

Keith Tomlins: Controlling waste in tuber crops for a better economy

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Trying to optimise production and use of staple food such as cassava and yams in African and Asian countries could also involve cross-fertilisation of best practices across continents.

For 700 million people in Africa and the Far-East, yams and [cassava](#) represent important [crops](#) for [food security](#) and as a source of income. The trouble is, losses during harvesting and processing are exceptionally high—at the level of 60% for yams and 30% for cassava. A new EU-funded research project called GRATITUDE aims at reducing such waste and losses. Keith Tomlins, a researcher in Food Science at the

University of Greenwich's Natural Resources Institute in the UK, is the coordinator of the project since it started in January 2012. He tells youris.com about how he is planning to improve staple [crop yields](#) in Vietnam, Thailand, Ghana, and Nigeria, with the help of local scientists together with Dutch and Portuguese partners.

What are the problems in cultivating yams and cassava?

What we find in Africa is that the crops are suboptimal, typically yielding about 20 tonnes per hectare. In Asia, they are able to get much higher yields, sometimes more than 50 tonnes per hectare. Cassava is very perishable and has to be used a couple of days after harvesting. The whole marketing chain is heavily reliant on the fresh crop being rapidly transported from farm to market, without any delays. Otherwise we end up with quite substantial losses.

Refrigeration is expensive. What are the alternatives?

We are trying to reduce losses in three ways. One is simply to reduce the physical losses; they can be quite high because we deal mainly with fresh yam storage. Therefore we are looking for the varieties that are better at maintaining dormancy: you want to keep the yam plants asleep for as long as possible. We are also looking at what is called curing, a process where the root actually can heal when it is subjected to any injuries during storage. We do this by controlling the temperature and humidity during the first few days of storage.

How about making yams and cassavas a more attractive cash crop?

We have also been looking at the cassava value chains. And we found that there is a difference between the Asian and African markets. The African crops are mainly used as food while in Vietnam and Thailand the cassava is either used as animal feed or converted into starch and the starch is turned into syrups. These syrups have a wide range of uses. For example, in the drinks and confectionary industry and in alcohol production and biofuels.

By contrast, in Ghana and Nigeria, cassava is predominantly used as a food for humans. And very little of it is used for animal feed. There is virtually no starch production, although two companies produce syrups in Nigeria and Ghana. In effect, Africa cannot compete with Asia for the production of starch and syrups, unless the start growing larger yielding varieties that are less suitable as food.

How is the project's approach in Africa different from that in Asia?

In the African markets, cassava fetches a higher price. The margins are greater. This means that there is more waste in the system as well. So we are looking at the utilisation of waste products from the cassava—the peels and the discarded roots, in particular. One of the ideas is to turn it into [animal feed](#) for goats, and the other is to use it to grow mushrooms. In Asia we are looking at developing new products within the system, such as snack foods produced from the spent waste.

Do you expect to bring about changes?

It looks like we can make the biggest impact in Ghana and Nigeria, because those systems are less efficient than those in the Asian markets. We are encouraging what we would describe as 'self-self interactions.' So we have partners from Thailand and Vietnam to come and visit partners in Nigeria and Ghana, and the other way around. They share ideas and technology, and hopefully, as these partnerships develop, the teams will continue to maintain these relationships and work together. What we are trying is finding ways to nudging things along in our projects, bit by bit, but we are realistic, we will not solve problems in one day.

More information: www.fp7-gratitude.eu/

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