

# TUBERS ON A THOUSAND HILLS

by SYLVIE BÉLANGER

**T**he tradition in Rwanda is that each child receive a part of the family land. In the Kinyarwanda language, this is called the *umunani*. The result is that with each generation the size of the plots decreases and the quality of the soil deteriorates.

Rwanda is a small landlocked country in the heart of Central Africa. It is bordered on the West by Zaire and to the East by Tanzania. Almost all its arable land is already occupied and the size of family holdings has shrunk to only about one hectare. Leaving any land fallow has become impossible and the use of chemical fertilizers is not common. The soil is exhausted and the yield is dropping. As if this weren't enough, there is a serious problem of erosion which creates deep ravines on sloping land.

Despite all this, Rwanda, which is known as the 'country of 1000 hills', looks like a garden even in the dry season.

result that the need to develop improved varieties adapted to the country's dozen agroclimatic zones has become pressing.

Cassava and sweet potatoes provide basic nutrition for 70 percent of the population. For lack of land, farmers have been forced to grow sweet potatoes in poor-quality soils such as those found in damp valley bottoms and marshes, and cassava in the dry eastern lowlands.

ISAR's improvement program for cassava and sweet potatoes is aimed at developing early high-yield varieties that are resistant to the prevalent diseases (anthracnosis and virosis) and insect pests. ISAR researchers are also studying better methods of farming and training personnel.

Since 1983 the project has had the support not only of IDRC but also of the International Institute of Tropical Agriculture (IITA). It should be advantageous for a number of East African countries because it aims to set up an

rich cash crop afford to wait for the late varieties to mature.

As for cassava, it is increasingly being grown on new land, much of it at high altitudes between 1600 and 1800 metres to which local varieties are not adapted. At the moment, the yield of cassava is stagnant and the crops are falling victim to parasites and diseases, such as green cassava mites, mosaic, bacteriosis, leaf spot, and mealybugs. (The last-mentioned reached Rwanda from Zaire.)

The program funded by IDRC, which officially began in 1984, is intended to run for five years. As Mr Alvarez and Georges Ndamage, the agricultural engineer in charge of the sweet potato improvement work, explain, the process will take longer because it is being developed in the field with the farmers themselves. Their experience and reactions will be an integral part of the scientific work.

Several hundred varieties from other African countries have been introduced and are being grown in greenhouses at ISAR's Rubona Station, near Butare in the south of the country. Work is being done on hybridization and crossing of different local and imported varieties and the best of the resulting lines are selected.

Clones are then tested in different agroclimatic zones of the country with the participation of farmers selected by the Ministry of Agriculture. The farmers evaluate not only how well these varieties adapt to their soil but also how well they suit their nutritional preferences. They even taste test local or new varieties and check the fibre content. The two researchers consider the farmers' contribution to be extremely important.

The farmers will be the initial beneficiaries of the research and will also be the first to disseminate the improved varieties to other farmers.

At the Rubona Station, training courses on production and multiplication are being offered at regular intervals for groups of 10 technicians from different agricultural projects in the country. This is one of the best possible ways of carrying out ISAR's agricultural mandate and supporting the Government of Rwanda's farm policy. Léopold Gahamanyi writes: "More than it has in the past, agricultural research should reach out to the farmers and try to understand better the socioeconomic factors which impede production. Only if they have a thorough knowledge of the rural environment can researchers put forward new technologies to revitalize this important sector of Rwanda's economy." **n**

Photo: Sylvie Bélanger



Lack of farmland has led farmers to terrace and cultivate hillsides.

More than 90 percent of the people live by farming. It is the main economic activity. Now, with a population growth rate of 3.7 percent per year, Rwanda is faced with the problem of not being able to produce enough food to keep pace with its growing population.

Léopold Gahamanyi, director of the Agronomical Sciences Institute of Rwanda (ISAR), points out that 80 percent of the food produced in Rwanda is consumed by those who grow it. The production of subsistence crops has remained stagnant for several years with the

East Africa network for research in the improvement of tropical food tubers. There is a regional co-ordinator, Mr Nick Alvarez, and the project is IITA's main activity in this area of Africa.

According to Mr Alvarez, the production technology developed by ISAR for sweet potatoes is now the most advanced in East and Southern Africa. This is extremely significant because total production of sweet potatoes has been falling. In a traditional intercropping system, most local varieties mature late. There is a Rwandan proverb which says that only the

Sylvie Bélanger, a Canadian, visited Rwanda recently as part of a project of the Fédération professionnelle des journalistes du Québec, funded by the Canadian International Development Agency.