

The Belize Ag Report

June—July
2010

Belize's most complete independent agricultural publication



**Harvesting Ag News
From All of Belize**

Cattle Prices Down \$300 per Head from 2 Years Ago

Cattle raisers are worried, concerned and upset that prices have declined from \$1.30/lb. two years ago to \$.95 today (for better quality 1000 lb steers and heifers). Now those cattle are selling for mostly .90 to .95 cents. Fat cows were .90 cents to \$1 and now are at \$.65 to .75. Thin cull type cows are at almost give-away prices. A 1000 lb animal at .30 cents a pound less, results in a \$300 per head gross reduction. In many cases that changes a producer's situation from a profit to a loss.

BLPA is being pressured by cattle raisers from all over as to where is that Mexican market opportunity that we have been hearing about. Some reported that they heard it would happen in November of 2009. Then new reports indicated March or April 2010 and now there are some reports that it may not happen this year- 2010

Continues page 24

**ROC(Taiwan) Technical Mission in Belize
Rice Field Day - Article page 12, Photo Gallery on
the ROC Tab at www.BelizeAgReport.com**



NATIONAL SURVEY OF SMALL SCALE AQUACULTURE DEVELOPMENT IN BELIZE

Submitted by: Belize Fisheries Department

Summary

Over the past two years, given the various initiatives by the GOB and the private sector to further develop small scale aquaculture in Belize, the Ministry of Agriculture & Fisheries engaged the Aquaculture and Inland Fisheries Unit of the Belize Fisheries Department to conduct a 'National Survey of Small-scale Aquaculture Development in Belize' in July 2009. The outputs of this survey were envisioned to serve as the basis of developing a planned approach for the sustainable development of the sector.

Continues page 25

 <p>ATLANTIC BANK "Your Friendly Bank"</p>	 <p>AGRICULTURAL DEVELOPMENT SERVICES LIMITED</p>	<p>NEW! Ko-ox Han-nah Meat Shop San Ignacio</p> 	 <p>SAGARPA SECRETARÍA DE AGRICULTURA, GANADERÍA, DESARROLLO RURAL, PESCA Y ALIMENTACIÓN</p>
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TO BE BETTER AT WHAT WE DO By Richard Merrill

'Agriculture has a key role to play in the development of the country and given the limited resources that we have, there has to be this constant effort to be better at what we do.' Marion Palacio, Deputy Financial Secretary, Ministry of Finance, speaking March 19th, 2010, at the 2010 Annual General Meeting of the Ministry of Agriculture and Fisheries.

Official meetings always have themes, and many times there are also unofficial themes that circulate just below the surface, breaking out from time to time in the words of the presenters. Marion Palacio's call for those present to be 'better at what we do' echoed one of those undercurrent themes at this year's Annual General Meeting of the Ministry of Agriculture and Fisheries. There is no money to waste on bad ideas. Getting better means getting a dollar's worth of good from a dollar spent. That's true for government ministries and it's true for the farmer and for the businessman. All of us should put forth a constant effort to be better. Policies and projects that lead nowhere have to be abandoned. Old habits of talking problems to death in a conference room instead of finding solutions in the field have to be changed.

In her AGM presentation on the Horizon 2030 project, Dr. Carla Bartnett said that people in rural communities complain that when development projects are announced for their community they have to tell the same thing over and over as NGO and Government representatives come to see them, one by one. Get everybody around the same table, they say, and we'll tell our story one time. That would mean getting different

government ministries and NGO's working together, sharing resources, sharing responsibility, sharing the credit when a project works, but also sharing the blame when it goes wrong.

According to Dr. Barnett, farmers specifically have named Agriculture, Education, and Health as ministries that ought to be working together. If a level of meaningful co-operation can be achieved, certainly it would be one effort aimed at being 'better at what we do'. And that co-operation would have to be in the field, not in a conference room or somewhere with the minutes of the meeting filed away with a notation that the problem has been solved.

In his AGM presentation, Mr. Jose Alpuche of the Belize Agro Productive Sector pointed to another way we can do better, and that is by setting the right kind of standards that will protect both the farmer and the consumer. Mr. Alpuche used the example of rice. He said that a blanket price control gives the farmer no incentive to produce higher quality because he can't go to the store and demand a higher price. Yet, he said, we have Goya rice coming in from Miami being sold for six dollars a pound because it's in a box and has a little bit of flavouring. Mr. Alpuche said we need to use the tool of standards to provide the social safety net for consumers while allowing farmers to get a higher price for their better quality produce. Quality standards provide another way to be 'better at what we do'.

Note: A native of Mississippi, Richard Merrill arrived in Belize in 1995 after 35 years in journalism in the U.S.A. He was LOVE FM's News Editor from 1995-2009. Now retired, his passion remains writing.



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FROM THE EDITOR

A country is somewhat like a business – there are things which one may like to do; nevertheless, periodically one must review goals, actions, progress, and financial realities- and then coordinate redirection and rededication to meet expectations.

Agriculture, has been described as ‘the twin pillar which is [more] under our control [than tourism]’ by Beltraide’s Ms. Beverly Burke (NATS 2010). Ambassador Adelbert Tucker stated (Oct. 2009), “Belize must grow itself out of the recession.” Farmers and agribusiness people **want** to meet this challenge. Farming historically not being one of the most lucrative professions, however it is one upon which each of us is vitally dependent (requiring food). In Belize farming must become ‘**good business**’ in order for it to continue, expand to meet domestic needs, and GOB’s growing export expectations. Our neighbors, in both CARICOM and Central America and, yes, worldwide (see Bel-Car article page 15) increasingly gaze towards Belize, with arable land and water available to quadruple food outputs and be a regional breadbasket. Belize can and wants to meet those expectations.

Our international friends with expertise and budgets to assist us in developing our agricultural products and their exportability, are ‘wanting to assist us, willing to assist us, and waiting to assist us...’ (to borrow from Pygmalion). In some cases, they are also wanting, willing and waiting to purchase some of the resultant production. The GOB has been tasked to work on behalf of the Belizean producers who, in some sectors are wanting, willing, and waiting for GOB to finalize necessary paperwork for this to be proceed. As international phytosanitary and traceability paperwork can be done only by GOB and its subgroups, the Belizean producer is dependent upon, even more than in the past, to the goodwill and cooperation of GOB/MAF/BAHA, etc.

The ag sector acknowledges and appreciates that the workload of GOB has expanded, as they are required to perform many more ponderous health and certifying roles and even legislative roles, in addition to the marketing assistance that large and small producers are requesting and expecting. We thank and salute the hardworking GOB employees, meeting attendees, letter writers, general facilitators, and legislators within government who work long hours to accomplish this. However, some of the processes, without which the private sector cannot move forward, and with which GOB has been tasked, are behind schedule. Some private sectors, (upon whom GOB must depend as the private ag sector must fulfill the actual production role of the ‘twin pillar’), feel frustrated. Belize requires the agribusiness community to discern that it is good business for growth and investments in ag businesses in Belize. Productive sector and GOB, to function well and at low stress, must have harmonious relationship. Then business and the country at large will thrive.

Might GOB reexamine budgetary allocations for agriculture, and reconsider that they be made proportionate to the *expectations*

Mission Statement:

The Belize Ag Report is an independent bi-monthly agriculture newsletter. Our purpose is to collect, edit and disseminate information useful to the Belizean producer, large or small. We invite opinions on issues, which are not necessarily our own. Belize Ag neither solicits nor accepts political ads.

tations from this ‘pillar’? Roughly 25 years ago, Agriculture received approximately 25% of the budget; current proposal for Agriculture? 1.4 % (that’s one point four tenths percent). Even that small percentage is an increase from 2006’s paltry 1.1% (one point one tenth percent). Is 1.4 % enough to support a GDP **structural pillar** that we expect to cover half of our GDP - is this logical? We can effect tourism growth, but we cannot ‘control’ it in the same way that we hold the reins to the cart of agriculture growth in Belize.

Our international contributors might well wonder “Why can’t we move more quickly to accept some the assistances they generously offer us?” The lightning speed with which GOB acted with regard to BTL last year, showed what can happen when priorities are made. The ag sector certainly does not request or expect such expedited actions. But, if agriculture is to be one-half of our GDP, then we must reexamine what level of inputs we are all applying to this ‘pillar’ – both in budget, and in manpower energy.

First Year Anniversary

Just over one year ago, this paper was created to address both the lack of agriculture news in Belize, and the lack of a voice of the agricultural producer in Belize. As we enter our second year of publication we at The Belize Ag Report look forward to reporting on the progress of the exciting facets of agricultural improvements, innovations and expansions, locally and regionally. We invite you, producer and reader alike, to share your ideas for what you would like the newsletter to be. We are all ears. We express our appreciation to all our advertisers, readers, contributing writers, and contributing news sources. It is our privilege to be working with you all.

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TO THE EDITOR

BELIZE AG REPORT REUNITES OLD FRIENDS

Dear Beth,

Thanks so much for your prompt reply with the fantastic news that my search for my long lost friend was over. Peter and I started at Junior school together in 1959 went our separate ways for high school and then met up again at Gwebi Agricultural College. In the course of our second year Pete and I were room mates and then of out into the big wide world. Pete disappeared and then there was only the occasional snippet of news of what had happened to Pete.

The power of the internet is really incredible as it must have been within 10 minutes of beginning my search that I had been directed to your newsletter with the article by Pete on sheep farming,

It is absolutely amazing where the valuable resource of the Zimbabwe- Rhodesian farming community have ended up with the calamity of what has happened to commercial agriculture in Zimbabwe.

CHEERS, TIM SAVORY, Zimbabwe

note: 'Pete' is none other than contributor Peter Margesson.

Letter to Minister of Agriculture & Fisheries
Honorable Mr Montero,

I have a big concern regarding the Agriculture Show in Belmopan this year. We are only small time farmers but this show is our high light of the year and we look forward to it very much. But for the past 2 or 3 years we notice that it has lost Agriculture and adopted 'Saturday market day'. The noise is outrageous and most livestock is very sensitive to it. I have talked to other farmers and they have voiced the same concern. This year we were very disappointed to see that only a few livestock showed up and most were Central Farm's. Is there any way that you could look into this great concern and see if the Agriculture show could be taken back to where it was in the old days of August so our animals can perform the way they are meant to? Also August would be a cooler month for them. Please separate the Agriculture show from the noise.

Thank you very much.

Deidre Lotiff

CONCERN FOR OFFSHORE DRILLING CONTRACTS

Dear Editor,

I am very concerned about the new leases for oil exploration offshore of Belize. Quintana Roo used to have strong spiny lobster business, and now it is finished, due to pollution. Please ask our representatives to review this decision. We cannot afford to risk the cleanliness of our seas, upon which we depend so much. Thank you.

Sincerely,

Julio Garcia

Belize Chess Players Go International

The Belize Ag Report salutes the Belizean chess players who were selected to represent Belize at two tournaments. In early May the Belize team competed with players from Guatemala, Nicaragua and Honduras. On May 21 – 24, 12 chess players selected from nominees from each district competed in a tournament in Merida with Mexico's players. You can see pictures and a report of these events at www.belizechessnews.blogspot.com

Dear Editor,

I was amazed to hear our Prime Minister in a radio broadcast say "if you are not making \$10 per day you are poor ". Yes, if you use money as a measure but we have plenty of natural resources. I live growing my own produce , fishing and harvesting and consider myself rich.

We should never identify ourselves with being poor. We need to seek and educate ourselves, think for ourselves and be more self sufficient. We should expand our creativity and not rely on others.

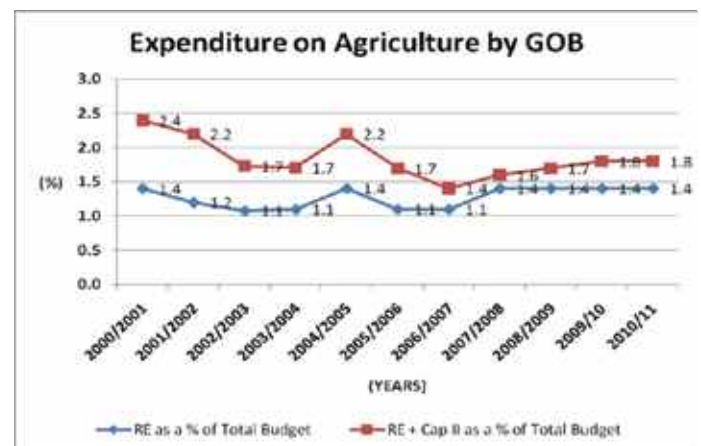
Use your talents and celebrate that we live in a land of freedom and opportunity. Consider how rare this is in the world today.

Gordon Zuniga
Punta Gorda

AGRICULTURE IN THE NATIONAL BUDGET

Belize is beginning to develop more trade arrangements and information exchange with neighboring countries for agricultural products. The resulting revenue to the GOB will go to the General Consolidated Fund that can provide more goods and services to all Belizeans. But the Ministry of Agriculture and Fisheries (MAF) is currently underfunded from the total budget to meet the increased need for financial resources to pursue these new opportunities. For example of the \$10.2 million allocated to the MAF from the 2010/2011 budget for recurrent expenditure, 66% is for employee compensation which leaves only 34% to support 9,697 farmers (2001) in the entire country.

Government of Belize's National Expenditure on Agriculture
2000/2001 – 2010/2011



Organic Production Learning to Love Weeds...

By Greg Clark

Well, not really, but learning to live with them is much easier. The climate of Belize is excellent for growing, all growing, including weeds. Turn your back on a freshly tilled spot, and all of a sudden it has transformed. The abundance of weed seeds that are contained within the ground are brought to the surface every time a tillage operation occurs. With the addition of sunlight and moisture, the seeds explode into growth. The weed seeds' prolific growth ability over the planted crop is due to the seed "being at home." The weeds have been in the present environment for thousands of years, and have completed total adaptation to the highest level of productivity that is achievable. Bringing in a crop to compete with this champion requires assisting the crop to overcome the local champion. In the organics world, the best method of facing the champion is mechanical removal prior to the seed production of the weed. Yes, this is labor intensive, but with a policy of least soil disturbance, the weed population will decrease over time. Least soil disturbance can best be described as: once beds are built to plant the crop, only add to the beds; don't till up more weed seeds. Mulch and compost are the best items to add to the beds for weed barrier properties and moisture retention for the soil. As the mulch decomposes, it adds biomass to the soil. This allows for pockets of the soil to breathe and allow for drainage within the soil. The pockets allow for the roots to expand throughout the soil bed and prevent a packed soil, which roots have to "expend a lot of energy" to penetrate. The compost added to the top of the beds allows moisture to leach through the compost and pick up nutrients for the root system of the crop. This is like a mini compost tea process local to the plant, without carrying a sprayer or bucket throughout the field, and expending more labor.

Now, back to taking care of the weeds. When weeds are removed in a field, collect them up and add them to the compost pile. The weeds have removed nutrients and fertility items from the soils that are destined to grow the crop. Take back those nutrients and fertility items with the use of a compost process. During the process, the nutrients and fertility items are transferred to the compost. When the compost is completed, return it to the beds as a weed barrier mulch and fertility amendment. The weeds then become "their own worst enemies".

To briefly touch on the composting process, build a pile that contains one part green material (containing nitrogen) to three parts brown material (containing carbon). I recommend layering the two components with a small amount of water added at each layer. The pile should be built to about 3 to 4 feet high and will begin the process of heating up within 24 hours. This process is educed by the microbes breaking down the pile and consuming the material. Note: If the pile begins to smell like ammonia, it is too wet and needs to be turned and no more water added until smell goes away. The pile should be turned every 3 days (adds oxygen) and steam will escape from the inside of the pile while turning. This is a good sign as to the current consumption of those nasty weeds. The pile normally heats up to 160 deg F, which kills and sterilizes any weed seeds introduced to the pile. After a period of time the pile will be decreased in size and no longer hot, the indication that the compost is complete.

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FROM THE MEXICAN SIDE
Restoring the ancient trade routes

SUCCESSFUL TEST
by Henning Bartsch

In our first article we made a three phase plan for testing Belize ag products on the Mexican market. Some testing was done....taking sample products from Cayo for the tourism market in Quintana Roo, primarily Playa del Carmen and Akumal. All products were well-received and the response of different businesses and distributors was favorable. We hope that in the next phase, during the month of July, with the help of the Belize AgReport and BelTraide we will be able to set up meetings with different Belizean producers. We will be in Cayo for this matter from July 10th until July 25th.

My partners and I have been working with officials in Chetumal to inform ourselves of Mexico's position in regards to various imports. In Belize, with Beth Roberson's help, I was able to engage in extended inquiries and conversation with the Mexican Head of Trade, Tourism and Investment in Belmopan and also with the Ministry of Foreign Affairs and Foreign Trade, concerning many of the legal procedures of importing/exporting to the State of Quintana Roo. Their attitude was so helpful and kind toward resolving some legal procedures and looking for solutions that we feel encouraged to continue with the process. And we feel that there is a great opportunity for both countries.

So we feel our test run went well. We expected the products to be well-received, as one reason for starting this venture is our great faith that the taste and quality of Belizean ag products fits precisely the niche markets in the tourism zone of the Maya Riviera. Moreover, authorities on both sides have been friendlier and more encouraging and helpful than we expected. This is the response that we needed to commit in a more serious way.

Our staff in Akumal will now start to interact with customs brokers in Chetumal, as well as Mexican and Foreign Trade Ministries in Belmopan. We would like to thank Beth Roberson and John Carr, through the Belize Ag Report, for their never-ending efforts to make this happen.

At some point we will publish in the Belize Ag Report some of the customs regulations of Mexican Customs, specifically duty. Another thing that needs to be shown is that Quintana Roo has consideration as a special region and is therefore given a status for much less duty than for the rest of Mexico. This is an extra benefit for us all.

We look forward to our first large distribution and sales of agricultural products from Cayo, Belize to the Maya Riviera in Quintana Roo, Mexico. We think with this the gates will begin to open and flow both ways, with people in that region of Mexico becoming more aware and familiar with Belize, especially the lovely and fertile district of Cayo.



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BEYOND THE BACKYARD

The Perfect Garden By Jenny Wildman

Standing looking at my garden I reflect on its contents past and present and reminisce about the glorious garden of my childhood. Rows of raspberries, asparagus, rhubarb, gooseberries, potatoes, brussel sprouts, such rich soil with abundant possibilities. It is strange that these prizes originated from far away places and through cultivation adapted so well to their new environment. When I first came to Belize no one was planting coffee and seemed to believe it would not grow well here. Today we have all sorts of crops which were previously thought impossible: huckleberries for instance.

Has anyone ever grown an apple tree here? "No it would turn into a Guava." was the answer. Is this cultivation of non- native plants worth all the trouble, expense of time, chemicals and fertilizer? My carrots tasted like soap, the lettuce was bitter and the potatoes pitiful. In contrast the beans, chaya, spinach, cucumbers, okra, peppers, cabbage and melons were happy, healthy and productive with no fertilizer and very little tending. So I am sticking to what grows well, on the look out for better varieties and being careful not to plant too much so as not to create a glut of any item.

Neighbours who extol the virtues of multi vitamins, supplements and pharmaceuticals would not accept any green vegetables, papaya, okra or noni . So no help with overstock there. I know of a man in Dangriga who feeds the whole block from his magnificent kitchen garden. His talent and green thumbs are much appreciated. Are the others just lazy? They all seem to have flowers and maybe a coconut or two. I begin to feel sorry for all those who have given up edibles, growing only crotons and hibiscus in neat flowering rows. There is something so satisfying about having a garden and picking a handful of this or that to add to your culinary pleasure. It saves quite a bit of money but mainly it is good for your health and well being. My mum used to send me to pick 6 sprigs of parsley, 3 spring onions, 4 sprigs of mint and I still remember the delicious aromas and anticipation of what we were about

to create for supper. The Sunday market here has an organic vegetable stand where produce is very reasonable. So for the occasional cauliflower and eggplant I just buy there. The lettuce is far superior to mine so I cut that off the list too.

So what to grow? Definitely greens - spinach on a trellis, chaya as a hedge, dasheen in a damp area. Cabbages are delicious, nutritious and hardy and keep away parasites when eaten raw. Pick the main cabbage head, leave the stalk and new baby cabbages will appear just like brussel sprouts. Plant callaloo away from everything else as it seeds and takes over the yard. Cho cho (chayote or cristophine) on a wigwam and the same with green beans. A variety of peppers, green and red hot in beds along with marigolds and other edible flowers. Melons running from mounds. To protect your tasty vegetables from animals put them in a corral of something spiky like of henequen. An herb garden of parsley, oregano, fragrant basil, cilantro, culantro, feathery dill, chives , spring onions and hopefully rosemary. Mint too but make a barrier around it as it becomes invasive. Aloe vera for burns and local oregano for earaches. Pineapples ,papayas and Nopal cactus and bananas on the perimeter as they look so tropical and even if you do not eat them all ,the birds will thank you. Roses for aroma, colour and pot-pouri. Two different types of lime, an orange, a mango and a cashew tree. I plant tomatoes and "special attention" in pots on my verandah..... No silver bells and cockleshells but you get the picture and scents of this simply perfect garden....

"A garden is a lovesome thing, God wot! Rose plot, Fringed pool, Fern'd grot—The veriest school of peace; and yet the fool contends that God is not—Not God! in gardens! when the eve is cool? Nay, but I have a sign; 'Tis very sure God walks in mine." Thomas Edward Brown. 1830–1897

Have fun , make a garden with love , encourage children to plant ,enjoy and reap the benefits . Share your garden tips and ideas with us. Thank you.

Jenny Wildman
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To lime, or not to lime? That is the question.

By Brian Holland

Why, and when, should a farmer consider liming? Most crops, including vegetables, cacao, bananas and citrus, grow best in soils with a neutral pH range of 6 – 6.5. Acidic soils, those with a pH below 6, occur widely in central and southern Belize. Left untreated, soil acidity severely reduces crop yields. Therefore, when pH is lower than 6, a farmer should lime to raise the soil pH. Since yields are dependent upon good soil conditions, correcting soil acidity should be a priority.

In Belize there are three primary causes of acidic soil conditions:

1. Soils derived from the breakdown of acidic rocks like granite – these soils are inherently acidic.
2. Leaching of the important plant nutrients calcium and magnesium by rainfall brings about soil acidity.
3. Long term application of NPK fertilizers has an acidifying effect on soils.

Serious problems associated with acidic soils

- a. Once a soil has become acidic, elements like aluminum, iron and manganese become soluble and available for plant uptake. In higher amounts these elements are toxic to most crops. Soils derived from granitic rocks tend to have high aluminum content.
- b. Important primary plant nutrients like phosphorous and potassium form insoluble compounds in acidic soils and thus become unavailable for plant uptake.
- c. Clay rich acidic soils tend to be poorly drained and aerated (lack oxygen).

Correcting acidic soils conditions

The application of a liming material in the proper amounts (usually calculated in lbs/acre/year) will correct soil acidity. Liming material includes fine ground limestone (calcium carbonate) and fine ground dolomite (calcium-magnesium carbonate) and quick lime (calcium oxide). Many countries with important agricultural industries now have specifications for liming materials. These specifications include

fineness (particle size) and chemical purity. The finer the particle size the faster the liming material will penetrate into the soil when broadcast and the quicker its reaction in the soil.

The neutralizing potential of a liming material depends upon its chemical purity. The purity must be known to accurately calculate the application rate. It is important to remember that fine ground limestone and dolomite are not soluble in rainwater; hence they can be applied at any time. The neutralization of soil acidity takes place in the soil.

For acid soils deficient in magnesium fine ground dolomite, available from Belize Minerals Ltd. in Punta Gorda, provides both calcium and magnesium. Quick lime (calcium oxide) should not be applied on clay rich soils as it quickly reacts with elements in the clay to form a cemented crust in the soil. It is for this reason that calcium oxide is often used to stabilize clay rich soils in e.g. road building or for slope stabilization.

Soil pH analysis

Both the Citrus Growers Association (CGA) and the Banana Growers Association offer soil analyses and advice on correcting soil pH problems. The CGA has its own soil lab and can provide quick and reliable soil pH analysis.

A farmer should get expert advice on correcting soil acidity problems and apply an appropriate liming material. It is important to demand an analysis of the liming material to know the chemical purity and particle size. Always correct soil acidity before applying fertilizers. Only then will the full benefit of fertilizing be realized – and crop yields will improve.

Brian Holland
Geologist
Belize Minerals Ltd.
Tel 722 2477
Mobile 621 0110
Email dolomite@btl.net
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Meet BEL-CAR

So who is the world's 4th largest exporter of Black Eye Beans?... did you say Belize? If so you are right! (The other 3 are Peru, Madagascar & Myanmar.) In quality, Belize is ranked 2nd behind only Peru. So who are the folks growing and exporting all these beans? None other than BEL-CAR Export & Import Company Ltd., headquartered in Spanish Lookout, Cayo District. Formed in 2000 as a cooperative, BEL-CAR has close to 200 members, about 130 of them active (growing). Most members are from the Spanish Lookout Mennonite Colony, with a few from Hillbank. Black Eye Beans are the #1 export for BEL-CAR, and the #2 is Light Red Kidney Beans. Volume wise, 90% of BEL-CAR's beans are Black Eyes, and 10% Red Kidneys.

The crop year is figured from February 1st to January 31st. Last year 8.2 million pounds of Black Eyes were harvested, previously 7.4M, and around 6.5M before that. This year's estimated yields are lower – approx 6M, due to two factors – farmers planting what will bring them the highest returns, and also disease. Fungus has popped up as a problem, and crop rotation with R.K. Beans has shown to reduce this.

So who buys all these Black Eyes?? 97% of them are exported to all over the world, with 60% going to our CARICOM neighbors in the Caribbean. Traditionally, they are popular with Arabs and people of Arab descent. Trinidad eats about 50% Black Eyes (other half R.K.) and Guyana's bean of choice is nearly entirely Black Eyes. Portugal is the world's leading importer of this bean, and they have a large processing/canning sector, from which they supply Europe.

One 100 lb sack of Black Eyes costs \$75 Bz\$ locally, with the export price being slightly lower at \$36.US\$, FOB on the vessel.

How does BEL-CAR manage to satisfy all its members, when crops come in simultaneously and the risks of storage and loss make quicker sales desirable for all? They have developed a system which works quite well for them, and this is how their Black Eye system works: All members turn in an estimate of what they have planted, and monthly all growers send BEL-CAR a pound estimate. Every B.E. growing farmer receives a monthly check, even those not shipping that month. Farmers bring in the beans at the rate that they are shipped out. In a system where the price fluctuates, this allows everyone in the company to receive the same price per pound. There is also a price paid for storage too, to compensate for the risks of storage and storage loss.

The marketing system for Red Kidney Beans is different, because much of that crop is consumed locally. Often farmers prefer to sell themselves, depending on market and price. So, BEL-CAR purchases Red Kidneys as they sell them.

BEL-CAR has state-of-the-art equipment to clean, grade, polish and package beans at their Spanish Lookout facility, and has the capacity to package approximately 100,000 lbs of beans per day. Look for corn grits to be added to the line of BEL-CAR's export products soon, as they have recently purchased processing equipment from Brazil for this.

By B.Roberson

Note: The Belize Ag Report thanks Mr. Otto Friesen, manager of BEL-CAR, for his assistance with information for this article.



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Box 578
Spanish Lookout
Belize, Central America

CONTACTS:
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Fax:- 501-823-0136
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Rice Seed Production Project Field Day

By Areli Garcia, Mitylene Bailey



The Ceremony

The ROC (Taiwan) Technical Mission hosted a field day at the Poppy Show Farm in Toledo on Friday May 14th 2010. This field day was attended by His Excellency David Wu, Ambassador of the Republic of China (Taiwan), Alexis Rosado, CEO Ministry of Foreign Affairs and Foreign Trade; Mr. Gabino Canto, CEO of the Ministry of Agriculture and Fisheries (MAF); Senator Godwin Hulse, Mr. Tzeng Huey Wang, Chief of the ROC (Taiwan) Technical Mission, other Government officials and members of international organizations and the public for a totality of ~200 persons. The event was opened with a prayer, the national anthems of both countries and lasted about three and a half hours.

In his brief introduction of the Rice Seed Project Chief Tzeng-Huey Wang, leader of the ROC (Taiwan) Technical Mission in Belize reflected on the inception of the Rice Seed Project in Belize. He delineated the three levels of the Rice Seed Production Project which are Breeder rice seed, Stock rice seed and Commercial rice seed. The Breeder rice seeds and Stock rice seeds are being produced in Central Farm, while the Commercial rice seeds are being produced in Poppy Show Farm over 25 acres and 10 acres in Santa Anna.

The Speakers

CEO Gabino Canto provided an overview of the Rice Project and described how the events in the past molded the happenings of today and how it will affect the future. Currently, the north is producing 85% of the rice that circulates the country—a reciprocal of the past, when Toledo was once in this position. The farmers in Toledo saw potential in the land and used the irrigated mechanized technique to grow rice and compete with the technology in the North. In order for Belize to become involved in the international market there must be a reduction in the 22 cents gap that places countries such as Jamaica, Dominican Republic, China and USA at the forefront. He stated that the only limitation we face is land availability and commended the ROC (Taiwan) Technical Mission in Belize for launching the opening of acreages in the District.

In his very concise presentation Alexis Rosado reiterated CEO Canto's speech but he also left an encouragement by saying "Let's not repeat history, Belize has many hands and a lot of land—use this!"

The keynote address delivered by His Excellency David Wu, Ambassador of the Republic of China (Taiwan) began with a history of the Rice project in Belize. He said that this day was the realization of the promise made by President Ma Ying-Jeou when he visited Belize in May 2009. The purpose of the new machinery which has a value of US\$500,000 is to assist in the rice and rice seed production in Belize. He expects the farmers and farmers' associations to participate in and promote the rice seed production in Belize. Ambassador Wu highlighted the importance of food security of rice consumers. This depends on greater national, regional, and international efforts and investments towards achieving sustainable production increases. Therefore, the Government of the Republic of China (Taiwan) is happy to extend assistance to the government and people of Belize by providing information on the development of rice production and on improved technologies that are available for sustainable intensification of rice and rice seed production.

Field, Land and Machinery Demonstrations and Exhibitions

The attendants of the event were taken on a live action tour to see the machinery at work. Part of this demonstration included:

Tractor: Working in three different conditions; wet land preparation, weeding and land preparation on dry land.

Combine harvester: Which was harvesting CARDI-70 in the process of reaping, binding, threshing, and rice straw discharge.

Rice transplanter: Planting rice seedlings in the prepared field.

The entourage was then taken to the newly constructed concrete store room 30'x 40'x 12' that houses the smaller machines. In addition to the tractor and combine harvester, the equipment that were brought to the area were two (2) power tiller cultivators, three (3) blowing machines, three (3) mist blowers, three (3) high pressure sprayers, four (4) grain dryers and other useful paraphernalia. At the end of the field tour there was a display of the stages of rice seedling:

1st: Trays are filled 80% with topsoil that was pre-sifted and mixed with rice husk at a ratio of 2:1.

2nd: Germinated seeds are sewn and covered with a thin layer of soil.

3rd: Topsoil is watered and the trays were stacked 25 units high and wrapped with Tarpaulin for a single day.

4th: Seedlings are moved to the field to develop, three rows per plot, for 11 to 15 days.

Prospective Strategies

In conclusion, the ultimate goal of the ROC (Taiwan) Technical Mission in Belize is to produce 160,000 pounds of Commercial rice seeds this year and 440,000 pounds for next year. This will be accomplished by the expansion of 50 acres in Blue Creek. The collaborative objective of ROC and MAF is to produce rice seeds to supply the rice farmers in the Toledo District and by extension, the entire country and in the future export rice to the Caribbean and Central American Countries.



New machinery in front of newly constructed store room. Combine harvester, tractor & twelve row rice planter at field day at Poppy Show Farm, in Toledo.

Local Consumption and Values of Farm Products

Farm production for our local consumers continues to rise. We know that prices and crop yields will vary according to supply, demand and weather factors. It has been stated by farmers that most of these crops could have a doubling of production in 3 or 4 years if prices and export markets open up.

Recent news indicate that the Partial Scope Agreement with Guatemala is about to go into effect. We have been in the starting gate for several years but now it seems that the horses (farmers and producers) and the jockeys (political and trade negotiators) are about ready to run. This will help producers and consumers on both sides of the border if we can just hear the starting bell.

Farm Products	Per week- 100 lb bags	Per Year- 100 lb bags	Annual Value	Annual lbs. Per Capita Consumption
Yellow Corn Mostly animal & chicken feed	12,500	650,000	@ 20 cents a lb. \$13,000,000	209.67
White Corn Est. -3% of yellow- human	375	19,500	@ 23 cents a lb. \$448,500	6.30
White Rice	3,750	180,000	@1.15 cents a lb. \$20,700,000	58.06
Red Kidney Beans- RK's	800	41,600	@1.00 a lb \$4,160,000	13.42
Beans -Little Reds & Blks- est. 10% of RK's	80	4,160	@1.00 a lb \$416,000	1.34
Dressed Beef 800 lb live & 400 lbs carcass (50%)	250 hd @ 400 lbs 10,000 lbs	5,200,000 lbs	@3.00 a lb \$15,600,000	16.77
Dressed Pork 300 hd per week	42,000 lbs 220 live wt. 65%- 140 lb dressed	2,184,000 lbs	@3.25 a lb \$7,098,000	7.04
Dressed Chicken	615,420 lbs	32,000,000 lbs	@2.20 a lb \$70,400,000	103.22
Eggs	52,000 doz	2,712,500 doz	@3.00 per doz \$8,137,500	105 eggs per person/ year

Total: \$139,960,000 based on population
Per Capita: \$451 per person of 310,000
Numbers (ests.) collected by John Carr

Rain measure Record for Spanish Lookout, Cayo District Belize

1968-2009

41 years

By David J. Thiessen and Family

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1968	-	-	-	-	5.22	6.44	5.18	6.66	9.05	9.32	3.71	3.78	49.36
1969	2.68	0.31	5.74	0.40	6.21	10.34	11.60	12.41	12.94	4.17	4.83	0.24	71.87
1970	3.72	3.44	0.62	0.00	4.30	5.49	8.35	7.99	7.04	4.83	3.52	9.26	58.56
1971	2.01	0.40	3.71	0.49	1.44	7.48	13.91	8.97	2.86	4.32	9.30	4.57	59.46
1972	5.85	2.81	0.13	0.56	1.83	4.94	25.68	10.12	5.76	9.32	3.77	6.52	77.29
1973	2.40	1.75	0.43	2.13	3.93	7.12	8.40	9.24	3.25	10.32	4.62	3.50	57.09
1974	3.57	1.84	0.31	2.75	0.73	2.13	6.61	4.47	5.82	10.60	4.03	3.38	46.24
1975	5.70	2.18	0.53	0.33	0.19	2.30	2.03	2.59	13.14	16.03	3.61	2.32	50.95
1976	3.89	3.78	0.05	0.01	3.07	17.29	7.08	3.79	6.05	2.60	2.35	12.35	62.31
1977	0.79	4.93	2.00	5.59	5.27	10.61	4.63	5.36	6.11	5.89	5.60	7.39	64.17
1978	3.73	0.84	4.20	0.24	5.91	9.07	8.20	3.99	10.33	8.47	12.23	5.79	73.00
1979	6.22	2.31	2.51	0.67	2.25	10.81	10.15	11.15	7.84	7.88	12.04	10.75	84.58
1980	3.69	3.19	0.19	1.13	2.80	14.82	6.80	3.45	4.66	6.91	9.21	8.01	64.86
1981	0.07	5.59	0.49	1.71	1.50	9.73	13.01	8.67	4.75	12.25	0.64	3.70	62.11
1982	2.61	1.68	1.91	1.57	4.44	14.39	7.13	7.82	7.57	8.47	2.77	4.34	64.70
1983	3.30	3.23	3.64	0.37	0.36	5.89	15.73	5.71	3.32	8.16	3.45	5.53	58.69
1984	2.65	4.20	0.65	0.35	4.09	8.45	14.07	6.14	4.49	7.80	3.54	9.14	65.57
1985	0.77	2.31	3.27	1.83	0.54	5.46	3.02	4.43	6.58	9.19	8.41	4.79	50.60
1986	4.02	0.10	3.76	0.12	8.40	6.99	10.47	9.07	10.87	4.51	5.07	2.80	66.18
1987	2.02	0.32	2.50	0.17	0.22	10.17	9.02	8.58	3.39	1.96	4.89	4.38	47.62
1988	11.20	2.69	2.42	1.52	0.57	6.13	5.94	6.29	7.78	7.98	5.14	2.39	60.05
1989	3.37	1.68	1.07	2.40	0.72	3.99	7.73	3.07	6.91	6.70	6.07	2.64	46.35
1990	7.96	2.86	5.48	3.41	6.16	12.57	3.82	5.84	4.36	3.08	12.47	6.24	74.25
1991	6.01	1.16	0.26	0.59	9.08	3.81	3.81	6.18	7.35	4.76	5.60	15.65	64.26
1992	3.27	0.56	2.42	2.17	4.48	9.46	10.15	7.31	6.93	4.20	7.35	6.09	64.39
1993	3.49	2.00	1.05	2.99	3.02	11.22	4.67	15.73	7.15	7.07	7.24	4.89	70.52
1994	7.98	1.10	2.36	0.91	2.86	2.29	7.40	3.77	9.92	6.84	11.01	2.47	58.91
1995	5.42	4.35	0.00	4.12	0.00	4.55	10.41	9.85	8.59	15.36	5.22	2.60	70.47
1996	3.59	0.00	2.23	1.63	2.53	0.83	11.37	7.06	4.42	7.83	8.74	5.05	55.28
1997	1.65	2.52	1.40	0.15	3.00	10.64	15.27	8.06	10.19	4.63	9.67	2.37	69.55
1998	6.30	0.12	0.57	1.81	3.92	3.27	7.55	9.56	4.87	14.87	11.31	6.22	70.37
1999	2.41	3.30	0.40	0.55	1.00	5.70	8.67	5.79	5.47	6.57	4.05	4.78	48.69
2000	2.04	0.13	0.20	0.72	2.72	6.62	10.24	7.04	8.59	14.76	4.09	2.90	60.05
2001	0.39	8.33	0.32	0.12	9.31	3.77	4.68	7.08	13.51	12.71	3.41	4.98	68.61
2002	2.95	2.52	1.17	0.00	6.72	12.89	8.88	5.19	3.15	6.94	4.22	3.10	57.73
2003	2.43	0.22	0.74	0.00	2.31	1.56	6.50	2.25	4.88	6.98	11.82	2.27	41.96
2004	2.10	2.25	3.30	1.82	7.79	1.61	7.75	0.64	8.00	8.24	5.53	1.86	50.89
2005	2.90	0.50	0.55	3.13	4.26	5.36	4.19	8.92	7.72	6.32	4.72	3.85	52.42
2006	10.10	3.96	0.73	0.82	4.68	13.92	16.78	2.14	4.96	7.72	4.91	9.00	79.72
2007	5.62	1.19	1.39	0.41	1.46	1.38	5.28	6.17	5.61	10.38	6.22	3.00	48.11
2008	3.96	2.05	5.07	0.51	8.65	8.52	5.04	4.20	10.33	14.91	0.34	2.99	66.57
2009	4.83	1.10	3.25	1.25	2.63	5.21	9.22	8.86	3.54	1.44	7.26	4.14	52.73
2010	3.33	0.87	0.00	1.65									
Total Average	3.88	2.16	1.78	1.25	3.55	7.29	8.81	6.71	6.85	7.90	6.10	5.08	61.41

41 years average 61.41 inches

Kind thanks to the family of David J. Thiessen of Friesen Hatcheries, Spanish Lookout for sharing this data.

SAGARPA - Mexico's Department of Agriculture

Interview with Dr. Antonio Rico Lomelí

Among the Mexican exhibitors at N.A.T.S. this year was SAGARPA for its second year. Dr. Antonio Rico Lomelí, the national SAGARPA delegate for the entire state of Quintana Roo, was the gracious host who granted us an informative 90 minute interview. Headquartered in Chetumal, he has a staff of 170 people and offices in 9 municipalities to administer the four programs pertaining to Agriculture, Livestock, Rural Development, and Fisheries in Q.R. Although 99% of Q.R.'s "gross product" is tourism, agriculture is nevertheless important. For example, 100 tons of organic honey is shipped to Germany each year directly from Q.R. Even though Q.R. produces only 5% of Mexico's total agricultural products, it is #6 among the Mexican states in the production of cane sugar, which is grown and processed in Q.R.

SAGARPA is not new; as far back as 1842 the government recognized the importance of promoting agriculture. Over the years SAGARPA evolved as the decentralized government organization to plan, promote and provide technical advice to its rural communities. It is linked to the national organization by signed agreement for program management. SAGARPA deals only with small farmers and is distinct in programs, funding, and organization from that which deals with commercial agriculture. SAGARPA's organization corresponds to the four major programs and the staff work closely with the national organization as well as related citizen organizations at the local level.

Eighty-five per cent of the agriculture activity in Q.R. is done by small farmers; so SAGARPA is an important assistance to them. Examples of assistance are:

1. Infrastructure – SAGARPA provides 70% of the cost of irrigation through grants.
2. Machinery – SAGARPA applies a sliding scale for assistance based on the quality of the project and previous history.
3. Land – 90% of the land for community use is government-owned.
4. Subsidies – \$50,000/hectare for grains (corn, soybeans, beans) and fuel. Farmers can apply for a card for a 15 – 25% discount when they buy fuel.
5. Education – SAGARPA has close ties to agricultural organizations and assists them in their budget for education campaigns on the health of plants and animals. Fifteen years ago there was a huge information gap; now the ag. associations spread the word.
6. Technical assistance – SAGARPA provides the link between research and technology performed at the national level, including pathology and marketing, with local organizations. In Q.R. research is performed on its main products: sugar cane, coconuts, vanilla, and chili habeneros.
7. Training – Each product has its chain from grower to broker to distributor. SAGARPA assists the corresponding ag. organizations with their plans, training, and office equipment.

SAGARPA in Q.R. has a budget of BZ\$100M for administration and grants which doesn't cover all the needs; each year they can help about 800 from 4000 applications submitted. Eighty per cent of SAGARPA's budget is allocated to the livestock program for improving genetics of beef cattle and infrastructure assistance such as fencing. Beef cattle include nelore, brahman, brown swiss and american swiss. Hair sheep that are raised in Q.R. include dorper, black belly, and peli buey. Poultry and bee-keeping are also included in the assistance program.

Ten per cent of SAGARPA's budget goes to the assistance of rural development. SAGARPA emphasizes to its rural population the importance of maintaining its natural resources and reversing the deterioration of ecosystems through actions to improve soil, avoid erosion and use water efficiently to minimize waste. Various programs are in place to ensure concerted action based on legal agreements with the rural community so they, in turn, can be ensured of the assistance available to them. One important aspect of assistance is the encouragement and support of independent banks and credit unions in rural communities to help the farmers with low-interest loans.

Fisheries in Q.R. raise mostly tilapia. SAGARPA offers assistance to them in much the same way as to farmers. Major commercial fishing interests come under the Ministry of Environment, Natural Resources and Fisheries.

By Dottie Feucht

***Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación**



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Agriculture Prices at a Glance- \$\$\$\$

A-B denotes the difference between 1st preference & second preference and sometimes between wholesale & retail and bulk or small amounts . Trend (H) means Higher over last 30 to 60 day (L) Lower (S) Steady
all Belize dollars - usually price per lb

Belize Cattle	T	A	B	Grains, Beans & Rice			
Young str. & bulls- 750- 1100 lbs	S	.95 -1.00	.93 - .95	Belize yellow corn	S	.18 - .19	.17 - .18
Cows & Heifers for Butcher	S	.60 - .75	(old).50 - .60	White Corn	S	.21 - .22	.20 - .21
Heifers for breeding 650-900 lbs	S	1.00 - 1.15	.90 - 1.00	Corn/ Local retail (Low volume)	S	.27 - .30	.24 - .27
Young grass cattle- 350- 650 lbs	S	.85 - .95	.75 - .85	U.S corn price @ 3.75 U.S a bushel	S	.13 - .15	.12 - .13
U.S price -corn fed- 1000- 1200 lbs	S-L	180 - 185	175 - 180	Guatemala corn price/Peten	S-H	.25 - .27	.23 - .25
U.S price- feeders 600- 800 lbs	L	2.00 - 2.10	1.90 - 2.00	Belize Milo	S	.15 - .16	.14 - .15
U.S price- calves 450- 600 lbs	S-L	2.05 - 2.15	1.95 - 2.05	R-K's, little reds & blacks (beans)	S	.85 -1.00	.75 - .85
U.S price- aged butcher cows	S	.80 - .90	.70 - .80	Black eyed peas	S	1.00 - 1.25	.75 - Spa Lt
Belize Hogs				Paddy rice/ from combine	S	.30 - .33	.28 - .30
Weiner pigs- 30 -50 lbs- by the head	S-L	\$85.00 - \$95.00		Milled retail rice per pound	S	whosal 105-110 Ret 120-130	
Butcher pigs 125 - 200 lbs	S	1.70 - 1.75	1.65 - 1.70	Citrus			
Belize Sheep				Oranges per 90 lb box-lb.solid basis	H	\$9.50 Est. 2010 price	
Butcher lambs	S	2.50 - 2.75	2.25 - 2.50	Grapefruit- per 90 lb box	L	\$4.50 Est. 2010 price	
Mature ewes	S	1.70 - 1.75	1.60 - 1.70	Sugar			
Belize Chickens				Cane per ton- est. 2010 price	S	\$50 - \$65 per ton	
Broilers- live per lb	S	1.10- 1.15	1.05- 1.10	White Sugar- 112 lbs- controlled	S	\$44.42 per bag	
Old hens	S	.73-.76	.70-.73	Brown Sugar- 112 lbs- controlled	S	\$38.31 per bag	
Belize Milk				Bananas			
Pd to farmer per lb	S	.45 contract	no demand	Export @ 40 lb box	S	Apr- May .price- 12 - 13	
Special farm items				Local Wholesale #2 quality- 40 lb	S	\$ 7.00- \$10.00	
Shrimp Retail- Farm Raised	S	6.50 - 8.50	5.50 - 6.50	Retail #2 @ 8 per sale	S	\$1.00 - \$1.50	
Pitaya 12-16 oz	S	1.75 - 2.00 each		Fruits & Vegetables			
Eggs-case of 30 dozen	L-S	59- wholesale	68 retail	Tomatoes, Cabbages, cucumbers	S	.50 - 1.25, wh	1.25 - 2.00,rt

***These prices are best estimates only from our best sources and simply provide a range to assist buyers and sellers in negotiations. ***

Dear Ag Readers: Prices on livestock of nearly all classes have been druggy to lower. Grains are steady and both are waiting patiently for the Mexican/ Guatemalan markets to open up. The Partial Scope Trading Agreement (Guatemala) is very close. We have established some good relationships there and feel that long term business will happen. Farmers are ready to plant and some black dirt was dusted in. We are having the wettest May in my 33 years of remembrance, 7 or 8 inches or more in the last 10 days. May God Bless your family, your business and your country. All the best, John Carr

Light Rein
BACKING (continued from issue #6)
by Marjie Olson

In the last article we discussed the benefits of backing a horse. Both from the ground on a lead and most importantly, from the saddle. Now let's discuss how to get started teaching them to do it, why they may flatly refuse, and things to be careful about.

I say be careful, because there will be horses who get over dramatic with being asked and have a hissy fit that may include throwing their head around, striking, or possibly rearing. Horses who are older, who may have a locked up pelvis, sore hocks or a stubborn streak, may fall into the category of the hissy fit. The idea is to read your horses level of trust, understanding and willingness to your request. Stay firm, but not forceful and be sure to praise when even a couple of steps have been given to the command. If a true refusal or any of the above behavior modes come into play, you may need to step back and figure out the issue, such as the soreness issues I mentioned.

Let's say Trigger is feeling fine, no back issues from a locked pelvis or ill fitting saddle, no hock soreness. Good; then other than getting him to understand what we want, we are ready to begin.

From the ground, be sure to have a halter on the horse and either a stud chain over the nose (from the left side ring to the right side ring and UP to the right side cheek ring with snap), or a lead rope attached to lower center ring. Now you will need either a hand whip or a sweat scraper. A carriage whip works as you can also direct a hip if needed; even a stick the size of your thumb with a rounded end will do. These 'tools' are to be used to direct and lengthen your arm reach, **not as an abusive object!**

Standing slightly off center to the left but in front of the horse's chest, ask him with three cues that will work together. A pull on the lead-with a downward motion and back toward center of chest or front feet, a click from your tongue, and a light push with the handle of the whip or end of scraper or stick into the center of his chest area. The word back may also be used instead of click. These three cues work simultaneously and in a rhythm to what his steps would be. Pull/click/poke, pull/click/poke, pull/click/poke. It's like a clock ticking a 2 count...1, 2, quick pause with a release, again, 1, 2, pause, again. Slow count of 1-2. With the pressure

and poke stopping for a second in between sets. You will need to modify your timing to fit your horse; just don't be too fast. It may take twice and you will get a couple of steps, or it may take 20 times with a stronger pull and poke being created over every 5 times. BUT...When you get 2-3 steps, stop, take a moment to praise, make it a big issue that Trigger did a good thing; then go for 3 steps again. If you get him to do it several times, be done; ask for it again tomorrow. Do it every day till it is no longer a training thing, just a yes to the command.

Getting your horse to back well, ground or on saddle, will help his overall physical health tremendously **if done correctly**. He must keep his head in a natural position, level or even slightly below level, but never back with his head in the air and his back hollowed out.

Ok, so now he can back from the ground in halter, no shank, no poking, just a light pull and click or the word back. (We actually train to the next level of no touch, just body language, but that is a lot of time and truly not something you get in a few sessions.) You should get at least 4 to 6 steps out of each command; don't end with 2-3 or it's not going to be much help.

Next issue we will discuss from the saddle. Thanks for reading and 'enjoy the ride'.

Marjorie Olson (no longer Henley) Light Rein Farm,
5 Mile Mtn Pine Ridge Rd. Cayo Dist, Belize, C.A.

All comments are of the opinion of Marjie O. Henley and are in no manner expected to be the only way to train a horse, but have proven to work for her.



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VARIETIES OF MANGOS IN BELIZE

Mango is indigenous to India and is cultivated in many tropical and subtropical regions with a broad distribution worldwide. Its scientific name is Mangifera indica and the fruit is extensively use for its juice, flavor, fragrance, color, pickle and fresh fruit.

In Belize mango has a long history since countrywide, we can appreciate old mango trees along the highway while entering any of our villages or towns. The mango season in Belize varies from year to year since its flowering pattern is triggered by climatic condition, mostly moisture stress and a change in day and night temperature. There are many varieties of mangoes in Belize which produces a wide range of color, texture, flavor, and shape. Mangos can basically be classified in two major categories: Local and commercial varieties.

Some of the more popular local varieties are Judgewig, Number Eleven, Blue Mango, Julie, Slipper Mango and Thundershock. These varieties vary in color, flavor, firmness, taste and shape/size, fibrous or hairiness. These mangos are generally tasty, small in size and posses the disadvantage of having a very short shelf life. In addition to the known local varieties some new varieties have emerged on a continuous basis because some varieties are compatible with each other producing fruit of undesirable nature. This is the main reason why mangos are usually grafted so as to provide the growers with a plant that have defined properties and qualities.

The most common commercial varieties that are normally grafted are the Haden, Kent, Keitt, and Tommy Atkins. These varieties normally have good size, taste, appearance and a long shelf life which makes it the preferred fruit for the supermarket and exportation.

Some important facts about mangos in Belize

Mango trees produce more fruit and are better quality along the coast.

The term refer to as **burning of flowers** is, in fact, a fungal disease which is called Anthracnose which thrives when there is excessive moisture during flowering.

The belief that rain causes mango to become infested with worms (Larvae) is incorrect. The reality is as the season progresses the fruit fly population increases. Fruit flies lay eggs on mangos which develop into larvae which feed on the pulp of the fruit. This whole scenario peaks at the beginning of the rainy season causing these false impressions.

Belizeans can enjoy mangos for many months since we can eat them when they are “green”, “turn”, “ripe”, and “over ripe” in jams and jellies. Most Belizeans anxiously await the mango season or have some sort of child hood experience that pertains to the mango season.

**Prepared by Simon Willacey
Agricultural Development & Services Ltd.**



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Vermiculture: California Red Worms Make Fertile Soil

Recycling horse manure has been combined with the use of California red worms and a compost pile to develop rich, fertile soil for planting seeds, seedlings, and enriching garden soil at the Maya Farm at the Lodge at Chaa Creek. Mick Fleming, owner of Chaa Creek, and his farm crew started with a handful of red worms a year and a half ago and now he has 14 boxes (20" X 20" X 6") of worms in his soil-enrichment project. Each night the worm boxes are covered; that's because Mick discovered early one morning, when he was investigating the reason his biggest worms were missing, that the local birds were enjoying a gourmet breakfast!

Mick started his project by adding the worms to a box of raw horse manure and adding water occasionally to keep the manure damp but not wet. The bottom of each box is drilled with a few holes to allow excess liquid to drain. As the worms grow and multiply, they also break down the manure, and create worm castings (worm manure) or *vermicast*, a fine odorless humus, which can be used as a nutrient-rich organic fertilizer and soil conditioner. The process takes about a month. Then he developed a maintenance routine:

1. He places a box with a wire mesh bottom containing raw manure on top of the worm box in the evening; most of the worms crawl from the bottom box through the mesh to the upper box filled with the new appetizing horse manure. It takes about 3 days for the transfer.
2. To "capture" the remaining worms he empties them with the humus onto a crocuss bag in the sun and forms a pyramid. Worms hate sunlight; so they burrow into the middle of the pyramid. As they crawl away from the edges, he removes that soil and in about an hour the pile is mostly worms. He places them into a new box of manure.

To use the compound, the farm crew mixes the fine-textured humus with fine-textured compost developed in a compost pile from discarded vegetable leaves, tree leaves, grass cuttings, etc. They mix one wheelbarrow full (approximately 3 buckets) of soil with 2 buckets of compost and worm-processed manure mixture for planting seeds and seedlings and soil enrichment.

In the middle of the compost and worm processing area is a big sour sop tree with 25 huge sour sops ripening. Usually a tree that size would have 3 or 4 sour sops. Mick attributes the extraordinarily large number to its close proximity to the soil enrichment project ingredients.

By Dottie Feucht

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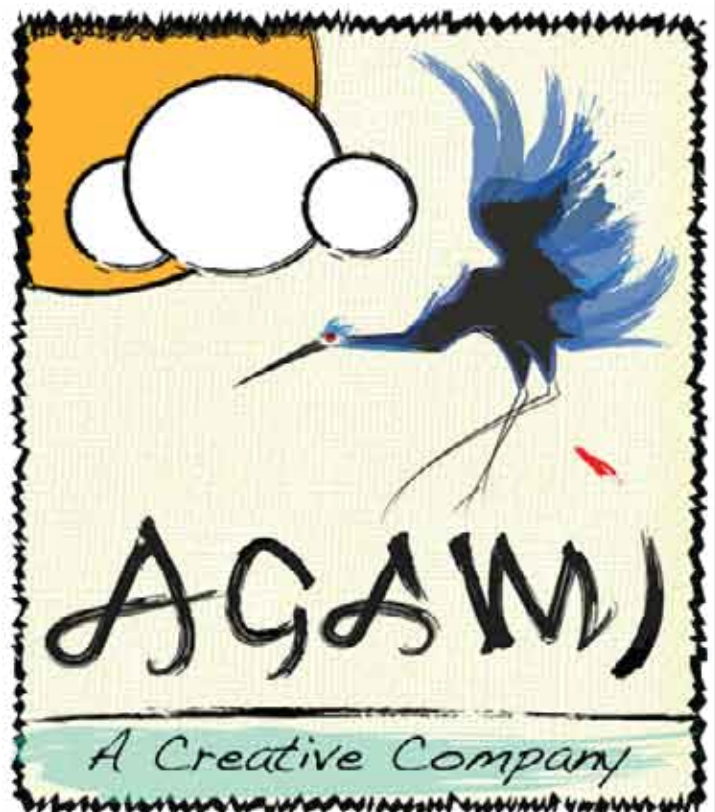


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**Interview with Mitylene Bailey. Rice Technician at
the Technical Mission of the Republic of China
(Taiwan)
By Dottie Feucht**

1. In what subject is your degree(s)?

The highest degree I hold to date is a Bachelor's Degree with highest honors (summa cum laude) from the University of Belize. I got my first degree from El Camino College in California.

2. How did you get started working for ROC TTM?

Well, I'd always had this obsession with food and as I grew older I wanted to change the way the Belizeans ate since, as we all know, there is a prevalence of degenerative diseases due to poor eating habits. I knew it would be difficult to say to someone, "Eat this or eat that and this much of it." So, I thought if there is a way that only quality, nutritious foods are made available to the public at a low cost then there would be no choice but to eat only the good stuff! Here in Belize our staple is rice. I had seen on a morning show the Technical Mission of the Republic of China (Taiwan) was funding a project involving this staple. I figured if I could get involved and learn the logistics of rice production I will have the tools to tailor the quality, quantity and distribution for my country. After a few emails, I made a trip to ROC from my home in the Belize District, introduced myself to Mr. Frank Lin and asked him to teach me what he knows about rice and as the old saying goes, "the rest is history"!

3. How long have you been working there?

I have been here since August 2009 but began employment in September. I finally 'got the hang of things' in November and I'm pretty much on autopilot these days. I have met a lot of influential and exceptional people. I'm really surprised at the things I have been doing and how much I learned. It's really exciting!

4. What are your responsibilities?

In short, I'm the person who is responsible to produce what is called *breeder seeds*. These are the seeds of the highest quality and are produced in small amounts. These seeds are important since they keep the rice variety stable. This is done by a process of purification (described in the article I wrote) where the traits that are required for a specific variety are selected out and those that are less desired are not replanted. I also am required to produce small test plots for stock seeds, which, after purification, are planted in larger fields and used as *stock seeds*. These are taken to Toledo where they are planted for *commercial seeds* which are sold to farmer to produce rice for food. Making small test plots for stock seeds can provide a snapshot of the characteristic presentation of a newly purified variety. That way, if there are any changes to be made they can be addressed before the seeds arrive in Toledo.

5. What is the most memorable project you worked on in college?

Well, I did a study "Mangrove Ethnobotany and Habitat". This was a two-part study that allowed me to visit the West

Virginia Wesleyan College to research the cytotoxic effects of mangrove extracts in mammalian cancer cells and bacteria. Then earlier this year the team reunited in Belize to determine the change in spatial distribution for mangrove communities in Belize. Both aspects of the research shows promising results and this will be published in a West Virginian undergraduate peer-reviewed journal later this year.

6. What do you like best about your job?

It's outside! I enjoy the feeling of being free and being outside makes that possible for me. Everyday is different and unique; I like the dynamics. I have seen a lot of nature and wildlife in that small area in such a short time. The biology texts that I have studied have not even captured a fraction of the moments that I enjoy being in the field. Secondly, the opportunity to meet many people of interest; sometimes they come to ask questions and other times just to observe what I'm doing. I get a boost when I get the opportunity to show the work that is being done. I have met dignitaries, diplomats and destitutes; the feeling that there are no barriers between myself and people and that I, even in the small area I'm in, can make a world of difference!

7. Where did you go to elementary and high school?

I grew up in Hattieville Village, 16 miles on the Western Highway. There, I went to the government school and it was there that I learned the art of self-motivation. My parents chose to send me to an all girls' Catholic high school in Belize City, Pallotti High School, where my interest in food was fueled in the food and nutrition classes I took for the entire four years there. In high school I learned to be competitive and assertive where it counts and this shaped the professional skills that I am now using in my work and life today.

8. What subjects in school do you think are the most important for young people interested in agriculture?

Wow! That depends on the section they want to get into. Generally, the sciences and health sciences are important since they answer the questions about plant and animal systems and how they work. Geography is necessary because it acquaints us with land and soil types, topography, weather patterns and climate changes. Social Studies is extremely important since it reveals the demographics of the country as well as the import and export needs as time changes. Mathematics is a necessity for the calculation of land area, materials used and needed, money spent and money earned. Language Arts makes it possible for us to understand the important things such as the particulars of contracts that are drawn up when it comes to land possession and ownership and simpler things such as fertilizer and chemical application. A good command of English also makes it easy to participate in seminars and workshops and to establish or improve relations with other members in the agriculture community. Physical Education trains the body to manage physical stress, work as a team and co-operate with partners in a contact environment. So essentially, every subject presented at primary school can be a foundation on which to build. It's just branching out thereafter.

Continues on page 25

Continues from page 24

9. *What opportunities do you think young people have in agriculture here in Belize?*

That's a really good question! We can talk about this for hours. See, Belize is blessed a hundred fold with the perfect land, agreeable weather and strategic location. Most young folks these days, I have noticed, along with a growing number of middle-aged adults, are more interested in subsistence farming. Interestingly, they all seem to be focused on a single crop or animal. Some of the times they attach themselves to businesses that can feature their product and this way they make a living. Other times they choose to use food processing methods to make the material export-worthy. With today's buzz about 'the recession' and 'cutting corners' the ordinary Joe can buy a decent piece of land and become an exporter of his produce. Opportunities available to those involved with agriculture can range from a single farmer planting his backyard with vegetables to make enough money to live to a highly experienced biotechnologist developing seeds of highest quality and nutritional content to satisfy the requirement for food security throughout the world. It depends on one's desire and goal. The sky really is the limit.

10. *Do you think the schools in Belize should offer more agricultural studies?*

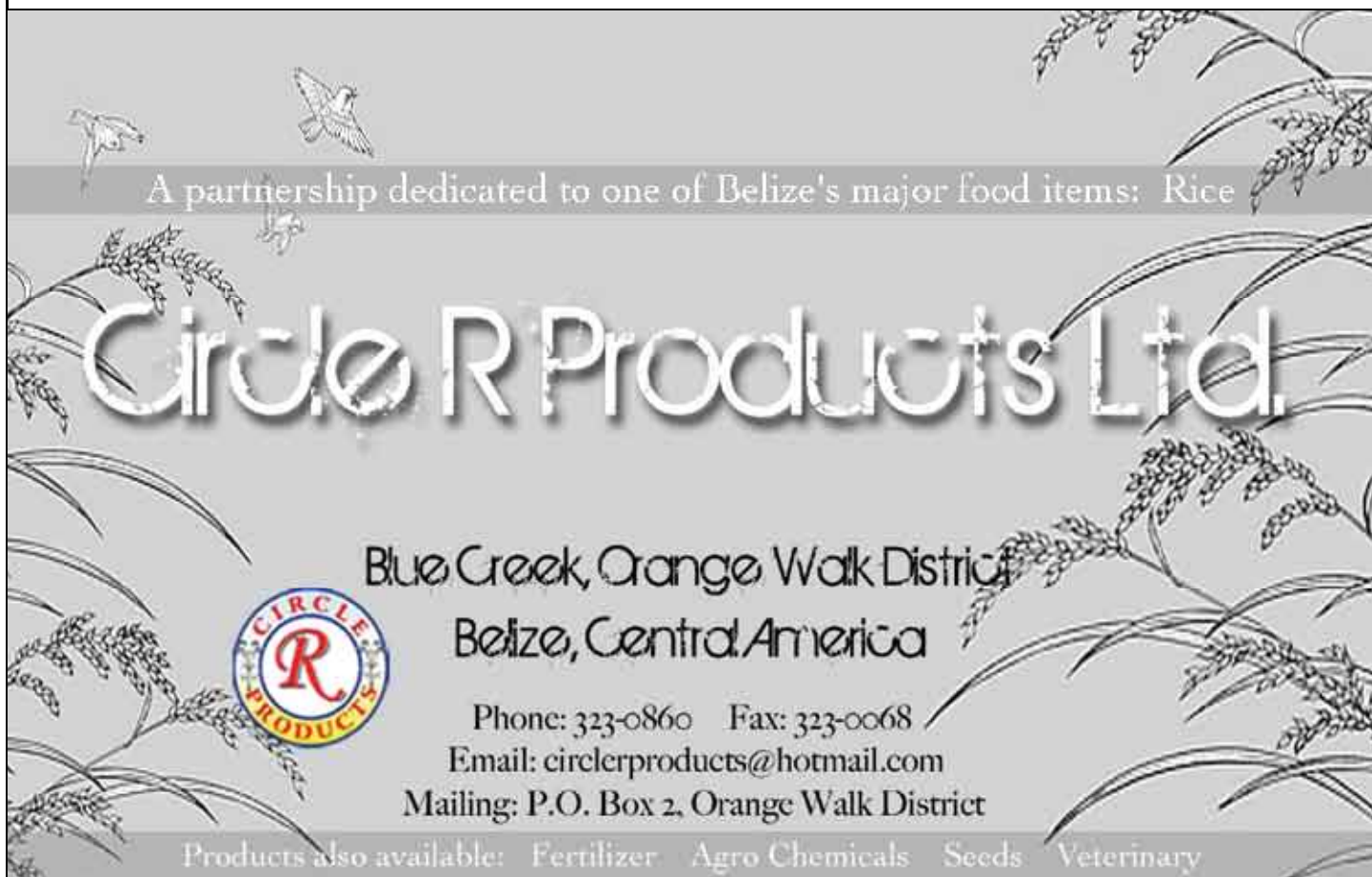
More than offering the agricultural studies I think we should focus on getting a good **general education** background.

While doing that the teachers can include the importance of agriculture by creating small gardens or tending a few small animals periodically at school. This will not focus primarily on agriculture but it will expose the ones that are interested to the endless possibilities!



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Cattle Prices Down...Continued from page 1

(it has been told that it will take 4 or 5 months to complete it and for sure the start is a few months away. They expect BLPA to find out why this important project is taking so long. Meaningful information as to time lines and actual cattle testing seem to be very vague. The steering committee which is made up of people from many sectors, including BLPA, MOAF, BAHA, IICA and ORISA (hopefully this includes everybody) seems to be somewhat bogged down. Cattle producers can only guess the reasons, but what they are not guessing about is that livestock producers are losing

hundreds of thousands every month. Please find below a chart showing an estimated cattle population, off take per year at 25% and losses calculated at \$300 per head. This is a 30% reduction in sales.

Cattle losses because of bad markets (we need to export legally)

Please find some reasonable estimated cattle population numbers that indicate these very concerns. It is estimated that 25% of our national herd is sold each year. Cash losses are being computed at \$300 per head or .30 cents a pound on a 1,000 pound animal-(this is compared to the sale prices of 2-3 yrs ago- \$1.25 a lb to .95 a lb on 1,000 lbs)

Orange Walk District

<u>Area & ranch descriptions</u>	<u>Population</u>	<u>Off-take @ 25%</u>	<u>Losses @ 300</u>
Blue Creek	22,000 head	5,500 head sold x \$300=	\$1,650,000
Ship Yard & Indian Creek	22,000 head	5,500 head sold x \$300=	\$1,650,000
Other Ranches	400 head	100 head sold	\$30,000
Total	44,400 head	1,100 head sold	\$3,330,000

Cayo District

Spanish Lookout	18,000 head	4,500head sold=	\$1,350,000
Two other Ranches	3,000 head	750 head sold=	\$225,000
Total	22,000 head	5,500head sold	\$1,650,000

Estimated balance for the rest of Belize

23,600 head 5,900 head sold \$1,770,000

Loss - Grand Total (estimated):

90,000 head 22,500head sold \$6,750,000

Notes:

Domestic use (local consumption) 12,000 head @ 850 = \$10,200,000

Export sales 10,500 head @1000= \$10,500,000

Cattle Values in Belize 90,000 head @ 850= \$76,500,000

Land values (2 acres per animal x 90,000 head 180,000 acres)

Price per unit at \$3,000 for 2 acres (grass & fencing) \$270,000,000

Total estimated livestock & pasture investment \$346,500,000

Numbers collected (ests.) by John Carr

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Continues from page 1

The survey was commissioned in July 2009 and was comprised of various field visits to individual farms throughout the six (6) districts of Belize. The final report summarizes the findings of the survey and provides a set of recommendations to guide the development of the sector over the next two (2) years. The report is divided in three (3) main areas, which include: an overview of the aquaculture sector, observations and findings of the survey, as well as strategic recommendations. The findings in this report along with recommendations were submitted to the Minister of Agriculture & Fisheries.

Some of the most relevant constraints to the development of small-scale fish farming in Belize identified during the survey were: the lack of a marketing strategy, inadequate feed and seed stock supplies, limited Aquaculture Extension Services, uninformed and inappropriate pond design and construction, inappropriate husbandry procedures and pond management practices, the lack of amenable credit and fiscal incentives. Other areas of concern include: the lack of availability of processing facilities, the lack of information in regards to the quality assurance standards required for fish and fishery products, and the lack of proven cost models for small-scale fish farming.

Thus far, the Fisheries Department is well informed about the present situation and has been engaged in various initiatives to address the constraints affecting the sector. In 2009, there was an initiative undertaken through the Food and Agriculture Organization to hire a local consultant to develop a 'Short, Medium and Long-Term National Strategy & Action Plan for the Development of Freshwater Aquaculture in Belize'. The draft document had the benefit of stakeholder participation and was submitted to the FAO and the GOB for approval in late December, 2009. Also, during the first quarter in 2010, the Fisheries Department organized a 'Strategic Planning Session' with small farmers and the outputs of the meeting will be submitted for Cabinet consideration.

Some of the pertinent issues have been captioned in the budget submission which range from the need for expanding the seed stock production program at the Fisheries Department Biscayne Facility, national coverage of Aquaculture Extension Services and the need to establish demonstration farms in the respective districts. One of the pressing issues with regards to the high cost of aquaculture feeds has already been addressed by GOB through the reduction of import duties for tilapia feeds.

Status of Small Scale Aquaculture in Belize

Most of the interest in developing small scale freshwater aquaculture in Belize has been the farming of both the red and the grey tilapia. Most of the farms that have been established thus far are located mostly in the districts of Cayo, Belize, Orange Walk and Corozal. The July Survey on Small Scale Fish Farming indicated that there was a total of 55 farmers actively involved in the farming of tilapia. By the end of 2009, there was a total of 65 farmers farming either the red or the grey tilapia in a total production area of 14 acres and 213,782 fish stocks associated with these production units with sizes ranging from 0.01 acres to 0.25 Acres. At least 25% of the stocks recorded for 2009 were fingerlings stocked during the last quarter of

2008.

Farmers were supplied with seed stocks of the red hybrid from the Fisheries Department Biscayne Seed Stock Production Facilities and the grey tilapia from Fresh Catch Belize Limited. In 2009, the Fisheries Department provided a total of 92,555 fingerlings of the red hybrid tilapia for farmers throughout Belize. Most of the fingerlings were supplied during the first half of 2009.

The estimated production for 2009 was 111,000 pounds of whole fish with an additional 100,000 pounds of fish which are scheduled for harvest by mid-2010 from the 2009 crop. The production for 2009 has been estimated on the basis of the number of stocks in ponds and stocking dates. The production from small scale fish farming is consumed by the local market. In terms of the market demands, various importers from Mexico have expressed an interest to purchase whole eviscerated tilapia, but small scale farmers in Belize are not at the production level to meet the export demands.

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VERY POOR RURAL FAMILIES IN BELIZE CAN ELIMINATE THEIR POVERTY BY USING MICRO-GRANTS TO INVEST IN THEIR PRODUCTIVE ENTERPRISES

By
**Michelle Lindo (BEST), Nerie Sanz and
Dr. Marcelino Avila (BRDP)**

Recent international development experience, based on the pioneering work of Nobel Laureate Muhammad Yunus and the Grameen Bank, shows that one of the most cost-effective support for the poorest of the poor is through direct financial grants or micro-credit to improve an existing enterprise or start a new one. This enables them to develop sustainable livelihood options. Such experience also has shown that micro enterprises are much more successful with female rather than male beneficiaries. For many poor people, micro-grants can provide a starting point to bring them to the level where they can plan investment in an enterprise. Micro-grants for the extremely poor may constitute a longer-term safety net. Grants can be the first step in allowing the extremely poor to invest time and resources in learning and improving their skills and building an asset base. A micro-grant can also reduce the vulnerability of the poor against shocks caused by natural or man-made disasters.

The micro grants project was developed by the Belize Rural Development Program (BRDP), and supported by the European Union and the Government of Belize, in an effort to bring some of the critically needed resources to those mostly in need, such as young single mothers, senior citizens and the disabled, who want to participate in BRDP but can not join a group to invest in an income generating activity. They are the ones who suffer from the worst social conditions, are excluded from socio-economic opportunities, marginalized in the decision-making process, and they are among the less educated, low skilled and without access to credit and other enterprise development resources.

From early 2007 to the present, BRDP has invested in some 668 micro grants (approx. 60% are women-headed households) who reside in over 110 villages in the 6 districts of Belize. This was accomplished with the help of several partners: the Belize Enterprise for Sustainable Technology (BEST), Plenty-Belize, YWCA, the Citrus Growers Association, La Inmaculada, St Francis Xavier and Toledo Teachers Credit Unions. With an average investment valued at BZ\$ 1,200 which the beneficiaries themselves decide in terms of infrastructure, equipment, technology and/or inputs, the expectation is that they will be able to generate employment for their families and generate additional income to improve their standard of living. The enterprises cover a wide range of income-generating activities. For example, in Belize district 46% of the first rounds of micro grants were invested in cosmetology, cake making, hair salon and sewing; 27% dealt with food preparation, fast food and snack shops; and the remaining 27% dealt with agriculture, vegetable production, landscaping, arts and craft, and other services.

Thus far, the program is very successful. The application-

evaluation-implementation process is quick and fairly easy. For example, BEST has invested in two hundred and seven (207) families. It was expected that the recipient households would increase their income by 25%. Sixty percent (60%) of participating households did experience an increase in income much more than 25%. Seven percent (7%) of the families did have an increase in income but under 25%. Several of the grants were disbursed near the end of the project, therefore twenty one percent (21%) of targeted households could not report any sales due to the early nature of their businesses. These households will be monitored to collect information on impact on income at a later date. In terms of employment generation, another key objective of the program, BEST reported that at the present time, ninety six percent (96%) of the businesses were still active and creating income and employment for the targeted families.

In addition to the investment in the enterprise, BRDP and its partners have provided relevant and timely technical assistance and training to the beneficiaries during project implementation. For example, BEST and Plenty-Belize have provided training in business planning, record-keeping, pricing, marketing, management and feasibility study, to over 100% of the targeted population, even some who did not go ahead with the grant implementation. Upon monitoring visits it was noticed that several of the entrepreneurs are keeping records of their businesses. Several of them have expanded their businesses through savings and loans from BEST's micro credit scheme. These include some fast-food businesses, vegetable production, grocery shop and a carving business. These entrepreneurs have progressed from requiring a grant to now being able to borrow and to generate resources to repay a loan.

Based on the interview with 4 sample micro grantees which was aired on the Love TV "Belize Watch" (8 Feb 2010), the BEST micro grant project has shown that small amounts of financial resources, when coupled with production and technical support, can in fact change attitudes and self-confidence, perceptions, technical skills and the lives of poor families. Clearly, the micro-grant program is proving to be an excellent investment, good value for money, in the fight against poverty in Belize. The micro grant methodology, recommendations and lessons learnt from the program are already being shared with other interested collaborators in Belize.

	
BELIZE RURAL DEVELOPMENT PROGRAMME (BRDP)	
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Office Location: Belmopan Agricultural Showgrounds	
	BELIZE ENTERPRISE FOR SUSTAINABLE TECHNOLOGY
Mile 54, Hummingbird Highway P. O. Box 35 Belmopan City, Cayo District, Belize C.A. Telephone: 501-822-3150/822-3043	

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AG NEWS BRIEFS

CACAO- The Toledo Cacao Growers Association estimates 2010 production at 70,000 pounds. Current price to the grower for his organic cacao is \$2.25 BzD, which is the same as the 2009 price. Approximately 90% of this will be exported, and 10% processed locally. Four local chocolatiers: Goss, Kakaw, Cotton Tree and Cyrila's, all shared their delicacies at the *May 2010 Toledo Cacao Fest*, at the sold out Friday night *Wine and Chocolate Party*. Belizeans, international chocolatiers and potential bean buyers attended the weekend festivities too. Toledo soap makers, Dawn and Jo's Soap Co. and Dr. Mandy Tsang/Dr. Alessandro Mascia marketed products including chocolate soaps at the Saturday *Taste of Toledo Fair* held at Petillo Park, Punta Gorda Town. These specialty cacao soaps utilize byproducts from the chocolate processing- both cacao nibs and cocoa butter.

CHEESE- A temporary restriction is in place for import permits for two types of cheese – Mozzarella and Cheddar. This has resulted from the surplus store of them by Belizean Mennonite cheese producers. No other cheese and dairy imports are affected by this temporary ban.

HONEY- The Q.Roo honey cooperative, **Sociedad Cooperativa de Produccion Apicola la Flor del Tajonal**, who exhibited at NATS, will be returning early summer to Cayo, to present a workshop on processing honey into soaps, lotions, and the like, to Belizean honey producers.

JATROPHA- Reports from B-OilBelize.com indicate that 25,000 of 3 mos old seedlings from their nursery have been planted this year to date in Sarteneja, Cristo Rey, and the Barton Creek areas.

NATS Participants from Mexico—A full list of the representatives of companies and institutions of the states of Quintana Roo and Yucatan and an enlargement of the front page photograph of the group can be found in our ONLINE ANNEX. This entourage of Mexican businesses were all under one roof in the former U.S. Pavillion. SAGARPA and SENESICA set up booths in another area of the grounds. We thank the Mexican Embassy in Belize for their coordination at the NATS.

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PROMEFRUT

By Marjua Vargas

A second working session with 71 delegates from eight countries was convened in Guatemala City on April 28, 2010 for the purpose of reviewing and prioritizing the survey information collected earlier in the year through working sessions in each of the participating countries on the promotion and sustainability of the fruit tree sector. The working group selected the vehicle for implementation of the regional policy. The policy is to be carried out by the newly formed Consejo Agropecuario Centroamericano/Central America Council of Agriculture Ministers (CAC) comprised of the Ministers of Agriculture of the eight participating countries: Belize, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

The Ministry of Agriculture of the participating countries has pledged support to engage personnel and vehicles to implement this strategy during the life cycle and propose future projects to ensure the sustainability of the fruit tree industry in the region. Among the many benefits of regional cooperation will be technical training, exchange of genetic materials, market intelligence, and agriculture health & quality assurance.

In accordance with the proposed policy, a working session in Belize will be convened as soon as possible to discuss/agree on the implementation mechanism to which Belize will subscribe for the promotion and sustainability of the fruit tree sector in Belize.

For further information call Francisco Tzul, Belize Representative for PROMEFRUT at 822-2672.

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Belize Ag Report's 1st Anniversary

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Cakes by: Sweet Ting

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REPRESENTATIVES OF COMPANIES AND INSTITUTIONS OF THE STATES OF QUINTANA ROO AND YUCATAN PRESENT AT NATS 2010



REPRESENTATIVES OF COMPANIES AND INSTITUTIONS OF THE STATES OF QUINTANA ROO AND YUCATAN PRESENT AT NATS 2010

1. **Mr. Edi Cruz**, Monty Industries, Yucatán
2. **Mrs. Diane Georgina Carrillo Vega**, Phitopharmacos, Yucatán
3. **Mrs. Ana Maria Magana Arce**, Fiestas Mexicanas, Yucatán
4. **Mrs. María de los Ángeles Poot**, Monty Industries, Yucatán
5. **Mrs. Norma Cecillia Cáceres Patrón**, Vega Consultores, Yucatán
6. **Mr. Daniel Pech Caamal**, Sociedad Cooperativa de Producción Apícola la Flor del Tajonal, Quintana Roo
7. **Ms. Sonia Kumul**, Hidroponia Maya, Quintana Roo
8. **Mr. Sealtiel Uriel Goyri Ceballos**, Centro Pymexporta Yucatán (Secretaría de Fomento Económico del Estado de Yucatán), Yucatán
9. **Mr. José Miguel Buenrostro**, Hidroponia Maya, Quintana Roo
10. **Emb. Luis Manuel López Moreno**, Embassy of Mexico to Belize
11. **Mr. Juan Manuel Saldivar**, Embassy of Mexico to Belize
12. **Mr. José Eduardo Moo Pat**, Sociedad Cooperativa de Producción Apícola la Flor Del Tajonal, Quintana Roo
13. **Mr. Freddy Aurelio Ortiz Rodríguez**, Botanas y Frituras del Sureste La Lupita / Representaciones del Sureste, Yucatán
14. **Mr. Rafael de Jesús Diaz Martínex**, Centro Pymexporta Yucatan (Secretaría de Fomento Economico del Estado de Yucatán), Yucatán

Also present at the NATS 10:

15. **Mr. Chambor Chancayom Yuc**, Yaáx Pepen, Chiapas
16. **Dr. Antonio Rico Lomelí**, Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), Quintana Roo
17. **Dr. Gabino Galvan**, National Service of Health, Safety and Food Quality of Mexico (SENASICA), Yucatán