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Belize's most complete independent agricultural publication



Belize's Agriculture Potential Through Expansion

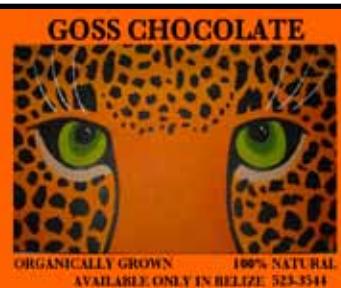
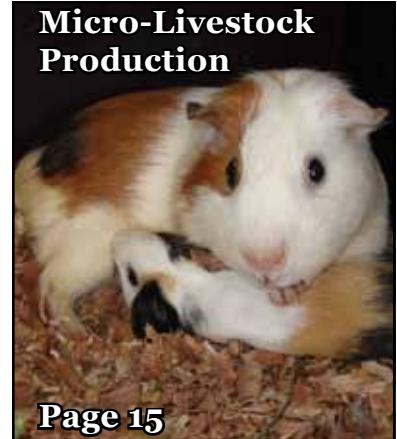
By John Carr

Every Yahoo & Google news center is usually reporting a concern about food shortages, climate change, occasional sicknesses caused by food, and an increase in population. They say that every day 1 billion people go to bed hungry and 2 billion are living on \$1.00 to \$2.00 U.S a day. Their diet is sorghum porridge, a bit of rice and a bread or tortilla product of some sort. Meat, fruits and vegetables are considered seldom-afforded luxuries.

Does that message sound like Belize? Not at all! On market day or at most food markets "We do have food like sand." Because of our small population we can find jobs, ketch & kill, hustle food or money and if you go to bed hungry, something is wrong. You might not get to eat what you want, but you will have enough. The above presents a glimpse of the world and Belize.

Belize has tens of thousands of acres of land suitable for farming or livestock expansion. We need to move toward raising our living standards for the lower 40% of our population. This really means we need more jobs.

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Copal

by Dr. Mandy Tsang

Scientific Name: *Protium copal*

Common Name: Copal, Pom

Parts Used: Tree Resin

Copal is from the Nahuatl language and the word is derived from "copalli," which means incense; Nahuatl was the language of the Aztecs. In Belize, copal is used as incense and can be found in most market places in the country; they are sold in one pound blocks of resin in its most natural form, with complimentary pieces of dried bark, leaves and drunken baymen, wrapped in leaf parcels. The Mayan and Mestizo population in Toledo, commonly burn pieces of copal on coals for spiritual cleansing. Copal has been used in ancient Maya and Aztec ceremony as a ritual offering to the gods and so we can see that copal has a long history of use in Mesoamerica.

The secondary and less well-known use of copal is as medicine. I was already familiar with the concept of "evil eye" and "spiritual cleansing" from my own cultural background and so the use of copal for these purposes came as no surprise to me. However, whilst working as a medical doctor at the Santa Ana Clinic in Toledo, I stumbled across some other medicinal uses of copal; I found that it was not uncommon for a Mayan to seek medical attention at the clinic before going to see the bush doctor. Medical complaints included upper respiratory tract infections and also skin conditions ranging from scabies, fungal mycoses, dermatitis and impetigo. Education on hygiene was usually the order of the day even although the great expectation was for a magical injection of steroid and penicillin. Sadly, I found that my Western medicine knowledge was not appreciated and the

next port of call was the bush doctor. The Kekchi view of Western medicine can be encapsulated in the words of a Mayan woman to me: "I come to you for fresh cold...but for real medicine I go to bush doctor." She went on to explain that only a bush doctor could cure the serious illnesses such as snakebites, "dirty blood" and "fright." There is a huge gulf between Western medicine and bush medicine in terms of the concepts of illness, so much so, that medical consultations can be, and usually are, unsatisfactory for both doctor and patient because there is no common ground for understanding. In some cases, patients came full circle back to me after seeing the bush doctor and this was when I was able to catch glimpses of the bush medicine that was used. One of these snippets involved the use of copal resin on skin conditions like dermatitis and impetigo - intriguing because I actually saw good results. Indeed, it was these results which sparked off my interest in copal as a medicine. I found it amazing that copal was used in its raw, unrefined form and was used especially for skin infections (bark, leaves, dead flies and all!).

It was then that my husband (also a medical doctor) and I decided to experiment with the use of copal as a medicinal oil. We managed to refine and clean up the copal resin to make the oil we now coin "copal medicinal oil." Further research from bush doctors in the Toledo area and medical plant literature confirms the use of copal for skin conditions. Furthermore, the resin has been used to plug tooth cavities, as an expectorant and in the treatment of muscular aches and pains.

Chemically copal resin is made up of isomeric tertiary and secondary, cyclic terpene alcohols. These constituents are known to have antiseptic (both externally and internally) and anti-rheumatic properties.

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FROM THE EDITOR

Tribute is due to the *silent editor* of The Belize Ag Report, John C. Roberson, Sr. who passed away on February 7, 2011 at the age of 82 years. Although John did not initially support the establishment of the BAR because of the cost, after his long-time friend, John Carr, enthusiastically came on board as assistant editor, he began to re-evaluate. Seeing his friend's steady support and sensing the positive feedback and encouragement from readers, my John changed his mind and contributed significantly to the growth of the BAR, just as he had contributed for over 50 years to the growth of the agriculture sector in Belize. He drove me around, kept my vehicle running, accompanied me on field trips, filtered / reviewed articles pertaining to his areas of expertise: horses, cattle and ranching and provided the advice and support needed to improve the BAR.

Aside from BAR contributions, John is remembered by the older generation as manager of Bull Run Overseas Ltd, which operated a sawmill and open range cattle operation in Cayo's Pine Ridge. He imported many fine American Quarter horses and Brahman cattle, which went on to improve local herds. A founding member of BLPA, he provided the lumber for the existing show barns at today's NATS (which now need replacement), and he loaned BLPA the funds needed to secure the land where the BLPA headquarters sits today. Later in life, while still managing partner of Maya Ranch Ltd. he imported a seed herd of Nelore cattle from the renowned Rancho El Retiro, of Tizimin, Yucatán, México and went into the purebred business. He always looked forward to the improvements he would see in the next generation of his stock. We will miss him.

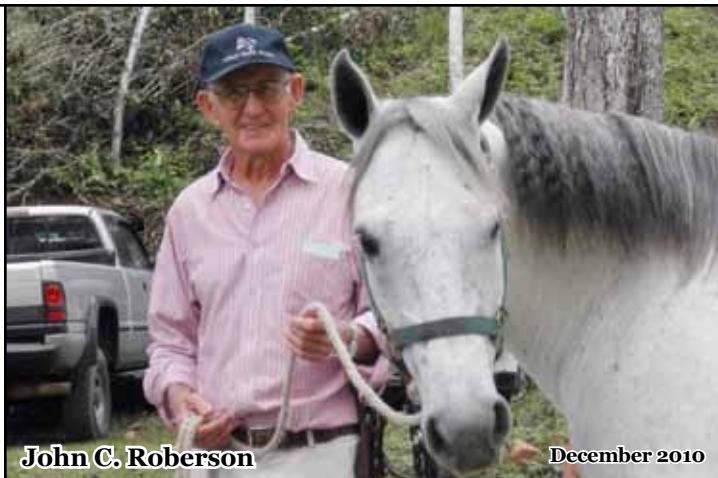
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The Belize Ag Report is an independent bi-monthly agriculture newsletter. Our purpose is to collect, edit and disseminate information useful to the Belizean producer, large or small. We invite opinions on issues, which are not necessarily our own.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



John C. Roberson

December 2010

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Cayo District, Belize, Central America

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Editor: Beth Gould Roberson

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Printed by BRC Printing, Benque Viejo, Cayo District, Belize
Submissions as follows:

Letters to the Editor, Ads & Articles to:

editor@belizeagreport.com

Deadlines for submissions: 10th of the month prior to publication.

We are bi-monthly, skipping of January & August.

Distributed in Belize & Southern Mexico

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Subscription Information:

Belize Addresses: 5 issues (one year) - \$30 Bze. Receive your newsletter in a flat envelope by first class mail. Kindly send check to The Belize Ag Report P.O. Box 150, San Ignacio, Belize Please call or email for rates to other countries. 663-6777 or 664-7272 editor@belizeagreport.com

TO THE EDITOR

Dear Editor,

Please save Belize from the “ignorant”!

Your recent publication carried a letter titled “while we are starving, blame GMO”, and went on to make various erroneous statements about GMO crops, concluding that Belize should not allow GM seeds to be used here, as the risks far outweigh the benefits. The author demonstrated considerable ignorance of the facts about GM products, and made statements which were not backed up scientifically.

Belize has been importing food eg breakfast cereals and cooking oils made from GM products for years. GM products have been rigorously tested in the USA and Europe for years and have been found not to have any adverse affects on humans or cattle. The author states that “Bioengineering uses viruses and bacteria” to alter the genes. Half true. Genes are introduced into the plant by two primary methods currently. The first involves a device called a ‘gene gun.’ The specific DNA to be introduced into the plant cells is coated onto tiny particles of gold or tungsten. These particles are then physically shot onto plant cells. Some of the DNA comes off and is incorporated into the DNA of the recipient plant. The second method uses a bacterium to introduce the gene(s) of interest into the plant DNA.

The author suggests a link between cancer and GM foods. There is no accepted scientific study that documents any relationship between cancer and GM foods. As for gene alteration we have been altering food crops since the beginning of humanity as we know it. GM crops are developed using the tools of modern biotechnology where precise tools are used to introduce only the desirable traits into a plant. In contrast, in traditional plant breeding, genes from two parents are mixed in many different combinations in the hope of getting the desired trait. Both methods have the potential to alter the nutritional value of plants or lead to unintended changes in concentration of natural toxicants or anti nutrients. However, these concerns will be less frequent in transgenic plants since only a limited number of genes are transferred during genetic modification, unlike when traditional breeding methods are used.

The author states “*For instance, a gene can be introduced that makes the corn plant capable of surviving with less water.*” How amazingly good for humanity, especially for the arid regions of Africa.!

The author states that some of the mutations have led to colon cancer under testing on laboratory animals. This is not documented. A scientist by the name of Pusztai working on GM potatoes, introduced a lecithin which was known to be toxic to mammals. Feeding these altered potatoes, it was hardly surprising that his laboratory animals died. The author is citing flawed science which does not up hold to scientific scrutiny. The article was published in the Lancet in 1999

Ewen SW, Pusztai A (1999) Effect of diets containing genetically modified potatoes expressing Galanthus nivalis lectin on rat small intestine. Lancet 354:1353-1316

And prompted the Editor of the Lancet to make the following comments “*The research letter by Ewen and Pusztai was received by the journal towards the end of 1998. Since then, it has been peer reviewed by six specialist advisers - a nutritionist, a human pathologist, a veterinary pathologist, and agricultural geneticists, a plant molecular biologist and a statistician - who had several requests for clarification about the design of*

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Organic Production Bugs in the Garden!

By Greg Clark

When we think of bugs in the garden, many bells and whistles sound the alarm, but actually, bugs in the garden can be a wonderful addition. I am referencing the *beneficial insects*. Now, let's list the predators.

The Predators:

The **ladybugs**, called Coccinellids. They feed on aphids, scale insects, mealybugs, and mites. Predatory ladybugs are usually found on plants where aphids or scale insects are, and they lay their eggs near their prey, to increase the likelihood that the larvae will find the prey easily. Coccinellids also require a source of pollen for food and are attracted to specific types of plants. The most popular ones are any type of mustard plant, as well as other early blooming nectar and pollen sources, like buckwheat, coriander, red or crimson clover, and legumes like vetches, and also early aphid sources, such as bronze fennel, dill, cilantro, caraway, angelica, tansy, yarrow, of the wild carrot family, Apiaceae. Other plants that also attract ladybugs include coreopsis, cosmos (especially the white ones), and scented geraniums.

The **trichogramma wasps**. Trichogramma wasps are nearly microscopic, non-stinging wasps that very effectively prevent damaging infestations of many types of caterpillars. They are completely harmless to people and animals and have little effect on butterfly populations. These wasps lay their eggs inside the eggs of the caterpillars, and their larvae then destroy the caterpillar eggs as the young wasps grow.

The attraction of the beneficial insects is very important in the aspect of organic farming methods. Planting to attract the specific insects is the magnet needed to ensure a security force for your production vegetables. Intercropping or adjacent planting of the attracting plants ensures that the insect balance will be maintained for the farming area. Once established, the balance will always be automatically maintained in the area. Any interjection of an insecticide will tip the scale of insect balance. Without the two listed beneficial insects in the farming operation, the balance of insects will quickly change to the consumption insects and the vegetable production will rapidly decrease. Always, specifically plant for the benefits of the free, small workers in your garden. The beneficial insects will work for you 24/7, and happily keep the balance of the insect population in the garden.

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BEYOND THE BACKYARD BATH TIME BUDDY (LOOFAH)

By Jenny Wildman

Anyone growing up in a cold climate may have come to regard bath time as the best part of the day. For soaking, relaxing, dreaming, planning, and pondering, the tub is the perfect place. Here I am steeped in bubbles of a magical mineral mix considering the meaning of survival and how it relates to sustainability. What a complexity! Look around at all the communities becoming reliant on commercially packaged foods and bottled drinks, cultivating a taste for imports. Survival will come only from knowledge of the natural products that surround us and respectful preservation of the environment. There is, however, a back swing from the ultra-main-stream consumerist way of thinking: a life that embraces curiosities instead of dampening it with distractions. Increased interest in TV programs such as Bizarre Foods and National Geographic specials may have us experimenting. Some of those strange foods can be found in our midst. I reach for my back scrubber which resembles a giant shredded wheat. This is a loofah, often mistaken for a sea sponge but is, in fact, cousin to the cucumber from the family *cucurbitaceae*. It has numerous names: loofah, luffa, sing qua in Cantonese, patola in the Phillipines, dodka in India, oyong in Indonesia, Chinese okra, saykua, jhingey, turai, peechinga in Malaya, and silk gourd. This is a popular food in many subtropical and tropical regions. It comes in many shapes and sizes, squat to skinny, ridged or smooth ranging from 8 to 30 inches in length. The ridged ones look like a huge okra. There are numerous varieties to choose from and many hybrids have charming titles: Ace, Summer Cross, Green Glory, Smooth Boy, Asian Pride, and Lucky Boy. A few seeds from the dry fruit will get you started and children will be most excited to include these in a growing exercise. In a sunny location the exotic vine starts growing easily and rapidly up rough posts, chain link fence or trellis, as long as it can cling to something sturdy as the pendulous fruit is heavy. Bright yellow, waffle cotton petals attract bees and other insects to get busy in the pollination process from the male flower clusters to the lone female flowers recognizable by the large ovary at the base of the bloom. As the flower falls a gourd appears in its place and, although off to a champion start, the loofah can be slow growing and can take more than 160 days to reach full

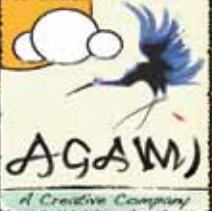
maturity. Earlier the spongy young gourds can be harvested as a vegetable and the leaves, shoots, buds and flowers are also edible. The peeled soft green gourd with texture rather like a raw oyster is quite tasty and very good in stir fry, soup, curries, stews and chutney. Everything perks up with garlic so throw a little in and wok it. Seeds can be toasted as a snack like pepitos. To enhance a salad add the delicately flavoured raw flowers. Allowing the gourd to grow fully, its vascular structure becomes a mesh of fibers, the skin turns brown and papery, then sheds, leaving the skeletal interior to be harvested for construction material; it can be made into mats, hats, sandals, cleaning powder, soap, pot scrubbers or simply a skin polisher. For hygienic use of your kitchen scourer, wash well after each use and dry in the sun. Initially you must wash and bleach off any dark spots on the loofah and sun dry it. You can then harvest the black and brown seeds from inside the pockets of the dishcloth structure. Save them and store in a cool dry place even the refrigerator or freezer for long term. When planting, use moist soil to aid germination and crack the edge of the seed for a faster start. The loofah cross-pollinates easily so it is better to separate different varieties. Some are more susceptible to insects but the sap contains a bitter substance that repels animals so it could be an excellent plant to put around the perimeter of a garden. That bitter liquid luffeine has been used medicinally for centuries as an anti-inflammatory and for purifying the blood. Leaves are used for conjunctivitis, amenorrhea, eczema and nasal blockage. Roots are used for a purge or as a laxative. Seeds are used to expel worms. Medicinal claims also include improving blood circulation; dispersing fever; and treating arthritic pain, swelling, hay fever, rheumatism, jaundice and shingles. Nutritionally, opinions vary and types differ, but it can be a good source of calcium, iron, phosphorus and antioxidants. As a caution: some varieties may not be edible. Check first and always sample new foods in moderation to look for potential allergies. As to a survival food .. well it got me thinking of many other, probably better candidates. The more we try the more we learn. So grow one of your own and you decide what to do with it. This miracle plant is so versatile it is limited only by our imaginations. Feel free to send me your comments and to those who have responded to previous articles, sharing experiences, recipes and ideas, a sincere thank you.

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Former President of Brazil, President Ignacio Luiz Inacio Lula da Silva presented in late 2010, his country's nominee for Director General of the United Nation's Food and Agriculture Organization (FAO), Dr. Jose Graziano da Silva. The new Brazilian head of state, President Dilma Rousseff has likewise endorsed Dr. Graziano da Silva. The elections will be held in Rome which is the home of FAO headquarters, at their 37th Conference there

between June 25 to July 2, 2011. Belize has enthusiastically endorsed and supports Dr Graziano da Silva's candidacy.

Dr. Graziano da Silva's first degree was in Agronomy, then graduate degrees (2 masters, one PhD then post doctoral degrees) in Rural Economics ,Sociology, Economic Sciences, Latin American Studies and Environmental Studies followed. Becoming a Professor in 1978, he still serves as a full professor at the State University of

Campinas (UNICAMP). In 2001 he was instrumental as coordinator for Brazil's very well known "Zero Hunger" Program. One of the key strategies of the "Zero Hunger" Program was direct income transfer given to women heads of households, based on income levels and on performance keeping in children in school. So well did he perform , that President Lula appointed Dr. Graziano da Silva as Extraordinary Minister of Food security and Fight Against Hunger, where he had greater responsibility to implement the "Zero Hunger" Program. The "Zero Hunger" Program is credited with lifting out of extreme poverty, over 24 million people in just 5 years, and reducing hunger/undernutrition by 25% too. In 2006 he became Regional Representative for Latin America and the Caribbean and Assistant Director-General.

Dr. Graziano da Silva has 25 published books and has received many awards for his work; awards include the Rio Branco Order, the Paulista Medal for Scientific and Technological Merit, and the Brazilian Society of Rural Economics, Administration and Sociology Award. He speaks English, Spanish and Portuguese. He is married, with two children and two grandchildren. We wish Dr. Graziano da Silva the best of luck.



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History of Sawmilling

By Stephen Cook



Circle sawing lumber has been around for many hundreds of years, and even with the introduction of the portable bandsaw about 30 yrs. ago, the basic goal is still the same: to get a usable piece of lumber from a log.

Early on, prior to the invention of engines and the modern sawmill, lumber or planks were made by splitting, shaving or planing the wood until it was usable. Later, with the invention of the cross-cut saw and the whipsaw, better lumber could be made faster. With the whipsaw, one man was on top of the log and another was underneath in a pit, and it is not surprising that the man in the pit was appropriately called the 'Pitman'. Regardless of how much better this process was, it was still slow and back-breaking work.

Later, with the use of water power and in the Netherlands even with wind power, crankshafts and belting with lead or babbitt bearings were used to power the first mechanical mills for cutting lumber. These mills date back at least to the 12th century A.D. Interestingly enough a stone cutting sawmill dating as far back as the 3rd century A.D. has been found in what is modern day Turkey.

From the ancient days of the whipsaw, came the wide band saw and circular saws. Sawmills with these saws were often powered by an old tractor, truck, or by jacking up one wheel on a car and putting a flat drive belt around the wheel to power the blade. If you remember the TV show *The Waltons*, then you may remember that they used a sawmill like this.

When we were growing up in the late 60's and early 70's we serviced sawmills within a 150 miles of our home. The larger sawmills were usually the ones that used the wide band saws, and most of the smaller sawmills were circle saw mills. Probably 95% of the sawmills we serviced had circle saws. The circle saws ranged in size, normally from about 48 inches to 60 inches in diameter. They normally turned about 550 RPM. (speed of circle blades is measured in rounds per minute (RPM) but band blades in feet per minute (FPM)).

Our dad had 3 different mills while we were growing up until we were young men. Each ran a blade that was 52 inches in diameter. Our power source was a D9 Caterpillar engine that

was set up to run with a 12 inch wide flat belt to power the saw blade. Later we converted it to a C-section V-belt drive. This worked much better and was much safer than the flat belt. We cut grade lumber, cross ties, and pallet stock. I have many exciting stories I could tell about those days, and although it was always hard work, I loved it. I was young and strong and sawmilling made me feel and "look" like a man.

As we continued servicing and running sawmills in the early 1980's narrow thin kerf blades began to be used for sawing logs. Early on we weren't sure that they would ever saw fast and accurate enough to be of much commercial use. But by the early 90's we saw that the thin kerf band saw mill would be around to stay.

We had always built parts for sawmills as part of the service we provided, so we decided to begin manufacturing our own bandsaw mills. We built a large mill with the ability to saw and turn larger logs up to 36" in diameter. This mill was larger than any of the other manufacturers that were building at the time. With the size of the log cut and several other innovations that were unique to bandsaws, such as the chain log turner and board drag back, we solidified our place in the bandsaw industry. Ultimately, our type mill produced more quality wood faster and easier.

Today, the thin kerf blade has become the blade of choice among sawmillers, even with the eco-friendly groups, because it cuts less sawdust in each pass which roughly saves a 3/16" thick piece of wood with each cut. Multiply that savings by millions of cuts and there is quite a bit of wood that once would have been sawdust that has become useable lumber with the help of thin kerf band blades.

Tim (my brother) and I have spent all of our lives around sawmills; it is in our blood. It is really amazing how far sawmills have come, considering the speed and accuracy of cut and life of thin kerf bandsaw blades. With the experience we have obtained over the years working around sawmills, we have been granted a patent and have applied for another patent on special technology that is making thin kerf sawmills even faster.

We look forward to more new and exciting developments in the future and believe that we will be there participating and contributing to make the sawmilling experience enjoyable and more profitable.

Note: Stephen Cook is the co-owner of Cook's Saw Mfg., LLC.

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Getting to Know the HACCP Standards for Food Safety

By Karin Westdyk



The mission of the Belize Agricultural Health Authority (BAHA) is to provide optimum, competent and professional services in food safety, quarantine, and plant and animal health in order to safeguard the health of the nation and facilitate trade and commerce.

Hazard Analysis Critical Control Point (HACCP), administered in Belize by BAHA, is a food safety certification program that was literally “launched” by the space program when the US-based National Air and Space Administration (NASA) needed to provide the first foods that would remain safe for consumption in outer space. Pillsbury Foods developed that system which has evolved into the current HACCP standards for food safety, now the accepted standard for importing and exporting foods throughout the world.

HACCP is based on 7 principals:

1. **Conducting a hazard analysis.** – Identifying all possible hazards that might compromise the safety of a food product, and then developing a plan with preventive measures to control these hazards. A food safety hazard is any biological, chemical, or physical property that may cause a food to be unsafe for consumption.
2. **Identifying critical control points.** - A critical control point (CCP) is a point, step, or procedure in a food manufacturing process, where it is possible to apply a safety control measure to prevent a safety hazard.
3. **Establishing critical limits for each critical control point.** – For each critical control point, a limit is established based on a maximum or minimum value to which a potential hazard must be controlled in order to prevent, eliminate, or reduce the hazard to acceptable limits.
4. **Establishing critical control point monitoring requirements.** – In order to insure maximum success, monitoring activities are essential to ensure that the plan is working at each critical control point. It is recommended that each monitoring procedure and its frequency be listed in the HACCP plan.
5. **Establishing corrective actions.** - These are the corrective actions to be taken when monitoring indicates any deviation from the established procedures.
6. **Establishing record keeping procedures.** - HACCP regulations require that all plants maintain certain documents: the hazard analysis and written HACCP plan that includes the established critical points and limits, all monitoring records, verification activities, and records of any processing deviations.
7. **Establishing validation procedures for insuring the HACCP system is working as intended.** - Validation insures that a plan is being followed. Processing plants are required to validate their own HACCP plans.

According to Dr. Miguel Figueroa, Deputy Director of Food Safety Services at BAHA, the US FDA is currently conducting a public discussion on their Food Safety Modernization Act. “This Act, once it is passed, will require all establishments

exporting to the US to be HACCP certified. Therefore, all establishments that presently are exporting to the US will be required to be HACCP certified, or to be processing under HACCP systems/principles.”

In Belize, BAHA is helping the agricultural and fishing industries to be aware of HACCP standards and to voluntarily develop their own safety plans to insure that food for Belizeans is also safe.

Several Belizean industries exporting their products, such as the Citrus Products of Belize (CPBL), PG Fisheries, Marie Sharp, Belize Aquaculture Ltd., and Aquamar already have HACCP certification. Other plants such as Caribbean Chicken, Quality Poultry, Western Dairies, Running W, and Beefmaster have a HACCP plan in place, but are not yet certified by BAHA, though they are encouraged to do so. Several other plants inspected by BAHA are currently operating under what is known as “Good Manufacturing Practices”.

The procedure for becoming certified is not complex, but it can be expensive. According to Mike Thomas, Managing Director of BAHA, this can be done in phases.

When an industry decides to develop a safety plan, a trained technical consultant must be hired to develop that plan. Though BAHA maintains a list of certified HACCP consultants, they do not develop the plans. But, they do review them (minimum cost is \$500) and once approved, there is a registration fee of \$750. A checklist for compliance is developed and then there is a yearly fee for auditing to insure compliance.

Depending on the industry, a compliance checklist includes all the steps in processing the food. For example: where the food comes from; how it is grown, transported, cleaned and stored; the ingredients put into the product; the machinery involved in processing (maintenance and service); facility cleanliness; and how the product is handled throughout the process of getting it to the consumer.

Ultimately, food safety standards will likely be the norm everywhere, so it is important for those who are involved in any of the processing steps -- from the grower of ingredients to the seller -- to be fully aware of these standards and to begin incorporating safety procedures in their own work.

BAHA is very willing to help, and will provide experts to meet with and speak to groups and organizations involved in the food processing industry in order to increase knowledge and encourage all to incorporate and practice the established safety standards for their industry. Those interested can call BAHA’s offices in Belmopan at 822-0818 or 822-0197.

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From the Mexican Side

Tourism contributes to the revitalization of the culture, the customs and the arts, and signifies an incoming fountain of renewal for the receiving population. Nevertheless, without control or planning, tourism may adversely affect for the quality of life, and convert cultural expressions, leaving them without content.

Given that tourism is a multidisciplinary activity, one needs to be specialized in the study of cultural diversity and in intercultural, commercial and economic relations. Political boundaries need to dissolve so that nature has no borders, only cultural and intercultural characteristics.

It is important to note that the realization of the sustainability of tourism depends largely on the authenticity of the regional culture. For this to be made possible, one has to insert into the plan of rural tourism, a thread with corridors or routes without tourist borders, i.e. countries that permit the interchange of culture, folk artistry, biodiversity and the commerce of regional tourism (partly private initiative and the local promotion). The only form to make tourism sustainable in rural setting is by means of the conservation and encouragement of the indigenous characteristics of the locale. Change by outsiders to the local cultural medium generally provokes the devaluation of the tourist product, losing its attractiveness for the tourist.

The other point of consideration for sustainability is that this modality of tourism ought not to be massive, given that this also provokes the loss of value of the product converting it to more 'canned', rather than genuine product.

The commerce of international tourism permits a major mobility of factors of production among several countries, and consequently there can be the following advantages:

- Each country is specialized in those products or services wherein it feels that it has a major efficiency, permitting the best utilization of its productive resources and this elevates the standard of living of its workers.
- Prices are managed to be more stable.
- Importation is facilitated by that country, of commodities of which the country's domestic production is not sufficient or which it cannot produce.
- A window of opportunity is created to offer products that exceed the consumption of other destination countries and markets.
- The movement of tourists entering and leaving, in addition to the merchandise bought, brings a measure of balance in the international market.
- Foreign mercantile destinations to be used for tourism that are outside the known territorial tourist areas, like fringes, frontiers, and free zones, are given penetration through tourist knowledge/understanding.

For its part, the value of tourism business, like products for exportation, comprises the reevaluation of the principal operations of agricultural, fishing and artistic endeavors, when the assigned value for the said products does not correspond with the price quotation of the international market.

Like the introductory tourist mechanism it is possible to observe the economic-cultural importance that one is able to classify for the country of tourist origin, which introduces different forms of vision for production, economics, politics and cultures.

On the other hand, tourist experiences can also generate



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undesirable memories of mediocre ambiance, physicality, and cultural economics of the country visited. Tourism and its related commerce to be recreated must be multi-angular in shape.

This demonstrates that the best showcases for the general markets for tourism are among the countries and the variety of production that generally form their cultural and political administration. To break barriers to tourism, one will have to permit the breaking of international commerce, inserting a thread of corridors without tourist borders.

**By Carlos Manuel Joaquín González
Presidente de la Comisión de Turismo
de la LXI Legislatura del H. Congreso de la Unión.
Mexico**

Micro Financing: A Key Strategy For Poverty Reduction In Rural Belize

Why Focus on Micro Financing?

Belize, like any other developing country in Latin America and the Caribbean (LAC), requires a huge focus on micro finance, as a strategy that helps alleviate poverty in permanent, self-sustaining ways. According to the poverty assessment report of 2009 from the Ministry of Economic Development (MED), 43% of the Belizean population lives under the poverty line. The report also indicated that the southern districts, Stann Creek & Toledo, and now Corozal District, especially in the rural communities, had a larger percentage of the population living under the poverty line than in the rest of Belize.

It is known that 48.17% of our population live in rural areas and 58.37% live in urban areas. The statement above justifies the urgent need to implement rural development programs (RDP) to improve the quality of life of the inhabitants of the communities. The implementation of RDP, such as micro financing, can provide opportunity for small business development that can be sustainable, if it is managed adequately.

It is evident, that in the areas where few jobs can be found or available, the salaries earned often don't pay a living wage. In order to survive, the *poor populations of the rural communities need to create their own tiny businesses or "micro enterprises."* To support their families with basic needs, these "micro entrepreneurs" can start by making tortillas, sew clothes, mend shoes or sell vegetables in the street and so on.

Who Should Benefit From Micro Financing?

It is evident that the clients who should benefit from micro financing are those who live in rural areas and develop agricultural activities to sustain their families every day of the week. In the majority of the scenarios, the rural poor have little or no capital to grow their businesses, which causes the entrepreneurial poor to remain trapped in a cycle of poverty. Furthermore, to borrow capital to open a small business in Belize today, the borrower must pay approximately 10 to 18% interest rates at commercial banks. With these levels of interest rates, it is complicated to continue creating small business in Belize, because of the return on investment (ROI), especially when it comes to agricultural commodities where the consumer perception is to purchase the best quality of product, at the lowest price ever. The introduction of commodities from neighboring countries, such as Guatemala and Mexico, has created a more difficult condition for rural farmers because of competitiveness and lack of incentive to promote internal consumption.

Establishing Micro Financing Assistance

The explanation above calls for the establishment of micro financing services or a program of an international organization, such as FINCA or ACCION, to consider Belize as one of the countries in Latin America and the Caribbean, where there is a need to minimize rural poverty in order to fulfill one of the key objectives of their millennium development goals (MDG). In the graph below you can observe the regional breakdown and distribution with regards to access to micro finance.



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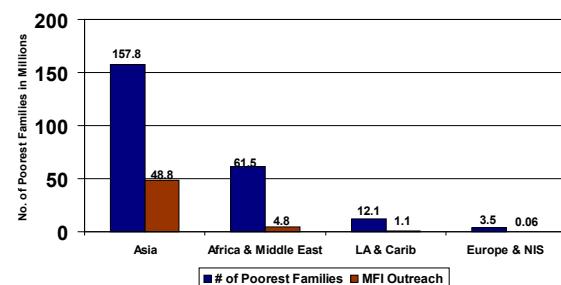
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Regional Breakdown of Access to Microfinance



Source: Finca International

In order to promote the **right product** at the **right price** and at the **right time** to satisfy our growing customers, these micro finance agencies can provide the following services for sustainable development and growth of rural communities that can be strategies at regional level within the country of Belize.

- Savings
- Insurance
- Working Capital Loan
- Consumer Loan
- Educational and Technical Assistance
- Remittance
- Emergency Loan

By: Romaldo Isaac Lewis (MBA & Agronomist)
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On Keeping Guinea Pigs Introduction

By Dr. Alessandro Mascia

This series of articles will discuss the small-scale rearing of guinea pigs for food and pets. By way of introduction, let us discuss the history and origin, taxonomy and varieties of the guinea pig (*Cavia porcellus*).



The origin of the guinea pig is unclear but the wild form (*Cavia aperea*) is widely distributed in Argentina, Uruguay and Brazil; *Cavia cutleri* is still wild in Peru. It is called cuyo, cobayo or curi in Spanish, and is one of the few animals that was able to be domesticated in the Americas in pre-Colombian times along with the llama. The Spanish found that the Andean Indians had domesticated *Cavia cutleri* and used them as food and for religious sacrifices. With the establishment of the Spanish Colonial Empire, they continued to be used for food. It is an interesting aside that paintings such as the last supper have included the guinea pig as the main course meal!

In the 1500's, Dutch sailors introduced the guinea pig into Europe and by the 1770's, they probably reached the United States as pets and fancy animals. Today, guinea pigs are still raised as a meat animal mostly in the Andean countries of Peru, Ecuador, Bolivia and Colombia. In Peru alone 65 million guinea pigs are raised, with 21 million animals slaughtered yearly, producing 16,500 tons of high quality meat (which is 6.5% of Peru's meat production), most of which is consumed by the poorer rural population where it is an important source of animal protein. In the rest of the world, guinea pigs are generally raised as pets or as laboratory animals which are used to test new drugs and products before further testing in humans.

The origin of the name "guinea pig" is vague and the name used by "people in the know" or fanciers is "cavy." It has been suggested that "guinea" may have been derived from the fact that trading ships may have travelled via Guinea in West Africa or by way of Guiana; take your pick! Undoubtedly, however, the fact remains that a prepared cavy does resemble a suckling pig; the carcass is prepared for eating by scalding and scraping, just like a hog; adult females are called "sows," while adult males are called "boars" and the process of giving birth, or parturition, is referred to as "farrowing." Finally, as anybody who has kept guinea pigs can attest, they just can't stop eating and make absolute, well...pigs of themselves!

I'm going to sneak the taxonomy of the guinea pig in here in one long sentence, for completeness sake, which, hopefully, some of you will read and many of you will forget as quickly as possible - much like a ride to PG on a regular James Line Bus! Here goes: The guinea pig belongs to the Animal Kingdom (surprise, surprise!); in Phylum Chordata (has notochord

and gills...do any of you know what that means?!?); in Class Mammalia (warm-blooded craniates with a hair coat and which nourish their young from mammary glands); in Order Rodentia (have a single row of upper and lower paired incisors which grow continuously; no canine teeth...yeah, like rats); of the Family Caviidae (tailless South American rodents with one pair of mammary glands; four digits on the front feet and three digits on the hind feet); Genus *Cavia*; Species *porcellus* (you guessed it...that means pig!).

To finish off this first installment, let's talk about guinea pig varieties: Since most cavy fanciers are not into eating their charges, varieties or "types" or "breeds," are characterized by the length, texture and direction of growth of hair *not* juiciness of meat, crackliness of roasted skin or dressed carcass weight. The English variety have short, smooth, straight hair; the Abyssinian varieties are characterized by short, coarse hair that radiate from multiple centres on the body to form rosettes; and the Peruvian variety has long, silky hair up to six inches (15 cm) long. All varieties come in solid colours (including albino, white, black, agouti, red, chocolate...and lots more), or are bi-coloured or tri-coloured. Members of the various cavy associations throughout the world will take offence at this vast over-simplification of varieties but such is life and most of us can Google if we want more detail. I don't think the Ag Report readership cares about the different laboratory strains (and there are many!) so I haven't even mentioned them.

In our next issue, we will discourse on the anatomy and physiology of guinea pigs.


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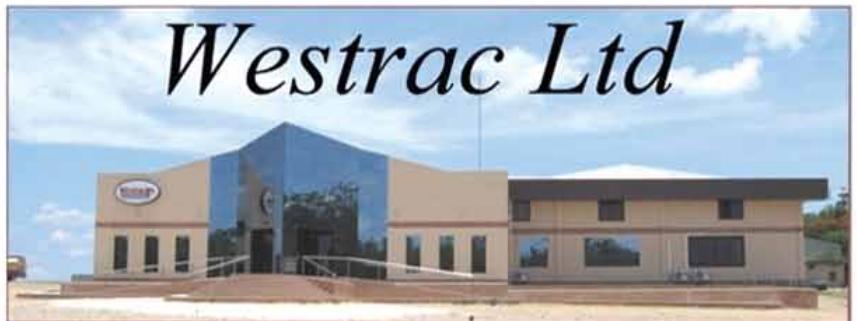
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Cows & heifers for butcher	\$.70 - .80	(thin).60 - .70				White corn	H	.31 - .33	.29 - .31
Heifers for breeding 650-900 lbs	\$	1.00 - 1.15	.90 - 1.00				Com/ local retail (low volume)	H	.35 - .40	.33 - .35
Young grass cattle- 350- 650 lbs	\$	1.00 - 1.10	.90 - 1.00				U.S. corn price @ 6.81-up from 3.75	H	24.20 (March 23 futures)	
U.S price -com fed- 1000- 1200 lbs	H	1.15/US=.2.30/Bz					Guatemala corn price/Peten	H	.35 - .38	.33 - .35
U.S price - feeders 600- 800 lbs	H	1.20/US=.2.40/Bz					Belize Milo	H	.27 - .29	.26 - .27
U.S price- calves 450- 600 lbs	H	1.35/US=.2.70/Bz					R-K's, little reds & blacks (beans)	H	1.00-1.10/ farm price	
U.S price- aged butcher cows	H	.65-.75/US=.80-1.40/Bz					Black eyed peas	H	.70-.80/farm price	
Belize Hogs							Paddy rice/ from combine	H	.40 - .55 depends on quality	
Weiner pigs- 25 -30 lbs- by the head	H		\$95.00 - \$100.00				Milled retail rice per pound	S	.90- .95/farm price	
Butcher pigs 125 - 200 lbs	H	1.80 - 1.85	1.70 - 1.80				Citrus			
Belize Sheep							Oranges per 90 lb box-lb.solid basis	S	\$11.50 Est. 2011 price	
Butcher lambs	\$	2.00 - 2.50	1.75- 2.00				Grapefruit- per 90 lb box	H	\$6.00 Est. 2011 price	
Mature ewes	\$	1.70 - 1.75	1.60 - 1.70				Sugar			
Belize Chickens							Cane per ton- est. 2010 price	H	\$51.27/ est.	
Broilers- live per lb	\$	1.10- 1.12	1.08- 1.10				White sugar- 112 lbs- controlled	S	\$45 per bag	
Old hens	\$.75 - .76	.73 - .75				Brown sugar- 112 lbs- controlled	S	\$39 per bag	
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Pd to farmer per lb- Feb & March	\$.46 contract	.31 non cnctr				Export @ 40 lb box	H	price- \$14 - \$15	
Special farm items							Local wholesale #2 quality- 40 lb	S	\$ 7.00- \$10.00	
Shrimp retail- farm raised	\$	6.50 - 8.50	5.50 - 6.50				Fruits & Vegetables			
Eggs-tray of 30 eggs	H		4.58 /farm price				Tomatoes, cabbages, cucumbers	S	whsl/.75-1.75-ret-\$1.00-\$2.50	

***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: Most commodities are higher. The only real rip-off is in cattle- cattle in the US are over twice as high at \$1.00 Bz here and \$1.25 U.S there. The sweep and health certification are getting closer so we will be able to export- hopefully by year end. Citrus is struggling with administration and personality conflicts. Rice is in over supply and getting cheaper, it's impossible to export because it's very cheap in the neighbouring countries and our cost of production makes it economically a wreck. The sugar factory gives a good report as the cane is coming in much cleaner and the cane to sugar ratio is favourable. Hogs are higher, but so is corn so increased profits will be minimized. Use the Golden Rule as your rule. To succeed you must think outside the box, focus, sweat, sometimes stay up late at night, save, sacrifice, co-operate and pray. If you happen to make money, please spend some time worrying about the poor. John Carr

LIGHT REIN

By Marjie Olson

"Laminitis" a.k.a . "Founder".

The inside of a horse's hoof is made up of "Laminae", or fibrous structures that have blood flowing through them, allowing the hoof to grow and stay healthy. In the center of the hoof capsule, surrounded by this laminae is the coffin bone (also known as P3 or pedal bone). **Laminitis** occurs when the laminae get inflamed and are being damaged and **Founder** is the extreme end of that when the laminae have died and the coffin bone drops its front side down, toward the sole of the hoof. Laminitis can be cured if caught early enough. Founder cannot be but is rather a matter of life and, at times, the need to euthanize the horse..

Founder or Laminitis can be brought on in many ways; for example, when a horse gets sick or colic, overeats, is obese, gets put out on too rich or too much grass, is worked on too hard a ground with poor quality feet, is stressed severely, or has its feed changed all at once. These or a hundred other circumstances can trigger this very painful, very hard to treat issue.

The common thought here in Belize is that horses cannot founder on grass...WRONG! IF they have not been gradually introduced to it or are already overweight and are allowed too much time on a good rich grass, they will founder. But a horse does not have to be FAT to founder. Stress and illness can be triggers for any horse. A bad pounding on hard ground for horses with low sole or low-angled hooves are prone to "concussion founder". But statistically, fat horses have a bigger chance of founder. There are times when a fat horse that is not getting fed a lot of feed or much grass, has a thyroid condition, another topic for a later day.

When Laminitis is occurring, it is easily recognizable...The horse may rock back on its hind end, trying to take weight off its front feet, walk with a stiff gait in front, and may lie down a lot more than usual. There will also be a pounding pulse found at the base of the heels, in that little deep groove in between the heels.

60% of a horse's weight is in its front end; so those front hooves take a lot of wear and tear. When a horse develops Laminitis and its feet are pounding and blood is pulsing beyond the norm, it is very painful. Removing all feed, administering Bute, cold hosing the feet and getting the horse onto soft ground is needed ASAP. If caught in time, the horse will recover in a few days, but be aware that once a horse has had a laminitis episode, it will be prone to having another. So knowing what started the episode is imperative to stop another occurrence. Each episode damages more laminae tissue and creates a closer situation for actual Founder. Once the coffin/pedal bone has "rotated" you have a lame horse, of varying degrees, for life. Special shoes, such as heart bars and Combi Pads may be helpful to stabilize the coffin bone and make horse more comfortable.



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A severely foundered horse can actually grow a toe that curls back and looks like an elf shoe. I will admit, the "local" horses in Belize are less likely to founder than an imported one. At times I don't think folks give the local horses enough credit. They are usually tough as nails and stay sound much longer than a high bred imported horse. The cross of the local to an import, seems to make a nice horse. Once a few generations of the local horse have crossed into the import, you usually get a sounder horse.

Have a great Easter, and check out the TCER and other news on the Belizehorses.com web site and <http://Poozieswicked.blogspot.com> ...and here is a thought for all of you which has become my new slogan..."Don't ever sell your saddle, cause life's a long, long ride". Miss you, John.

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TRIPLE CROWN ENDURANCE RACE RESULTS

By Marjie Olson

Davina and Gabe in the TCER final lap



Photo by Chrissie Tupper

The final run for the Triple Crown Endurance Race was held February 19th. But even with rainy soggy skies and wet trails, it was a great event. Two new riders joined the ranks of being a TCER contestant and received their string bag full of TCER merchandise and Uckele product and snacks.

The weather held down the crowds of spectators, but those that attended had an exciting race to watch. With the cooler weather and rain, the horses cooled faster than ever and were out in record time making for tight races to the finish. First and second place was a true "race" to the finish with Davina Bedran on Conquistador getting nudged out by a nose from Gabe Baron on Lil Bit. So Gabe Baron swept all three TCERaces, was awarded the title of Triple Crown Endurance Race CHAMPION and took home a total of over \$2,400.00 combined and 4 trophies, Uckele product and one big smile! Davina Bedran was the TCER reserve Champion with a 2nd, 4th and a 2nd place finish and has won over \$1200.00 as well as 4 trophies and numerous Uckele products. **A total of over \$5000.00 was paid** out for the Triple Crown Endurance Races and Open Shows.

Please say thanks to the sponsors are who made this event possible: Belize Equestrian Academy and Light Rein Farm, Belize Natural Energy and Reimers Feed Mill, The Barn and Grill, San Ignacio Hotel and Olde Mill, Belize Agriculture Report, Cheers, Caribbean Treasure, Yalback Sawmill, 10 Development, Pine Lumber and Three Flags.

And thanks so much to the helpers and volunteers who were so important to this amazing event: John Carr and Johnny Johnson for doing an awesome job judging the horse show after the TCER; Chuck Curcio, Maruja Vargus, Cynthia Reece, John Roberson II, The BEA and Olde Mill crews, THANK YOU!

Watch for our colorful T shirts and backpacks around the country and come on out for the 2011, 2nd running of the TRIPLE CROWN ENDURANCE RACE. Dates will be in October for the 20 miler, November for the 25 and December for the 30 miler, with hopes of running a 15 miler in September as a prelude to the TCER's and possibly a 50 miler in February. Don't miss these events for a sponsorship opportunity for your business; there is nothing else like it in Belize. Check out Belizehorses.com, Barn and Grill Facebook page or <http://Poozieswicked.blogspot.com> for more photos and updated information. Or contact Shotzy08@live.com or 663-4609 or tre_roberson@yahoo.com

Horseshoeing Clinic



Horseshoeing clinic at the Belize Equestrian Academy with Marjie Olson of Light Rein Farm. May 14th and May 15th Learn to create a better angle of hoof, how to truly fit a shoe for certain purposes, how to help sore feet, thin soles, shelly hooves, using pads and the different kinds and see a variety of shoes and tools available,...open discussions. PRE Register for \$20.00 for the day or pay at clinic \$30.00. Clinic hours will be 9:30 to 4:30 with a half hour lunch break. Bring your equipment if you want to do "hands on" and if you have a horse with an issue and would like it used in clinic, contact Marjie to see if a slot is available. 2 horses per day will be used for demos and will be shod a minimum of two feet.

Barrel Racing & Pole Bending Clinic

Barrel Racing and Pole Bending Clinic at Belize Equestrian Academy with Marjie Olson of Light Rein Farm: May 8th-Sunday and May 21st-Saturday, Time 9:30 to 4:30 with half hour lunch. Bring your horse and equipment. Test ride in our equipment. We will focus on making your runs faster and safer and help you win more money at the barrel events. Clinic fees are \$20.00 pre registered and \$30.00 day of clinic. Stalls available for the day for \$25.00. or Ride or Trailer in.

For more info Contact Marjie at 663-4609 or Shotzy08@live.com, check out Belizeshorses.com, <http://Poozieswicked.blogspot.com> or BelizeAgReport.com or stop in to the BEA Mon mornings or Wednesdays.

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Live Beef Prices In Belize.

Who dictates the price?

**My take on it:
by Orlando Habet**

Prices for beef cattle have gone all over the place in the past 20 years. The established buyers who are seen as the larger buyers and/or processors have traditionally paid a little more for beef than the butcher. However, in most cases the butcher pays the freight to get the animal to the scale and to his place for slaughter. The bigger buyers require that the owner transport the cattle to his scale and place of slaughter. Very few butchers still go around offering a fixed price per animal based on an eyeballed weight of cattle on the hoof. Small producers who are in dire need of selling their cattle are forced to sell their cattle this way.

It was not uncommon to see steer prices at BZ\$.80, heifers at .75 and cows at .45-.50 per pound in the 1980's. In the 90's prices got a little better but not by much. As late as 1998 cows were selling for about .65 per pound, heifers at about .90 per pound and finished steers at .90 per pound. It was during the time of the Fondo Ganadero Programme that steers and heifers for fattening made their way up to 1.10 per pound. There was great demand and at the same time producers and government had different views about allowing the export of heifers which could potentially be the country's future breeding stock and parents of the next generation.

In 1999, as then-manager of the BLPA, I suggested to then-chairman, Mr. Pete Lizarraga, that we needed to form a marketing committee to address the prices of cattle that were being sold across the borders (mostly western). Our top steers 950-1100 lbs were only fetching .95 to 1.00 per pound. We formed the marketing committee and we laid down the rules. The committee included the chief veterinarian, the police commissioner, myself and one member of the BOD of the BLPA. At the AGM of 2000,

I became the chairman of BLPA. We invited the chairman of the Peten Livestock Association who informed us that steers were fetching up to BZ\$1.45 in the Peten. Immediately following the AGM we convened our marketing committee and requested that, in addition to requiring a permit to buy cattle, that the Guatemalan buyers must carry with them invoice, receipt, number and weight of the cattle bought and that they must pay 1.25 per pound for steers. After a few weeks of indecision, the buyers agreed to pay the 1.25 per pound. Fattened steer prices reached as much as 1.35 per pound both locally and for sale to foreign buyers. Grain-fed steers were to get an additional 3-5 cents per pound.

In 2008, Feeders were fetching between 1.15 to 1.25 per pound. Cows were being sold at 1-1.10 per pound on the hoof. It was after 2008 that prices started deteriorating. Despite an increase in input costs (staples from 2.00 to 3.50 per lbs., wire from 110.00 per 400 M roll to 179.00), cattle prices plummeted to unprecedented lows. Tip-top steers fetched only .90 per pound and lesser quality steers fetched only .85 per pound. This means that the sale of 1000 lb steers fell in less than two years by B\$ 500.00 per steer sold. Cattle are still being sold by the truckloads and leave the country without a murmur. While cattle prices in Guatemala have risen on a monthly basis for the past 8 months, in Belize we still remain price takers and accordingly should be thankful that we receive the little .90 per pound of our cattle. El Salvador, a country with almost 7 million people does not produce sufficient beef to feed its population. It is therefore a net importer of beef and live cattle. It is reported that plenty of our cattle end up in El Salvador for a good price. I want to be optimistic about the cattle sweep and an eventual export market to Mexico but I have my reservations about the practicality of an export market. I do hope that it will come through some day.

By my calculations, for a producer of cattle to make some profit it requires that he cut down on costs and also receive a price of at least 1.20 per pound of steer. Fat cows need to be back to 1.00-1.10 per pound.

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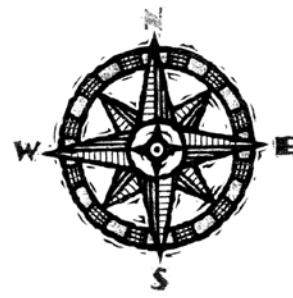


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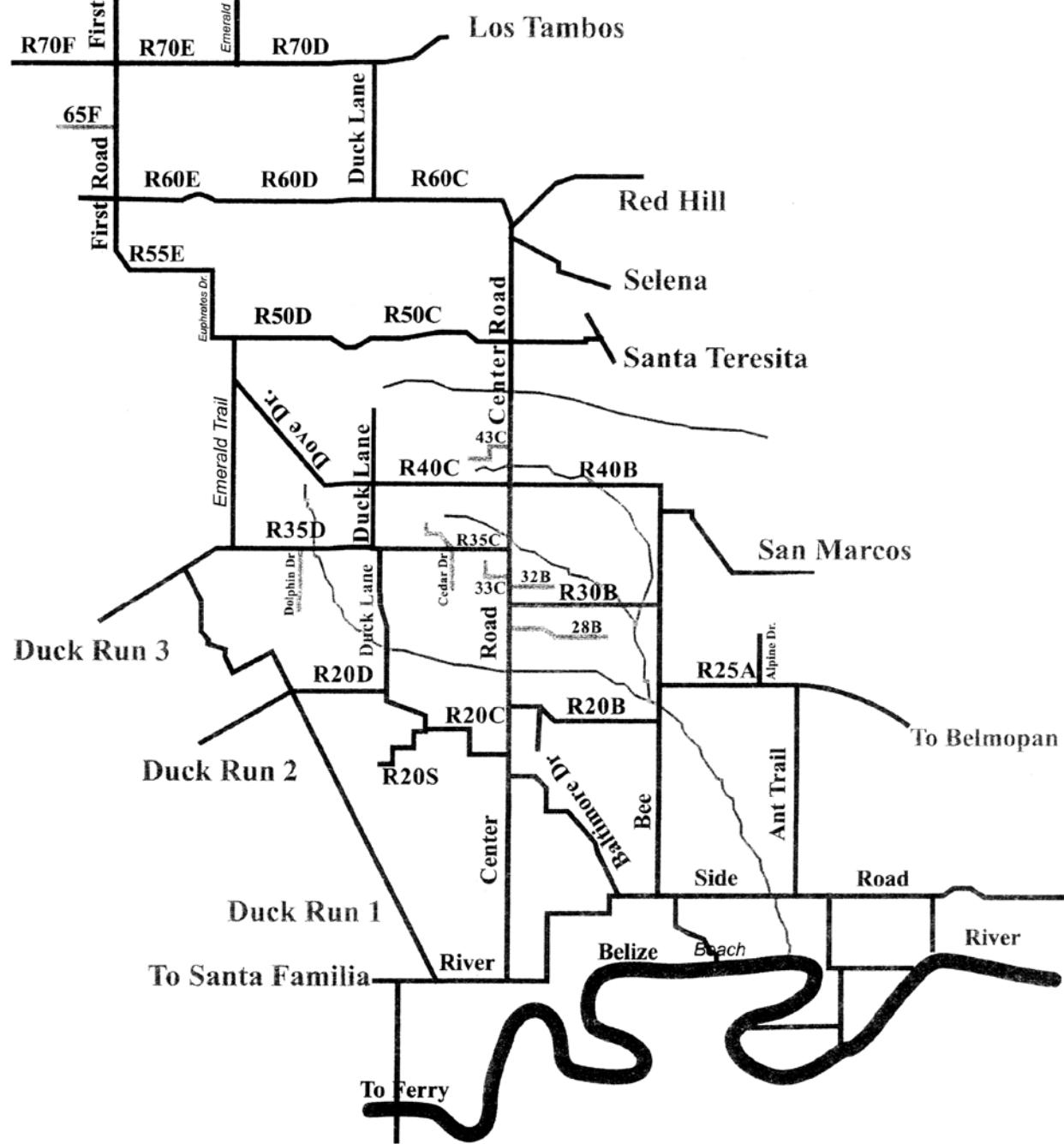
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**"Green to Greening to Guava and Back to Green: Companion Planting"
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Part 1

By Maruja Vargas

This is the first part of a two-part article on the invasion of *huangluangbing* (HLB), also known as *greening*, that is affecting the citrus industry in Belize. There is a demonstrated solution for maintaining sustainable productivity in Belize's citriculture in the face of HLB but first let's consider the scope of the problem.

A crisis of Mass Proportion

Belize is in the midst of an economic crisis of which it is either unaware or refuses to publicly acknowledge. Either way, the consequences will be devastating in terms of loss of revenue, tax base, employment and increase in the negative balance of payments.

Currently there is no cure for HLB. Unchecked, it will destroy the industry within less than 10 years.

The citrus industry accounts for 65% of the total agricultural revenue garnered in this country according to a recent report published by Promefrut (Costa Rica 2010). The ramifications of a defunct citrus industry can spell misery for Belize.

The Challenges of HLB

HLB is a difficult disease to manage due the non-specific nature of its symptoms, prolonged latency period in the field, and the irregular distribution of the pathogen in the plant. All interim strategies in place globally aim to curb the spread of the disease, but not eradicate it. The interim measures have no long-term positive prognosis and lead to a dead end. For example, China has a 150-year history of HLB and its systematic application of cultural and nutritional methods did not curb the incidence of the disease. Brazil's current strategy consists of (1) healthy nursery plants, (2) eradication of diseased plants, and (3) chemical control of the vector. Their researchers state that this is only a short term intervention.

Addressing The Problem in Belize

There is ample literature, including reports published from China, Brazil, and the US that provide information and insight into the various strategies, successful and unsuccessful, for eradication and/or management of "greening" spanning almost 150 years of 'coping' with this malady. Greening is not new to the world, only new to Belize.

To effect a viable solution for Belize, government and stakeholders should first recognize that Belize has its own unique citricultural industry. On the world scale, Belize operates small groves. However, there exist in Belize well-educated agronomists capable of creative thinking and comparative analysis. They can take advantage of what has been done successfully in other countries and apply what they think would work in Belize's own environment. That is, Belize needs its own well-defined strategy that conforms to our industry needs according to scale and ecology.

The HLB Task Force program for HLB control in place for Belize has four parts:

(1) HLB surveying and mapping across all districts to

determine the geographical distribution of the disease, (2) increased control and eradication of the vector, Asian citrus psyllid (ACP), (3) free diagnostic services on leaf samples for growers, and (4) a public awareness and education effort. To date, the funding for this has come principally from Mexico, who fears for its own industry.

Current management methods to reduce the spread of the vector ACP populations depend on insecticides, parasitoids, predators, and pathogens specific to the psyllid that requires control in application. Natural enemies of Asian citrus psyllid include syrphids, chrysopids, at least 12 species of coccinellids, and several species of parasitic wasps, the most important of which is *Tamarixia radiata*, which was introduced in Florida. The use of broad-spectrum, persistent insecticides has certain drawback in that the chemicals also kill other beneficial insects, including the natural enemies of psyllids, and can contaminate surface waters due to runoff.

One may readily see the difficulties, not to mention the ecological dangers, in eliminating the vector by these methods.

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The Botany of Desire, a Plant's-Eye View of the World

By: Michael Pollan

**Published in the United States
by Random House, Inc., New York.
ISBN 0-375-50129-0**

In this refreshingly original narrative, that blends history, fable, humor and accurate scientific fact, Michael Pollan tells the story of four domesticated species. In one of the four sections, he speaks essentially of the concept of parallel realities, and this concept is tested constantly within the historical accounts presented here.

Pollan starts out with the apple and the story of Johnny Appleseed, floating down the Ohio River and then westward into the Mississippi, with bags of apple seeds, planting thousands ahead of the westward moving pioneers. Valleys were adorned with apple blossoms, and as the wagon trains came over the hill, these beautiful areas were among the first to be settled. The sweetness of the apple seems to have domesticated those families and served everyone well.

The tulip and the madness that overtook the world for the most beautiful and sought-after blossom is an acute reality check. The "Queen of Night", perhaps as close to black as a flower gets, appears to draw more light into itself than it reflects, a "kind of floral black hole". Is it a flower, or a shadow of a flower? Tulipomania 101 is laid out by Pollan, beginning with the financial "bubble" in Europe around 1635. At its top, the trade in tulips was conducted by florists in "colleges", back rooms of taverns where buyers and sellers met, bidding the price of certain bulbs into the sky. Two sayings came from this madness, for prices of some the more prized tulip varieties reached thousands of dollars (or guilders). The first is the "Dutch Auction" and the second, "the greater fool theory". Pollan's wrap-up of the collapse of this trade and the aftermath, is absolutely astounding, but similar to others we've seen in modern times. Who was domesticating whom in the frenzy known as "tulipomania"?

The concept of "parallel realities" is accurately and humorously expanded in the "intoxication section" on marijuana. Pollan's

personal accounts of experiences with this plant speak for themselves and are so funny that reading them deserves acute sobriety. He could be spot on with his thoughts and reflections, but his stories are certainly a high spot of humor in this storyteller's collection of plants we have known (or "heard about" ..).

Finally, the potato section, which brings us into the scientific battleground of the 21st century. Going back to the Irish, Michael Pollan relates the "lack of control over nature" and the resultant crisis caused from having only one source of supply. But will he today eat the genetically modified version of our potato? Are we kidding ourselves? Is there a parallel reality in place with GMO, or are we making changes that will cause crisis in our food supply over time? Pollan, without a doubt is a wonderful and knowledgeable storyteller and is so engaging that his profound environmental messages are effortlessly communicated. Nature in its purest sense, becomes a loved-one, a family member. No one will come away from this book without having his/her ideas of nature stretched and challenged.

In the decade since Michael Pollan's The Botany of Desire has been circulating, organic food sales in the United States have grown an average of fifteen percent per year. Many well-informed parents know about the study published last May in the journal *Pediatrics*, linking exposure of organophosphate pesticides with attention deficit hyperactivity disorder (ADHD). Under the current administration the USDA has expanded and strengthened its organic program like never before. However, there is a "parallel reality" going on in agriculture, the likes of which the world has never seen. We can be grateful that Pollan, one of our wittiest writers about nature, is also one of our wisest. I find this book to be an inspiration, that has taken me personally, on a quest for information about the food we eat, the inherent moral obligation with which we are faced, and the future of the health of our planet and its people.

Peter Mayclin (pronounced Mack-lin), who has traveled to over 70 countries studying agricultural practices, is a consultant for many land developers, agronomists, residential sustainable architectural designers, and mentors Earth stewards throughout the U. S. and Central America. His e-mail address is: petermayclin@live.com

The advertisement features the Spectarte logo, which consists of three green squares of increasing height followed by the word "Spectarte" in a large, stylized green font, with ".com" in smaller letters to its right. To the right of the text is a green Wi-Fi signal icon. Below the main title, the words "ART AND GARDEN GALLERY" are written in a bold, green, sans-serif font, followed by "MAYA BEACH - 533-8019" in a slightly smaller font. A horizontal row of various small artworks, including landscapes, portraits, and abstract pieces, is displayed at the bottom.

Bird Rescue

What to do if you find a baby bird or injured bird

by Amanda A. Barber

The first thing you need to do when you find a baby bird is look around for its parents or its nest. Birds have a much higher survival rate if they are raised by their parents. If the bird is not injured or in serious danger, then watch it from a distance to see if the parents come to it. If they do but for some reason you cannot put it back into the nest (the nest is too high or it was destroyed) then poke some holes in the bottom of a plastic margarine tub (in case it rains), line it with tissues, then tie the tub into the same tree that the nest is in or one close by with the baby bird in it. If the parents come to the baby in the new nest then it is ok to leave the baby bird there as the parents will continue to take care of it.

If you find a bird that is injured or a baby who does not have parents tending to it then place it in a container such as a pet carrier or cardboard box lined with tissues or soft cloth. Old t-shirts work well for this. Always be careful when picking up a wild bird. Even if a bird looks terribly injured or sick it still might have the strength to bite you or grab you with its feet. Once you have placed the bird in a container make sure it doesn't get too hot or cold, that is, don't leave the container out in direct sunlight and don't leave the container in an air-conditioned room. Make sure to put the bird in a dark and quiet place away from pets and children. Also, although the urge may be overwhelming, do not hold the animal. Wild animals are not like domesticated animals and they are only agitated by human contact, not soothed.

Once the bird is out of harm's way you should call a trained professional to get advice on what to do next. Sometimes it's a good idea to give the bird food and water; however, depending on the age, type of bird, and type of injury this is not always the case. If a bird is very sick and cannot drink water on its own then it's possible it could drown in a water dish or choke if it is forced to eat or drink. If you have found a baby bird do not attempt to feed it or give it water. Baby birds have a very specialized diet and offering them something they are not supposed to have is not always a good choice. The very best thing you can do for an injured or orphaned bird is to get it out of harm's way and then call someone who can offer more specific advice for the bird that you have and the situation it is in.

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The Belize Tourism Board, in partnership with the Organization of American States (OAS) and Sol Farms, is proud to announce the launch of the Garden to Table Pilot Project for Hopkins Village in Southern Belize.

The initiative will help to establish organic vegetable farms that can consistently provide high quality produce to hotels and restaurants in the area. It's a linkage between tourism and agriculture destined to bring positive economic benefits to the local communities and tourism companies while satisfying the palates of tourists visiting Belize.



Copal, Continued from pg. 3

The indications for Copal Medicinal Oil are labelled on the bottle as follows:

- Rash/Itch/Xox (Kekchi word for Rash)
- Burns/Scalds
- Insect Bites
- Skin Infections/Fungus
- Muscle Rub/Arthritis

The indications are derived from feedback from people who have used the oil for those purposes and find the oil effective in the treatment of that particular condition. In a later article I would like to present some interesting case studies. With the advent of antibiotic over-use, mis-use, over-prescription and antibiotic resistance, I feel that there is a place for copal medicinal oil in the treatment of skin infections (bacterial and fungal) at an early stage.

In my personal observation, copal acts as an effective vulnerary, i.e., an agent which heals wounds and sores. Furthermore, copal has been described in herbals as "hot and dry in the third degree" which possibly explains why it is effective in arthritis and muscular aches often exacerbated by the cold weather.

Our research into the use of copal as an external medicinal agent is on-going. No side effects or allergic reactions have been reported. We would welcome your feedback. Copal medicinal oils is available directly from us. Other outlets are the pharmacies in PG, Brodies, Reimers Health Food Store and Farmers Trading Centre in Spanish Lookout.

ASK RUBBER BOOTS

Dear Rubber Boots,
Where does cinnamon come from? How is it made?

Signed,
Cinnamon Lover

Dear Cinnamon Lover,

You are not the only one who likes cinnamon. I sprinkle it on to my cereal and use it whenever I can in baking. Cinnamon comes from a tree. If you visit the Belize Botanic Gardens you can see a cinnamon tree. The leaves smell like cinnamon but cinnamon is made from the bark, which is stripped in thin layers and dried. When the moisture is gone the bark rolls naturally into "sticks". Ground cinnamon is made by grinding the dried bark. Although cinnamon has been proven to lower blood sugar and as an anti-inflammatory agent you need it in larger quantities than occasional use for effectiveness. It is sold in tablet/capsule form for medicinal use.



Rubber Boots

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Belize's Agriculture Potential..., Continued from pg. 1

Ag expansion on a commercial basis for export has great possibilities. Agriculture-based economics with value added products provide all kinds of jobs, including transportation, equipment operators, maintenance people and all the jobs that go along with value added products.

How do we expand agriculture?

- First-** it's land availability- yes
- Second-** it's know-how and experience- yes
- Third-** it's about profit potential- yes
- Fourth-** it's about being able to sell- yes, but needs more development
- Fifth-** it's about lowering input costs such as interest rates, taxes on fuel, new technology (GMO, irrigation, etc.) - needs investigation and development
- Sixth-** it's about education and hands-on training- needs development
- Seventh-** it's about learning from others' successes, such as Brazil's – needs investigation and development
- Eight-** it's about a more positive influence by government agencies such as Customs, BAHA, Lands, Immigration, and crime fighting agencies, and vehicles to implement needed fast track answers.

All of the above need to be addressed one at a time by some organized agricultural movement. I suggest a mixed delegation of government people, suppliers of ag products and private farmers. We would need to go to Brazil, put on our learning caps, and come back with our visionary eyes open and an attitude of "Let's Just Do It."

Corn Swingers

In the last issue I talked about the sex life of a corn plant being A-MAISE-ing. Now I would like to talk about the cast of "swingers" in the corn business. These are the buyers, locally and foreign, as well as producers and corn owners, who are all playing "patsie" in an attempt to enhance their market position.



In January 2010 – The Ag Report quoted corn sales at 18¢/ lb. In Feb- March 2011 we quoted 27¢/lb. – a 33% increase in a year. Now March 23rd 2011, we are quoting known sales at 31¢ which is a 13% increase in about a month. There will be some milo and corn harvest in April that will add some to the supply; however, the main harvest is 5 – 6 months away. We are told that there is enough corn to last, but it is in strong hands. I would expect these higher prices to cause more farm land to come into production and this should benefit the local market and the export market. I used the words "swingers" earlier because it means irregular and unforeseen; this describes the corn situation. However, I did see in the news that gasoline is at 11.00 plus a gallon- which will keep us all economically humble.

Prepared by John Carr

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...we're growing belize

Letter to the Editor, Continued from pg. 5

the study, the laboratory methods used, and the statistical tests applied. The Royal Society's own internal review of the Pusztai data had led to the damning verdict that the study "is flawed in many aspects of design, execution, and analysis and that no conclusion should be drawn from it".

The author states that "other ill effects include severe allergic reactions to GMO based food are beginning to appear in the American population." This has never been proved. There is no evidence on allergies. No allergic effects have been found relative to GM foods currently on the market. See what the WHO has to say about it: <http://www.who.int/foodsafety/publications/biotech/20questions/>

The author states that "crop yields might be increased, but so might colon cancer. Is more cancer worth higher crop yields?" There is no cancer correlation here. This is a totally fabricated concern contradicted by vast experience and for which there is absolutely no supporting data. Any link between transgenes and cancer is purely fictional. Crop yields have been demonstrated to increase. In the particular case of BT corn, in trials in Central America, yields have increased by 35%, with the added benefit that farmers do not have to use heavy doses of insecticides to try and control the Army worm, our biggest pest in corn.

The author quotes the experience in India, suggesting that Indian farmers have turned against GM seeds after a proliferation of suicides, bankruptcies and poor crops. This is completely false. How come the number of small farmers who use Bt cotton in India has increased from 50,000 in 2002 to 5.6 million in 2009. Yields have increased from 308 kg/ha in 2001/2002 to 536 kg/ha in 2008/2009. And about suicides: An important paper (IFPRI, 2008) published by the International Food Policy Research Institute, based in the USA, could not find evidence to support the views of the critics. On the contrary, the paper concludes that:

"In this paper, we provide a comprehensive review of evidence on Bt cotton and farmer suicides, taking into account information from published official and unofficial reports, peer-reviewed journal articles, published studies, media news clips, magazine articles, and radio broadcasts from India, Asia, and international sources from 2002 to 2007. The review is used to evaluate a set of hypotheses on whether or not there has been a resurgence of farmer suicides, and the potential relationship suicide may have with the use of Bt cotton."

We first show that there is no evidence in available data of a "resurgence" of farmer suicides in India in the last five years".

Throughout the letter, the author is continually using the words "could and might" and then drawing conclusions which have no scientific basis. Contrary to the author's statement, the European Union, after careful study, has opened its borders to GM foods. Belize is proceeding cautiously with initial trials and careful consideration under the Bio Safety Council. Perhaps if the author is looking for a cause to "hang his hat on", he would do well to be more concerned about the heavy insecticidal uses farmers have to employ to control the many pests we have attacking our crops. If not carefully applied, these can easily enter the food chain and pollute the environment. The use of BT corn seed will be of tremendous benefit to Belizean farmers. It will allow us to use far fewer chemicals to grow the crop and will allow us to increase our yields and remain competitive in this global market.

Frank Redmond.

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"WE NEED IT, MEK WE GET IT"

Update on the Belize Agriculture Census (BAC) – 2011

Prepared by Phillip Tate; Edited by Roberto Harrison

The Belize Agriculture Census – 2011 was launched on the 1st February, 2011. The training of enumerators across the country has taken place to ensure the proper implementation of the census.

Enumeration was initiated in the Corozal district on the 22nd February, 2011 to enable the coordinators to diagnose the issues of implementation. The enumeration is now being implemented in all districts. The main purpose of BAC is to provide reliable and objective baseline data on the structure of the agricultural sector of Belize and an inventory of agricultural resources and to use the results of the BAC to establish an agricultural statistics system to measure the development of this sector on a regular and continuing basis.

As part of the public awareness campaign a "jingle" was prepared to sensitize the farming community on the ongoing agriculture census. Several talk shows were done as well. The Ministry of Agriculture, Fisheries and Cooperative is hoping for the support of all farmers in Belize when the enumerators visit their homes and/or farms to initiate the interviewing process.

The Minister of Agriculture & Fisheries, Rene Montero, appreciates the support given to date by the farming community. The BAC was possible through technical assistance provided by the Food and Agriculture Organization, Statistical Institute of Belize and financial resources from the Government of Belize.



Belize Ag Report's AG NEWS BRIEFS



SOLAR NEWS: We are informed that Belize has an excellent opportunity to be the recipient of a state-of-the-art **solar** system, for GOB buildings, as a gift from Japan. After having this offered from Taiwan several years ago and not meeting their recipient requirements, Japan has offered and GOB has chosen the U.B. campus in Belmopan as site for installation of this latest solar technology. The only stumbling stone to receiving this gift, as in the past, is that the donor country has the very reasonable requirement that Belize put in place a system to buy back power from customers. We note that Panama has in place a system whereby they not only buy back power, but at the same price as they sell for solar systems up to 10 kW. As we understand it, even buy back at a lesser rate would qualify us for the gift from Japan.

CATTLE SWEEP PROGRESSES: BLPA and the Ministry of Agriculture officials met with Minister Montero on March 21st. The discussion centered on budget approval of approximately \$10,000,000 Bz\$, with \$6,000,000 Bz\$ from the E.U. and \$750,000 per year from BLPA. A majority of the cattlemen agreed to pay \$10 per head for the TB, Brucellosis and registered ear tag. The sweep budget is for 3 years; however we need to continue testing and surveillance for 2 more years after that. BLPA awaits the approval of the legislation by the Sol. Gen. and the cabinet. It is hoped that the sweep can begin by June 1st in Corozal and Orange Walk Districts. All sides seem to be going pretty much in the same direction.

THE BELIZE POULTRY ASSOCIATION recently bought and delivered an ELISA Multiscan reader for doing laboratory analyses to the Laboratory department of BAHA at Central Farm. Value of the readers is 19,000 BZD.

BIOCHAR: For those revved up about biochar from the article in our last issue we have exciting news! Sources indicate that locally produced biochar, both a plain and a pre-mixed with other nutrients will be available commercially in April or May.

UPCOMING FAIRS:

NATS: National Agriculture & Trade Show, Belmopan, April 29-May 1, 2011

Cacao Fest, Punta Gorda, May 20-22, 2011. See ad page 9

3rd Annual Organic Fair, Punta Gorda, October 28-29, 2011. See ad page 7

Expoforestal Mexico Siglo XXI, Mexico City, Sept 22-25, 2011. www.expoforestal.gob.mx povalle@conafor.gob.mx

The Green Expo, Mexico City, Sept 27-29, 2011. [www.thegreenexpo.com.mx](http://thegreenexpo.com.mx) rgarzon@ejkrause.com

Problems in the Citrus World

Citrus Products of Belize and Citrus Growers Association have been going through some trying times. There are 4 important aspects that have to happen to be successful.

1. They need to function effectively from fruit to consumer; that means every facet must cooperate- now a problem
2. They need to have sufficient fruit to keep 2 large factories operating- now a problem
3. They need operating capital to produce- now a problem
4. They need a market to buy product- seems ok; apparently one factory is closed and will remain so until fruit and capital/operating problems are solved.

International Cocoa Organization Monthly Average of Daily Prices



Local and Regional Fuel Prices

	Belmopan, Belize	Quintana Roo, Mexico	Peten, Guatemala
REGULAR	↑ \$11.19 Bz/Gal	↓ 7.96 pesos/Lt \$5.16 Bz/Gal	↑ Q 36.80 /Gal \$10.51 Bz/Gal
PREMIUM	↑ \$11.46 Bz/Gal	* 9.66 pesos/Lt \$6.26 Bz/Gal	↑ Q 37.30/Gal \$10.66 Bz/Gal
DIESEL	↑ \$10.65 Bz/Gal	↓ 8.32 pesos/Lt \$5.39 Bz/Gal	↑ Q 34.10/Gal \$9.74 Bz/Gal

* Price in pesos decreased; equivalent price BZ \$ remains unchanged

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QUOTE OF THE MONTH

"The United States is a **water economy**. The quantity and quality of fresh water is in danger here [U.S.A.] and around the globe." JOHN CRONIN, author of *The Riverkeepers*

Mr. Cronin's premise is that the developed world is not an oil dependent economy, but rather a water dependent economy. There are many sources and potential sources of energy, but there is no substitution for water.

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Corner of 5th St.
South & 7th Ave.
Tel: 422-2862

Orange Walk

3 Guyana Street
Tel: 322-3814

San Ignacio

Esperanza Village
Tel: 824-2025/
824-2385



Classifieds

Classified prices:

2-3 lines= \$24; 4-5 lines=\$32; 6-7
lines=\$40



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57 ac. San Antonio, Cayo District, Home of 2 apartments, walled garden w/ nearly completed pool, landscaped, outbuildings, fruit trees, pastures crossfenced with h2o in all, immaculately maintained and priced under value at \$330k USD. Furnishings avail by negotiation.

SECLUDED STUNNING HOME ON 43 ACS, Benque area of Cayo Dist. Own your own valley. Home featured in several U.K. magazines. Outbuildings, fruit trees, pastures, in pristine area suitable for residence or tourism. \$470k USD.

REDUCED! 23 acres, Belize River, Esperanza, Cayo, 99k USD. Make offer. High bank, rolling hills, huge trees, in pasture. Great neighborhood

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175 Acs, Calla Creek, 1300 ft. Mopan River, creek too, mainly in pasture, all fenced. \$175k USD.

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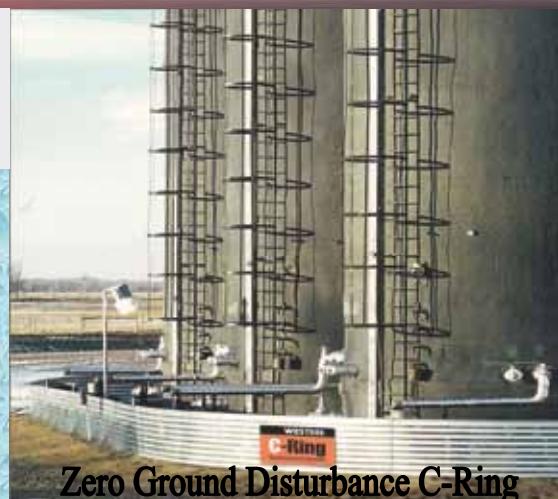
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