CARDI and CARIRI sign 3-Year Technical Agreement

April 8 2013:- The Caribbean Agricultural Research and Development Institute (CARDI) and the Caribbean Industrial Research Institute (CARIRI) signed a three year Technical Cooperation Agreement on Wednesday 27th March, 2013 at CARDI’s Head Office at the University of the West Indies’ St Augustine Campus. The signatories included Dr. Arlington Chesney, Executive Director, CARDI and Mr. Liaquat Ali Shah, Executive Director, CARIRI.

For more information see page 23

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
Cereal and Grain Legumes

Agriculture Ministry to increase sorghum cultivation by the Jamaica Information Service, 20 April, 2013

Full Article

The Ministry of Agriculture and Fisheries is looking to identify more arable lands on which to cultivate sorghum, a crop currently being tested as a substitute grain for animal feed.

This was disclosed by portfolio Minister, Hon. Roger Clarke, while speaking to journalists today (April 19), following the harvesting of a pilot sorghum crop in Hill Run, St. Catherine.

The Caribbean Broilers (CB) Group undertook the test project at its facility, to grow sorghum locally for feedstock as a replacement for imported corn.

The Minister noted that lands have already been identified at Amity Hall in St. Thomas at one of the nine agro parks being developed across the island, aimed at enhancing food security and cutting the country’s food import bill. He informed that the CB Group will be undertaking this planting exercise and that the land is currently being prepared.

"We're targeting in that agro park, some 1,700 acres. They (CB Group) are moving now to put in 800 (acres)...and we're trying to identify more lands. They have asked for some 6,000 acres...so the sustainability is there and we are determined to put whatever idle lands we have into production," the Minister said.

Sorghum is a genus of numerous grass species, some of which are raised for grain and many of which are used as fodder plants. The plants take three to four months to reach maturity and are cultivated in warm climates around the world.

"We are not only dealing with sorghum. We are dealing with other crops. We are going to be doing probably over 600 acres of onions. We are already moving with Irish potatoes – a whole slew of things that we're doing (to utilize arable lands)," Mr. Clarke said.

The Minister said he is pleased with the impact that growing the sorghum locally "will have on our importing grains for our animal feed".

"This was just an experimental plot, but the yield has been significant in terms of international standards and it's just the beginning. This is just a start. What (CB Group) has learnt here is what will help them to improve in production and productivity as we go along," he stated.

Manager, Corporate Affairs, CB Group, Dr. Keith Amiel, informed that 60 per cent of the corn that goes in feedstock is imported, hence the need to create a local substitute.

"The idea is to try to see how much of what we've been importing we can produce locally....We are going to try to make use of the unused land...it would take us about 6,000 acres to produce 10 per cent of the (crop) locally and of course, we can go up to any amount using the land that's available," he said.
Agriculture Consultant, Johnny Haer, noted that sorghum is a dry land crop that is grown all over the world, because of its hardiness in drought and dry weather. He pointed out that this "is one of the reasons why we felt like it would do so good here in Jamaica...I don't see why sorghum is not going to adapt very well to the Jamaican climate."

He noted that the crop harvested from the 300-acre plot, is estimated to "probably end up yielding...roughly 3,000 pounds per acre or 1.5 tonnes per acre."

Nitrogen key to uptake of other corn nutrients, study shows. Purdue University, Purdue Agriculture News, 15 April 2013
http://www.purdue.edu/newsroom/releases/2013/Q2/nitrogen-key-to-uptake-of-other-corn-nutrients,-study-shows.html

Full Article

WEST LAFAYETTE, Ind. - A historical analysis of corn research shows that new hybrids are taking up more nitrogen than older plant varieties after the crucial flowering stage, a clue as to how plant scientists will need to adapt plants to increase yields.

Tony Vyn, a professor of agronomy, and Ignacio Ciampitti, a postdoctoral research associate, are studying the timing of nutrient uptake in corn and how that process affects yield. They found that modern hybrids (post-1990) took up 27 percent more total nitrogen from the soil after flowering than pre-1990 corn plants. In fact, nitrogen uptake after flowering in post-1990 hybrids averaged 56 percent of the total grain nitrogen at the end of the season.

Primarily, more grain nitrogen came from new nitrogen uptake from soil during grain filling, as opposed to nitrogen being remobilized from plant leaves and stems. The higher amount and duration of nitrogen uptake contributed to superior grain yields even as actual grain nitrogen concentrations declined.

The timing of nitrogen uptake is also important in understanding how other plant nutrients are affected. Vyn said optimum nitrogen levels increased plants' abilities to absorb phosphorus, potassium and sulfur. Part of the corn plant's response to receiving adequate nitrogen is that progressively higher percentages of total plant phosphorus, potassium and sulfur end up in the grain fraction at harvest.

"You need to think in terms of nutrient balance. If you have a plant with more biomass and more yield, it will be taking up more nutrients in a balanced manner that shifts with plant needs and growth stages," Ciampitti said.

Post-1990 corn hybrids use nitrogen more efficiently, so less is necessary per unit of yield. But as those plants increase nitrogen utilization, they increase their uptake of other nutrients, which affects how much of those nutrients growers need to use and when they need to apply them.

"At some point, they'll need to increase the amount of these other nutrients applied to their fields as yields continue to increase," Vyn said.

Vyn and Ciampitti also found that the timing of nutrient uptake is important for predicting yield and nutrient efficiencies. Vyn said it would be economically beneficial to identify simple, early-stage plant
traits that could be measured to predict final yield, but the earliest they could predict yield with even 50 percent certainty was at flowering, much later than hoped.

"It's desirable to estimate yield and nutrient efficiency of new genotypes at an early stage, but you have to wait until flowering time," Vyn said. "You need to wait until flowering stage for most of the total potassium uptake to be present in the plant and recognize that proportionally more phosphorus than nitrogen uptake can occur later in modern corn hybrids. But all nutrient uptake rates are dependent on the specific interactions of hybrids with their environment and management factors like plant density and soil nutrient availability."

Ciampitti said biomass and nutrients were measured for two weeks before, at and two weeks after, flowering in an effort to predict yield. Those periods were crucial because it is the time in which most corn biomass is made in modern hybrids when water is not limiting.

The results of the studies were reported in two journal articles. The review of nitrogen source changes was published in *Crop Science*. Nutrient accumulation and partitioning results were published in *Agronomy Journal*.

**Wheat drops over one percent** by Business Recorder.com, 14 April, 2013

**Full Article**

US wheat ended more than 1 percent lower on Wednesday in volatile dealings after the US Department of Agriculture's (USDA) April estimates for 2012/13 global ending supplies were well above analysts' estimates. Corn ended higher but below the trading session highs and soyabeans turned down after an initial rally in reaction to the USDA stocks numbers with the US data seen supportive to markets while global data was viewed as bearish.

"It's very simple. The US numbers were below estimates and that brought in an initial pop, especially in corn but the global numbers are all above estimates. They dug deeper into the report and the global numbers were all bearish," said Mike Zuzolo, analyst for Global Commodity Analytics. After the report was released, bellwether Chicago Board of Trade May wheat traded in a big range of roughly 25 cents per bushel, May corn 32 cents and May soyabeans 24 cents.

USDA's April supply and demand forecasts for the ending supply of US corn and soyabeans for the 2012/13 marketing year were below analysts' estimates but the ending supply of US wheat was above an average of analysts' estimates and the forecast for global ending wheat stocks was sharply above estimates. Global ending stocks of corn and soyabeans also were well above trade and analysts' expectations.

"I was on the trading floor and when the US numbers came out corn just exploded to 22 (cents per bushel) higher at one point, then when the world numbers came out, everything dropped," said Kevin O'Bryan, analyst for Olympus Futures. Chicago Board of Trade May wheat closed down 12 cents per bushel at $6.96-3/4, May corn was up 4-3/4 cents at $6.49 and May soyabeans were down 2-3/4 at $13.92-3/4.
“The corn number was pretty much in line with trade estimates. We had the initial jump in the market but then it settled down. There is still a lot of debate about how much corn is out there and that will continue,” said Harry Bormann, grain team leader for MaxYield Co-op. USDA in its quarterly stocks report in late March shocked the market by pegging the US corn supply for the beginning of March well above trade estimates.

That report made forecasting ahead of Wednesday's data extremely difficult and led to a huge 300-million-bushel range of estimates for the expected ending stocks of corn for the current 2012/13 marketing, which closes at the end of August. USDA's soyabean and wheat quarterly stocks also were above trade estimates.

Livestock

ILRI publishes guidelines for facilitation, monitoring and evaluation of innovation platforms for endemic livestock management. International Livestock Research Institute (ILRI) / PROGEBE, 15 April 2013

Full Article

The International Livestock Research Institute (ILRI) has this month (April 2013) published guidelines for facilitation, monitoring and evaluation of innovation platforms in the West Africa-based project on Sustainable management of globally significant endemic ruminant livestock (French acronym, PROGEBE).

Available in both English and French, these guidelines are targeted at project staff at site, national and regional levels.

The guidelines were written by ILRI scientists Pamela Pali and Kees Swaans with contributions from Jemimah Njuki, Ranjitha Puskur, Abdou Fall, Nancy Johnson, Ndèye Djigal and Alassane Diallo.

The objective of PROGEBE is to develop, test and implement models for community-based conservation and sustainable management of three priority endemic ruminant livestock species: N'Dama cattle, Djallonke sheep and the West African Dwarf goat.

These species have unique genetic traits that are important to the livelihoods of smallholder livestock keepers. However, these traits are under increasing threat of dilution from crossbreeding.

The purebred N'Dama cattle, for instance, is favoured by smallholder farmers because of its tolerance to trypanosomosis, a genetic trait that has been greatly diluted in the crossbred N'Dama.

Based on lessons learned in the pilot sites through action research and the models for in situ conservation of endemic livestock established during the project, PROGEBE intends to develop and implement a sub-regional system for cooperation, coordination and information exchange relevant to endemic livestock.
The national coordination units of each country are currently running various forums at site, national and regional levels that contribute to information exchange. The regional coordination unit has also taken steps to foster regional forums dealing with management of animal genetic resources and transhumance linked with West African regional bodies.

To add value to the initiatives already launched by national and regional teams for information exchange, ILRI has proposed the establishment of innovation platforms at the site and sub-national levels to enhance communication, co-ordination and knowledge sharing among key actors in the project.

Although the guidelines were developed specifically for facilitation, monitoring and evaluation of innovation platform processes and outcomes in PROGEBE, they have been designed so that they can be adapted to other projects that have a similar structure.

Citations


Livestock ‘goods’ and ‘bads’: What are the published facts? International Livestock Research Institute, 4 April, 2013

Full Article

Yesterday’s post on this ILRI News Blog, Livestock, poverty and the environment: A balancing act and a balanced account, highlighted the overviews and conclusions provided in a new science paper on the roles of livestock in developing countries.

The paper, written by scientists at the International Livestock Research Institute (ILRI), also provides a wealth of research-based livestock facts little known (and less cited) in current global debates on the roles farm animals play in reducing or promoting global poverty, hunger, malnutrition, gender inequality, ill health, infectious disease and environmental harm.

The authors of the paper argue that no single, or simple, way exists to view, approach or resolve issues at the interface of livestock and these big global problems.

Consider the following facts / complicating factors cited in the new paper.

Livestock and poverty

Up to 1.3 billion people globally are employed in different livestock product value chains globally (Herrero et al. 2009). Milk and meat rank as some of the agricultural commodities with the highest gross value of production (VOP) in the developing world (FAOSTAT 2011). Nearly 1 billion people living on less than 2 dollars a day in South Asia and sub-Saharan Africa keep livestock (FAO 2009).
More than 80% of poor Africans keep livestock and 40–66% of poor people in India and Bangladesh keep livestock (FAO 2009). Some 68% of households in the developing world earn income from livestock (Davis et al. 2007). Across the developing world, livestock contribute, on average, 33% of household income in mixed crop-livestock systems and 55% of pastoral incomes (Staal et al. 2009). The growth in demand for milk and meat, mainly driven by urban consumers in developing countries, has been increasing in the last few decades and is projected to double by 2050 (Delgado et al. 1999, Rosegrant et al. 2009).

Livestock and hunger

‘Livestock contribute greatly to global food security: they directly provide highly nourishing animal-source foods; they provide scarce cash income from sales of livestock and livestock products used to purchase food; their manure and traction increase household cereal supplies; and increases in livestock production can increase access by the poor to livestock foods through lower prices of livestock products.’

- Livestock systems in developing countries now produce about 50% of the world’s beef, as well as 41% of our milk, 72% of our lamb, 59% of our pork and 53% of our poultry future (Herrero et al. 2009); all these shares are expected to increase in future (Bruinsma 2003, Rosegrant et al. 2009).

- Most meat and milk in the developing world comes from so-called ‘mixed’ crop-and-livestock systems [which] . . . are central to global food security, as they also produce close to 50% of the global cereal output (Herrero et al. 2009 and 2010).

Livestock and malnutrition

‘Although livestock and fish clearly make important contributions to overall food security, there is an even more important role of animal source foods in achieving nutrition, as opposed to food, security. Animal source foods are dense and palatable sources of energy and high-quality protein, important for vulnerable groups, such as infants, children, pregnant and nursing women and people living with human immunodeficiency virus with high nutritional needs. They also provide a variety of essential micronutrients, some of which, such as vitamin A, vitamin B12, riboflavin, calcium, iron, zinc and various essential fatty acids, are difficult to obtain in adequate amounts from plant-based foods alone (Murphy and Allen 2003). Animal source foods provide multiple micronutrients simultaneously, which can be important in diets that are lacking in more than one nutrient: for example, vitamin A and riboflavin are both needed for iron mobilisation and haemoglobin synthesis, and supplementation with iron alone may not successfully treat anaemia if these other nutrients are deficient (Allen 2002). Micronutrients in animal source foods are also often more readily absorbed and bioavailable than those in plant-based foods (Murphy and Allen 2003).’

Livestock and gender inequality

‘Almost two-thirds of the world’s billion poor livestock keepers are rural women (Staal et al. 2009). . . . Livestock are an important asset for women because it is often easier for women in developing countries to acquire livestock assets . . . than it is for them to purchase land or other physical assets or to control other financial assets (Rubin et al. 2010). . . . Livestock assets are generally more equitably distributed between men and women than are other assets like land (Flintan 2008). . . . Women generally play a major role in managing and caring for animals, even when they are not the owners. . . . Despite the role of women in livestock production, women have lower access to technologies and inputs than men and there are gender disparities in access to extension services, information and
training throughout the developing world due to women’s long workdays, a neglect of women’s needs and circumstances when targeting extension work, and widespread female illiteracy.’

*Livestock and ill health*

‘In developing countries, human health is inextricably linked to the livestock, which underpin the livelihoods of almost a billion people . . . Livestock have an essential role in contributing to good health through providing animal source food, manure and draft power for plant source food, as well as income to buy food and health care. At the same time, livestock can lead to poor health if animal source foods contribute to poor diet and through providing a reservoir for diseases infectious to people (zoonoses). The relationship between livestock, human nutrition and human health are complex, with multiple synergistic and antagonistic links . . . For example, poor livestock keepers worldwide face daily trade-offs between selling their (relatively expensive) milk, meat and eggs to increase their household income and consuming the same (high-quality) foods to increase their household nutrition. Because animal source foods are so dense in nutrients, including micronutrients that help prevent ‘hidden hunger’, decisions in these matters have potentially large implications for the nutritional and economic health of households. Livestock contributes to food security and nutrition in various ways.’

*Livestock and infectious disease*

‘In poor countries, infectious disease still accounts for around 40% of the health burden in terms of years lost through sickness and death (WHO 2008). Livestock directly contribute to this through the foodborne diseases transmitted through animal source foods, the zoonoses transmissible between livestock and people, and human diseases emerging from livestock. A recent estimate suggests that 12% of the infectious disease burden in least developed countries is due to zoonoses, and the majority of this is transmitted to people from livestock hosts through consumption of animal source foods, vectors or direct contact (Grace et al. 2012). More indirectly, keeping of livestock affects agro-ecosystems in ways that influence their ability to provide health-provisioning services. This may be positive or negative. In some circumstances, livestock act as a buffer, for example, between trypanosomosis-carrying tsetse or malaria-carrying mosquitoes and people; in this case, livestock act as alternative hosts, effectively protecting people. In other cases, livestock are an amplifying host, for example pigs harbouring and multiplying Japanese encephalitis and thus increasing the risk it poses to people.’

- Food-borne disease is the world’s most common illness and is most commonly manifested as gastrointestinal disease; diarrhoea is one of the top three infectious diseases in most developing countries, killing an estimated 1.4 million children a year (Black et al. 2010).
- In countries where good data exist, zoonotic pathogens are among the most important causes of food-borne disease (Thorns 2000, Schlundt et al. 2004).
- Animal-source food is the most risky of food commodities (Lynch et al. 2006), with meat and milk providing excellent mediums for microbial growth.
- Most human diseases come from animals, with some 61% being ‘zoonotic’, or transmissible between animals and humans, including many of the most important causes of sickness and death.
- Endemic zoonoses that prevail in poor countries are among the most neglected diseases.
- Zoonoses (diseases transmissible between animals and man) and diseases recently emerged from animals (mostly human immunodeficiency virus [HIV]-acquired immunodeficiency syndrome) make up 25% of the infectious disease burden in the least developed countries (Gilbert et al. 2010).
• Currently, one new disease is emerging every four months, and 75% of these originate in animals (Jones et al. 2008).

Livestock and environmental harm

‘The impacts of livestock on the environment have received considerable attention as the publication of the Livestock’s Long Shadow study (Steinfeld et al. 2006). This study helped draw attention to the magnitude and scale of livestock’s impact on land use, greenhouse gas (GHG) emissions and pollution among others, and it created a thrust for the sector’s stakeholders to develop research agendas geared towards generating better data for the environmental assessment of global livestock systems, and to develop solutions for mitigating environmental livestock problems, and policy agendas more conducive to a greening of the sector by promoting regulation, increases in efficiency and others.’

Land: For grazing or fodder?

• Livestock systems are one of the main users of land; livestock use some 3.4 billion ha for grazing and 0.5 million ha of cropland for the production of feeds (33% of arable land), globally (Steinfeld et al. 2006).
• Of the world’s 3.4 billion ha of grazing lands, 2.3 million ha (67%) are in the developing world, with expansion of pastureland at the expense of natural habitats in the developing world in the order of 330 million ha in the last 40 years (FAO 2009).
• The world will require an additional 450 million tonnes of grain to meet demand for animal products by 2050 (Rosegrant et al. 2009).

Climate change: Decrease livestock numbers or increase livestock efficiencies? (or both?)

• Livestock are an important contributor to global greenhouse gas emissions causing global warming; current estimates range from 8.5% to 18% of global anthropogenic greenhouse gas emissions (O’Mara 2011), with the range reflecting methodological differences (inventories v. life cycle assessment), attribution of emissions to land use (Herrero et al. 2011, O’Mara 2011) and uncertainty in parameter values (FAO 2010).
• Livestock in the developing world contribute 50% to 65% of the total emissions from livestock in the world. (Herrero et al. 2013).
• The higher the productivity of farm animals, the lower the emissions per unit of their products (FAO 2010).
• While livestock systems in general terms generate significantly more greenhouse gas emissions per kilocalorie than crops, the potential for the livestock sector to mitigate such emissions is very large (1.74 Gt CO2-eq per year, Smith et al. 2007), with land-use management practices representing over 80% of this potential (Smith et al. 2007) and with most of the mitigation potential (70%) lying in the developing world (Smith et al. 2007).
Livestock manure: Waste or resource?

- Livestock wastes—considered a serious problem in the developed world—are a critical agricultural resource in large parts of Africa, where soils are inherently poor (Petersen et al. 2007, Rufino et al. 2007).

- Manure contributes between 12% and 24% of the nitrogen input in nitrogen cycles in cropland in the developing world (Liu et al. 2010).

- Recycling of animal manures is practiced in most mixed crop-livestock systems, although efficiencies are rarely close to those of the developed world (Rufino et al. 2006).

- Synthetic fertilizers are unaffordable for most small-scale farmers, who depend on the (poor) fertility of their soils to produce food crops, or on livestock to concentrate nutrients from the relatively large grazing lands (Herrero et al. 2013).

- In many farming systems, the production of food crops directly relies on animal manures to increase effectiveness of fertilizers applied to cropland (Vanlauwe and Giller 2006).

- Although animal manure can be a very effective soil amendment, its availability at the farm level is often very limited, so designing technologies for soil fertility restoration only around the use of animal manure is unrealistic.

Payments for environmental services: Exclude or include livestock keepers?

- Despite the fact that livestock is widely distributed in virtually all agro-ecosystems of the developing world, few ‘payment for environmental services’ schemes have targeted livestock keepers; most have focused on such services as climate, water and wildlife (Landell-Mills and Porras 2002, Wunder 2005).

- Enhancing the role that rangelands play in maintaining ecosystem services through improved rangeland management could be of essential importance for enhancing global green water cycles (Rockström et al. 2007).

- In Africa, where close to half of the pastoralists earn less than US$1/day, it’s estimated that even modest improvements in natural resource management in the drylands may yield gains of 0.5 t C/ha per year, which translates into US$50/year, bringing about a 14% increase in income for the pastoralist (Reid et al. 2004).

Read the whole paper
Germlasm

Genebank Standards for Plant Genetic Resources -- a major accomplishment International standards aimed at conserving plant diversity in genebanks. FAO Media Centre, 19 April 2013

Full Article

New international standards to help genebanks worldwide conserve plant diversity in a more efficient and cost-effective manner were adopted on Thursday April 18 by FAO's Commission on Genetic Resources for Food and Agriculture.

Meeting at its 14th Regular Session here, the Commission endorsed the Genebank Standards for Plant Genetic Resources for Food and Agriculture.

Brad Fraleigh, Chairman of the meeting, welcomed the Genebank Standards as "a major accomplishment" for the current and future preservation of plant diversity for food and nutrition security. "These standards will be extremely valuable for opening funding opportunities for genebanks as well as increasing use of these valuable resources," he said.

Pioneering efforts

Clayton Campanhola, Director of FAO's Plant Production and Protection Division, appreciated the pioneering efforts of experts from national programmes and other international and regional organizations in preparation of these standards.

The Genebank Standards are voluntary but have a universal value and utility in guiding genebank management for seeds, for germplasm maintained in field collections, as well as conserved through cryopreservation and in vitro culture. They were developed in response to the new technical advances and the increased coverage of plant diversity collections. A systematic application of these standards will require mobilization of financial resources for upgrading professional skills in developing countries.

The Genebank Standards will be available in all UN official languages.
World's gene pool crucial for survival. On 30th anniversary of the Commission on Genetic Resources for Food and Agriculture, FAO underlines the urgency of safeguarding key genes that will help weather the shocks of climate change. FAO Media Centre, 15 April 2013

Full Article

Conserving and making the most of the planet's wealth of genetic resources will be crucial for survival, as people will need to produce sufficient and nutritious food for a growing population, FAO Deputy Director-General Dan Gustafson said today addressing the Commission on Genetic Resources for Food and Agriculture.

The Commission, the only intergovernmental body to specifically address all matters related to the world's gene pool for food and agriculture, is marking its 30th anniversary and is meeting in Rome this week.

"FAO believes that adaptation of the agriculture sector is not merely an option, but an imperative for human survival, and genetic resources will form an essential part of any adaptation strategy," he said.

"Ensuring food security in the face of climate change is among the most daunting challenges facing humankind," Gustafson said.

Plants account for over 80 percent of the human diet. Some 30 crops account for 95 percent of human food energy needs and just five of them - rice, wheat, maize, millet and sorghum - alone provide 60 percent. Yet more than 7000 plant species have been gathered and cultivated since people first learned to do so many millennia ago. And there are as many as 30 000 edible terrestrial plant species in the world.

"Climate change impacts are expected to reduce agricultural productivity, stability and incomes in many areas that already experience high levels of food insecurity. Yet world agricultural production must increase 60 percent by the middle of this century - less than 40 years from now - to keep pace with the food requirements of the world's growing population," said Gustafson.

"Genetic resources for food and agriculture play a crucial role in food security, secure livelihoods and environmental services. They also play a crucial role in enabling crops, livestock, aquatic organisms and forest trees to withstand climate change-related conditions."

Climate Change Roadmap

The Commission will be considering a Roadmap on Climate Change and Genetic Resources for an initial phase through 2017. Activities foreseen include awareness-raising, developing guidelines on integrating genetic resources for food and agriculture into adaptation planning, identifying hotspots where biodiversity is under particular threat from climate change and developing an action plan to conserve crop wild relatives from the threat of extinction.

While the Commission is more advanced on plant and animal genetic resources, FAO is also making significant progress in addressing the genetic resources of forests, aquatic life, micro-organisms and invertebrates, reflecting the broadened mandate of the Commission since 1995. including, Bacteria, for example, are essential for production of yogurt and cheese, earthworms churn soil and break down organic matter into essential nutrients and a plethora of pollinators, such as the honeybee, enable 35 percent of the world's crops to reproduce.
Hitting where it hurts

Nations in the warmest parts of the planet will be hardest hit by climate change, as temperature rises are expected to be sharpest and their agricultural systems least prepared to cope with climate change impacts. Arid and semi-arid zones are expected to become drier, for one, while precipitation in other areas will be more variable and much less predictable.

"It's clear that humankind is going to have to use all the tools at our disposal in order to face up to the challenge of producing enough food as the planet warms," said Linda Collette, Secretary of the Commission on Genetic Resources for Food and Agriculture.

"We are constantly adding to the long inventories of known land and aquatic animals, plants, trees, invertebrates such as pollinating insects and even microscopic organisms - and their genes - and some hold the key to climate change adaptation. Not only must we conserve that genetic diversity, but we must also ensure access to them and ensure we equitably and fairly share the benefits derived from their use," she explained.

Genetic diversity under threat

FAO estimates that in the last century, about 75 percent of crop genetic diversity was lost as farmers worldwide switched to genetically uniform, high-yielding varieties and abandoned multiple local varieties.

Having recourse to genetic material is however essential to adapt and improve agriculture in the face of threats, such as diseases or warming climate that can alter growing conditions. For example, a variety of Turkish wheat, collected and stored in a seed gene bank in 1948, was rediscovered in the 1980s, when it was found to carry genes resistant to many types of disease-causing fungi. Plant breeders now use those genes to develop wheat varieties that are resistant to a range of diseases.

According to the most recent FAO data, 22 percent of livestock breeds are at risk of extinction. However, the local breeds that are least understood often carry genetic defenses that enable them to walk long distances to watering holes, survive with reduced water and fodder intake or fight off tropical diseases. Many 'industrial' cattle breeds - for example, the high output dairy animals - often don't make it under such harsh conditions. In addition:

- The world's aquatic ecosystems are made up of approximately 175 000 species of fish, mollusks, crustaceans and aquatic plants. Just ten species account for the world's haul in capture fisheries, while ten species account for half of global fish farming production;
- There are 80 000 tree species worldwide, but just 1 percent have been studied in any depth. Forests are home to 80 percent of terrestrial biodiversity, while forests are being cleared at an alarming rate - with consequences for global warming;
- Invertebrates constitute 95 percent of all animal life, while the hidden treasure trove of biodiversity of micro-organisms is incalculable.

The Commission strives to halt the loss of genetic resources for food and agriculture, and to ensure world food security and sustainable development by promoting their conservation, sustainable use, including exchange, and the fair and equitable sharing of the benefits arising from their use.
Yuanhui Zhang and Lance Schideman, both professors in the Department of Agricultural and Biological Engineering at the University of Illinois at Urbana-Champaign, have combined their research efforts to develop an innovative system that uses swine manure to produce biocrude oil, grow algal biomass, capture carbon, purify wastewater and recycle nutrients. Zhang has spent more than a decade researching the conversion of swine manure and biomass into crude oil. Schideman has done significant research in the area of integrated algal systems for wastewater treatment and bioenergy production.

“We first convert swine manure into crude oil in a hydrothermal liquefaction reactor,” Schideman said. “There is a very strong wastewater that comes off that process. It contains nutrients that can be used to grow algae that simultaneously clean the water. Lately, we’ve added low-cost, bioregenerable adsorbents into the system that allow us to grow additional bacterial biomass and further improve effluent water quality. Our recent research, a combination of experimental work and some computer modeling, has shown that we can reuse the nutrients multiple times and thus amplify biofuel production from waste feedstocks,” he explained. “If we start with a particular waste stream that has one ton of volatile solids in it, we might be able to produce three, five or even 10 tons of algal and bacterial biomass. This new biomass is then recycled back into the biofuel production process,” he continued. “It can also clean the water with the goal of making it suitable for environmental discharge or reuse in some other application. So we get more bioenergy and more clean water resources—both good things in the long run.”

Schideman said they are also focusing on developing markets for the downstream products of the biocrude oil. “This crude oil is similar to, but not exactly like petroleum. It generally has higher oxygen and higher nitrogen content than traditional petroleum, but lower sulfur content. Some of those things are positive, some are negative, but regardless, they’re different. We have to understand those differences in order to make the new materials compatible with existing infrastructure.”

In the near term, Schideman said that “bridge” markets are likely needed to begin using biocrude oil products on a smaller scale than current petroleum refineries. “Refineries need hundreds of thousands of barrels of material each day,” he said. “It can be a chicken and egg kind of question. We have material, but not that much. And you don’t want to build or modify a refinery unless you have more material.”

Schideman said one bridge market to consider is blending light fractions of the oil into existing fuels. “Right now, your gasoline has a certain amount of ethanol mixed in it. We are looking at other blending arrangements where light fractions of this oil could go directly into an existing fuel matrix.”

Schideman noted that the heavy fraction can potentially be used in asphalt-like products. “Innoventor, an engineering and design firm near St. Louis, licensed some of Professor Zhang’s earlier work and converted animal waste into a bio-oil product used in pavements,” he said. “They made an asphaltic
binder and paved a 500-foot stretch of road to Six Flags St. Louis. Now they’re monitoring wear and tear on the road to see if it performs as well as conventional pavement.”

Schideman acknowledged that while they are making important advances in their research, there is also a need to expand collaborations and noted work with other researchers at the Illinois Sustainable Technology Center and the Department of Civil and Environmental Engineering. “There is still significant work that needs to be done in order to better understand the bio-oil products and their potential use in different applications. We look forward to working with others to accelerate the development of bio-oil products that can provide sustainable alternatives to petroleum.”


Full Article

At a special open house event at the USDA Pacific Basin Agricultural Research Center, Hawaii Gov. Neil Abercrombie recently presented a $200,000 check from the state Department of Agriculture that will go toward the Hilo center’s zero waste biofuel and high protein feed program.

PBARC along with Florida-based BioTork Hawaii LLC have invested more than $1 million to successfully develop an economically sustainable zero waste conversion project producing biofuel and high protein animal feed from unmarketable papaya. The conversion process takes 14 days to cycle in a heterotrophic environment, meaning no sunlight is needed using organically optimized algae/fungi developed and patented by BioTork.

The state’s $200,000 investment will assist PBARC in moving the project to pilot scale as a prelude to commercial production. The State of Hawaii’s Agribusiness Development Corporation (ADC) will become a venture partner to globally export the rapid conversion technology in association with PBARC and BioTork Hawaii LLC.

“This patented evolutionary technology is unique to the marketplace and places Hawaii in a leading position in the area of biofuel and feed research,” Abercrombie said. “With this technology, farmers can turn agricultural waste into an additional revenue stream, and local production of biofuel can lower dependence on Hawaii’s import of fossil fuels.

“Aside from the benefit of producing biofuel, this technology has the ability to create another revenue stream for papaya and other tropical agriculture farmers. Local high protein feed production – another by-product of this process – can greatly benefit cattle, hog, chicken and aquaculture farms through competitive market pricing.”

The state also hopes to develop a long-term revenue generator as a partner exporting this technology. At full scale, more than 1,000 jobs are projected.

While papaya was chosen as the initial feedstock, this technology can be applied to any plant material as a carbon source. In Hawaii, other identifiable feedstock are unmarketable sweet potato, sugar cane, mango, albizia and glycerol. Invasive trees like albizia could be used as feedstock in this zero waste program.
“This Hawaii-based technological development is a major breakthrough that focuses on key components hampering the sustainability efforts of other microorganism based biofuel projects,” said James Nakatani, ADC executive director. “These obstacles include the high cost of feedstock. Approximately 70 percent of the cost for production is consumed in this area. Using unmarketable plant and other waste materials drastically reduces this cost driver.

“While past lab projects have not translated into robust performances when scaled-up, BioTork’s solution promotes rapid and dynamic evolution of microorganisms that are robust even in ‘suboptimal’ conditions.”

Research and development funds will be used for customizing feedstock formulations to create Hawaii’s zero waste conversion technological library. The library will be available for export and sale to other states and countries. The United States alone produces up to 20 million metric tons of culled produce from which as much as 1.7 billion gallons of renewable lipids could be made.

Invasive Species

190 Lionfish caught at tournament by Pamela Diaz, 19 April, 2013

Full Article

CHARLESTOWN, Nevis -- The Nevis Historical and Conservation Society (NHCS) in collaboration with the Nevis Yacht Club hosted the first ever Great Lionfish Hunt on Sunday 14th April 2013.

The Nevis Historical and Conservation Society (NHCS) in collaboration with the Nevis Yacht Club hosted the first ever Great Lionfish Hunt on Sunday 14th April 2013.

This event was expected to reduce the large number of Lionfish on the island as well as introduce the species as a new delicacy.

The members of the Bio Diversity Committee along with the NHCS have made an extensive effort to reduce the large number of Lionfish on the island of Nevis and as a result, the NHCS and the NYC hosted a Great Lionfish Hunt. In addition to the hunt, a demonstration was also offered to the attending audience which was performed by Clive Wilkinson of the Department of Fisheries, who demonstrated the proper way of cleaning the fish so as to avoid being stung. Also as a part of the Great Lionfish Hunt, persons were also recognised for having the largest Lionfish, the smallest Lionfish and for catching the most Lionfish.

Emerging victorious with the largest Lionfish caught was the Four Seasons Resort with a big whopper weighing in at 1 pound 7 ounces, winning the smallest Lionfish was Jamie MacMullin who brought in a baby fish weighing 1 ounce and with the largest catch of the day was Scuba Safaris Valerie and Myron who brought in 86 Lionfish. With 7 groups and individuals participating, the total number of Lionfish caught at the tournament was 190, weighing in at 60 pounds and 13 ounces.
In an interview with the SKN Leewards Times, Arthur ‘Brother’ Anslyn one of the organisers of the event explained the purpose of hosting this exciting hunt and its expected outcome. “The objective of the Great Lionfish Hunt is to reduce the amount of Lionfish on the island. We know we cannot eradicate them so what we are trying to do is keep the numbers down,” explained Anslyn “They are actually all over you know, you don’t have to go far to get them, you can get them in a foot of water right next to the shore. Sometimes they come right onto the beach into the sea grass where people swim”.

Anslyn clarified that with this Lionfish Hunt, they are expecting to reduce the number of Lionfish on the island not only because of the grave danger they pose to the locals but also because of the great danger they impose on the local fish themselves. “We are just introducing the Lionfish as food now; our goal of course is catching them to eliminate the numbers and while we are doing that, we are eating them too”. Anslyn clarified that the Lionfish actually eat ten times as much as the local fish and they pose a threat to our local fish due to the fact that the Lionfish have no natural predators on the island, they eat all the food leaving nothing for our local fish to eat. Additionally the Lionfish also cease the growth of our local fish by eating the younger ones, not giving them enough time to grow and reproduce.

Anslyn added that in an effort to avoid this spectacle, they are encouraging the local fishermen to catch the Lionfish and eat them. “Unfortunately the Lionfish have no natural enemies here so we have to be the enemy to them,” he explained. Anslyn outlined that if the Lionfish would be caught and consumed the numbers will rapidly decrease. He also assured that contrary to myth, the Lionfish are actually edible and explained that the only danger is the spikes and the spines the fish have on their body which are used for protection from predators. Anslyn stated that after the spines are removed carefully the Lionfish can be eaten and without a doubt have the most delectable taste. “The toxic spines have nothing to do with the flesh” he assured “The flesh is perfectly safe to eat”.

Anslyn urged us not to take this invasion lightly but advised the public to prevent the problem before it gets too difficult to control. “They’ve got to take the seriousness of the situation at hand, we shouldn’t wait until it is too late, we have to be proactive and start combating them now and one way of doing that is by eating them,” he stated.

Although this was the first event it was obvious that the participants were more than pleased with this Lionfish Hunt and had a spectacular time participating. Gigi, her husband Charlie and their friend John agreed that although they were not using the proper instruments for this tournament they had fun and will participate again. “It was great fun, we laughed so much. It was difficult because we had limited utensils but we had a good time and we saw quite a few,” explained Gigi.

Anslyn closed by stating that although this was the first time they hosted the event he was pleased at the turnout and is looking forward to hosting it again soon. “From this turnout, considering that it is our first effort, the people are realising that we do have a problem and we have to start combating the invasion,” he stated “From what I have seen here today I am impressed that they’ve taken the interest in combating the invasion because if they don’t the Lionfish will be all we have to eat, they’ll eat and kill everything else”.

Climate Change


Full Article

The Meridian Institute and Climate Development and Knowledge Network (CDKN) recently launched a set of case studies and headline findings on ‘Agriculture and Climate Change: Learning from experience and early interventions.’

Agriculture is on the frontline of climate change impacts and solutions. The scientific community continues to deepen its understanding of how changing temperatures and rainfall patterns, and climate impacts such as salt water intrusion, will affect agricultural yields. Climate change affects the incidence of diseases and pests, as well as beneficial species such as pollinators, and so urges us to reassess the relationships among the many elements of agricultural ecosystems.

Adapting our agricultural systems and practices to these new realities will be essential for human food security and nutrition, as well as for sustaining the other goods and services (including products for fuel and fibre) that such ecosystems provide.

Many aspects of farming practice affect greenhouse gas emissions and are important to the conversation on climate mitigation. Some farming systems generate significant emissions but, with some modification, these emissions could be reduced. Introducing new forms of land management and inputs (for fertility and pest control) can make a big difference to agriculture’s carbon footprint.

CDKN has been supporting the Meridian Institute since November 2011 to convene a dialogue among developing country leaders on how agriculture’s contribution to climate change adaptation and mitigation could be effectively taken forward under the United Nations Framework Convention on Climate Change (UNFCCC). As detailed in our project description and the Meridian Institute’s website, Meridian facilitated these dialogues throughout 2012-13 and produced a set of case studies and briefing notes to support the discussions.

Practical case studies of early efforts to develop climate-smart agriculture are now presented in a collected volume, available for download here.

The collection aims to provide comparison across diverse initiatives from Ethiopia, Kenya, Malawi and Zambia to Vietnam, Nepal, and India, to Bolivia. For each pilot initiative, programme managers present:

- The objectives of the initiative
- Funding arrangements
- How local capacities and community involvement are engendered
- How success is defined and measured and
- Outcomes and lessons learned.

Sam Bickersteth, CDKN’s Chief Executive and an agriculture specialist, outlines the current status of agriculture talks within the UNFCCC here.
For additional resources including a graphical summary of the workshop at which the case studies were presented, a film of panel presentations, and PowerPoint slides, please visit: http://www.climate-agriculture.org/LEEI.aspx

Soil and Water Management

The issue of water set to figure in IICA’s plans. IICA Connection, April 2013, no.3
http://www.iica.int/Eng/prensa/IICAConexion/IICAConexion2/2013/N03/secundaria3.aspx

Full Article

Ways of using water more efficiently in agriculture and thereby preserving the resource, while at the same time increasing productivity in the sector, will be a key focus of the medium-term planning of the Inter-American Institute for Cooperation on Agriculture (IICA), according to its Director General, Víctor M. Villalobos.

The planning process will be used to develop a proposal for concrete cooperation for presentation to the Ministers of Agriculture of the Americas at the next meeting of the Inter-American Board of Agriculture (IABA), due to be held in Buenos Aires, Argentina, in September of this year.

A recent regional planning meeting of IICA’s Representatives in the Caribbean, held in Trinidad and Tobago, also focused on the issue. Institute specialists took part in the activity.

IICA currently has 44 cooperation projects in the Caribbean.

“We should set ourselves the goal of devising an innovative, creative, and original strategy for water,” Villalobos told the Representatives and technical personnel present.

The Director General reported that a group of experts was already working on the preparation of the proposal that will be presented to the hemisphere’s Ministers of Agriculture.

The Director General of IICA for the period 2014-2018 will be elected at the next IABA meeting in September, and at the IICA planning event in the Caribbean, Dr. Villalobos announced that the government of his country had decided to nominate him for reelection.

Consolidation of partnerships

Gregg Rawlins, IICA Representative in Trinidad and Tobago and Regional Coordinator for the Caribbean, stated that the planning of new projects in those nations would make it possible to strengthen ties with partners such as CARICOM.

The Institute’s Director of Management and Regional Integration, Diego Montenegro, noted that in the Caribbean, IICA was seen as a facilitator and catalyst of specific technical cooperation activities in the agricultural sector.

“Medium-term planning will facilitate horizontal cooperation between the Caribbean and Latin American countries,” he added.

The regional planning meeting for the Caribbean took place from April 10-12 in Port of Spain.
Agricultural Development

Ministry to take over agro processing facility and demonstration farm. Official Website of the Government of Saint Christopher (St. Kitts) and Nevis, 17 April, 2013
http://www.gov.kn/node/1215

Full Article

The Capisterre Farm has the capacity to create employment and the potential to provide an avenue to improve the approach to training in agriculture science, farming techniques and farm management.

The St. Kitts and Nevis Prime Minister said food security and the nutritional intake of the people remains a priority as government confronts the threat of an escalation in global food prices and increases in chronic non-communicable diseases such as diabetes and hypertension.

He said commercial farms have been identified as critical to increasing food production and security in the Agriculture Sector and in support of these efforts, work intensified at the Capisterre Farm in 2012 in an attempt to increase production of fresh vegetables.

“The objective is to increase the supply of selective crops to a point where consumers can benefit from reduced prices of vegetables on the local market. Capisterre Farm is on the right path to achieving this objective as a number of milestones have been achieved to date, including the establishment of an orchard and Shade House, the cultivation of twenty-two (22) acres for both tree and vegetable crops and the sale of approximately 7,000 kg of vegetables and root crops,” said Prime Minister Douglas.

“It has already provided exposure to fourteen (14) former sugar workers to the business of non-sugar agriculture and it is anticipated that more employment and training opportunities will become available as output expands. The technical staff at the Department of Agriculture has been working with farmers to find solutions to protect certain crops from severe weather and pests,” said Prime Minister.

He said funding through the Agriculture Resource Management Project was used to procure seven (7) screen houses which provide environmental modification and protection from severe weather and pests during the cultivation process.

“Once these methods are successfully applied such action can help to increase crop production among our small farmers, reduce losses and increase profit margins for farmers. Individual farmers and farmer groups in Mansion, Con Phipps and Tabernacle have benefited from this initiative. We will continue to explore how best to expand the programme to other communities as well as the feasibility of introducing other methods that are suitable to our conditions and that can enhance food security here in the Federation,” said Dr. Douglas.

In an effort to further diversify the food products available to the people, the Government has facilitated the establishment of a new agro-processors group – the St. Kitts Agro Processor Cooperative.

“This Cooperative is expected to assist with the introduction of new products into the market while at the same time secure new markets for existing products. I am pleased to report that, with the
establishment of this group, we now have a total of ten (10) registered farmer groups. Agro-processing remains a viable niche market which can assist in poverty reduction through employment generation,” said the Prime Minister.

Dr. Douglas said that to further develop this promising industry, the Agro Processing Facility and the Demonstration Farm in Needsmust will be handed over to the Ministry of Agriculture later this month and entrepreneurs operating in this industry will therefore be able to further capitalise on the resources provided via this facility.

“In addition to further enhance the marketability of the locally-produced goods available to the public, the Basic Needs Trust Fund (BNTF) has provided equipment which will allow processors to generate and affix labels and barcodes to their products. The equipment is compatible with the systems used by shops and supermarkets in the Federation and will improve the stock management process. It will also allow agro-processors to meet the expectations of consumers in regard to packaging and presentation of products,” said the Prime Minister.

He said it is the hope that this will lead to a greater penetration of agro-processed products in the local market and increase the potential for export to markets regionally and internationally.

Bahamas to learn agriculture processes from Jamaica by the Jamaica Gleaner, 18 April 2013

Full Article

Even as Jamaica struggles with a growing food import bill projected to go past US$1 billion for 2012, representatives from Caribbean neighbours The Bahamas are in the island looking to copy our good agricultural practices, looking at ways to improve their food security.

Member of Parliament Arnold Forbes and the other six members of the Bahamian delegation were special guests at the official launch of the annual Jamaica 4-H Clubs Achievement Day expo, at the Medallion Hotel, St Andrew, on Monday.

He told the function that, with an annual food import bill of some US$800 million, they were looking to learn from Jamaica in terms of getting on track in terms of building their food security programme. He explained: "We are here to see what Jamaica is doing and take the best of Jamaica and implement it in The Bahamas. Jamaica is well ahead of us. So if you think you have a problem with food security, we are much worse."

In 1996, the World Food Summit agreed that, "Food security exists when all people at all times have physical and economic access to safe, sufficient and nutritious food that meets their dietary needs and food preferences for an active and healthy life”.

Forbes, who is also chairman of The Bahamas Agricultural Industrial Corporation, suggested that the time has come for Caribbean countries to take a collective approach to tackling this financial haemorrhaging, in the process, helping each other to build food security.
He told the launch: "We need to act as a region in combating this problems by trading between countries in the region to alleviate that problem. It can be done!"

*Exchange programme*

The delegation has already visited the College of Agriculture, Science and Education in Portland, Forbes describing it as "an excellent example of agriculture at the tertiary level". This was in preparation for the opening of a similar-type institution in The Bahamas, come January. He threw out the idea of developing an exchange programme between faculty members and students.

Meanwhile, Minister of Agriculture and Fisheries Roger Clarke decried the ongoing importation of non-essential items, which continues to be a drain on the economy. Noting that buying some items abroad such as wheat flour, rice, corn and animal feed could be justified, he blasted importers who continue to abuse the free-trade system.

The obviously exasperated minister asked: "How can one justify the importation of water into Jamaica? Bottled water on the shelves coming from abroad! Why should we import jackfruit?"

Even as the audience digested the full import of his statement, the agriculture minister continued to vent. "When you walk into some of the supermarkets and see some of the things on the shelves, you say to yourself, 'No, this can't be Jamaica', but there are people in this country who would want to import even fresh air."

The annual Achievement Day expo takes place from April 24-26, when all the winners from the 14 parish achievement expos descend on the Denbigh Showground in May Pen, Clarendon, for three days of friendly rivalry. They will compete in agriculture, home economics, leadership, social skills, healthy lifestyle and environmental management.

Competitors also include the 4-H 'Cubbies', aged between five and eight years, who contest specially designed age-appropriate events, including recitation and seed identification.

This year's theme is: 'Youth Involvement in Agriculture for Food Security and Economic Development'.

**IICA reaffirms its support for agriculture in the Caribbean** by IICA, 18 April, 2013
[http://www.iica.int/eng/prensa/iicaconexion/IICAConexion2/2013/N03/secundaria2.aspx](http://www.iica.int/eng/prensa/iicaconexion/IICAConexion2/2013/N03/secundaria2.aspx)

*Full Article*

Following discussions with the Ministers of Agriculture of Antigua and Barbuda, Trinidad and Tobago, and Haiti, the Inter-American Institute for Cooperation on Agriculture (IICA) aims to implement new projects that will benefit producers in those countries.

During a visit to the Caribbean Region, the Director General of IICA, Víctor M. Villalobos, met with the three ministers to reaffirm his organization’s commitment to providing technical support for initiatives related to food security, innovation, and agribusiness.
As part of his visit, Villalobos also took part in the regional planning meeting of IICA Representatives in the Caribbean. The activity took place from April 10-12 in Port-of-Spain, Trinidad and Tobago.

One of the projects that IICA will be supporting is the installation of biodigesters in rural communities in Antigua and Barbuda. In that nation, officials from IICA and the Ministry of Agriculture took part in the opening of the Sea Food Festival, an activity that could serve as the basis for the joint organization of similar fairs by the Institute and other cooperation agencies.

In Antigua, IICA will also be supporting a project for the management of agricultural information by phone, similar to Costa Rica’s AgroEnlace initiative.

After meeting with the IICA Representatives and with the Minister of Agriculture of Trinidad and Tobago, Villalobos traveled to Haiti for talks with the minister in that country and officials of other technical assistance agencies, and to participate in the inauguration of greenhouses for smallholders.

**IICA Director General reiterates commitment to Haiti’s agricultural sector** by IICA, 16 April 2013
[http://www.iica.int/Eng/prensa/IICAConexion/IICAConexion2/2013/N03/secundaria1.aspx](http://www.iica.int/Eng/prensa/IICAConexion/IICAConexion2/2013/N03/secundaria1.aspx)

**Full Article**

Training in business development, the creation of employment, and agricultural research are set to be key components of the work program of the Inter-American Institute for Cooperation on Agriculture (IICA) in Haiti.

Haiti’s Minister of Agriculture, Natural Resources and Rural Development (MARNDR), Thomas Jacques, asked the IICA Director General, Víctor M. Villalobos, for support in those areas during the latter’s visit to the country from April 11-13, during which Villalobos also held talks with the Minister of Tourism, Stephanie B. Villedrouin.

In light of the difficult situation in Haiti, Villalobos assured Minister Jacques that the Institute’s aim would be to carry out rapid, timely actions designed to achieve tangible results in bridging the gap between rural and urban communities. He also invited the Minister to take part in the official meetings that IICA will be holding in Mexico and Argentina, in June and September, respectively.

The Institute’s Executive Committee is to meet in Mexico, while the Meeting of Ministers of Agriculture of the Americas will be taking place in Argentina, to coincide with the sessions of the Inter-American Board of Agriculture, IICA’s highest governing body.

Minister Jacques thanked Villalobos for the invitation and for the support that IICA had provided to the ministry for over 40 years.

The Minister of Tourism requested the Institute’s support in developing a sustainable tourism program. Villalobos observed that that the final details were being put to a framework agreement under which such cooperation could be provided, and invited Minister Villedrouin to visit Costa Rica, to observe first hand that country’s efforts in the same field.
In Haiti, Víctor M. Villalobos held discussions with representatives of the Caribbean community (CARICOM), the Organization of American States (OAS), and the United States Department of Agriculture (USDA).

The final stop on his official visit was to a pilot project on protected agriculture and greenhouses, which is being carried out in collaboration with the Caribbean Agricultural Research and Development Institute (CARDI).

Villalobos assumed the position of Director General of IICA on January 15, 2010, three days after the earthquake in Haiti. His administration has promoted a number of initiatives as part of the efforts to rebuild the country and its agriculture, with the project Operación tractores solidarios being one of the most significant initiatives.

### Agricultural Institutions

**CARDI and CARIRI sign 3-Year Technical Agreement.** Caribbean Agricultural Research and Development Institute Media Release, 8 April 2013

**Full Article**

*April 8 2013*: The Caribbean Agricultural Research and Development Institute (CARDI) and the Caribbean Industrial Research Institute (CARIRI) signed a three year Technical Cooperation Agreement on Wednesday 27th March, 2013 at CARDI’s Head Office at the University of the West Indies’ St Augustine Campus. The signatories included Dr. Arlington Chesney, Executive Director, CARDI and Mr. Liaquat Ali Shah, Executive Director, CARIRI.

This Agreement is a result of both Institutes’ fervent desire to develop strong working relationships in support of agriculture, food production and rural development in the Caribbean.

- **Exchange of staff, students and technologies for the purposes of training and working in areas of joint interest**
- **Exchanges of plant genetic material**
- **Identification of varieties of food producing plants which are resistant to climate factors such as heat, drought and excess water.**

This Agreement follows closely on the heels of an Agreement signed between CARDI and St Patrick Coconut Growers Association on February 27, 2013.

CARIRI was established by Act of Parliament No. 19 of 1971 and amended by Act No. 33 of 1981 to provide technical support services to Government and industry in the areas of industrial materials, food and biotechnology, analytical chemistry, environmental management, petroleum chemistry, calibration and technical information services.

CARDI is proactively developing and executing a programme of research for development work across the Caribbean Region.
Agricultural Research

Virginia Tech research team creates potential food source from non-food plants by Virginia Tech, 16 April 2013
http://esciencenews.com/articles/2013/04/16/virginia.tech.research.team.creates.potential.food.source.non.food.plants

Full Article

A team of Virginia Tech researchers has succeeded in transforming cellulose into starch, a process that has the potential to provide a previously untapped nutrient source from plants not traditionally though of as food crops. Y.H. Percival Zhang, an associate professor of biological systems engineering in the College of Agriculture and Life Sciences and the College of Engineering, led a team of researchers in the project that could help feed a growing global population that is estimated to swell to 9 billion by 2050. Starch is one of the most important components of the human diet and provides 20-40 percent of our daily caloric intake.

The research was published this week in the Early Edition of the Proceedings of the National Academy of Sciences.

Cellulose is the supporting material in plant cell walls and is the most common carbohydrate on earth. This new development opens the door to the potential that food could be created from any plant, reducing the need for crops to be grown on valuable land that requires fertilizers, pesticides, and large amounts of water. The type of starch that Zhang's team produced is amylose, a linear resistant starch that is not broken down in the digestion process and acts as a good source of dietary fiber. It has been proven to decrease the risk of obesity and diabetes.

This discovery holds promise on many fronts beyond food systems.

"Besides serving as a food source, the starch can be used in the manufacture of edible, clear films for biodegradable food packaging," Zhang said. "It can even serve as a high-density hydrogen storage carrier that could solve problems related to hydrogen storage and distribution."

Zhang used a novel process involving cascading enzymes to transform cellulose into amylose starch. "Cellulose and starch have the same chemical formula," Zhang said. "The difference is in their chemical linkages. Our idea is to use an enzyme cascade to break up the bonds in cellulose, enabling their reconfiguration as starch."

The new approach takes cellulose from non-food plant material, such as corn stover, converts about 30% to amylose, and hydrolyzes the remainder to glucose suitable for ethanol production. Corn stover consists of the stem, leaves, and husk of the corn plant remaining after ears of corn are harvested. However, the process works with cellulose from any plant.

This bioprocess called "simultaneous enzymatic biotransformation and microbial fermentation" is easy to scale up for commercial production. It is environmentally friendly because it does not require expensive equipment, heat, or chemical reagents, and does not generate any waste. The key enzymes immobilized on the magnetic nanoparticles can easily be recycled using a magnetic force.
Zhang designed the experiments and conceived the cellulose-to-starch concept. Zhang and Virginia Tech visiting scholar Hongge Chen are the inventors of the cellulose-to-starch biotransformation, which is covered under a provisional patent application. Chun You, a postdoctoral researcher from China at Virginia Tech, and Chen conducted most of the research work.

Support for the current research comes from the Department of Biological Systems Engineering at Virginia Tech. Additional resources were contributed by the Virginia Tech College of Agriculture and Life Sciences' Biodesign and Bioprocessing Research Center, the Shell GameChanger Program, and the U.S. Department of Energy BioEnergy Science Center, along with the Division of Chemical Sciences, Geosciences and Biosciences, Office of Basic Energy Sciences of the Department of Energy. Chen was partially supported by the China Scholarship Council.

Youth in Agriculture

Dominican Youth to present recommendations for Caribbean Agriculture Policy by Tarnia Green, 17 April, 2013

Full Article

Dominican youth met on Wednesday at the Roseau Fisheries Complex Conference room to discuss and strategize a way forward for the development of the regions’ agriculture and to give recommendations to the Caribbean Agricultural Policy (CAP).

CARICOM is charged with the responsibility of formulating and preparing the Caribbean Agricultural Policy and part of that process involves the engagement of a wide cross section of stakeholders including youth.

The Caribbean Farmers Network, CaFAN, which is a regional umbrella organization for national farmer organizations across thirteen Caribbean countries, was given the mandate to facilitate discussions with young people in CARICOM countries under the pillar dubbed “youth and rural modernization”.

Wednesday’s consultation is part of CaFAN’s overall agricultural development strategy to get more young people involved in the sector and to build agriculture as a viable sustainable business.

Dominica’s Director of Agriculture, Ricky Brumant, in addressing the opening of the consultation, said youth presents the bedrock for agricultural sustainability and it’s important that their input is sought.

He noted that “Agriculture and its succession, its sustainability and its future, are dependent on youth”.

“I believe we must set the stage for youth to take action, for youth to participate and for youth to belong and work,” he urged.
The Director of Agriculture strongly believes that policy makers should not make plans for youth without their active participation as he believes that “involving the youth on policy issues is relevant”.

“We will involve youth along the chain from the seed to the plate but before that, we will engage them and ensure that they have the technical information that will carry them through,” he stated.

Brumant said it is important that “we banish the notion that youth cannot take their rightful place in society and in the chain of Agricultural production” and pointed out that’s it’s important that youth present themselves across the table in the discussions and negotiations about agriculture.

Dr. Nadia Pacquette-Anselm, the main facilitator at the consultation, said it will take the form of panel discussions.

“These discussions will focus on Youth business, Entrepreneurship, opportunities for Youth in Agriculture, Leadership and Advocacy, Agriculture and Schools”.

Dr. Pacquette-Anselm said recommendations by the youth from the consultation will be submitted to the CARICOM Secretariat and the Caribbean Farmers Network.

“We have a desired result out of this consultation to receive feedback from the stakeholders to refer those discussions to CaFAN. These discussions will reach the level of the Alliance group of the Council for Trade and Economic Development (COTED),” she said.

The Inter-American Institute for Cooperation on Agriculture (IICA) is also lending support to the consultation.

IICA’s Technical specialist in Dominica, Kent Coipel expressed optimism that following the consultation, young people would have identified opportunities which will motivate them to get involved in agriculture.

“After today we should have identified some of the opportunities that will attract young people to Agriculture as well as to retain those already engaged in agriculture,” he said.

The IICA official noted that during the consultation, participants will identify capacity development needs to ensure that the potential benefits are maximized through the opportunities identified at the consultation.

“We would also like to ensure that we outline some mechanisms specifically for the youth in agriculture, to ensure that when they get engaged, they can sustain the opportunities,” Copiel concluded.

Wednesday’s consultation, which was held at the Fisheries Division’s conference room, was attended by youth from organizations such as the Dominica Youth Business Trust (DYBT), the National Association of Youth in Agriculture (NAYA), the Centre where Adolescents Learn to Love and Serve (CALLS) and the Dominica State College (DSC).
Upcoming Events

May 2013

Coherence in Information for Agricultural Research for Development (CIARD) Global Consultation Stocktaking for Regional and Sub-Regional Organizations
Date: 6th - 9th May 2013.
Location: Addis Ababa, Ethiopia

3rd Global Cassava Partnership for the 21st Century (GCP21) Strategic Meeting
Date: May 2013
Location: Bellagio, Italy
Description: The 3rd GCP21 Strategic Meeting, which will take place in Bellagio, Italy, in May 2013, will be focused on a daunting question: *Is it possible to eradicate cassava viruses in Africa?* The select group of 32 scientists and developers from 24 institutions who attend that meeting will focus on the use of a range of technologies to efficiently control cassava viruses.

June 2013

10th International Mango Symposium
Date: 3-7 June 2013
Location: Punta Cana, Dominican Republic

Global Cassava Partnership for the 21st Century (GCP21) second meeting on cassava landraces
Date: June 2013
Location: Tanzania
Description: Global Cassava Partnership for the 21st Century (GCP21) second meeting on cassava landraces is scheduled in June 2013 at IITA offices in Tanzania. The meeting’s goal is to deliver products such as draft standard operating procedures to collect, evaluate, preserve and identify these landraces and a roadmap to start the work in East and Central Africa.

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/
July 2013

International Conference on Tropical Roots and Tubers for Sustainable Livelihood under Changing Agro-climate
**Date:** 9 -12 July 2013  
**Location:** Thiruvananthapuram, Kerala, India
**Website:** [http://isrc.in/internationalconference2013/](http://isrc.in/internationalconference2013/)  

September 2013

Science Forum 2013  
**Date:** 23-25 September 2013  
**Location:** Bonn, Germany.  
**Description:** Will focus on “Nutrition and health outcomes: targets for agricultural research”  