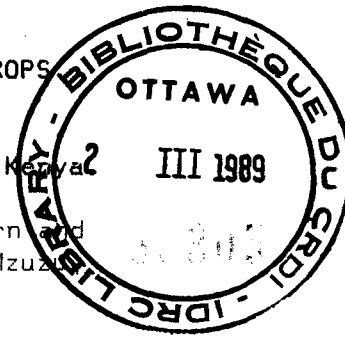


PRIORITIES FOR APPLIED RESEARCH IN THE POST HARVEST SECTOR OF ROOTCROPS

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The title emphasizes applied research, the results of which are expected to make a difference, an improvement, for the target beneficiaries. Such research-for-development means the need for choices among the possible, scientifically interesting, researchable topics on rootcrops.

One is looking, therefore, for the key interventions in the rootcrops food/feed system. How does one determine what are the key bottlenecks, the key problems in the food/feed system of the rootcrop selected? Agricultural researchers are familiar with the techniques for identifying the bottlenecks in the productions system: farming systems research techniques. Can those concepts be applied to the other half of the food and feed system, the post production system? This note cannot and does not identify the specific priorities, but suggest how the priorities can be identified by researchers in national systems.

From the point of view of the farm household rootcrops contribute to household food security in several ways: the harvested crop is food for the family and/or feed for the farm's animals; if there is demand for the harvest, from neighbours, rural markets, the parastatal marketing board, or traders, then the rootcrop also represents an opportunity for cash with which to buy other foods, pay the debts incurred for inputs at the start of the planting season, pay school fees, clothe the family. Do FSR questionnaires ever inquire into how the harvest is disposed of? How much stays on the farm, how much is sold immediately after the harvest, how much needs to be stored for sale later in the year when prices are higher, etc.?

Meetings of rootcrops researchers can be characterized by the main message, repeated again and again: if only there existed systems of processing and utilization, then our bosses would devote more manpower and financial resources to our main task which is to increase and improve the production system. The improvement teams have therefore identified that a key blockage to their successful work lies in the post production system. The specific features of that system will vary between and within countries and between and within different root crops. One can, however, use a common analytical approach to the post production system of the root crops.

The harvested material does not benefit the farmer until it is actually consumed as food by her/his family, or until the family has received cash for the surplus. The key areas to examine, therefore, are:

1. Are there special difficulties in conserving the quantity and quality of the crop? Can we describe the physical steps undertaken by the farm family in harvesting, cleaning, drying, transporting, and storing the crop? Can we then analyze those steps to identify the most frequent and largest contributors to loss in quantity and quality and determine the intervention points for reducing those losses? Are there labour bottlenecks which require the generation of

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suitable labour saving hardware technologies? Are there problems of quality deterioration which could be solved by improving the storage regime: more darkness, more light, more ventilation, screens to keep out insects or rodents, quick drying versus slow drying, etc.?

2. What are the bottlenecks and problems which the family has to overcome to transform the harvested crop, in small daily amounts, into the daily meal? Is there a need to generate labour-saving hardware technologies, or new and improved conversion and stabilizing household food technologies?

3. In order to maximize farm income from the sale of surplus, we should look at: the opportunities for primary processing (value-added) at or near the farm level; opportunities for secondary processing, preferably at the rural level, to create off-farm employment; the entire chain of the marketing system to identify what changes can be made for the benefit of the farmer; opportunities to stimulate or create urban demand for surplus production in fresh form or processed form? The questions about the marketing system will include: who are the actors in buying, transporting and selling; who profits or gains, and who loses; who sets the prices; is there a parallel market with its own price structures, as opposed to official, legislated marketing channels; which of the two systems deals in the greater volumes; who buys the product, whether fresh or semi-processed-- housewives, farmers, entrepreneur processors, or parastatal processors; are these buyers rural or urban; is there a potential export market; is the producer price higher or lower than the international price?

A critical and detailed examination of the above three areas is needed in order to determine priorities for action in the post harvest sector. It may be necessary to spend a bit of money on specific diagnostic work such as surveys of current farmer practices or of the small scale processing sector, or a detailed characterization of the marketing system by a marketing or policy economist. This approach will lead to documented knowledge of the key problems and opportunities for intervention, and thus a focused programme of applied research in the post harvest sector. This characterization of the food system, and the detailed applied research, will bring additional key information to the breeder: feedback from the eater, the storer and the processor defining the quality characteristics for which the improver should breed.

Finally, I would like to point out some important differences in outlook among the chief actors who are involved in, or affected by, improvement efforts in the production sphere. The breeder tends to emphasize the new and improved varieties on which he is working, and can be dismissive about the material with which the farmer works. Does the typical farmer agree that these varieties are indeed improved? There may be compelling reasons why many farmers have not chosen to plant any of the breeder's releases. (The customer, the intended client for the improvement effort, always has the final word.) We need to know and understand those reasons. In the post harvest portion of the food system the researcher has to work with the post harvest problems of the varieties which are actually being planted and harvested. At best these differences in outlook can lead to problems in communications between the sectors; at worst, the differences can inhibit improvement efforts from having any real impact.