Another option? – Cassava flour trials to get underway by Barbados Advocate, 17 January 2013

Bakeries across Barbados will be involved in trials to test how cassava flour can either be used to develop products either directly from cassava or retail products that would integrate cassava into existing products on the market. Word of this came from Minister of Agriculture, Food, Fisheries and Water Resource Management, Dr. David Estwick, speaking during a press conference to announce the development and sign a Memorandum of Understanding between the Barbados Agricultural Development and Marketing Corporation (BADMC) and the Barbados Manufacturers’ Association (BMA).

For more information see page 5

AGRICULTURE IN THE NEWS is a monthly newsletter which provides a compilation of selected news articles on issues affecting agriculture in the Caribbean region. Articles from Newspapers, Online News Service Agencies, Newsletters and Press Releases are featured.

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Our Vision

To be the centre of excellence in the Caribbean for the provision and application of research and development in agriculture and rural enhancement.

Our Mission

To contribute to the sustainable economic well being of Caribbean people by the generation and transfer of appropriate technology through research and development within the agricultural value chain.

www.cardi.org
Roots and Tubers

The Growing Importance of Andean Root and Tuber Crops by International Potato Centre, January 2013

Full Article

More than ever before, the world is taking notice of Andean Root and Tuber Crops (ARTCs), their high nutritional content, and the importance they give to overall food security in the Andean region. Scientists from the International Potato Center (known by its Spanish acronym CIP) continue to study and identify the values and characteristics of these extraordinary roots and tubers with the aim of increasing the outputs of healthy root and tuber crops and spreading the knowledge of their nutritional benefits.

The ARTCs being studied and recorded within CIP’s Genebank include: Achira, Ahipa, Arracacha, Maca, Mashua, Mauka, Oca, Olluco, and Yacon. All of these root and tuber crops come from different biological families. Ivan Manrique, CIP’s ARTC Curator, explains that, “A large part of the diversity of these species is safeguarded within CIP, where further to protecting germplasm in the Genebank, their chemical composition and properties are being studied in collaboration with universities and institutions across the Andean region.”

Twenty years ago, CIP’s ARTC research began. Ivan Manrique explains that, “At this time Maca was on the verge of extinction with only 50 ha of cropland dedicated to its cultivation.” In order to safeguard the vestiges of this endangered crop, CIP contracted Quimica Suiza and several Peruvian Universities to undertake studies to identify the values of Maca. The results were ground breaking, and further to finding elevated levels of proteins and carbohydrates, Maca was shown to significantly increase sperm count and libido when human tests were carried out by the University Cayetano Heredia. Likely owing to its sexual component, Manrique explains that, “Demand for Maca exploded and cultivation of the crop grew from 50 ha to over 3000 ha cultivated today.”

While Maca products account for exports worth an estimated USD 10 million a year, Manrique believes that the next big ARTC to make an impact on the global market will be Yacon. Yacon has a high water content making it a great food to help with hydration. It also has elevated levels of potassium, making it good to avoid cramps. These two attributes make the consumption of Yacon important for farm workers at high altitudes. Furthermore, in Bolivia, Yacon has been consumed by diabetics for centuries. Manrique claims that, “It has a special type of sugar which makes it ideal to combat the effects of diabetes, and it is this quality,” Manrique explains, “that will make Yacon an important global crop in years to come.”

Peruvian Yacon products (including flour and medicinal products) account for exports worth an estimated USD 1.2 million a year, but Ivan Manrique would like to see this figure climb substantially over the coming years. Currently CIP’s ARTC department has a project underway to evaluate different varieties of Yacon from three different regions of Peru. The aim of this project is to study the qualities and various attributes of different varieties while identifying the strongest crops and best growing environments of Yacon in order to maximize crop production of Fructooligosaccharide (FOS, Yacon’s alternative sweetener), as well as increasing root productivity of crops.

Further to Yacon, the ARTC department is also currently undertaking an extensive study of Oca and Olluco. The aim of this research is to further our understanding of the crops by conducting DNA tests and other techniques on over 700 material accessions of Oca and another 500 of Olluco to develop core collections for both crops. These core collections will greatly expand our understanding of the tubers, their nutritional values, and how CIP can improve the growth of these beneficial crops for farmers throughout the Andean region, and further across the world.

The ARTC department makes its research readily available; and once material accessions have been treated for viruses using the Thermotherapy laboratory at the Genebank, CIP makes these materials available to the outside world for research, genetic improvements, and training. Ivan Manrique points out that the virus-free materials are
also made immediately available to the farmers and rural communities where the materials were originally collected in order to improve crop production in these areas.

Cassava

Another option? – Cassava flour trials to get underway by Barbados Advocate, 17 January 2013

Full Article

Bakeries across Barbados will be involved in trials to test how cassava flour can either be used to develop products either directly from cassava or retail products that would integrate cassava into existing products on the market.

Word of this came from Minister of Agriculture, Food, Fisheries and Water Resource Management, Dr. David Estwick, speaking during a press conference to announce the development and sign a Memorandum of Understanding between the Barbados Agricultural Development and Marketing Corporation (BADMC) and the Barbados Manufacturers’ Association (BMA).

“Piggybacking on an already established sector [manufacturing] could be an integral part of driving the integrated cassava industry in Barbados, because it would help us to determine not only the general demand that is out there for the product, but it would also help us to determine how many acres of cassava we need to plant,” he explained.

Dr. Estwick further indicated that it would also assist the relevant players to determine the type of equipment that is needed and the capacity of that equipment to produce the quality and volumes of flour that are required.

“I have been talking over the last few months about this integrated process, in particular towards the feed side. For years we have been suffering in Barbados from imported inflation that came along with spiralling food costs within the United States and around the world. The majority of the imported inflation that is linked to feed and that is linked to food in general is associated with the rising prices of corn, soya and in addition when you have oil prices spikes. The only way we are going to break that cycle of imported inflation that is affecting the economy domestically, would if we could control some of the domestic production elements within Barbados and that would give us an opportunity to break that cycle of imported inflation in regards to animal feed and food products,” he said.

Estwick said that this project is his Ministry’s first step towards breaking that cycle and he is confident that once they can establish a strong relationship between the manufacturers and the general users of cassava flour, that they will be able to create a local integrated cassava industry.

Speaking on behalf of the BMA, Executive Director Bobbi McKay said that they see the relationship being formed as an excellent one that will be of benefit to the local manufacturers and the farming community. She said that the trials could begin as soon as today among the ten participating manufacturers, which include Purity Bakeries and Good Times Snacks. Her sentiments were reiterated by Acting CEO of the BADMC, Glendine Bartlett, who explained that they have been producing cassava flour for the last seven years and anticipate that if it is embraced by the manufacturers, it would cut down on the importation of wheat flour into Barbados.

Estwick: Cassava flour a healthy alternative by The Barbados Advocate, 17 January 2013

Full Article
Minister of Agriculture, Dr. David Estwick, says that the benefits to be derived from the production and wide utilisation of cassava flour as a substitute for wheat will not only be economical, but health-related as well.

Estwick, who is also a medical practitioner, made the comments during a press conference where it was announced that manufacturers in this country will be involved in trials to determine the possibility of using cassava flour as a substitute for wheat flour in locally-baked goods.

The Minister told those gathered, including representatives of his Ministry, the Barbados Manufacturers’ Association and the Barbados Agricultural Development and Marketing Corporation, that while there are indeed economic benefits for the agricultural and manufacturing sectors through the pursuit of the venture, the positive impact that it can also have on the health of Barbadians should not be overlooked.

He made the point while noting that gluten – a protein found in wheat and related grains – is the most allergenic material known which can also result in gluten induced diseases of the gut.

“... It has a significant impact in relation to those allergic type conditions that affect the human body – these being from asthma, sinus problems, dry skin, dandruff and the list goes on – so it is therefore important that we understand that if we are to reduce the incidence of these conditions in Barbados and to reduce the prevalence of these conditions in Barbados, one of the ways that we can do this is to decrease the consumption of gluten within our general diets,” he said.

With that in mind, Estwick indicated that he is quite eager to see the project come to full fruition.

Banana

Ministry of Agriculture to intensify its Banana Rehabilitation program by The Official Website of the Government of St. Vincent and the Grenadines, 14 January 2013


Full Article

This year the Ministry of Agriculture, Forestry, Fisheries, Rural Transformation and Industry will intensify its Banana Rehabilitation program.

This comes as the Ministry continues its already successful program to control the spread of the Black Sigatoka Leaf Spot Disease.

This statement was made by the Minister, Hon. Saboto Caesar, who said that they have scheduled the first Aerial Spray Cycle for 2013 at the end of this month.

Minister Caesar said that while the nation continues to experience high winds, they are hopeful that this weather situation will change later during this month to permit them to conduct the aerial spraying.

He also said that they are also preparing to resume their Operation Cut Back program.

Livestock

Quality animal feed from cassava being explored by The Barbados Advocate, 19 January 2013


Full Article
Minister of Agriculture, Food, Fisheries and Water Resource Management, Dr. David Estwick says his ministry is confident that they can develop a quality animal feed from the entire cassava plant, which could redound to the benefit of local and regional farmers.

He made the comments earlier this week during a press conference to announce the start of trials to involve local bakeries using cassava flour, under a cassava project being undertaken by the Ministry of Agriculture to utilise the crop for such purposes as food, flour and feed.

The trials are being made possible by a Memorandum of Understanding signed between the Barbados Manufacturers’ Association and the Barbados Agricultural Development and Marketing Corporation.

“...In establishing the industry, you first have to have a raw material and that raw material has to be used by somebody, or in some way. So what we are trying to achieve is to have the output, which is the value added from that raw material, to be moved beyond just primary consumption, which is eating the cassava cooked, but to be able to process it into a high valued product which is retailed locally and possibly regionally, [because] the people in the region, the farmers are suffering just as the farmers in Barbados from imported inflation,” he said.

The Minister explained that the cassava type starch is a complex carbohydrate and the cassava leaves has approximately 28 to 30 percent protein by weight and the entire cassava stock structure carries a number of elements and trace elements of nutritional value.

“If you combine the protein with the carbohydrates you have a complete nutritious output. If we need to modify it to suit certain other specific requirements of poultry for example, or ruminants, well we have the technical capacity within this ministry and within the BADMC to do this, it happens all the time, if you have to add certain vitamins here and there you do it,” he indicated.

Minister Estwick added, “We have the skill to be able to use that entire plant to produce a highly nutritious product that could be utilised by your goats and sheep and cows and by your poultry and so apart from that side of it, we are talking about further manufacturing for consumption by humans.”

He revealed that in terms of the volumes of cassava that would be required, they have held discussions with the Barbados Investment Development Corporation (BIDC) looking at the project and a suggestion has been put forward that they could be looking at having as much as 3000 acres of cassava under cultivation eventually, in order to produce the quantities desired.

“The cost of production must be at a particular level so that it becomes economically and part of the economics must not just be seen in the strict financial analysis. This is part of the mistake we make, because when you are developing an industry, there are certain subsidies and certain developmental supports you have to give it, until you build the market up, this is the mistake that is made,” he explained.

What they intend to do, he said, is build the market and the industry, while refining the technology in such a way that the costs eventually come down.


**Full Article**

Instead of feeling defeated because of reduced revenue from sales, Vice President of the Dairy Farmers Association, Barry Bishop, is encouraging local famers to form a co-operative to tackle the problems that the dairy industry is currently facing.
In a recent interview with the Barbados Government Information Service, Mr. Bishop who operates his farm from his home in East Point, St. Philip, disclosed that since the Pine Hill Dairy (PHD) reduced his milk quota, he had to dump or give away approximately 500 gallons daily. That amounts to approximately $1,000 in losses each day, he said.

To help ease the impact, he has resorted to leasing out his excess milk to another dairy farmer who is producing under quota. But this is just a temporary measure and he is very much aware that there has to be a more sustainable, long-term plan if the local dairy industry is to survive.

"[As] Vice President of the Dairy Farmers Association I can tell you that the news is not very good. [However] It makes no sense being angry...

"We must act now; we have to start planning for our own facilities and try and see if we can make much more use of the milk. We have to produce some by-products like yogurt, ice-cream, cheese, [and] butter whatever it takes to get the market moving. We have to try and see who we can source some funds from up front after doing a feasibility study first, to see if we can make it. Once we get the assistance that we need, then we can move from there as a co-op and try to set up our own plant producing alternatives to fresh milk," Mr. Bishop emphasised.

While some of his colleagues have called it quits - the head count has gone from 40-plus dairy farmers to only 18 at present - Mr. Bishop has no plans of retiring. In fact, he is relatively new to dairy farming since he only started out in the business three years ago. He found it to be a more viable option than his previous endeavours.

"I would hate to get out of dairy farming after I just got into it. I was producing beef before but then, all of a sudden, the spring seemed to have dried up. I was in beef for about five years and before that, I was in sheep farming for another 10 years. Sheep farming was mostly a hobby because there was no money in sheep. With beef, the supermarkets are asking for your bigger animals which mean you would have none to reproduce. So, it made no sense continuing there. Once I got out of beef, I took up the offer from another farmer to take over his dairy," he disclosed.

In three years, Mr. Bishop's farm has grown considerably. He started out with just 40 cows and thanks to good genetics, he now has 170. His animals have brought more than a means to put food on the table. Through the national agricultural festival, better known as Agrofest, they have also brought him much prestige.

He has been entering his sheep and cows in the sheep and beef cattle competitions since the inception of the show and every year, he walks away with some of the top prizes.

"I win everything that I enter. Last year, I came home with nine prizes including, Top Beef Animal on Show; Top Beef Heifer on Show; and Top Dairy Heifer on Show. Before Agrofest, I was exhibiting at BMEX. The interest at BMEX was great no matter how many animals you carried so that was why I decided to get involved in Agrofest," he explained.

While Mr. Bishop will not be entering any beef cattle this year, he still plans to enter some sheep and a few guinea pigs in Agrofest which will be held in Queen's Park, The City, from February 22 to 24 under the theme: Renewable Energy - Leading the Charge into the Future.

"Agrofest is really a way of showing that you know what you are doing. The idea of getting involved is to show off your animals, products and your knowledge to show that you know what you are about. It has benefitted me in the sense of prestige. To be able to go to the show and win constantly gives me a sense of satisfaction and pride," he asserted.
Having worked outside of farming for a number of years - at the Barbados Foundry, Husbands Wrought Iron and then as a Beneficiary Attendant at a Canadian Hospital when he migrated in the 1970s - Mr. Bishop cannot imagine doing anything else but farming at this stage in his life. 

"Farming was always around me from a boy, when you used to tie the pig under the tree and the goat under the cellar, from those days. I had a goat to look after and milk so it was always with me. There was also a dairy, Edwards Dairy it was called at the time which was close to my house in St. Matthias. I used to go and watch the guys milking the cows so I always had an interest in dairy farming and farming in general," Mr. Bishop said, adding that his seven-year-old son is interested in farming.

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Changing the fortunes of farmers in Ethiopia through better livestock feed by Consultative Group on International Agricultural Research, December 2012

Full Article

If you climb up the rickety ladder on to the roof of the stone dwelling where Gebremichael Desta lives with his family and livestock—he keeps his hay on the roof—you can gaze across a world which looks much as it must have done many centuries ago. Ploughmen shout encouragement to their oxen, women urge pack animals over the stony ground and buzzards wheel above the terraced fields. There is not a machine in sight; nothing to indicate that this is the 21st century.

But appearances can deceive. ‘The difference between the past and present?’ muses Desta. ‘It’s like the distance between the sky and the earth.’ Today, the families living in these remote highlands—much of Tigray, in northern Ethiopia, is over 2000 metres above sea level—learn about the importance of family planning and good nutrition. Older generations never did. ‘When I was young, we were entirely dependent on traditional medicines if we fell sick, but now we have access to modern health care,’ says Desta.

Recent years have also witnessed dramatic changes in the way he and his neighbors manage their land and livestock. A few years ago, at this time of day, his animals—two oxen, a dairy cow and calf, a donkey, 10 sheep—would have been grazing in the valley below, watched over by one of his five children. Now they remain at the homestead, and the fodder is brought to them, rather than the other way around.

These changes have been inspired by a five-year project, Improving Productivity and Market Success of Ethiopian Farmers or IPMS, in short, which is funded by the Canadian International Development Agency and managed by the International Livestock Research Institute (ILRI, a member of the CGIAR Consortium) on behalf of the Ministry of Agriculture and Rural Development. In 10 districts across Ethiopia, the project has helped to improve the value chains—the links between producers, the suppliers of farm inputs and markets—for a range of crops and livestock products.

The project began with a lengthy series of consultations with farmers and local government staff. Together, they identified which farm commodities had the potential to improve local incomes and livelihoods. ‘The main candidates were milk and butter, sheep for fattening and beekeeping,’ recalls Gebremedhin Woldewahid, the project’s research and development officer in Atsbi-Wenberta District. ‘But the more we talked, the more we realized there was a major limiting factor for all these commodities—a lack of nutritious fodder.’ Much of the district suffered from overgrazing and heavily degraded soils. Tackling this was to be a priority.
A fairer, greener world

‘In 2006, before the project really got under way, this valley would have been parched and dusty and full of livestock at this time of year,’ explains Kidan Kindeya, a young woman who works as a development agent for Habes Peasant Association, of which Desta is vice-chairman. Today, there is not a grazing animal in sight and the vegetation is green and lush. Here and there, the grass has been harvested with a scythe; elsewhere it is almost knee-high, despite the fact that there has been little rain recently.

It is now three years since the peasant association agreed to ban grazing in the valley bottom, an area of some 280 hectares, and allow the land to regenerate naturally. ‘Before we enclosed the area, the ground was very compacted, especially by horses, and the grass was sparse and unpalatable for our sheep and cows,’ recalls Desta. ‘Now we can harvest our plots three times a year, and the quality of the fodder is excellent.’

There are numerous benefits to the ‘cut and carry’ system now operating in many valleys in Atsbi-Wenberta District. ‘My milk yields have risen and my animals are much healthier,’ says Desta. He also believes that by keeping animals at the homesteads, there is less risk of infectious diseases passing from one to another. The restoration of grazing lands has also led to an increase in flowers, providing a rich supply of pollen for honey bees. As a result, farmers practicing apiculture have benefited greatly from the new methods of pasture management.

In the past, children used to watch over the grazing livestock, which meant they did not go to school. Now they are attending classes. Farmers also used to spend a lot of time travelling long distances to buy fresh grass and hay. Now many have a surplus. This has proved especially important for the poorer households without livestock, which are often headed by widows. ‘They received no benefit in the past from areas like this, before the enclosures,’ explains Kidan Kindeya. ‘They had no livestock to graze, and there was nothing for them to harvest.’ Now, every family is allocated the same amount of land in the valley and those without livestock can harvest their grass and sell it. Two harvests a year yield fodder worth around 10,000 Ethiopian birr (USD740) per hectare.

Besides helping farmers to improve the supply of natural fodder, the local offices of the Ministry of Agriculture and Rural Development and the peasant associations have encouraged farmers to grow their own supplies. Training centres, many with colourful murals depicting the new ways of farming, have provided the know-how and materials to establish Napier grass, tree lucerne and other fodder crops. Now you see them growing around almost every homestead, besides plots of fruit and vegetables.

Spreading the word

‘When I was young,’ says an old priest outside the Orthodox church in Cherkos Haremere, ‘there was thick forest all over this hillside.’ All that remains is a fine stand of African olive trees around the church, the site’s sanctity protecting them from axe and fire. Over the years, a rapidly rising population and the ever-increasing demand for fuelwood, cropland and pasture transformed the rest of the landscape, much of which suffers from erosion and overgrazing. It is a scene repeated across the district, but gradually, thanks to the efforts of the peasant associations and the introduction of new management techniques, degraded land is being brought back to life.

Four years ago, farmers in Baati-erö agreed to establish enclosures on the sloping land between the valley bottom and the village itself. They kept their animals out, planted fast-growing grasses and leguminous trees, and dug long ditches to harvest and retain rainwater. ‘We hardly used to get any fodder here at all,’ says a local farmer, Tadele Teklay, ‘but this year I’ve been able to get about five donkey loads.’

The farmers are so impressed by what they have achieved that they recently decided to establish enclosures in the valley bottom – something they originally resisted. Many, like Teklay, have also decided to reduce the number of livestock they keep. ‘Now, we don’t talk about how many animals we have, but how much money we can make from...
each of them,’ he says. ‘It’s the quality that matters, not the quantity, and the better the feed, as well as the breed, the more money we’ll make.’

Much of the technical advice that has enabled farmers to improve their productivity and gain access to better markets has been provided by Gebremedhin Woldewahid and the IPMS project, but most of the training has been carried out by the local offices of the Ministry of Agriculture Rural Development and by development agents like Kidan Kindeya. ‘That means that when the project comes to an end, hardly anybody will notice we’ve left,’ says Woldewahid with satisfaction.

One of the reasons why many of the activities encouraged by IPMS are spreading swiftly is because they make good financial, as well as environmental, sense. ‘You can see that with the fodder enclosures,’ says Berhe Fiseha, who chairs the project’s regional advisory and learning committee in Tigray. ‘They began establishing them in one peasant association, then they spread to four others, and now you’ll see enclosures being used to restore grassland all over the district.’

When asked what he has gained in recent years, Gebremichael Desta responds with one word: knowledge. He still regrets that he left school at the age of 17. He was a bright child, but his parents, traditional peasant farmers, had little appreciation of the value of education. Desta is justly proud that his eldest son has a diploma in agriculture and now works as a development agent, and his eldest daughter is studying at university.

‘If you want to survive, and you want to improve your life, then you must take advantage of the opportunities that come your way,’ he says. ‘There are many things which we now do differently, and we have many technologies that our parents never had or knew about. For me, knowledge is the key to everything.’

Agricultural Development

Agrofest 2013: Biggest and best yet by The Barbados Advocate, 20 January 2012

Full Article

THE organisers of Agrofest 2013 are hoping to attract over 60 000 persons to the three-day event which is scheduled to come off next month and as such, they are promising persons that it will have even more to offer this year.

Speaking during a press conference at the Grotto, Beckles Road Headquarters of the Barbados Agricultural Society (BAS), Chief Executive Officer, James Paul said that they reached the 60 000 mark on the last occasion, and are confident that with the innovations being added, they are sure to clear that figure.

The theme this year is ‘Renewable Energy: Leading the Charge into the Future’, and Paul told the media that they are sticking with the renewable energy theme for the second year running, explaining that renewable energy is a very important advancement in the agricultural sector. He indicated that more agriculturalists are recognising the role that they have to play as far as alternative energy is concerned, and so he said, the BAS is trying to develop partnerships between the two sectors in order for the agricultural community to benefit from the renewable energy momentum that exists.

With that in mind, he said that while most of last year’s sponsors are on board again this year, there is room for additional sponsors to get involved and he is urging them to do so, to help boost the agricultural sector and to push the renewable energy agenda. He indicated to the media, that to date they have 185 confirmed exhibitors and they are hoping to attract a total of 300 this year, which would be the highest number they would have had since the event was restarted. To assist with that, the registration date has been extended to January 25.
Among the highlights of this premier agricultural event are the Agrofest Dinner and the reggae show which will take place on the opening night on the grounds of Queen’s Park. The dinner is open to 200 patrons and tickets are available at $150 each. It promises to be a five-course meal featuring a wide array of Barbadian dishes.

“On the Friday night we have a reggae show and excuse the pun, but that show is fully loaded, fully loaded with Barbadian artistes. I want to tell you that we had an exciting time last year – remember we did it for the first time – but this year we will have an exciting array of Barbadian artistes...and we are keeping it all local,” he said.

He revealed that in an effort to ensure that patrons get value for money and truly enjoy themselves that night, they will not close at the customary 10:00 pm, but are expected to wind down at 1:00 am.

Meanwhile, Saunjern Cutting, the Exhibitions Co-ordinator, revealed that this year they will be fully utilising the Weymouth pasture for the exhibition, and as such there will be no parking allowed on those grounds. However, she revealed that to address that shortfall, as well as the loss of parking on the pasture by the Queen Elizabeth Hospital; parking will be made available at the Insurance Corporation of Barbados, the Central Bank and the National Housing Corporation from 5:00 pm on the Friday evening.

Climate Change

Coffee + bananas: a climate smart combination by Consultative Group on International Agricultural Research, 21 January 2013

Full Article

Growing coffee and banana together is generating more income for smallholder farmers, and can help them cope with the effects of climate change, according to two studies.

Ugandan farmers get 50% more income from intercropping coffee and banana than from growing either crop alone, according to a study from the International Institute of Tropical Agriculture* (IITA) and partner organizations. The study, conducted in over 30 districts of Uganda, showed that coffee yield remained the same when intercropped with bananas, and the farmers gained additional income from the banana.

“The results were spectacular”, says Piet Van Asten, an IITA agronomist based in Uganda. In the Arabica coffee-growing region around Mt. Elgon, annual returns per hectare averaged US$4,441 for coffee and banana grown together, compared to $1,728 and $2,364 for monocropped banana and coffee, respectively. In Robusta-growing areas in South and Southwest Uganda, annual returns per intercropped hectare averaged $1,827, compared to $1,177 and $1,286, respectively, for banana and coffee alone.

Now a recent study, conducted by Van Asten and colleagues at IITA and the International Center for Tropical Agriculture* (CIAT), suggests that intercropping coffee and banana may also help farmers cope with climate change pressures.

Average temperatures in Uganda are expected to increase by 2 degrees Celsius in the coming decades, with more erratic rainfall. This could have a considerable effect on coffee production, Uganda’s most important cash crop. Coffee generates about 20% of the total export revenues in Uganda and provides smallholder farmers with their main cash income. Eighty percent of the coffee grown in Uganda is Robusta (Coffea crenophora), which grows at altitudes up to 1500 meters. Arabica (Coffea arabica) accounts for 20% of the coffee grown – and for one-third of
the export revenue from coffee. Arabica requires a particularly cool tropical climate that is found only at higher altitudes, generally above 1400 meters.

Using climate models and analogues, the IITA-CIAT study found that the areas suitable for growing Arabica coffee will drastically decrease in the future. Estimates from the study indicate that losses in the region may exceed US$100 million annually, threatening not only foreign revenue for the country by also the livelihoods of millions of smallholder farmers who depend on the crop.

Results from the study suggest that if systems are not adapted, areas below 1300 meters will likely become completely unsuitable for Arabica coffee production. Those between 1300-1700 meters will be compromised for coffee, if farmers do not change current practices that use traditional varieties and make limited use of water conservation and shade technologies.

Intercropping coffee with banana provides a promising alternative, however. Shade from the taller banana trees can reduce temperatures for the coffee plants by 2 degrees Celsius or more. The permanent canopy, root systems, and mulch from the banana plants prevent soil erosion and degradation in Uganda’s hilly landscape. What’s more, planting banana trees in coffee fields also helps to mitigate climate change by capturing CO\textsubscript{2} from the air and through the mulch, enriching the soil’s carbon stocks.

Banana is an important staple and cash crop in Uganda, and it is strongly linked to food security. The country has the highest per capita banana consumption in the world. The crop is produced year round, bringing in a more modest but continual income compared to coffee, which produces once or twice a year*.

For farmers, intercropping of banana and coffee helps to diversify income, spread risks, and improve food security. Anecdotal evidence suggests that planting coffee in the shade of banana trees may improve the quality of the beans. And coffee planted with banana has been found to have a 50% lower incidence of leaf rust than unshaded plants, which is important as pest and disease risks are rising with increasing temperatures.

With all these advantages, Van Asten and colleagues also have investigated why intercropping of coffee and banana is not more widespread. He notes that there is one main disadvantage to this technology:

“The downside of adding shade or shade crops to a coffee system is that it increases competition among the different plants for water, nutrients, and light. This competition needs to be managed by using good agronomic practices such as integrating fertilizers and organic nutrient inputs, managing plant density and canopy cover appropriately, and practicing good soil and water conservation to adapt successfully to climate change,” says Van Asten.

Van Asten and his colleagues recommend a greater prioritization of intercrop research to develop and disseminate sustainable agronomic practices that fit with smallholder constraints and objectives. They also suggest the need for institutional changes and public policies to support intercropped systems, with better linkages to bring together the priorities of farmers with those of other members of the coffee value chain. The results could further tap the potential of banana + coffee systems to improve productivity and profitability across the value-chain, increase food and income security for smallholder farmers, and help adapt to the inevitable challenges of a changing climate.

The research for these studies was conducted in collaboration with and with support from USAID, CIALCA, Oxfam, and NARO.

**Biodiversity and Agriculture**
A model to make more use of crop biodiversity by Bioversity International, December 2012
http://www.bioversityinternational.org/announcements/a_model_to_make_more_use_of_crop_biodiversity.html

Full Article

A monumental collation of experimental evidence for the first time offers answers to the question: how can farmers make better use of crop diversity. Making use of more than 15 years of collaboration with national partners, Devra Jarvis and her colleagues at Bioversity International have created what they call an heuristic framework to help farmers and researchers conserve and use traditional crop varieties.

In essence, the researchers looked at the constraints farmers face and how to overcome them. For example, it may be that the diversity farmers need just doesn’t exist in their production system, or if it does, is in too short supply to be sufficient. This problem of availability is distinct from the problem of access, where the genetic resources are available, but farmers for one reason or another cannot get hold of it. A third constraint concerns value, where the farmers do not use diversity because they do not believe it would deliver any benefits. Somewhat distinct is the situation where although farmers do value their traditional varieties, they don’t actually use them because market or institutional failures do not allow them to benefit.

Using the framework, researchers would work closely with farmer communities and local institutions to determine how much diversity exists in the system and how it might be used more effectively, and this joint analysis pinpoints the specific constraints that need to be overcome. For each constraint, Jarvis and her colleagues offer a series of actions, backed by published papers, that might help. For example, if traditional varieties are no longer present in the local farming system, they could be re-introduced from a genebank collection. Or if the necessary diversity was never present, it might be brought in from farmers in similar environments and integrated into the local seed system.

Some of the suggested actions, for example establishing a community seed bank, are actually solutions to several problems. A community seed bank can address all four constraints, by making seed available and enhancing access at the same time as providing information and support needed to boost the value of diversity and delivering benefits to the farmers.

“This is a crucial element in the heuristic framework,” Jarvis said. “If you analyze any of the broad categories of constraints, several different actions will almost certainly be presented. Which ones work best will have to be decided in collaboration with the farmer communities and local institutions, and will succeed best if the farming community has the knowledge and leadership to evaluate the benefits and then implement the recommended actions.”

The framework is very much a tool for farmers and researchers to use together. A second element that it stresses, in addition to collaboration, is the importance of strengthening the capacity of farmers to play a more prominent role in the management of their resources.

“Genetic diversity is one of the few resources over which cash-poor farmers can exercise some measure of control, and is a vital element in their well-being,” said Toby Hodgkin, another of the paper’s authors.

The authors stress that the framework, as published, is very much a “work in progress,” which will be expanded and amended as further information becomes available. They caution that each set of on-the-ground circumstances is unique, and actions will need to be adapted and tailored to fit. Nevertheless, three general conclusions have emerged. First, researchers need to work with farmers to develop an understanding of how much diversity exists in a system and how it is maintained and managed. Secondly, analysis will inevitably lead to more than one complementary actions that could support greater conservation and use of diversity. Thirdly, success will depend on local knowledge and institutions and the leadership of farmers and their communities.

“We hope the framework will encourage workers in the field to see traditional varieties as the valuable asset they are to improve production and resilience in farmers’ fields,” Jarvis said, “and look forward to seeing reports about how the approach works out on the ground.”
Note: The paper, 'An heuristic framework for identifying multiple ways of supporting the conservation and use of traditional crop varieties within the agricultural production system', published in Critical Reviews in Plant Science (vol 30, pp 125–176), is available for free download until 31 December 2012.

**New software streamlines ISO accreditation for CIP’s genebank** by International Potato Centre, January 2013


**Full Article**

*How CIP manages the technical documentation of its germplasm movement*

It is no small feat for the International Potato Center (CIP) to manage the technical documentation of its germplasm movement. CIP houses the world’s biggest in vitro genebank, backed by more than 600 employees who are spread across nearly 40 countries working to improve the lives of the poor through roots and tubers.

CIP’s genebank is the heart of the Center where its scientists count on nearly 18,000 root and tuber accessions to find genetic traits to increase crop production to benefit poor farmers. CIP scientists also search through the genebank’s collection looking for resistant genes to develop climate-smart crops that adapt to biotic and abiotic stresses - such as drought, pest and diseases - which are on the increase due to climate change. The collection is maintained as a global public good under the International Treaty on Plant Genetic Resources for Food and Agriculture.

CIP was the world’s first genebank to receive ISO accreditation in February 2008, and with this merit comes the responsibility to manage documents in an efficient manner. Early on the team decided to use an electronic document management system. The team chose the wiki and collaboration software ‘Confluence’ from Atlassian since it offered most of the features required. However, some features for tagging printed documents as required were partially missing.

"We found a solution to improve the ease of our management of printed documents – Scroll Office from K15t Software. With this technology one can now specify certain elements to match the ISO standards" notes Reinhard Simon, Head of CIP’s Integrated IT and Computational Research.

Prior to Scroll Office, Simon’s unit was burdened with the task of maintaining two systems - a parallel server and administrator to first translate the documents into the standard ISO format. According to Simon, another benefit of the new software is that it allows CIP to brand their documentation by adding a logo, copyright information, and headers for each operational procedure.

"The documentation of CIP’s germplasm movement is now efficient and streamlined. It is so easy to maintain and modify, and it precisely meets the expectations of the external auditors, as well as the internal users", adds Simon.

**Packing a punch — targeting native foods, and improving nutrition and health** by Consultative Group on International Agricultural Research, December 2012


**Full Article**
The potential of agriculture goes far beyond contributing to basic food and income needs. For this reason CGIAR has a dedicated research program committed to accelerating progress in improving the nutrition and health of poor people by exploiting and enhancing the synergies between agriculture, nutrition, and health through research. The CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) aims to support agricultural researchers, value-chain actors, program implementers and policymakers in reshaping their actions to better contribute to nutrition and health outcomes and impacts.

A renewed focus on indigenous foods is also helping farmers to generate more income, protect biodiversity and grow crops packed with nutrients. Research shows that the approach can have a significant impact on hidden hunger, an insidious problem caused by lack of essential micronutrients and vitamins. Bioversity International, a member of the CGIAR Consortium, recently co-organized “Crops for the XXI Century” an International Seminar focusing on neglected and underutilized crops and their role in the fight against hunger and poverty. In addition a number of other CGIAR Consortium members have long been working on the sustainable management and use of agricultural biodiversity for meeting the world’s nutritional needs.

Harnessing the full food potential

One crop offering high hopes for better nutrition is ahipa, the name given by the Incas to the legume root produced by the American yam bean (Pachyrhizus spp.) An initiative led by the International Potato Center (CIP, a member of the CGIAR Consortium) is seeking to harness the full food potential of the crop — for both humans and livestock. For while ahipa, which is native to Central and South America, has the highest yield potential of any storage root forming legumes, and is more nutritious than cassava, it also offers good scope as a sustainable fodder crop for livestock farmers.

CIP researchers, who are working to introduce ahipa in dry areas of Central and West Africa, have been in Benin to test the root crop as feed for fish, grasscutters and African giant snails. They say ahipa is especially suited to drought-prone countries, since it grows well in marginal soils. Ahipa’s roots are high in protein and rich in potassium and vitamins C and K. And because it fixes nitrogen in the soil, acting as a natural fertilizer, the crop is climate-friendly too.

“Ahipa is an excellent complement or alternative to other common staples,” said CIP breeder and geneticist Wolfgang Gruneberg, who is heading the ahipa program. “Ahipa’s potential as livestock feed or for local processing may bring even greater value added to small-scale farmers,” added Graham Thiele, Director of the CGIAR Research Program on Roots, Tubers and Bananas.

Reviving local foods

In other parts of the world, farmers are being helped to grow more nutritious foods that consumers will like and can easily obtain. At a time when global food production is being narrowed down to a small range of crops, another Bioversity International® project is working to show that enhanced nutrition and food security can be achieved by reviving neglected local foods.

Led by Brazil, Kenya, Sri Lanka and Turkey – the Biodiversity for Food and Nutrition project is exploring local species for potential, among them white termites, indigenous chickens, mushrooms, sorghum and millet.

Fruit trees for vitamins

Domesticating nutritious native fruit trees can have a strong impact on livelihoods and food security for remote rural communities. Research by the Center for International Forestry Research (CIFOR®) has shown that African children living in areas with substantial tree cover generally have healthier diets than those living far from trees.
Growing fruit-bearing trees, such as baobab (*Adansonia digitata*), tamarind (*Tamarindus indica*), marula (*Sclerocarya birrea*) and chocolate berry (*Vitex doniana*) can improve diets and address hidden hunger.

“The unavailability and high cost of fruits is largely to blame for the widespread vitamin C, A and mineral deficiencies in African countries,” said Ramni Jamnadass, head of the World Agroforestry Centre (ICRAF*)'s Quality Trees Program. A well-coordinated tree domestication campaign could address the twin problem of malnutrition and loss of forest cover, she added.

**A source of food and income**

In Cameroon, efforts to domesticate the highly nutritious okok forest creeper have provided a sustainable source of this popular food and increased incomes for local communities, especially women. *Gnetum spp.*, called okok or eru in different parts of Cameroon, is a non-timber forest product rich in protein and with a range of medicinal uses.

“It is very important in terms of food, it is very important in terms of medicine, and it is very important in terms of income generation,” said Abdon Awono, a scientist from CIFOR, which has teamed up with local partners, the Institute of Agricultural Research for Development and the Association for the Development of Environmental Initiatives.

Although okok grows naturally in the Congo Basin rainforest, increasing demand has threatened its sustainability. A program that encourages villagers to plant their own okok has proved so successful it has been expanded nationwide.

One of the villagers who has been trained to plant the liana is Calixte Mbilong. She now relies on okok for her income when the cocoa season is over. Mbilong makes 35,000 CFA (US$70) a week from the sales.

“It is important to me,” she said, as she firmly presses a tiny okok seed into the ground. “It is with this money that we pay our children’s school fees, take care of our health and buy clothing. It allows me to buy all that I need.”

Targeting native foods is one way that CGIAR research can ensure agriculture goes beyond basic food and income needs by improving nutrition and health, and by adding value for small-scale farmers.

**Biotechnology**

**Opinion: biotechnology, a development pathway for agriculture** by Inter-American Institute for Cooperation on Agriculture (IICA) biotechnology and biosecurity coordinator Pedro J. Rocha.

Fresh Fruit Portal, 17 January 2013
http://www.freshfruitportal.com/2013/01/17/opinion-biotechnology-a-development-pathway-for-agriculture/

**Full Article**

Biotechnology has been defined by the United Nations (UN) as all technological applications that use biological systems and live organisms, or their derivatives, for the creation or modification of products or processes for specific uses. In this way, it is one of the areas with the highest potential for development and application for diverse human activities, including agriculture.

The tools of biotechnology have been forged on the field and in laboratories, and have brought a variety of applications, some of which are presented below along with reflections on this technology and the role of farmers.
Before developing this topic, it should be mentioned that the position of the Inter-American Institute for Cooperation on Agriculture (IICA) on biotechnology is objective and impartial, based on four pillars:

- Biotechnology is more than GM.

- IICA is fair and represents the position of the 34 member countries. This means it neither accepts nor rejects particular biotechnological techniques. IICA delivers information to decision makers so that their determinations are based on scientifically validated information.

- Biosafety regulatory frameworks are essential for a country and constitute a demonstration of their sovereignty.

- Biotechnology is a foundation and complement for various forms of agriculture.

Growers: biotechnologists by nature

It is clear that the power of observation, as well as understanding nature in general and biological phenomena in particular, has made it possible for human beings to develop activities that while always vital and complex for the sustenance of humanity, are currently considered as obvious. Such is the case of agriculture.

Being able to identify those plants that could be ingested, deducing that fruits had seeds from which other plants could come, inventing the plow and planting in the ground, determining that there were cycles (flowering, pollination, growing, harvesting, etc), crossing plants, harvesting and storing grain, and providing food and non-food uses (fiber, medicines, dyes, poisons), are all examples of a deep understanding and a careful and efficient implementation of this.

These reasons lead us to consider that farmers, from their origins, are biotechnologists.

But the inherent complexity of the field and crop requires technological options to facilitate work and to obtain a proper cost-benefit ratio, represented for example increased productivity and profitability and reduced environmental impacts. With these objectives, the biotechnology industry has developed over time.

Biotechnology: a box of tools

There are many techniques used in biotechnology for agriculture, and they have shown that with applied knowledge, a rational and efficient use of natural resources and the environmental supply available in different regions of the plant can be made. Some are:

- The in vitro culture of cells and tissues: the possibility of exploiting the ability of plant cells to generate tissues or whole individuals of a single cell through a specially designed crop in a controlled environment

- Fermentation: apart from allowing for the production of alcohol and dairy products, it can accelerate the conversion of organic matter to produce compost. Fermentation is closely associated with the use of bioreactors, which employ small cells as factories for various products, such as important agricultural inputs (biofertilizers, pesticides of biological origin, etc) or other compounds (alcohol, growth regulators, etc).

- Biological control: this uses, for example, antagonistic fungi or other organisms (wasps, arthropods, etc.) To control diseases or pests affecting crops.

- Breeding: one of the processes by which new varieties or crops obtained.
- Molecular markers: multiple techniques based on bits of genetic information (DNA) that can be used for various purposes such as the characterization of populations, the establishment of parentage, quality tracking features, and materials selection in breeding programs.

- Genetic modification through transgenesis: this makes the introduction and expression of plant characteristics (genes) possible in a precise way, achieving what would not have naturally been possible by other means.

- Genomics: a technique to discover and analyze the genome sequence.

Some techniques have been used for many years and are still valid. They are complemented with more recent ones that while generated with the support of specialized science, can be used by any farmer.

*Modified live organisms and biosecurity*

Using the technique of transgenesis, involving the introduction of genes from one species to another, has made it possible to generate plants that are resistant or highly tolerant to biotics (Lepidoptera and viruses) and abiotics (drought and herbicides). The plants that have undergone such change are called transgenic or genetically modified organisms (GMOs).

In 2011, it was reported that 160 million hectares of GM crops were planted, primarily soybeans, corn, cotton and canola. The modification events that are most used are resistance to herbicides (glyphosate and glufosinate-ammonium), high tolerance to insects (bt technology) and a combination of both (stacked events). The feature will soon be available in the market will surely be the drought tolerance. The feature to be next available in the market will surely be drought tolerance.

In Latin America, currently Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico, Paraguay and Uruguay plant GM crops on their territories.

So far, there is no scientifically validated report showing that GM crops cause a negative impact on human health, animals or the environment. By contrast, after 16 years of trading in several countries, GM crops have been generating profits from the production point of view (easy crop management), economically, environmentally (use of fewer molecules in fewer herbicides applications) and socially.

A recent publication suggests a deleterious effect of GM corn on mice. However, the lack of scientific rigor of the information presented has obliged the international scientific community not to accept such a report as scientific or conclusive. Science is rigorous and any conclusions that are present to your name must withstand strict analysis under scientific method.

Working with live organisms implies acting ethically and at all times guaranteeing the the biological integrity of organisms and ecosystems. To fulfill this commitment, countries have agreed on sovereignty rules and protocols for the safe handling of GMOs.

The main instrument of biosecurity is the Cartagena Protocol on Biosafety (CPB) which was signed by all the countries of Latin America and the Caribbean and has been ratified by the majority. With the PCB, countries undertake to implement measures to reduce the potential risks resulting from the application of this technology, defining aspects of transboundary movement and minimum procedures to be considered for the approval and release of GMOs for trade.

In response to the guidelines of the PCB, most countries in the world have biosafety regulatory frameworks, operating through national technical committees. They perform technical analysis and issue science-based concepts, to approve and regulate the release and trade of transgenics in each country.
Additionally, every two years, they will have global meetings to discuss specific issues. In 2012, this was conducted by the Conference of Parties (COP/MOP-6) in Hyderabad, India.

**Agriculture and biotechnology**

The various types of agriculture (organic, agroecological, GM, conventional, etc) have something in common: they are in agriculture and are looking to produce more, and better, with different tools.

Organic agriculture uses biotechnological techniques. However, as a rule it does not accept the two biotechnological genetic modification techniques: transgenesis and using ionizing radiation for mutagenic purposes. This allows us to affirm that biotechnology is broadly a complement and a foundation of all forms of agriculture. Moreover, there is no mistake in categorizing biotechnology as a clean technology.

**Final thoughts**

- Biotechnology is a toolbox of techniques that has optimized the potential of natural resources.
- Biotechnology is a clean technology that complements existing ones.
- Since his inception, the farmer has been, is and will remain an efficient biotechnologist.
- There are various techniques, one of which is transgenesis, with which it is possible to genetically modify crops and introduce feature of interest. The technique is powerful and is being used under strict biosecurity measures in countries that have seen development opportunities in such crops.
- As for GM crops, the most anticipated feature is currently related to drought tolerance in corn and soybeans.
- The countries of Latin America and the Caribbean have a valuable opportunity in biotechnology to utilize their natural resources, strengthen national science and technology and strengthen the agricultural business with a reduction in negative impacts on the environment.
- IICA promotes the use of biotechnology in the broad sense and provides information for countries to make their decisions, whatever they may be, based on scientific information.

**Intellectual Property**

**EP protecting genetic resources in developing countries.** CTA - Brussels Office Newsletter N° 350, 18 January 2013


**Full Article**

The European Parliament voted this week on a report which proposes several measures for the protection of the rights of indigenous people in developing countries who first identify the benefits of plants with medicinal properties, and that are later used in the pharmaceutical industry.

Pharmaceutical companies regularly draw on traditional knowledge to identify plants or substances with medicinal properties. Companies can patent the composition and process that arise from the research and development inspired
by traditional knowledge. Often the local communities that called attention to the plants' useful properties do not benefit from this and in some cases it can even make it difficult for them to make use of their own discoveries. It can also apply to firms developing new varieties of fruit and vegetables. The problem is often referred to as biopiracy. There are concerns that biopiracy could impede developing countries' economic progress. Current legislation favours companies while traditional knowledge is offered little protection. The report was presented to MEPs on Monday the 14th of January and voted on the next day during this week's plenary session in Strasbourg.

According to the report, the EU should adopt a number of measures to fight against biopiracy: Adopt the UN Nagoya protocol, which aims to promote fair and equitable sharing of benefits arising from genetic resources; introduce a new legal framework for granting patents, which would involve applicants having to disclose where ingredients for a product come from, and assist developing countries in establishing the institutions required to benefit from genetic resources and traditional knowledge.

Upcoming Events

February 2013

AGROFEST 2013

Date: 22 to 24 February, 2013
Location: Queen's Park, Bridgetown, Barbados
Contact: Barbados Agricultural Society [http://www.basonevoice.org/]

June 2013

49th Annual Meeting Caribbean Food Crops Society (CFCS)

Date: 30 June to 6 July 2013
Location: Port of Spain, Trinidad and Tobago

Description: The 49th Annual Meeting will be celebrated 30 June to 6 July in the Hyatt Regency Hotel in Trinidad. Joint meeting of the CFCS, Caribbean AgroEconomic Society (CAES) and the International Society for Horticultural Science (ISHS). Theme: Agribusiness Essential for Food Security: Empowering Youth and Enhancing Quality Products.
Contact: CFCS website [http://cfcs.eea.uprm.edu/]

October 2013

IPCC 37: The 37th session of the Intergovernmental Panel on Climate Change (IPCC 37)

Description: The 37th session of the Intergovernmental Panel on Climate Change (IPCC 37) will consider for approval two methodology reports: the "2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands"; and the good practice guidance on estimating greenhouse gas (GHG) emissions and removals from land use, land use change and forestry (LULUCF) under the Kyoto Protocol.
Date: 14-18 October 2013
Location: Georgia [tentative]