots, Tubers,
and Bananas




A Research Program of the
CGIAR

Collaborating CGIAR Centers




GENERAL PURPOSE OF THE PROGRAMME

- The purpose of this program is to exploit the underutilized potential of root, tuber, and banana crops for improving nutrition and food security.
- In addition, research on Roots, Tubers, and Bananas aims to increase income generation, foster greater gender equity, and improve livelihoods – especially among some of the world’s most poor and vulnerable populations.




The advantages of root, tuber, and banana crops are often ignored.

- Grow in marginal conditions with relatively few inputs
- Are mostly produced and traded locally, making them less vulnerable to abrupt price changes typical of volatile markets that affect cereal crops
- Have different production and harvest cycles than cereal crops
- Offer shorter growing cycles than grains
- Tolerate stresses such as drought, heat, and poor soil conditions




In CAC focus will be on:

- 1) Genetics and Crop Improvement and**
- 2) Integrated Crop and Systems Research.**





Genetics and Crop Improvement:
THEME 2: Accelerating the development and selection of cultivars with higher, more stable yield and added value.




- 1) Formulate protocols and standardized methodologies to assess drought tolerance and dormancy.
- 2) Study day-neutrality in potato by means of *in-vitro* tissue culture (CA).
- 3) Select candidate varieties with superior table quality and combined resistance to late blight and viruses and adapted to temperate agro-ecologies (Caucasus).



Genetics and Crop Improvement:
THEME 2: Accelerating the development and selection of cultivars with higher, more stable yield and added value.

- 4) Select consumer-tested elite clones with increased water use efficiency (4 to 5.5 g tuber dry matter/kg water), tolerance to high day and warm night temperatures, virus resistance and short time to bulking under long day conditions in at least 2 countries in Central Asia.
- 5) Contribute to establish communication and marketing strategies for the efficient promotion and dissemination of breeding materials and varieties (CAC).


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Integrated Crop and Systems Research:

Theme 4: *Making available low-cost, high-quality planting material for farmers*

- 1) Syntheses of lessons learned from seed-related potato projects in different agro-ecosystems and contrasting national policy environments.
- 2) Determine positive selection benefits and feasibility in farmer-based seed system to maintain and increase potato seed quality.
- 3) Understand and document efficacy of alternative strategies to demonstrate value, create awareness and build demand for quality seed (including participatory yield experiments, small bag distribution and demonstration plots).

Uptake and dissemination in CA: Conclusions

- In many countries, extension services do not exist.
- In Tajikistan, uptake & dissemination could be ensured by involving NGOs (national and international), projects and “jamoat” (village communities).
- In Uzbekistan, the presence of a strong “command system” may be opportunistically used to favour uptake and dissemination of new varieties.
- Disadvantages: for participatory research, high amount of planting materials are needed. Need also to make a balance between official var. release system and FPR.



CIP clone 397065.28: vigorous plant growth (1.4 m high), very long stolons, no tuberization after 120 days



CIP clone 397077.16: appealing tubers, yellow flesh; medium maturity; multilocation adaptability; virus tolerance after three field multiplications in Uzbekistan.