

The Belize Ag Report

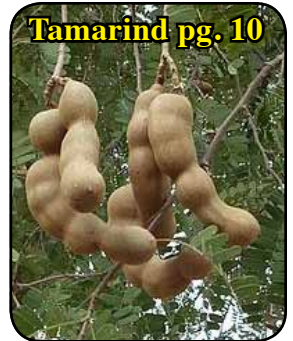
Belize's most complete independent agricultural publication



Endangered Birds pg. 16



Tamarind pg. 10



BEL-CAR Pg. 13



Stubeef Jerky pg. 3



TR4 Panama Disease pg. 9



Asparagus pg. 8



Roots and Shoots pg. 5



Bees Transferring Honey pg. 22



Spanish Lookout Expo pg. 21



Mountain Equestrian Trails

Sapphire
Agriculture

Fertilizer company coming to Belize.
See page 7....

Brand
Belize

www.brandbelize.com



The Secret is in the taste

Processing Plant-Blue Creek

Tel: (501) 323-0590

(501) 323-0592

Fax: (501) 323-0067

Belize City

6290 Park Street

Button Wood Bay

Tel: 223-5378

223-5368

Corozal

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



Tourist Information

Cheers

with a
tropical
twist

Great Bird Watching

Walk in Our Garden

Come check out our Gift Shop

We're only 2 & 1/2 Miles West

of the Belize Zoo

Mile 31 & 1/4

Western Highway

Belize



Local Specialties as
well as Burgers,
Soups, Salads,
And lots more...

All at very reasonable
prices.

We have Cabañas too!

Mon -Sat 6 am-8 pm

Sun: 7 am-7 pm

Phone: 501-822-8014

E-mail: anita@cheersrestaurant.bz

chrisssy@cheersrestaurant.bz

RUNNING W BRAND MEATS



*We are Confident that for the past 30 years,
Running W has been providing Belize with the
Highest Quality of wholesome meat. The Only
meat you trust to feed your family and guests.*

QUALITY NATURALLY!

*Shop at our very own Running W Store and take
advantage of wholesale prices on all our products!*

Happy  Anniversary

Mile 63 George Price Highway, Cayo District,

Tel: 824-2126/2765 • Fax: 824-3522 • E-mail: runningw@btl.net

 www.facebook.com/RunningWMeats



Stubeef Jerky Returns To the Delight of Former Customers

By Roberson/Feucht

Although still a young man, Stuart Doley has been making jerky for decades. Growing up in Virginia (USA), he made venison jerky from deer that he hunted. In university he continued refining his recipes and techniques making jerky in a small dehydrator for himself and friends. It is not surprising that soon after his arrival in Belize in 2010 he was at it again, turning local grass-fed beef into beef jerky. Using Running W meats he tested the local market under the trade name *STUBEEF JERKY*. Just as his market here was taking off, Stuart detoured to Barcelona, Spain for an MBA degree. He and his Belizean fiancé returned to Cayo District early in 2013 to tie the knot and revive and expand *STUBEEF JERKY*. In fall of 2013 their Belize City processing facility, including equipment enabling production of up to 100 lbs. of jerky a week, opened for business.

Meats destined for jerky must be lean; wild meats such as venison, known for its lack of marbling is ideal but is not sufficiently available locally. After trying several cuts of beef, testing for texture, tenderness, leanness and flavor, Stuart decided Running W's fresh grass-fed round steak best fits his criteria. The steak is custom cut into pieces of 1/8th inch thickness across the grain and all excess fat is trimmed. Fats are not desirable in jerky, as they increase rancidity risk.



The top is sealed shut, the vacuum tube is attached and in just a few minutes the vacuum pump sucks all of the air out of the cylinder. The sealed cylinder is placed horizontally onto rollers which rotate the container on top of the machine. In 30 minutes all of the marinade is absorbed into the meat.

Stuart's secret blend of spices and seasonings are mixed with soy sauce, sugar, salt and sodium and placed into a vacuum tumbler. Only natural preservatives are used. 40 lbs. of the meat pieces are added to the mixture already inside the cylindrical stainless

The next phase of the procedure is the trickiest – drying. Stubeef utilizes American made electric dehydrators; each one holds 25 lbs. of meat. Good circulation and low heat (between 50 and 160 degrees F) are critical and Stuart finds that our seasonal weather necessitates



adjustments to his cooking times and temperatures. Dehydrator time ranges between 13 and 17 hours. The yield from 25 lbs. of fresh round steak is about 6 ½ lbs. of jerky; **so one of the 1 oz. packets is equal to ¼ lb. of beef steak and one 4 oz. package of jerky is equivalent in protein and nutrients to a pound of lean beef steak.** This loss of 70 to 75% of its weight makes jerky the ideal food for hiking and camping trips. As well as eating it straight, jerky is a tasty addition to rice, stew and even cut into bits on salads (similar to bacon bits). The extremely long shelf life, 6 to 8 months without refrigeration, even after opening, merit its inclusion with your hurricane and emergency supplies.

Currently, there are 3 flavors available: Mild, Black Pepper (seasoned with black pepper grown at The Belize Spice Farm in Golden Stream, Toledo) and Spicy Habanero. These are sold in 1 oz. and 4 oz. vacuum-packaged re-sealable bags. Plans are afoot to introduce a barbecue flavor soon.

Editor's Note: Orders can be made directly from *STUBEEF JERKY*; a 5 lb. minimum applies for wholesale purchase. You may also find it at Brodie's, Cheers and specialty shops around the country. If you go to their headquarters in the city at 17 Eve St, corner of Gaol Lane, you will be elated to find Stuart's wife, Molly, has reopened the Ice Cream Shoppe, where Scoops was located, right under the Stubeef facility.

STU BEEF



JERKY

ALL NATURAL, LEAN BEEF SNACK

Three flavors to choose from:
Black Pepper,
Spicy Habanero & Mild

- Available in select stores • Custom orders accepted!
- Bulk and wholesale rates available
- We ship anywhere in Belize • Product of Belize

CONTACT US AT:

stubeefjerky@gmail.com or 637-5545

TO THE EDITOR

Dear Editor,

ORGANIC....What does that really mean?

Having been involved in organic agriculture for many years, I believe that 'organic' is more than just agriculture; it is a commitment to a lifestyle.

'Let your food be your medicine and let your medicine be your food', quoting Hippocrates, the famous Greek physician, known as 'the father of modern medicine'. Decades of research has established the definite link between illness and diet.

The counter-culture of the 'back to the land' generation of the 1960s, turned into the organic agriculture industry of the 1970's until our present day. But does eating only food grown without synthetic chemicals tell the whole story?

Why does organic food cost more? Because it is more labor intensive. Is the extra cost worth the extra benefits? Are you in perfect health? Do you take any man made medicines? However, eating only organic food is not the entire answer to being healthful. We are subjected to chemical toxins in our bath soaps, toothpaste, shampoo, dishwashing liquids, laundry detergents, cleaning agents and cosmetics to name just a few.

Organic, therefore is a lifestyle to be carried out in every phase of our lives ...I urge you to seek out and support those who raise organic food by joyfully paying the extra price and learning how to produce more yourself which will pay you in the long term benefits of better health...thank you for your consideration.

Dr. Morris F. Keller, Director New Life Farm Ltd.

Don't be nervous.....

about finding a printed copy of the next

BELIZE AG REPORT

Subscribe and relax.

1 Yr (5 issues) mailed flat within Belize \$35. BzD
The Belize Ag Report, P.O. Box 150, San Ignacio,
Cayo District

International rates upon request

The Belize Ag Report, P.O. Box 150, San Ignacio,
Cayo District, Belize, Central America

Telephone: 663-6777 (*please, no text, no voicemail*)

Editor & Publisher: Beth Gould Roberson

Special Editor: Dottie Feucht

Printed by BRC Printing, Benque Viejo, Cayo District, Belize

Submissions as follows:

Letters to the Editor, Ads & Articles to:

belizeagreport@gmail.com

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

5 Issues per year

To the Editor,

It's time to run the citrus industry as a business.

Ten years ago, when the Commonwealth Development Corporation handed over the citrus processing plants (Del Oro) to the Belize citrus industry, for \$1, the Citrus Growers Association (CGA) was seen as a responsible conduit to handle the shares on behalf of Belizean citrus growers.

Since then, the CGA has divested itself of 59% of those shares for various reasons. The rights or wrongs of these decisions can be argued from different points of view. The fact still remains that growers now own only 41% of the shares.

It is time to remove totally these shares from the control of CGA and proportionally place them in individual growers names based on production. This will remove the ability of CGA to use these shares for some other scheme which will have no benefit to growers directly.

Since the control of the processing has been in CGA hands, citrus production has declined dramatically to the lowest ever recorded last year, and growers delivering fruit have declined from approx. 1000 to 384 last year. Small growers production has declined from over one million boxes to less than half a million. So clearly, the ownership of the processing has not benefited growers in any way. As regards prices, we still receive less than half what USA growers receive, despite the fact that the processing factory invested four years ago in the equipment to produce consumer ready packs of fresh orange juice which sell for a much higher price and would have led to growers receiving almost double what the factory currently pays.

The CGA, depending on the directors who control it, will come up with some other scheme, or through mis-management leading to indebtedness, as currently, which will lead to a further loss of the remaining 41% of the shares. It is time to put an end to this.

Let us run the processing as a business, with the Board of Directors elected by the shareholders and responsible to them.

Frank Redmond

palmspringsfarm@yahoo.com

NOTICE: Please feel free to share The Belize Ag Report by publishing the link to our website or sharing it with others. The Belize Ag Report welcomes petitions to reprint articles. However, please note that the PDF download and individual articles are copyright protected and permission **MUST** be granted by the Editor prior to reproduction. We also require that reprints indicate The Belize Ag Report as the source and that our website be referenced.

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.

Roots and Shoots Mini Ag Fair in Consejo, Corozal



A small local garden club called *Roots and Shoots* is a special interest group with members from around the Corozal area. Most of our members have simple gardens, grow flowers, shrubs and fruit trees, and some have small vegetable gardens, and a few have small farms. The club meets every second Monday to discuss various topics of gardening in the tropics, listen to an invited speaker or member of the club or visit members' gardens. Our club has had many field trips to Cayo, Toledo, Stan Creek and Orange Walk Districts visiting nurseries and farms. We've also attended The National Agriculture Fair in Belmopan and Sustainable Harvest International (SHI) Organic Fair in Punta Gorda.

On 31 March 2014, Roots and Shoots held our very own 1st Annual Mini Ag Fair at the Consejo Shores Community Center, Corozal District, just 6 miles north of Corozal Town. It was a great success -- thanks to all the organizing and hard work of one of our leading members, Beverley Griffiths. We had a very large turnout of members and guests. We had a number of interesting presenters: John Masson, Pandora Canton and Nana Mensah with Yasmin Ramirez from SHI -- who traveled to be with us from as far away as Belize City and Punta Gorda. John Masson gave a talk about caring for potted plants, explaining that when we transport plants from different areas the plants are in shock and should not be planted until they become used to their new environment. Many of us are so excited when we get a new plant that we want to put it into the ground too quickly.

The demonstrations were excellent, informative and most

entertaining. Pandora's team showed us how to do air layering on a crouten plant. First, they removed the bark with a very sharp knife and then put a plastic sleeve over the stem, filling it with soil and tying both ends with string. They explained that we should check for roots after about three weeks and at that stage we could cut the new plant, which would be the same age as the mother plant, ready for planting. John Masson then showed us to do the same more quickly with a small pliers to remove the bark; then using a piece of foil with soil, he twisted both ends. Seeing them build living pictures using miniature cactus plants had many people wanting to go home and make their own!

Nana Mensah of SHI gave a talk on the benefits of organic farming; Yasmin Rameriz (SHI) explained all about the moringa plant which is sometimes called the 'miracle tree', every part of which can be used for medicinal purposes; Will Forbes and Foster Jones spoke about aquaculture, which can produce a large volume of plants using only water flowing directly from a container stocked with fish.

There were many different vendors including some of our club's members, selling a variety of plants, herbs, orchids, shrubs and young trees, manure, organic composts, flower pots, creams, soaps and various handicrafts, including hand-made cards and clothes tie-dyed with home-grown indigo dyes. Booths and displays with items for sale included Belize Agro Enterprise Ltd (BAEL) selling their EM products; Triple C selling garden tools, equipment and fertilizers; Pandora from her Window Box Nursery with a large selection of plants, miniature gardens and living pictures and clay pots (from Espejo's Clay Pots Belize City); SHI selling their home-made fertilizers, moringa teas, and demonstrating their solar dryer (for beans, or leaves); and the Belize Organic Alliance (BOA) who were anxious to explain their new organization here in Belize.

After the event itself, visitors had the opportunity to visit a local farm to see the benefits of using certain BAEL EM products to fertilize and improve the soil.

For those of you who missed this year's fair, you will be pleased to know that, at our final discussions after lunch, everyone agreed that it was a lot of fun, and we should do it again next year.

Pip Pearce, Co-ordinator, Roots and Shoots

Beverley Griffiths, Organizer, Roots and Shoots Mini Ag Fair

223-1686 BATTERIES & ACCESSORIES
DEEP CYCLE • SOLAR • OFF GRID







reencobattery.com **GETTING BELIZE STARTED SINCE 1960.**

Citrus Greening in Belize

By Bill Lindo

Belize City, April 28th, 2014: Currently Belize has about 42,000 acres of land devoted to citrus groves. Over the last couple of years, Huang Long Bin (HLB) – yellow shoot disease or citrus greening - has caused several thousand acres of groves to be abandoned and now less than 400 citrus farmers are active. This is down from a high of about 1,000 + farmers a few years ago.

According to the schoolmen, the disease is caused by a bacterium that inhabits the phloem (energy conducting tissues) of the tree and so far has affected all citrus varieties. The bacterium is transmitted by an insect pest called the Asian citrus psyllid, *Diaphorinacitri*. No data exists to show that the disease is transmitted by tools, wind, rain, or human interaction. According to the experts no cure exists for the HLB disease and only two solutions can work. The first is to cut down all infected trees and burn everything, then plant new trees from greenhouses that were freed of the Asian citrus psyllid. It is very expensive at some Bz\$ 3,500 per acre. The other alternative is to wait and pray that soon the results of genetic engineering of citrus trees will produce citrus trees that are resistant to the Asian citrus psyllid. A new twist being tried by the CGA is to release "beneficial" insects in the groves to attack and destroy the Asian citrus psyllid. This new approach is to buy time so that in the next two-three years the growers can be able to import GMO citrus trees from Florida.

The underlying idea or philosophy since the end of World War II, both in agriculture and medicine, is to **fight disease** – a war on disease which we are losing and can never win. But when we fight a war, we need weapons such as salt fertilizers, some very dangerous chemicals, and the more deadly, the better. And when these fail, we blame Nature and say that we must fix nature by creating genetically engineered crops so we can spray on more and more chemicals. Have we not seen that this is an unnecessary war and one in which the only winner is the chemical/biotech company and their cronies including the politicians who feed at their trough?

In high school and college I formally studied science, and one of the first things I learned was to look for **underlying causes for problems** in physics or chemistry. Later as I studied on my own, I also learned that biology works the same way; Nature is holistic, non-linear, non-entropic, dynamic, energetic. Nature is ordered, intelligent, and perfect. Nature is the example to follow; she possess all the answers. It follows that a war on Nature is not only foolish, but futile – a waste of time. Insects, weeds and diseases are not normal and certainly not any evidence of the wrath of God on man. How can God who created man in *His image* wage a war on man by creating a Nature that's random, unintelligent, and flawed?

With this kind of mind-set then citrus greening is natural because as long as the *Diaphorinacitri* is in the area of a citrus grove then all the trees in that grove will be infected with the *C. liberibacterasiaticus* bacteria and eventually they will all die. If one uses the mind he got from his Creator, the nonsense of the chemical/biotech companies must be

false to physical reality. Plant life has survived for thousands or millions of years here on planet Earth. How can this be if insects, weeds and diseases were ravenous, random consumers? How much better it is if one accepts the fact that insects and disease organisms are our quality control workers to maintain the survival of the fittest. And those genetically engineered crops and trees are another excuse to continue dirty, nutritionally deficient, toxic, prescription farm management.

Insects and diseases keep away from healthy crops and trees. It is possible to grow crops and trees where the energy and nutrient-density is so high that **no** insect nor disease pressure is on that crop or tree and to do this **without pesticide or fungicides of any kind**, synthetic or organic, being applied. The problem with this type of professional farming is that it causes little or no poisons to be sold, so the universities don't get the "research" grants to perpetuate the training of more students to use more poisons. And worst, people who consume the nutrient-dense foods get fewer, if any, illnesses; so the drug companies sell fewer drugs, doctors perform fewer surgeries, medical machine manufactures sell less machines. In other words, sickness is simply much more profitable, and surely pays more taxes.

Continued on page 23

An Energetic Approach to Agriculture

We offer the following services and products:

LaMotte Soil & Paramagnetic Testing

We test for 14 minerals in the soil and 8 in tissues, plus pH, electro-chemical and magnetic energy, and Brix.



Professional Consultation

Based on the soil, tissue and energy results we offer advice on possible economic solutions

High Quality Dry Fertilizers

Soft Rock Phosphate

The remarkable fertilizer for mineralization of soils, containing Phosphate, Calcium, Silicon, and over 60 trace minerals.

Sulfate of Potash

The only water soluble natural source of potassium and sulfates with under 2% chloride which will not kill your soils.

Calcium Nitrate

Calcium and nitrate nitrogen for super growth of plants, will not kill soils, and reduce nitrogen needs by 60%.

Mono-ammonium Phosphate (MAP)

A water soluble phosphate with ammonium nitrogen which will not kill soils.

Foliar Sprays

We manufacture foliar sprays to increase Brix so as to keep insects and diseases away from your crops

Lake I Development Co. Ltd.

134 Samuel Haynes St. Belize City * Tel: +501 223 2526 * mobile: 602 2993
Email: bilindo2001@gmail.com

2014 International Year of Family Farming Lots of Positive Change for the Future

By Maruja Vargas

The United Nations has designated 2014 as the International Year of Family Farming bringing attention to the importance of family farmers, including smallholder farmers, and their role in helping to nourish the world. The celebration is also aptly timed; it is reported that nearly 900 million people go to bed hungry every night and the global population is expected to reach more than nine billion people by the year 2050. The world will need to not only increase agricultural production, but to engage in agricultural practices that are more efficient and environmentally sustainable.

Smallholder farmers are in a unique position to contribute to the global food supply, but empowering smallholder and family farmers is a vital step toward improving nutrition, increasing incomes, protecting and enhancing biodiversity, enhancing soil quality, conserving water, and mitigating and adapting to climate change. Equally important as the goal of feeding the world is the necessity of growing more nutrient-dense crops. All farmers can have a direct impact on nutrition through the crops that they choose to grow and consume, as well as through post-harvest and preparation methodologies they use.

Integrated farming systems in which a micro farmer produces grains, fruits and vegetables, and animal products, can be between four and ten times more productive than large-scale, monoculture operations on similar land usage. Diversified and indigenous crops are typically more resilient to climate change and extreme weather conditions. A Chinese study published in *Nature* in 2000 found that four different heterogeneous mixtures of rice seedlings yielded 89 percent more and suffered 44 percent less blast incidence than homogeneous plantings. Growing a diverse range of traditional crops assures the farmer of economic stability throughout the year rather than relying on one traditional harvest. Diverse and traditional crops also encourage community cohesion by interacting in regular market trade with each other.

Another report suggests that if 10,000 small-and medium-sized farms converted to organic, sustainable production, the environmental effect in terms of carbon sequestration would be equivalent to removing over one million cars from the road. Local organic production mitigates many contributing factors to climate warming, such as elimination of the use of fuel-heavy pesticides, chemical fertilizers, and travel miles moving commodities through distribution systems to the consumer. According to the International Fund for Agricultural Development (IFAD) estimates, more than 83% of all agricultural holdings worldwide measure less than two hectares in size and are thus managed by smallholder farmers. The

average size of all farms worldwide is less than 5 hectares. And the number of small farms is actually increasing. In Central America, 58% of farm holdings are less than 2 hectares; the average size holding being less than 25 hectares. Although Latin America is a region that holds great natural wealth, historically a large portion of its population lives in poverty. Bradford Burns, *Latin America: A Concise Interpretative History* states that 60% of the populace of Latin America is undernourished, underemployed, undereducated and underpaid. The history of Latin America is replete with episodes of agrarian debacles, flip flopping between periods of subsistence agriculture dominated by export agriculture, and vice versa. Many large commercial farmers produce for export, but not local consumption, partly because the profits abroad are more attractive. Governments that push exports over the local market contribute a sure means to earn hard currency needed to pay interest rates on ever increasing burdensome foreign debt, but deepen rural poverty. When subsistence agriculture dominates over export agriculture of singular crops the people have a more satisfactory quality of life. In 1988, eleven million small farmers in Latin America produced 41% of the food consumed and 32% of agrarian exports. But if the economy declines or collapses as it did in 1929 and Latin American exports plummeted by 65%, the emphasis of export over subsistence farming could result in widespread local hunger.

As we awaken to the realities in store for us in a future defined by declining net energy, concerns about food security, adequate nutrition, community resilience, reliable income and global warming commonly arise. Micro farming quickly surfaces as a pursuit that could help to address all of these concerns. A recent news release featuring a fellow from Quebec demonstrates the potential for high productivity and profitability of bio-intensive micro farming while, at the same time, contributing to community food security and mitigation of global warming. Last year he grossed US\$140,000 from one and half acres in a nine-month growing season. His net profit after expenses was US\$65,000. He employed 2 workers, his wife and himself. Biologically intensive organic farming is growing more than one crop in a field at the same time through inter-cropping, over-cropping and poly-cropping, yielding more total food even if the yield of any given crop is lower.

A fair number of agribusiness executives, agricultural and ecological scientists, and international agriculture experts believe that a major shift to organic farming would not only increase the world's food supply, but might be the only way to eradicate hunger. To raise the index on micro farming, farmers need advice, instruction, seeds, equipment, and perhaps micro credit. Bio-intensive, micro-farming will lead the way to national sustainability, food security and higher quality of life for the populace in Latin America.

Dear Belizean farmer,

Please allow me to introduce myself. My name is Alex Kaminsky I am VP of Sapphire Agriculture LLC based in the United States. The company I work for provides fertilizer to our markets in the Caribbean.

We are entering the agriculture industry in Belize and would like to make our fertilizer products available to the farming community.

We offer NPK fertilizer, liquid fertilizer and nutritionals, individual raw materials and certified organic fertilizer. We can blend any type of NPK fertilizer as per the needs of the farmer.

Sapphire Agriculture LLC is currently seeking representatives. Please contact Jennifer Caceres via email:
Jennifer@sapphireagriculture.com



BEYOND THE BACK YARD

By Jenny Wildman

"Oh I do like to be beside the seaside"

People ask me, "What is your favourite thing that grows in your garden?" Without hesitation I say, "Asparagus" which surprises them - that it actually grows here in the tropics. I walk out most mornings and check the patch in hopes of a few delicate shoots to eat, raw and delicious. For me this is the best way and feels very healthy as it is rich in all kinds of nutritious vitamins, A, C, E, B12 and K, plus minerals and antioxidants. It is low in calories with no fat, no cholesterol, and no sodium. First off I



always consider what it can do for one's health. It is a good source of fiber, a natural diuretic, improves mental ability, contains glutathione known to break down carcinogens and therefore fights and protects against cancer and aging. There are innumerable case studies on the benefits of asparagus. People have criticized its very pungent aroma and its effect on the body yet memorably some like Dr. Urbino in Marquez' "Love in the Time of Cholera" welcome the effects on the urine which he insisted on spraying on his beloved garden. I have only a small patch so really never get to cooking bunches from the garden. I grew this from a crown given to me from a friend who successfully grows rows and rows in Corozal District. I probably broke all the planting rules but like me, the asparagus plant originates from a maritime location and loves sand, sea and salt -which could explain why the useless sandy nature of my land is blessed with my favourite vegetable. When my parents sold their house we children wrote on the walls "we do not want to move". We protested and sulked until the back door of the new home opened out into an enchanted overgrown garden, a scene from *Sleeping Beauty*. Dominating the centre was a huge emerald patch of fairy like fern. "That sparrow grass will need to go", said my mother. Sparrow grass is a common corruption of the name, much like my friend's use of "tuna sandwich" for Xunantunich. This was my first encounter with asparagus. Here was the beginning of lasting love. My father's business was in Evesham, Worcestershire which is the largest producer of asparagus in Northern Europe. Like other places in the world known for prolific asparagus production it has an annual festival complete with an Asparagus Queen and folks dressed up as green headed spears. Fond memories lead to a continued interest in growing asparagus which, in Canada, I was successful with, alongside my rhubarb and stinging nettles. In Belize asparagus grows year round but my own attempts have been limited. It is part of the lily family and is a very good companion plant to tomatoes as they help each other to dispel harmful root nematodes and can itself be aided by marigolds, parsley, cilantro and basil.

Adding compost and manure will help plants thrive but they do prefer sandy loam and cannot tolerate wet locations. Plant

the crown about a foot deep and wait 3 years for the bed to establish before harvesting. It can bear for more than 15 years commercially and there are reports of old garden beds still bearing after 50 years. Once established it is rapid growing, just as most grasses, and achieves 6 inches in a day. Its behaviour had the Chinese naming it Western Bamboo. The ferns supply energy to the crown and should not be pruned back. Being very deep-rooted, it will find water and knowing that it grows on sand dunes and beaches, will no doubt be comfortable with salinity.

Asparagus is thought to have grown wild along the coast of the British Isles and the Mediterranean and has been cultivated all over the world for thousands of years. The name came from a Greek word meaning shoot and was believed to prevent bee stings and used as a pain killer for toothaches. The Romans developed techniques to cultivate asparagus which was previously harvested in the wild. It was grown for medicinal purposes, as an aphrodisiac and for use in many rituals. It was initially the vegetable of royals and did not come to general market until the 18th Century. In Europe this is a much coveted vegetable and the white is the more common sort. This is not a variety but grown with the absence of light. The early European settlers brought plants to the Americas and began cultivation in New England. Its peak season is April to June and in places where it grows profusely, such as California, it is quite inexpensive there even though production costs appear to be very high. The fiercest competitor to the USA California market is Mexico as the labour force and overhead costs are less. Whilst looking on the internet I found that two of our Mennonite farmers in Belize own asparagus farms in Canada and Arkansas. Perhaps the conditions did not seem particularly favourable for this crop here as they are growing papayas. It pretty much grows everywhere in the world so why not here? Currently asparagus arriving at market and as restaurant fare is imported and expensive. It does not taste anything like that fresh from my garden.

There are several ways to cook asparagus and depending on whether using a dry or wet method the taste differs from meaty, to moist and grassy. More importantly though are the benefits your body will derive from a meal with asparagus.

Find a way to grow a little patch. Your body will be as happy as a day at the seaside.

If anyone is growing enough to sell, please let our readers know. As always please share your thoughts and experiences.

spectarte@gmail.com

Asparagus photos by Jo Carpenter.

Homestead in San Antonio
57 acres for grazing and planting
well established fruit trees
Cement Home with 2 full
apartments, private patios & pool
all seeking loving touch of a new owner
US\$249,000
call for appointment to view
501-668-0749 / 663-6777
www.holdfastbelize.com

Bananas in Danger: TR4 Panama Disease

By Evin Zabaneh

The next time you bite into a banana, take a moment to savor the delicious treat. With its sweet, consistent taste and creamy texture, it is no wonder that bananas are the world's most popular fruit. What most do not realize as they are peeling away its golden skin to devour the scrumptious pulp is that bananas are in danger. A serious fungal disease threatens to devastate the world-wide banana industry. The culprit:



Fusarium oxysporum f. sp. *Cubense*, which causes Fusarium wilt or Panama disease, particularly Tropical Race 4.

According to ProMusa, an organization dedicated to promoting banana industry news and science, the fungus survives in the soil and "enters the plant through the roots and colonizes the xylem vessels thereby blocking the flow of water and nutrients." Once water flow is obstructed, the plant's leaves wilt, its base splits open, and the plant later dies.

This is not the first time banana producers have had to deal with Panama disease. Initial reports of the original fungus were noted in 1874 in Southeast Asia. The disease was identified and researched as it began taking a devastating toll on the Gros Michel banana, which was the common commercially-produced banana. By the 1890s, the disease had reached Central America and proceeded to spread, wiping out plantations.

Fortunately, by the 1950s an alternate variety banana, the Cavendish, made its way to center stage as replacement for Gros Michel. It was resistant to the lethal fungus and was an acceptable substitute for the banana market.

By the 1970s, banana producers in Southeast Asia began noticing Cavendish banana plants with the same symptoms that Gros Michel plants had when infected with *Fusarium* wilt. Since Cavendish bananas were thought to be resistant, this prompted further investigation, which led to the discovery of a new strain of *Fusarium oxysporum*—one that the Cavendish banana could not withstand.

The earlier version of *Fusarium oxysporum* that impacted the Gros Michel banana is categorized as Race 1. The strain that invades Cavendish bananas, and threatens the current world-wide banana industry is called Tropical Race 4, or TR4.

TR4 has been identified in Taiwan, Malaysia, Indonesia, Australia, China, the Philippines, Jordan and Mozambique, according to ProMusa. After the disease reaches an uninfected area, it spreads quickly, wiping out thousands of acres of cultivated bananas.

The fungus can be spread through several media. Run-off water can convey the spores to new locations. Soils will hold the fungus for years, long after banana plants are gone. Furthermore, animals, vehicles, footwear and equipment can transmit infected soil. Producers can even spread the fungus by planting plants that appear healthy, but are infected.

"The real problem with Panama disease is that the incubation period is anywhere between 18 months and two years," said Sam Mathias, CEO of the Belize Banana Growers Association, or BGA. Many places could actually have the fungus present in their soils but not see any symptoms in their plants for two years. Once the fungus is present, there is no treatment. According to the World Banana Forum, "There is no viable, fully effective treatment of soil to control *Fusarium* wilt in the field."

Although TR4 has not reached the Americas, its spread remains a possibility. The Food and Agriculture Organization (FAO) of the United Nations recently advised countries to take action to stop the expansion of the disease. Recommendations by the FAO and World Banana Forum include raising awareness of the disease, implementing preventative measures and employing phytosanitary practices. The BGA is urging the Belize Agricultural Health Authority (BAHA) to "introduce measures to ensure the disease doesn't enter Belize," said Mathias. If proper prevention procedures are not put in place, TR4 could reach Belize and present a bleak situation for southern Belize's Banana Belt. Emir Cruz of BAHA said the organization has requested a risk analysis about the disease and plans to work with the BGA to raise awareness of the disease. Cruz also said BAHA is working to secure funds for training qualified officers to assess possible threats of Panama disease at ports of entry. "We are very vigilant with any threat," Cruz said.

Although the outlook for the banana industry seems grim, researchers are studying resistant plants and experimenting with alternate varieties to explore all possible options. The battle against *Fusarium* wilt will likely be long and hard fought, but stakeholders in the banana industry will make every effort to ensure consumers will continue to enjoy their favorite fruit into the future.

Editor's Note: Evin Zabaneh is the operator of Bunches of Fun Banana Farm Tours near Placencia. She has a Master of International Agriculture Degree from Oklahoma State University.

Experience a working
banana farm...
You'll go bananas!

Monday • Thursday • Friday • Saturday

8 a.m. • 10 a.m. • 2 p.m.

Contact Us for Reservations

bunchesoffuntours@gmail.com

624.4297

**BUNCHES
OF FUN
BANANA FARM
TOURS**

Located in Riversdale,
just 20 miles north of
Placencia Village.

Like us on Facebook!



MAYA MOUNTAIN CACAO LTD

Maya Mountain Cacao will be selling 80,000 grafted cacao seedlings during the wet season of 2014 for BZ\$2.50 per seedling.

These grafted seedlings are being produced from trees with characteristics such as high yields, disease resistance, and desirable flavor profiles.

For Pre-Ordering or Information:

Gabriel Pop: gabriel@mayamountaincacao.com

Emily Stone: emily@mayamountaincacao.com

MMC Office Phone: 664-4809

TAMARIND

By Mary Susan Loan

The tamarind tree is a leguminous tree (a tree which bears pods). Tamarind fruit in pods, or hulled is available in farmers' markets around Belize from January – April.



The tamarind tree (*Tamarindus indica*), a member of the *Fabaceae* family, is an evergreen tree which has become increasingly popular in Belize and Central America. Other names for the tamarind tree include: Indian date (tamar-hindi), or tamarindo. The origin of this leguminous tree is in East Africa, particularly in the Sudan where the tree grows wild. The fruit was well-known to the ancient Egyptians, and also to the Greeks as far back the fourth-century B.C. Its origin is also traced to India where it is well-known and prolifically cultivated. Taiwan, southern Asia, Oceania, China as well as most tropical countries world-wide produce tamarinds. Marco Polo introduced tamarinds to Europe in 1298. Tamarind trees were introduced in Mexico in the sixteenth century. Mexico presently cultivates over 10,000 acres of tamarinds. If you enjoy Worcestershire sauce or Marie Sharp's Special Sauce, you may be surprised to know one of the main ingredients is tangy, sweet and sour tamarind syrup. Tamarind trees have many uses including: culinary, medicinal, carpentry, as a metal polish, as an ornamental shade tree, animal fodder, and as mulch.

Tamarind trees are showy and elegant; they produce a magnificent canopy of year-round foliage. Trees can reach up to one hundred feet tall with graceful branches spreading over forty feet across. Some trees are known to survive and produce fruit for two hundred years! Elegant pinnate soft green leaves cover the tree. Each leaf has from ten to forty leaflets about one-half inch long which close at sunset or during cool and inclement weather. The leaflets produce a billowing effect in the wind. Flowers are almost inconspicuously borne-yellow flowers which are faintly veined with red and purple. There are three major varieties of tamarind trees; Asian or East Indian, whose pods contain six to twelve seeds is most common in Central America. African or West Indian tamarinds contain one to four seeds per pod. A third variety is rare; its pods contain a sweet rose-colored syrup. Mature tamarind trees can produce up to five hundred pounds of tamarind fruit per season, although three hundred and fifty pounds is more typical. Most of the tamarinds grown in Belize and Central America are of the Asian or East Indian variety. All varieties produce a great profusion of pods.

The fruit of the tamarind is an indehiscent legume or pod which grows to be approximately three to six inches in length. Immature pods are not easily cracked open. They contain greenish-white very sour hard flesh called 'swett' which is roasted in the shell on coals, then dipped in wood ashes and eaten. The shell is cinnamon colored and brittle when the fruit is ripe. Each pod contains one to twelve seeds which are covered by sticky brownish chocolate colored flesh. Each seed is covered by a thin parchment membrane. The seeds are from 1/8 inch to 1/2 inch in diameter and are shiny, dark-brown and squarish in shape. Seeds are used for jewelry and as a stuffing for bean bags. Take note: seeds which are exposed to damp may start to sprout, creating 'live' jewelry or sprouting bean bags. They are viable for at least a year post harvest. The flavor of ripe tamarind flesh is described as tart, tangy, sharp, sweet and sour – like a fruity cross between apricot, date, pineapple and lemon. Tamarinds may be

eaten 'out of hand' as follows, break open the shell and pull out the fruit, then remove the stringy fibers and place a section in your mouth for a burst of flavor, chew around the seeds, similar to eating a cherry, then spit them out. Tamarind fruit is also easy to make as a delicious beverage. Hull approximately ripe twenty pods, remove the stringy fibers, then place the seeds in one quart of room temperature water and let sit for a few hours or overnight, then wash your hands and massage the seeds to remove pulp, strain and add about one-half cup sugar or honey, stir, add ice, mint or ginger and enjoy a delicious, healthful beverage. Tamarind fruit is also typically made into candy, jams, chutneys, marinades, sorbets and sauces. The taste adds acidity and sweetness to recipes. Cut up veggies and tofu are delicious grilled or baked then topped with a combination of ginger, soy sauce, garlic and tamarind sauce. Tamarind fruit is a supportive ingredient in many cultures and is especially dominant in Indian cuisine.

In addition to being versatile and tasty, tamarind fruit is also very healthy. Tamarind flesh is rich in B vitamins, calcium, iron, thiamine, magnesium, phosphorous, tartaric acid, pectin and antioxidants. The fruit has mild laxative properties and helps ease stomach and liver discomfort. Tamarinds are also used to treat diabetes and obesity, for wound healing due to their antimicrobial and antiviral compounds. They are also used in beverages from reduce fevers and dispel worms. The wood of the tamarind tree is yellow and red and is strong, dense, durable and insect resistant. It is used for making furniture and flooring as well as wooden tools. The roots and branches make attractive walking sticks. Tamarind leaves are used as a textile and goat skin dye. A paste of tamarind fruit is used to clean and polish brass. Leaves are used as fodder for animals and as garden mulch. Trimmed branches make an excellent firewood.

The tamarind tree is easily cultivated and adapts easily to a wide variety of soils in diverse tropical climates and soils and is tolerant to salt spray. It is one of the least demanding trees to grow and can withstand hurricane force winds. Tamarinds propagated from their seeds generally germinate within a week. They should be planted one-half inch deep in potting soil and transplant when trees are at least two feet tall allowing at least thirty feet spacing between trees. Trees planted from seed may be expected to bear fruit in about six to eight years. Trees may also be easily grown from cuttings, shield budding, side veneer grafting or air layering and will produce fruit in approximately three to four years. Tamarind trees are very hardy and resistant to most tree pests. The trees may be bothered by ants. A spray of citrus oil around the base of the trunk of the trees once or twice a season helps to divert ants from crawling on the tree. Ants do not bother the tamarind pods or fruit.

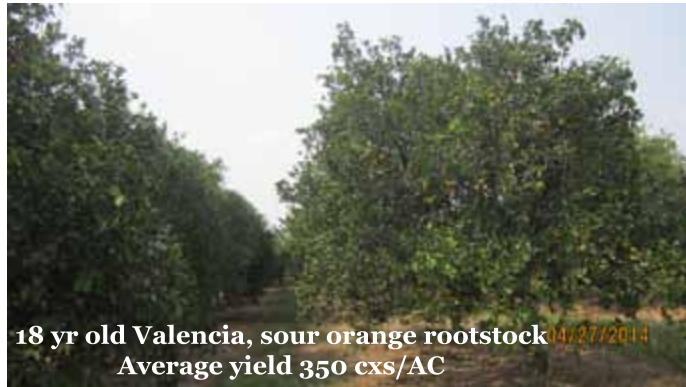
Locals advise to pick the tamarinds once they drop to the ground during early season as tamarinds on the tree will not be ripe. During the late season the branches are shaken to allow the ripe pods to fall to the ground. Tamarinds may remain viable on the tree for up to six months, but will present as dehydrated and the fruit may mold. Fruit pulp is best when it is thick and sticky.

Due to their enormous size and capacity to drop thousands of sticky pods around the tree, tamarinds are not considered a 'back door' tree. If room allows, a tamarind tree or two will grace your orchard for many years to come. Production of tamarind trees can help alleviate world hunger by augmenting nutrition, enhancing food security, promote rural development and improve sustainable land care. Belize is a country that may benefit from increased commercial and small farm production of tamarind trees. New cultivars are being developed that produce sweeter fruit pods.

loanmarysusan@gmail.com

World Market Prices for Citrus Growers

By Frank Redmond



Last year, according to figures from Citrus Products of Belize, Ltd. (CPBL), 385 growers delivered fruit to the processing facility. Orange production was 4 M cxs from a claimed 30,000 acres with an average of 130 cxs per acre. The industry has never achieved an average of 400 cxs per acre. When we delivered 7 M cxs from 40,000 acres, 8 years ago, the average was 175 cxs per acre. Some few groves had production of 400 cxs per acre. It was never an industry wide figure, as low prices prevented growers from affording the necessary inputs. Even with the same inputs our harvest figures for Valencia are different depending on rootstock. Our 18 year old Valencia are on Sour Orange rootstock; the average production is 350 cxs per acre. Fifteen years ago we were advised by the Citrus Growers Association (CGA) that trees grafted on to Sour Orange would be dead in 5 years and that we should use Swingle rootstock instead. But our 15 year old Valencia on Swingle rootstock averages only 30 cxs per acre and are dying.

There is never one simple cause to the problems in agriculture. The decline in citrus production over the past 5 years is a combination of the greening disease, faulty rootstocks and, particularly, low prices to growers. For years, Belizean citrus growers have been paid prices which are much lower than world market prices for citrus juices. The citrus processors in Belize have traditionally produced citrus concentrates, which sell for much lower prices on the world market than the ready-to-drink juices produced in consumer ready packs, such as the "Tetra Pak". These types of packs have the advantage that they can be distributed and stored without the need for refrigeration.

Over 85% of the world trade in citrus juices is in these single strength juices and not in concentrated form. Yet, we in Belize continue to produce concentrated juices. The citrus processing plant in Stann Creek has all the equipment necessary including the packaging machines and extra storage capacity to produce single strength orange juice; but the equipment is not being used. We have a juice that is world renowned for its color and taste and are not taking advantage of these traits. The Central American market is wide open to our juices, particularly Guatemala, where we can export duty free.

Florida citrus growers are receiving **\$26.40** per box for oranges this year, whilst we expect to be paid \$10 for the same quality fruit.

(<http://www.theledger.com/article/2014140329840>)



This is totally unacceptable. Banana growers, sugar farmers, shrimp farmers, fishermen, fish farmers, cacao growers, corn farmers, bean exporters, and other agricultural exporters all receive world market prices for their product. Why shouldn't citrus growers?

If we are to save our industry from citrus greening we have to provide many more inputs, effective and appropriate fertilizers and insecticides, for our groves. If we do this, we can keep production up on our existing groves whilst a solution is found for citrus greening. Researchers in Florida are having success with GMO trees which after 5 years are showing total resistance to greening. Another 5 years of research is needed to prove the concept. It is the only hope on the horizon so far. However, in the meantime, growers need much higher prices to compensate for the extra inputs. It is time that growers demand that their citrus associations stop the fighting and concentrate on working with the processor to provide higher prices.

FreshWater Creek Farms, Ltd.

Mile 10 Southern Highway, Stann Creek District, Belize Central America

Tel: 501-667-7279

Now Available, High Quality Certified Citrus Plants

Bringing innovation and improvements to the citrus nursery industry. We will have high quality certified citrus plants, grown in quality soil medium in plastic pots, available starting April 2014. Place your orders now!

We also provide high quality:

- Exotic Fruits
- Fruit Trees
- Teak Plants
- Landscaping Plants & Palms



Soil Conditioners

By Harold Vernon hmvernon@yahoo.com

Previous articles in the Belize Ag Report have addressed the need for **soil amendments** which are those things added to soils to make up a deficiency or to improve the quality of soils. They include a wide range of organic and non-organic materials with different effects. This article deals with soil conditioners or beneficially changing the soil.

A **soil conditioner** is a type of amendment that is added mostly to improve the soil's physical qualities and thereby enhance the chemical properties, especially the ability to retain moisture and provide food for plants. Soil conditioners improve poor soils, rebuild damaged soils, and can be used to maintain soils in peak condition. Organic soil conditioners include plant and animal wastes –compost, biochar, bone, blood and fish meal, peat, coir (coconut husk), manure, straw, vermiculite, sulfur, lime, blood meal, compost tea, hydro-absorbent polymers and sphagnum moss and even some mineral fertilizers, such as ammonium sulphate, that leave acidic residues, or calcitic and magnesian fertilizers that leave basic residues. The possibility of using other materials to assume the role of composts and clays in improving the soil gave rise to the term, soil conditioning.

Soil Structure. The most common use of soil conditioners is to improve looseness while having good soil structure. Depending on compaction, soils impede root growth and decrease the ability of plants to take up nutrients and water. Soil conditioners can add more airiness and improve texture ratios to keep the soil loose as well as reduce harmful chemical effects such as too high or too low pH.

Soil Nutrients. For centuries man has been adding amendments to improve the soil's ability to support healthy plant growth. Organic amendments add nutrients such as carbon and nitrogen, calcium, magnesium, phosphorus and sulfur, as well as beneficial bacteria. These conditioning amendments enrich the soil and allow plants to grow bigger and stronger.

Cation Exchange Capacity (CEC). Soils act as the storehouses of plant nutrients. Soils need to have a maximum of negative charges, or cation exchange capacity and thus a capacity to store one particular group of positive nutrients, the cations. The most important common soil cations are: calcium, magnesium, potassium, ammonium, hydrogen, and sodium. These cations are exchanged through plant roots, providing plants with the nutrition they require. The counterpoint to managing CEC is base saturation, especially when one type of base, such as carbonate in limestone soils, predominates and blocks or reduces the availability of others. There are weak bases and strong bases. Each type affects the rate of exchange of the cations.

Water Retention. Soil conditioners may be used to improve water retention in dry, coarse soils which do not hold water well. The addition of organic material for instance can greatly improve the water retention abilities of sandy soils and they can be added to adjust the pH of the soil to allow nutrient release and exchange to meet the needs of specific plants or to make highly acidic or alkaline soils more usable. Synthetic conditioners are also available such as polyacrylamide but can be toxic and the scientific literature shows few successes in utilizing these polymers for increasing

plant quality or survival. The other potentially effective tools including hydro-absorbent polymers and copolymers still have to be measured against available biomass and biomass wastes. Filter press muds from sugar cane processing has been used in Belize. Finally, the larger scale conversion of other processing wastes - composting citrus peels, grass cuttings, restaurant and household wastes under the new regime for collecting wastes and disposal as 'land farming', opens the opportunity for producing commercial soil conditioners.

Application. Soil conditioners may be applied in a number of ways. Some are worked into the soil with a tiller before planting. Others are applied after planting, or periodically during the growing season. It is always important to know the composition and contributions of amendments. Soil conditioner can seem like a great way to get healthier plants but over-application of some amendments can cause ecological problems. For example, soil amendments are not productive when added in excess; they can actually be detrimental to plant health by creating imbalances (e.g., carbon: nitrogen ratio). Neither are they are productive when too much is applied at the wrong time. Ecological harm can be due to overload or insufficiency.

Finally, an organic material such as crop residue may increase the incidence of insects, fungus and disease, particularly if left on the soil surface. There is a fine line between beneficial mulching and facilitation of destructive agents. The criteria by which such materials are judged most often remain cost, ability to increase soil moisture for longer periods, stimulation of microbiological activity, the ability to increase nutrient levels and improve plant survival rates.



Thiessen Liquid Fertilizer
Box 208, Route 35 West,
Spanish Lookout, Belize
Email: liquid@spanishlookout.bz
Tel: 670-4817 or 672-2404
www.agroliquid.com

Environment
Friendly

Crop Nutrient

Soil and foliar application

Citrus
Banana
Papaya
Sugarcane
Vegetable
Beans
Corn
Rice

Clean Green,
and no Chlorine

Easy to use

*High*NRG-N™

Sure-K™

Pro-Germinator™

LIBERATE Ca



micro500™

eNthance™



BEL-CAR Updates



A good market for beans should continue in 2014. Beans were still being harvested in late April, finishing approximately 2 weeks later than normal due to the excessive rains which delayed planting time. The later beans, black eyes and RKs, have slightly better yields than the earlier beans. This yield variation may be due to the dryness at the critical podding time for the earlier beans, rather than rains.

Sales this season for beans appear bright, as there is a world shortage of beans. The US Dry Bean Council is advising US farmers to plant 15-20% more beans; however the reality is that the US is projected to be planting less due to a seed shortage. There have even been inquiries from the US to Belize seeking to purchase RK seeds here. Similar seed shortages are reported in Central America but not in Belize. Here, generally farmers save their own RKs for planting the following season; however they are encouraged to purchase certified seed every 4 or 5 years.

Due to the lateness of this year's crop, Belize was forced to import one container (50,000 lbs.) of RKs in December. Jamaica was also totally out of RKs to start the new year, due to shipping problems. Beans were ready but ships were too full to take our beans there. After this was remedied, the pendulum swung to create a glut of beans in Jamaica. There is a chance to over-export beans this year with the world shortage, but BEL-CAR monitors carefully to avoid a local shortage.

Corn is stable at present on the Chicago market, but is expected to climb as demand in the world is rising. China is still increasing her pork production, which requires enormous imports of corn. The uncertainty of political events in Ukraine also complicate the corn market. Although Ukraine's main crop is wheat, a shortage of wheat would turn the market for wheat feeds to rely more on corn. In the regular swings between soy and corn, the US is expected this year to decrease corn acreage by approx 4.1M acres to 91.3M acres and increase soy acreage by 2.2M acres to 78.7M acres.

With approximately half of Cayo's corn used locally (mainly in feeds), the excess is still projected to be exported mainly to CARICOM countries. Guyana, Surinam and Jamaica remain strong buyers for our corn.

Confidence in the local and world market have led to more acreage being cleared during this dry season and increased row crop agriculture in Cayo District.

Article based on interview with BEL-CAR's CEO Otto Friesen and reported by Roberson/Feucht.



PRINTING • PUBLISHING • DESIGNING

Special 100

Color Business Cards
For just \$40^{gst}

www.BRCprinting.com
 EMAIL: sales@BRCprinting.com
 NAZARENE ST • BENQUE VIEJO • CAYO • BELIZE
 TEL: (501) 823-3139 • FAX: (501) 823-3082

HYBRID RICE SEED



RiceTec

Available from

Grain Line

Box 101 Rt. 40E
Spanish Lookout, Belize

675-1185 ~ ray@grainline.bz



BEL-CAR
Export & Import
Company Limited

Specialized in Cleaning, Packing & Exporting Beans and Other Grains

Currently Bel-Car's main exporting products are corn meal, corn grits, and dry edible beans. It has Black Eye Beans, Light Red Kidney Beans, Black Beans, and Small Red Beans available at most times.

MAILING ADDRESS:

BEL-CAR EXPORT & IMPORT COMPANY LTD.
Box 578, Spanish Lookout,
Belize, Central America

CONTACTS:

Tel:- 501-823-0318 /
501-823-0271

Fax:- 501-823-0136

E-mail:- bel-car@btl.net

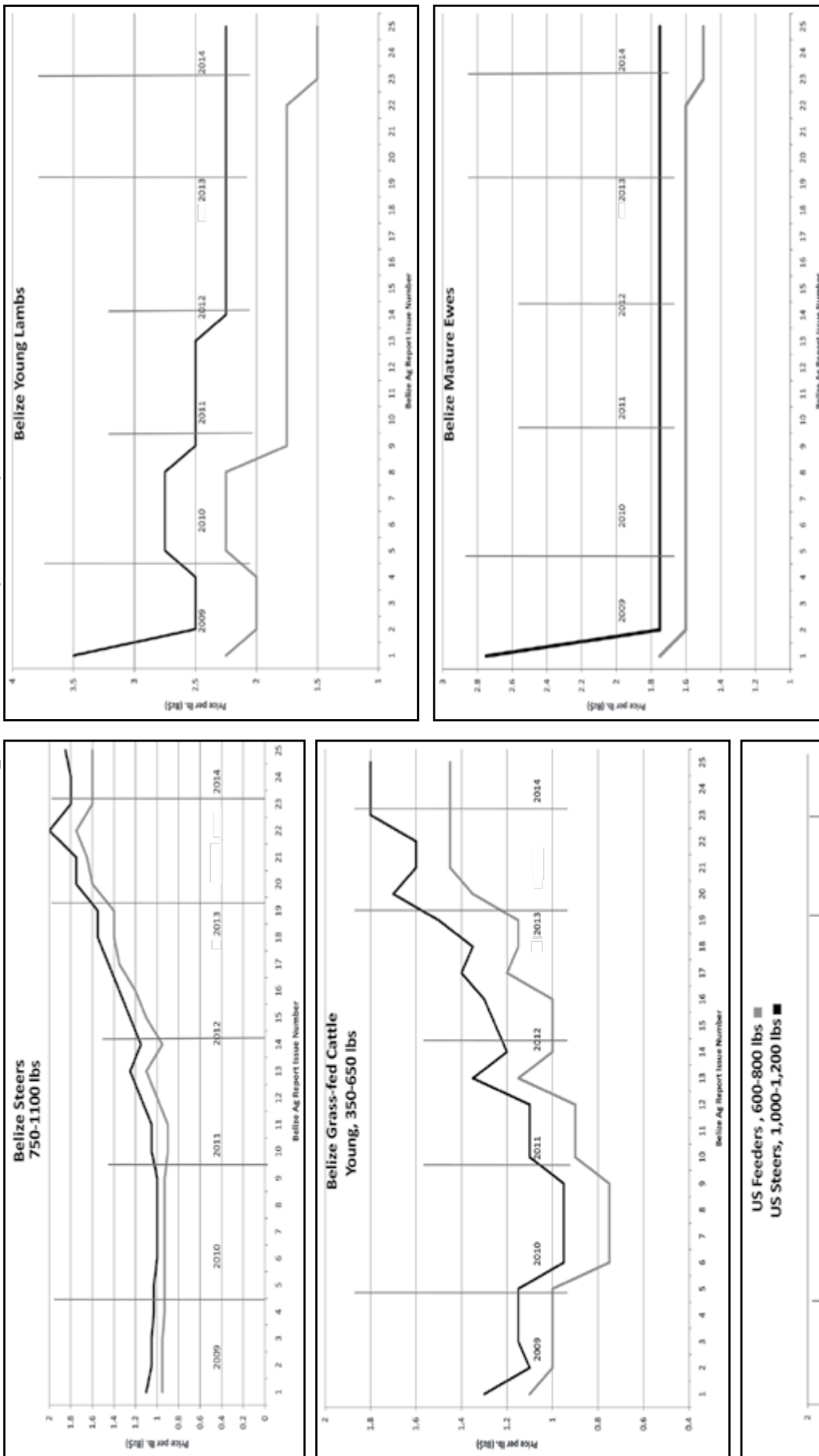
www.belcar.bz

PLANT LOCATION:

Route 20 East
Spanish Lookout,
Cayo District, Belize



5 Year Livestock Prices Chart, April 2009 - May 2014 By Dottie Feucht



The charts above reflect the range of market prices reported by the Belize Ag Report from all issues to date, starting with issue #1 April 2009 and including prices from this issue of May 2014. Prices are in Belize \$, with the exception of the chart for US Feeders/US Steers which is in US \$. The dual lines of Belize cattle charts and on the sheep charts indicate the highest price for the best quality and the lowest price for the lesser quality - actual prices were all prices between these pairs of lines. Belize feeder price variance also often reflects the difference between the higher feeder steer price and lower feeder heifer price. Overall the charts indicate that it may be a fortuitous time to invest in cattle, while the stagnant trend of sheep prices present a limiting factor for investment in sheep.

Agriculture Prices at a Glance- \$\$\$\$ MAY 2014

A-B denotes the difference between 1st preference & 2nd preference and sometimes between wholesale & retail and bulk or small amounts . Trend (H) means Higher over last 30 to 60 days (L) Lower (S) Steady.
Prices intend on being farm gate in Belize dollars - usually price per lb

T	A	B
BELIZE CATTLE		
Young str. & bulls - 750-1100 lbs	H 1.85	1.60 - 1.70
Cows & heifers for butchers	L 1.40	(thin) 1.30
Heifers for breeding 500-800 lbs	H 1.60	1.35 - 1.45
Young grass cattle - 350-650 lbs	S steers 1.80	heifers 1.45
U.S. CATTLE		
U.S. price - corn fed - 1000-1200 lbs	H US\$ 1.46	
U.S. price - feeders 600-800 lbs	H US\$ 1.7857	
U.S. price - aged butcher cows	H US\$ 0.90 - 0.97	
BELIZE HOGS		
Weaner pigs - 25-30 lbs - by the head	S \$90.00 - \$100.00	
Butcher pigs 160 - 230 lbs	H 1.85 - 2.00	1.75 - 1.85
BELIZE SHEEP		
Butcher Lambs	S 2.00 - 2.25	1.50 - 1.75
Mature Ewes	S 1.75	1.50
BELIZE CHICKEN		
Whole sale dressed	L 2.41	
Broilers - live per lb	L 1.23	
Spent hens	L .50	
CITRUS		
Oranges per 90 lb box-lb. solid basis	L 9.0118 (1.5274 Pps)	1st Est. 2014 price
Grapefruit - per 90 lb box	Price Pending	

T	A	B
GRAINS, BEANS & RICE		
Belize yellow corn	S .225 - .25	.215 - .22
White corn	S .32	
Corn/local retail (low volume)	S .29	
US corn @ US\$ 5.61 - per 56 lb bu	H \$ BZ 20.04/cwt + 8¢ ft. to BZ	
US non-GMO yellow corn US\$ 5.82 - 5.32/bu	H \$ BZ 21.82/cwt	
Guatemala corn price/Peten	H .23 - .24	.22 - .23
Belize soy beans	S .59	.57
US soy beans @ US\$ 15.46 per 60 lb bshl	H \$ BZ 51.53/cwt + 8¢ ft. to BZ	
Belize milo (none available)		
Red kidney beans		1.75 farm price
Little reds & black beans	L 1.25 - 1.30 farm price	
Black eyed peas	S .60 - .65 farm price	
Paddy rice per pound	S .40 - .53 farm price, dried	
SUGAR/HONEY		
Sugar cane, ton	H first estimates 2014 crop: \$60.13	
Bagasse		pending agreement
Honey per lb (Cayo)	S 2.50 (approximately 12 lbs/gal)	
SPECIAL FARM ITEMS		
Eggs - tray of 30		5.25 farm price; retail .30 - .33 per egg
WD milk per lb to farmer	H contract .53; non contract .53	
Raw milk (farmer direct sales)	S 8.50 gal (5 gal + 8.00 gal)	
CACAO		
Cacao beans (TCGA) /lb	H 2.75 dried fermented	
Cacao beans (TCGA) /lb	H 1.10 wet beans	
US Cacao beans, New York, metric ton	H US\$ 2,912.00	

It's a great time to be a farmer in Belize, as prices on many commodities are moving up. Cattle prices resume their upward climb. US cattle prices are up as well, coinciding with the lowest US national herd since 1951. Milk prices have risen 6% since our February page and non-contract milk price is now equal to the contract price, as demand is greater than supply. A temporary glut of eggs has caused many spent hens to enter the market, creating a substantial drop in price. Chicken prices have dropped a bit as well. Corn prices remain fairly steady approaching corn planting season. We were surprised to see Belize Non GMO corn meal advertised on an international trading site at a premium price: \$13-14USD/50 lbs. Bean prices should remain strong as there is a world shortage expected to continue through the year. Lime prices soared in Belize, Mexico and the US recently; other Belizean citrus prices are lacking. See citrus article on pg. 11. Sugar cane's estimated price is up 13%, but the bagasse price is still in negotiation. World cacao is up considerably; TCGA has increased prices to its members as well. Honey remains stable but specialty varieties (single nectar honeys) are bringing a 50% premium. B. Roberson

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

Bird Watch - From My Perch

By Marguerite Fly Bevis

Endangered Species

Although Belize boasts at least 444 species of birds, the Scarlet Macaw (*Aramacocyanoptera*) is one of the most beautiful and one of the most threatened birds in the jewel. Scarlet Macaws have survived the tragic flooding of their habitat by dams built in the mid 2000's. In 1989 there were about 200 known Scarlet Macaws in the country. Today, there may be 200 to 250 birds. They remain at threat due to the incursion of poachers who steal chicks and cut down nesting trees. Scarlet Macaws are already extirpated in most of Central America.



Funding is needed for patrolling, fuel, supplies for the conservation teams working in very remote locations within the Chiquibul Forest Reserve. Due to monitoring and protection efforts of the Friends for Conservation (FCN), the "Scarlet Six," a group dedicated to protecting this important species, and individuals, Sharon Matola of the Belize Zoo, Dr Isabelle Paquet-Durand of the Belize Wildlife & Referral Clinic, Charles Britt, Kristi Drexler, Roni Martinez and many others, poaching in recent years has dropped from 90% to 30% according to a monitoring team in 2013. U.S. citizens can make tax deductible donations to the Rainforest Rescue Foundation, specifying the funds to be allocated to the Belize Scarlet Macaw project.

Another way to help is to volunteer time to camp near the nesting sites to observe and monitor Scarlet Macaws. The presence of humans in the nesting area serves to keep poachers away. Charles Britt says, "This is an opportunity to camp out way 'bak-a-bush,' to really get away from it all. You would be responsible for your own camping gear, your own food and supplies. Plan to go for about a week. If you are interested, contact Roni Martinez, Chief Conservation Officer of Blancaneaux Lodge." Look for a report on this experience in a future issue of the Belize Ag Report.

Another exciting conservation project is raptor research which is ongoing in Belize, with scientists studying Solitary and Harpy Eagles, among other raptors, such as the Hook-billed Kite, Orange-breasted Falcon, and many others. The 4th Annual Bird-a-Thon was held in March 2014 for a week in order to help raise funds for ongoing raptor research in Belize. This is the fundraising highlight for the Belize Raptor Research Institute (BRRRI) which was founded by Ryan Phillips. Individual teams and lodge teams participated by counting bird species during any 24 hour period of time within a single week. Participants compete for prizes and the BRRRI trophy for the most species observed. Please see more information about this worthy project at www.belize-raptor-research.com/.

Funds raised are used for:

- * GPS-satellite studies on the rare Solitary Eagle
- * Outreach to communities about the benefits of raptors
- * Educational materials including posters, information pamphlets and guides
- * Supporting internships
- * Supporting the Belize Raptor Watch Program
- * Research on the enigmatic Hook-billed Kite
- * Protection of habitat for raptors and biodiversity

Results Of The 2014 Fourth Annual Bird-A-Thon

Lodge-A-Thon

- 1 Lamanai Outpost Lodge 205 *Winners Of The H. Lee Jones Cup!*
- 2 Mountain Equestrian Trails 175
- 3 Black Rock Lodge 160
- 4 La Milpa Ecolodge and Research Center 158
- 5 Mariposa Lodge 129
- 6 Mama Noots Eco-resort 122
- 7 Farm Inn 108
- 8 Hamanasi Resort 106
- 8 Bird's Eye View Lodge 106
- 10 Pook's Hill Lodge 95

Bird-A-Thon

- 1 WeBird Belize 223 *Winners Of The 2014 Bird-A-Thon!*
- 2 BRRRI Bird-a-holics 188
- 3 Corozal 99
- 4 Caye Caulker Birthday Birders 52

Best Bird: Black-collared Hawk Crooked Tree 2014 Bird-a-thon

The Bird-a-Thon is held annually with the goal of raising \$15,000. Expect to see many more lodges and individual teams participating next year in March. You can help by sponsoring one of the teams or lodges, donating per species or per eagle, or just give anything you wish.

Please feel free to contact me with birding news and conservation efforts.

Happy Birding!
marguerite@pobox.com

Scarlet Macaw photo by Roni Martinez

Harpy Eagle Photo By Holly Huddleston Smith



Mountain Equestrian Trails
Cayo, Belize

metbelize@pobox.com
www.metbelize.com

BLPA Works to Address Membership Needs

By Beth Roberson

Following a successful AGM the end of February, BLPA has buckled down following through on ongoing projects and expanding into new areas. At the AGM, one new director was added, Mr. Albert Moore, of Cayo District. Officers for the new board will be reported in issue 26. Prices for finished steers/bulls and prices for breeding heifers continue their upward climb. (See pg. 14 for charts showing Belize cattle prices over the past 5 yrs.) The market outlook for cattle production in Belize continues to look very bright.



L-R Dr. Pomareda, Dr. Ibrahim, A. Macpherson, A. Bedran & J. Alpuche

- **The Cattle Sweep:** The second round of the sweep is almost completed in the Northern Districts of Orange Walk and Corozal. Work in the central zone will begin on May 17th.
- **Restructuring:** BLPA is undergoing analysis to see how best to revise itself to better serve members. Inter-American Institute for Cooperation on Agriculture (IICA) is assisting in that task, and sent Dr. Carlos Pomareda, an experienced livestock consultant and rancher himself, from Costa Rica to Belize. Dr. Pomareda met with Ministry of Natural Resources and Agriculture (MNRA) officials including Chief Executive Officer (CEO) Jose Alpuche and Chief Agriculture Officer (CAO) Roberto Harrison, BLPA directors and some member ranchers over a 3 day period the

week of April 7th. He sought out information from officials and members as to what services they want to receive from BLPA, MNRA and Belize Agriculture and Health Authority (BAHA). Ranchers, meat processors, dairy farmers and processors; all were included in the dialogue. The preliminary report has already been received by BLPA; recommendations from the final report should be ready for BLPA's column in issue #26.

- **Financing Opportunities:** At a National Association of Credit Unions meeting on March 14th, BLPA CEO Alistair Macpherson made a presentation sharing information regarding opportunity for financing in today's cattle industry. Credit unions and the The Development Finance Corp. (DFC), who also contacted BLPA for input, are keen to understand and meet the credit needs for cattle projects. One notable difference in the cattleman's needs and those of other clients, is that the rancher's investment timeframe is longer than normal; the time between initial investment and point of sale can be as long as 3 years. Therefore, monthly payments beginning right at the loan start are unsuitable for this industry. BLPA has expressed a willingness to assist creditor organizations with services of farm plan evaluation and monitoring.

Miss Miscovits, an Argentinian consultant to the International Development Bank (IDB) visited BLPA on April 3rd to discuss financing needs and projects in general which IDB may facilitate for BLPA.

- **Marketing:** Dr. Simone Titus, of Trinidad and Tobago's Ministry of Food Production (their equivalent to our BAHA) visited BLPA on March 19th. The trip to Belize involved fact-finding with regard to purchase of Belizean beef and cattle for slaughter.

CEO Alistair Macpherson met with Sr. Miguel Angelo of the Mexican Embassy to discuss, amongst other issues, the current 15% import tax which is placed on all Belizean cattle, now qualified for legal export to Mexico. Until the cattle sweep enabled legal export, the longstanding punitive tax was a moot point. However after Mexico's great assistance to Belize, and Belize's compliance, it is disappointing to see this obstacle to cattle sales remaining.

- **Bats:** Both BLPA and MNRA have been inundated with requests for help from ranchers countrywide, asking for assistance in trapping the vampire bats that molest their stock. Although they can carry rabies, there has been no increase in rabies occurrence noted. MNRA has just received 24 new sets of bat traps, so contact your district livestock extension officer for assistance.
- **Jaguars:** At the AGM, ranchers from Sarteneja to the deep South reported an increase of jaguar problems with their livestock. The forestry department has a new Jaguar Officer to mediate between farmers and jaguars. Ranchers can contact Mr. Edgar Correa directly at jaguar.officer.fd.bz@gmail.com or telephone him at 664-4550. As he spends much time in the bush, don't be discouraged if you cannot reach him right away on the phone.
- **Punta Gorda Rancher Meeting:** On 5th April, CEO Alistair Macpherson travelled to Punta Gorda to discuss ranchers' needs in Toledo District. The hottest topic affecting ranchers in this area is land tenure. Land rights litigation and ongoing confusion regarding land use in the southern areas have made it very difficult for cattle ranchers to obtain titles to land.

PROSSER FERTILIZER
FOR BETTER CROPS

RANGEMASTER
Barbed Wire

• HEAVY DUTY
• GALVANIZED COATING

• HIGH TENSION STEEL
• 1/4 MILE IN LENGTH

Belize Livestock Producers' Association



Cattle—One of the oldest Industries in Belize— Now one of the Agriculture Industries with a very exciting future
Local and Export Oriented

Phone: 501– 822-3883

Pesticides Control Board Pesticide Imports Statistics

April 2014

The Pesticides Control Board over the past years has been gathering data on the importation of pesticides in Belize. Since 2006, the focus has been on having the database reflect the quantities imported expressed in kilograms of Active Ingredient (kg of A.I.). The following is a report on the pesticides imported into Belize between 2010 to 2013.



Figure 1 shows the total amount of pesticide imported between 2010 to 2013. This includes the following pesticide classifications: domestic, agricultural, industrial and public health use. There was a slight increase between 2010 to 2013 from seven hundred and thirty metric tons to one thousand and ninety three metric tons of Active Ingredients.

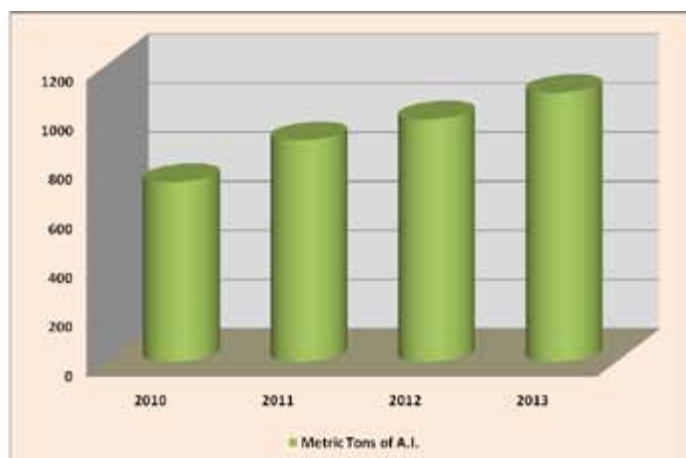


Figure 1 Pesticides

For that same period, we have been seeing an increase in herbicide importations since 2010 from two hundred and five metric tons to four hundred and twelve metric tons of active ingredient. See figure 2.

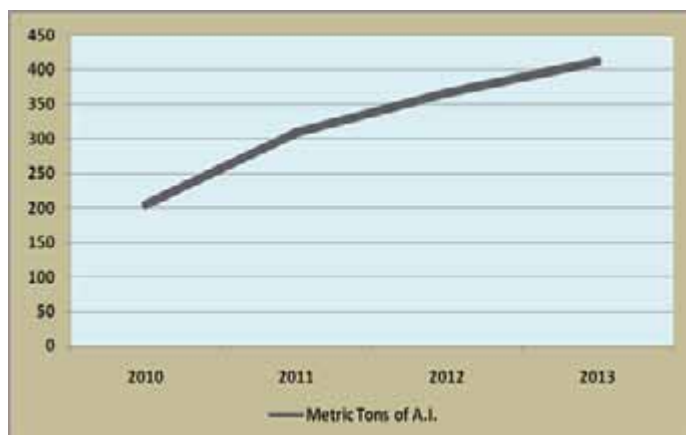


Figure 2 Herbicides

In 2010, fungicide imports amounted to one hundred ninety eight metric tons. However, there has been a slight decrease between 2011, 2012 and the trend is picking up for 2013 amounting to one hundred and eighty metric tons. See figure 3.

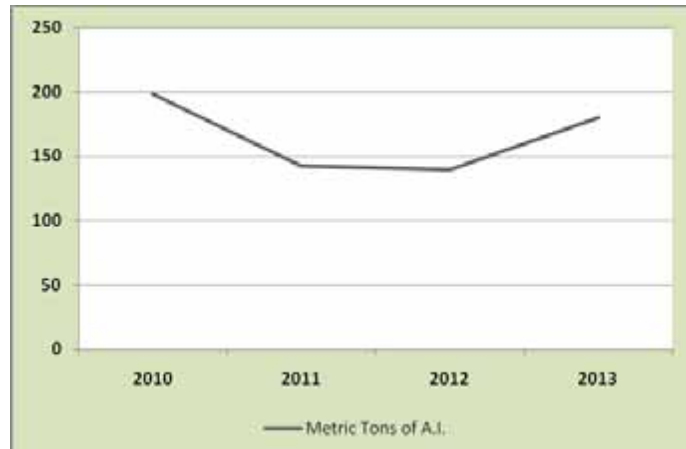


Figure 3 Fungicides

There was an increase in the importation of insecticides in 2012 amounting to eighty eight metric tons and in 2013 there was a decrease down to fifty eight metric tons. See figure 4.

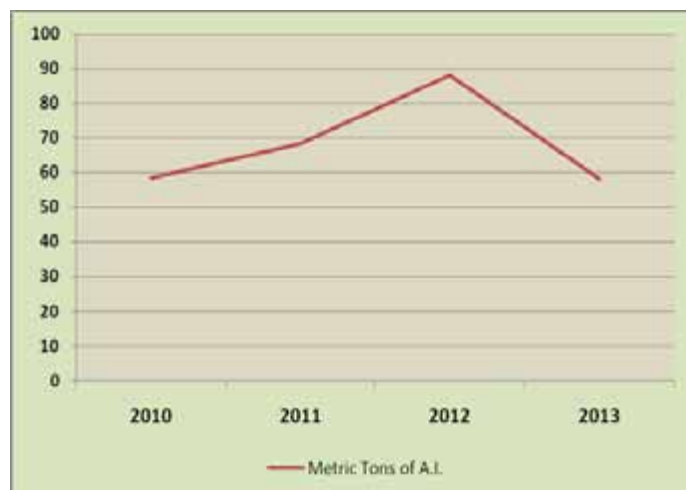
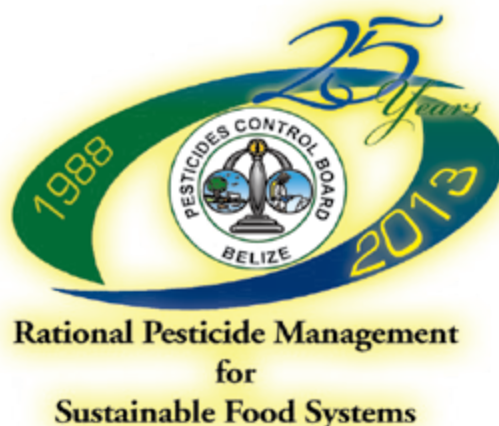


Figure 4 Insecticides

Continued on page 25



Pesticides Statistics...Continued from page 25

The top ten most imported pesticide between 2010 to 2013 includes glyphosate as number one with five hundred and nine metric tons, followed by mancozeb with three hundred and fifty five metric tons.

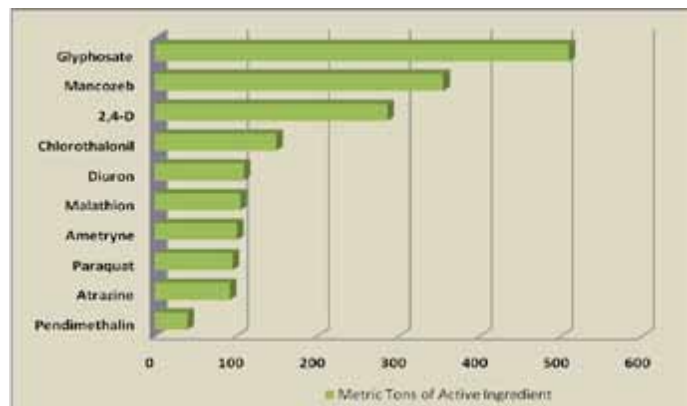


Figure 5 Top Ten Pesticides

Editor's Notes: Graph #3 Fungicides: Fungicides entering Belize as 'seed treatments' already on the seeds are not included in these figures. Graph #5 Top Ten Pesticides: The top import, Glyphosate, is the active ingredient in Round Up. Glyphosate is banned already in El Salvador and Sri Lanka; Brazil's Federal Prosecutor demands a ban and a formal re-evaluation of its toxicity to humans and the environment. See Ag Briefs pgs. 25 & 26 for more information on Glyphosate in the news.

Errata: PCB article, issue 24 pg 9

The article states that the "Impetus for the establishment of the PCB was the export of bananas as a result of the exportation act adopted by the government in 1985". Taken verbatim from the presentation script, what was said was: "You have heard here today that it was a threat to beef and citrus exports due to the detection of pesticide residues that served as the trigger for the passing of the Pesticides Control Act in the National Assembly in 1985. The ensuing order for commencement on 31 December 1988 marked the beginning of pesticide regulation in Belize, the milestone celebration of which brings us together today twenty five years later."

The article says "Miriam said there are 1/2 million tons of obsolete pesticides in Belize". Taken verbatim from the presentation script, what was said was: "The intensification of agricultural production has been almost synonymous with an increase in the use of pesticides among other inputs. In remarks made by Mr. Jose Graziano de Silva, Director General of the FAO (at the 2013 Conferences of the Parties to the Basel, Rotterdam and Stockholm Conventions held in Geneva, Switzerland), it was noted that the global pesticide market now stands at 50 billion dollars. He also made mention that there are currently 1/2 million tons of obsolete pesticides estimated in the world. His remarks concluded that excess pesticides will always end up as waste – be it in soil, water or food – stressing on the importance of the targeted application of pesticides – as is being promoted in the Save and Grow paradigm for sustainable agricultural intensification."

REIMER FEED MILL

Center Road, Spanish Lookout • Tel: 823-0105/0273 • sales@reimersfeed.net

**COMPLETE POULTRY, LIVESTOCK & PET FEEDS + SUPPLIES
EQUIPMENT AND HEALTH PRODUCTS**



SAN IGNACIO

13 Savannah Street
Tel: 824-0105

BELMOPAN

1903 Constitution Dr.
Tel: 822-2088

ORANGE WALK

42 Lovers Lane
Tel: 322-1170

BELIZE CITY

1615 Moho Bay
3 Mls. Philip Goldson Hwy.
TEL: 223-0606



...we're growing Belize



HOMEMADE HEALTH

FERMENTED FOOD

MARGUERITE FLY BEVIS, RN, BSN

The frequent use of antibiotics and antibacterial soaps results in a depleted supply of "good bacteria" in our gut which we need to effectively get nutrients from our food. We hear about probiotics and buy expensive tablets to counteract the effects of taking antibiotics. A healthier approach is fermented food; it helps to restore the proper balance of bacteria in the gastrointestinal system while being tasty and interesting and full of nutrition. Fermentation helps pre-digest food before we consume it. Foods that are difficult to digest are more easily broken down after fermentation. In some cases micro-nutrients are synthesized during the fermentation process. For example, cabbage that has been fermented has known cancer fighting compounds. These foods are rich in enzymes which are needed to digest, absorb, and utilize the nutrients in our food. They help us to absorb the nutrients we're consuming. Lacto-fermented food is easy and inexpensive to prepare; foods like sauerkraut and pickled cucumbers provide the same benefits as purchased probiotics.

Fermentation is a good way to preserve foods, increase nutritional value and improve taste without spending a lot of money. There was a workshop on fermenting foods at the Caves Branch Jungle Lodge in January 2014. Instructors were expert artisan cheese makers from Vermont, Larry & Linda Faillace, who also periodically teach courses in cheese making at Caves Branch Jungle Lodge. They taught that fermentation is as simple as storing food in an acid, controlled environment for prolonged periods of time until the food is ready for consumption. Fermenting food is a safe way to preserve food. Lactic acid inhibits the growth of all known food pathogens. Properly lacto-fermented fruits and vegetables are inherently safe. One of the most feared pathogens associated with food preservation is *Clostridium botulinum*. It is virtually unheard of in vegetable and fruit ferments.

Humans have been fermenting food for thousands of years as evidenced by seven-thousand-year-old jars containing wine found in the Zagros Mountains of Iran and similar findings in the Caucasus area of Georgia. Over time, fermentation has been gradually replaced by canning pickles in vinegar. Vinegar pickles are delicious but they don't provide the nutritional benefits. You can find fermented pickles in some deli stores but they can easily be made at home for only a few dollars.

In addition to sauerkraut and lacto-fermented pickles made of cucumbers or other vegetables, other fermented foods are cheese, yoghurt, and Kimchee, a favorite Korean recipe which is a spicier version of sauerkraut. You can try using the brine to preserve lemons and oranges, green mangos or papayas.

Equipment needed: Sharp knives or a mandolin or food processor and good quality crocks or glass jars which are meticulously clean and free of cracks or blemishes. During the fermentation process, you need to keep oxygen away from the vegetables. You can find specialized pickling crocks or you can place ziplock bags filled with sufficient brine solution (1.5 tablespoons to one quart water) on top of the vegetable solution to keep the vegetable submerged in the brine, keeping oxygen out. Vegetables need to be as fresh as possible. Cucumbers need to be picked less than 24 hours prior to preserving for the best results. The fresh produce needs to be rinsed thoroughly to remove contamination by pesticides if they are not organically grown.

How to brine: 1.5 tablespoons non-iodized salt to one quart of water. Pickling salt works best as it contains no additives which cause cloudiness.

Recipes

Sauerkraut:

5 pounds cabbage.
For every 5 pounds of cabbage, you need 3 tablespoons of non-iodized salt.

Core the cabbage and slice into very thin slices. In a large mixing bowl or large crock, mix the cabbage and salt well, bruising the cabbage by kneading it and mashing it. Pack the cabbage mixture into the jar or crock you plan to use, using your hands or a potato masher to pack it very tightly. When all the cabbage is packed into the vessel and there are no visible bubbles, protect it from air with a plate or brine-filled food quality ziplock bag. You can use a clean cabbage leaf or cheese cloth between the plate and the cabbage mixture. Leave overnight. If there is not enough brine to immerse the cabbage thoroughly, add more brine (1.5 tablespoon to 1 quart water) to make sure the cabbage is completely under water. Place the jars/crock in a place where the temperature is no more than 75 degrees F and no less than 60 degrees minimum.

At 75 degrees, the kraut will take 2-4 weeks to develop. Check the kraut every day or two; if you find scum on the surface of the brine, remove it with a spoon. When the bubbling ceases, and the cabbage has turned golden, the sauerkraut is ready. At this point, place the kraut in the refrigerator for storage. Other ingredients can be added according to task, such as caraway or dill seeds. Russian methods add grated carrot, thinly sliced apples and/or whole cranberries or raisins along with caraway seeds. You can experiment with tropical ingredients such as shredded green mango, fresh pineapple or green papaya.

Pickled Cucumbers:

You can use a 5 gallon bucket or large jar for making Jewish Deli-style pickles. The key is to use the freshest cucumbers possible. Make sure they are washed well, dried, and kept cold until use.

Half sour pickles are very crisp and halfway between a fresh cucumber and a pickle. Make sufficient 3% brine to cover the cucumbers (2 tablespoons to 1 liter water). Ferment for one week at 65 to 75 degrees F. If any scum forms, remove it. When the fermentation is complete, place the cucumbers and brine in jars and refrigerate. They will last weeks or even months if refrigerated.

Full sour pickles still have a crisp texture but are quite sour and the color is completely transformed. Use a 6% brine (4 tablespoons to 1 liter water) and ferment from two to four weeks at 65 - 75 degrees F. After two weeks, taste every two days until they have fermented to your taste; then place pickles and brine in jars in the refrigerator. Once refrigerated fermentation stops.

Other ingredients which can be added according to taste are garlic, coriander seed, mustard seed, hot chiles (sparingly), bay leaf or even an allspice leaf; whole peppercorns and dill are favorites. Dill and chile amounts should be kept small.

There are many other recipes for fermented food, Kimchee, pickled lemons, and jalapenos. A simple search on the Internet will yield a great deal of information. If you decide to give it a try, let me know how it works out. Email marguerite@pobox.com.

Disclaimer: The information here is not intended to substitute for medical care or advice. Please see a doctor or nurse if you are ill.



Spanish Lookout Commercial /Industrial Expo 2014



Most of the steady stream of traffic heading for Spanish Lookout on February 28 and March 1 must have been going to the Expo held there. The park and huge covered pavilion were teeming with people. Friday's crowd numbered 4,000, many of which were students; Saturday's crowd was 11,000, greater than the previous Expo held in 2012. People came from all over the country to view the displays and products of the 100 exhibitors, enjoy the wonderful food and fun on buggy rides, boat rides, tractor rides, ATV rides, trampolines and in the bounce house. The agricultural and commercial exhibitors were from all over the country. A big livestock exhibition was planned but ended up very limited because the dates of the

Expo coincided with the country-wide Cattle Sweep program, in which cattle were being examined and certified to be free of disease. If you haven't attended Expo before, look forward to attending the next one in 2016.



LOCAL KNOWLEDGE INTERNATIONAL CONSCIOUSNESS

CEIBA REALTY OFFERS A FULL SERVICE INVESTMENT AND PURCHASING OPPORTUNITY. WITH OUR YEARS OF EXPERIENCE IN THE BUSINESS AND OUR VAST NETWORK OF PROFESSIONALS WE CAN ASSIST IN EVERY ASPECT OF YOUR BELIZE REAL ESTATE INVESTMENT OR DEVELOPMENT.

161 WESTERN HIGHWAY, SANTA ELENA, CAYO, BELIZE

OFFICE: 501-824-4050 MOBILE: 501-610-4458

EMAIL: CEIBAREALTY@BTL.NET

WWW.CEIBAREALESTATEBELIZE.COM

WWW.4BELIZEREALESTATE.COM

WESTROAD DEVELOPMENT
&
LUMBER YARD

PHONE: 824-4020 / 672-1010
email: westroadbz@gmail.com

HARDWOOD	LAND CLEARING
EXOTIC WOOD	ROAD WORKS
CUSTOM SAWING	CONSTRUCTION
LOGGING	TRUCKING
REFORESTATION	SITE PREP.

WE NOW HAVE TWO MEDIUM SIZED DOZERS BOTH WITH 6 WAY BLADES PERFECT FOR DRIVEWAY AND ROAD WORK.

Honey: Nutritional Facts and Medical Uses

By Gary Tulloch



Bees transferring honey

Honey has been consumed by humans for over 10,000 years. It is the only food from insects that we eat. Honey is derived from the nectar of flowers, which is gathered by the female, or worker bee and stored in her honey sac for transportation to the hive. While obtaining the nectar, pollen from the flower is gathered on the two hind legs of the bee. During the course of the day, a bee may make as many as 25 trips gathering nectar and pollen, but will only visit one type of flower. This phenomenon is known as flower fidelity and is nature's way of not confusing the pollination issue.

Upon her returns to the hive, she is greeted by guards who identify her as a member of the colony and allow her entrance. She then passes her partially digested nectar to another worker or deposits the nectar in an empty cell in the wax foundation. The pollen is deposited in a cell and softened with water to a paste. This pollen paste, a source of protein, is used for rearing the brood.

The complex sugar (sucrose) is converted to simpler sugars (glucose and fructose) to which are added enzymes. Water, which in the beginning stage of honey is the dominate component, is evaporated by the bees fanning the honey with their wings. Less water content allows the product to better resist spoiling. Good honey contains only about 18% water or less.

The mature honey consists of 80% sugar, mostly fructose and glucose, 18% water and 2% minerals, vitamins, pollen and protein. One tablespoon of honey contains 64 calories. Honey has a healthy glycemic index, which means its sugars can be more gradually absorbed into the system resulting in better digestion.

The vitamins present are B6, thiamin, niacin, riboflavin, pantothenic acid and certain amino acids. The minerals include calcium, copper, iron, magnesium, manganese, phosphorus, potassium, sodium and zinc. Honey also contains antioxidants and is free of fat and cholesterol. Furthermore, the vitamins and minerals in honey help to metabolize undesirable cholesterol and fatty acids on the organs and tissues, thus helping to prevent obesity. Honey also improves the immune system. It also provides relief from coughs by soothing the throat. Mixed with milk and taken before bedtime it helps the sleep process.

Through the ages honey has been used to help the healing of wounds. Bacteria do not live in honey and its application to wounds tends to dry out bacteria which may be present in the wound site. Some studies actually show that honey can kill bacteria by virtue of a protein known as defensin-1. Additionally, the dressings for the wound do not stick to the affected areas when honey is applied, resulting in pain free changing of the dressings and less interference with newly forming tissue over the wound area.

There have been some significant results in healing diabetic ulcers by applying honey to the affected area. One case example described a patient with diabetic ulcers on his feet, who, after spending over US\$395,000.00 in treatments and surgery over two years, had lost two toes and experienced no healing of the ulcerated areas. Within weeks of treating the areas with honey, the sores were cured and the patient was ambulatory.



In addition to wounds and infected areas, honey is also good for treating burns and as a skin cream. Local honey also helps to minimize the effects of seasonal allergies. This appears to be the result of local pollens being introduced into the system by ingesting honey, thus helping to immunize the individual from the effects of the airborne pollens. Studies have shown honey to be helpful in preventing acid reflux and in shortening the duration of bacterial diarrhea in infants and young children.

The wonderful thing about honey is that when consumed as raw honey (not heated over 116 degrees) it is an entirely pure and natural sweetener with no adverse effects and instead, abundant healthful properties.

Hill Bank Farms

@ mile 4.2 Cristo Rey / San Antonio Rd,
Cayo

Trees for Sale

Litchi @ \$ 40.00 each

Coconuts @ \$5.00 each

Jatropha @ \$1.00 each

Contact Gary E. Tulloch 667-4001

e-mail: hillbankfarms@yahoo.com

Citrus Greening...Continued from page 6

For the last two or so years I have grown vegetables in open fields in Belize in both Belize and Cayo Districts during the dry, wet and cool months. No poisons of any kind were used to grow our vegetables, which are not only healthy, but very nutrient-dense. I have also grown rice and corn on small plots without insects, weeds nor disease pressure. I have applied a proprietary foliar spray that builds the immune and electrical system of the corn plant to such a degree that the corn worms and insects disappear. Later this wet season, I hope to grow large commercial row crops without poisons of any kind and to create high nutrient-dense grains, completely GMO and poison-free. I also have a couple of citrus trees that had showed the typical greening symptom – blotchy mottling of the leaves and yellowing of leaf veins and shoots. After several weeks of nutrient balance, the blotchy mottling has disappeared and new very green leaves have appeared.

In conclusion, based on study and experience, this author can say:

- Insects and disease organisms are a result of poor farm management, especially the use of high salt fertilizers and the wrong types – the chemistry is mis-matched.
- The use of pesticides and herbicides make the bad-fertilizer choice worse. All herbicides affect root growth of all plants, causes the up-take of nutrients to be negative, and destroys microbial life in the soils.
- The use of GMO only makes the situation worse because we seem to forget that the purpose of growing crops, vegetables, nuts, and fruits is for human consumption – to create energy for our living.
- The very process of GMO is a human health nightmare – the insertion of a **foreign** gene in any human food will **always** be rejected by the human body. It will always cause **an inflammatory** response.
- Every doctor knows that inflammation is the precursor to most health problems – cancer, diabetes, heart, auto-immune, etc.

bilindo2001@gmail.com



bambu tee

Refresh Yourself!

Front Street, Caye Caulker
Inside Oceanside Nightclub

Welcome Center, San Ignacio
At Booth #3



Specializing in Processing Chicken and Turkeys
Wholesale Delivery Countrywide

Main Office
Spanish Lookout
Center Road
Tel: 823-0113
Fax: 823-0248
www.qualitypoultryproducts.com
info@qualitypoultryproducts.com

Belize City
3 North Front Street
Tel: 223-1932
Fax: 2231768

Belmopan
107 hummingbird Hwy
Tel: 822-3963
Fax: 822-0196

Dangriga
1 1/2 Mile SC Valley Rd
Tel: 522-0186
Fax: 522-0246

Punta Gorda
Jose Maria Nunez Street
Tel: 722-0084
Fax: 722-0002

San Pedro
Boca Del Rio
Tel: 226-2501
Fax: 226-3129

No Hormones No Preservatives

Mr. Greedy's Pizzeria

PASTA BURGER SALADS **SUBS WINGS CEVICHE**

PIZZAS STARTING AT \$12.50

COMING SOON DEEP DISH PIZZA!!



AG BRIEFS



New Inter-American
Institute for Cooperation
on Agriculture, (IICA)
Country Representative



to Belize: Ms. Jean Lowry, a Canadian national with a M.Sc. in Resources and Environment from the University of Calgary, has taken over Belize's IICA office from Dr. Muhammad Ibrahim. Ms. Lowry's immediate past assignment was as IICA Representative to Barbados. She has also worked in Canada, Indonesia, the Philippines and Guyana. Welcome, Ms. Lowry.

Net US farm income is predicted to decline 24% in 2014 (FAPRI, Food & Agriculture Policy Research Institute). Although cash expenses are projected to fall, the decline gross income is anticipated to be larger. Changes in the US crop insurance program has many nervous, as does the volatile situation in the Ukraine, known as the bread basket of the former USSR. US corn acreages are expected to drop and soy acreages to rise. FAPRI predicts that overall food prices will rise 2% in the US in 2014.



According to University of Missouri's Annual Cattle Inventory Summary, released in February of this year, "The total number of cattle and calves in the U.S. on January 1, 2014, was 87.73 million head, down 1.8% from January 2013 and 9.2% lower than at the last cyclical peak in 2007. **This is the lowest January cattle inventory since 1951.**" Cattle prices are high, even though feed costs are lowered, due to the shortage.



The Chocolate Festival of Belize

will be held on May 23rd to May 24th (Commonwealth Day weekend) in Punta Gorda Town, Toledo District. For more information go to www.chocolatefestivalofbelize.com



A 1.07B US\$ merger in early 2014 of US based Chiquita, who by 2011 figures enjoyed 22% of banana global market share, and Ireland based Fyffes, who had a 7% global market share, has created the world's largest banana corporation.

The new entity will be known as ChiquitaFyffes. Other leaders in banana global market shares are Dole (US based) at 26%, Del Monte (US based) at 15% and Nobia (Ecuador based) at 5%. It is expected that Belize's bananas, exported via Fyffes, will still serve the EU market through the new ChiquitaFyffes.

Russia already has GMO labeling required for all foods with greater than 0.9% GMO, and in April of 2014 Russia's Prime Minister Dmitry Medvedev told congress that **Russia will no longer**



import GMO products. According to the Russian news site, rt.com, **Prime Minister Medvedev said, "If the Americans like to eat GMO products, let them eat it then; we don't need to do that; we have enough space and opportunities to produce organic food."** In February NikolayFyodorov, head of Russia's Ministry of Agriculture, declared to the All-Russian Meeting of Agrarians, that "no GMOs will be in his country's food production". The Ministry of Agriculture is also "in favor of introducing harsher punishment for illegally growing and using GMO cultures" according to Russian Deputy Agriculture Minister Aleksandr Petrikov.

Continued on page 25

NOTICE

For Information on the status of the **Iguana Creek Bridge**, waters rising or falling, out of water, under water, go to iguanacreekbridge.blogspot.com Peter and Tina Friesen of the Spanish Lookout community are responsible for this much appreciated service. The Iguana Creek Bridge crosses the Belize River near Black Man Eddy Village, off the George Price (Western) Highway.

Local and Regional Fuel Prices



	Cayo, Belize	Quintana Roo, Mexico	Peten, Guatemala
REGULAR	↑\$11.76 Bz/Gal	↑\$7.89 Bz/Gal	↓\$10.57 Bz/Gal
PREMIUM	↑\$11.94 Bz/Gal	↑\$8.28 Bz/Gal	↓\$10.86 Bz/Gal
DIESEL	↓\$10.55 Bz/Gal	↑\$8.17 Bz/Gal	↓\$10.00 Bz/Gal



SPANISH LOOKOUT RESCUE TEAM
6000-911 & 6770-911



It has been our pleasure providing medical transportation since 1999.

Spanish Lookout Rescue Team, a non-profit organization, consists of 2 Ambulances and 1 Rescue truck. The ambulances are fully equipped with lifesaving supplies and 3 Emergency Medical Technicians. The rescue truck has the Jaws of Life (hydraulic scissors) and other tools to open vehicles if people have been trapped.

Spanish Lookout Rescue Team responds to all calls; accidents, house calls and private transfers. We respond to all Road Traffic Accidents FREE of cost, taking the patient to the nearest hospital, but charge for private calls and transfers. Cayo district is our main area but we respond as far as Stann Creek, Guatemalan border, and mile 31 on the Western Highway. We take patients as far as Flores, Guatemala (assist till Guatemala city) and Chetumal, Mexico.

The EMTs are trained to meet or exceed standards set by BERT and are retested every year. We've also been giving First Aid classes to schools and other organizations.

Life is a Treasure, We CARE!

Find all the Belize news sites linked from one site, including the Belize Ag Report.



Ag Briefs.. Continued from page 24



January 2013, a 204% rise. Bananas, not included in this figure, generated \$45.9M and coffee earned \$43.6M during January 2014. Guatemala's main buyers are the US and Europe.

With 80% of Italians opposed to GMOs, according to farm group Coldiretti, Italy joins 8 other European Union countries banning Monsanto's GMO corn. In addition to the Ministry of Agriculture supporting this ban, declaring GMO's "negative impact on biodiversity", the Ministries of Health and Environment also agreed and signed off on the ban. Although GMO cultivation is approved 'jointly at the EU level', individual governments can introduce safeguards if they believe that cultivation could present a health or environmental risk. **Those EU countries with bans in place now are: ITALY, POLAND, AUSTRIA, FRANCE, GERMANY, HUNGARY, LUXEMBOURG, GREECE and BULGARIA.** These countries are worried not only about cross-pollination with non-GMO crops, but also that **pollen from Monsanto's MON810 maize could find its way into honey.**



Some European countries already have established GMO-free regions, including France, Italy, Switzerland, Hungary, Bosnia, Serbia, Latvia and Albania. Britain has trials of GMO potatoes planted. Five EU member states who grew MON810 Maize in 2012 were Spain (top producer) Portugal, the Czech Republic, Slovakia and Romania.

A new study in *Marine Pollution Bulletin* adds glyphosate, which is one of, if not the most widely applied herbicide globally (active ingredient of Round Up), to the list of other causes for degradation of the Great Barrier Reef off Australia. Since 1985, it has lost more than half of its coral cover. The new study looked at the rate at the **half-life of glyphosate, the rate at which it breaks down in seawater.** It has found glyphosate to be particularly persistent and dangerous in salt water. The half-lives for glyphosate in seawater are as follows: in low light at 25°C was 47 days, in dark at 25°C to 267 days, and in the dark at 31°C to a shocking 315 days. On land in soil, the half-

life may be as quick as 5 days, and in fresh water 49 days. **As coral reefs are largely plant life and glyphosate is a plant-killer, the potential for reef damage is enormous.** In Australia's wet season the plumes from run-offs, including pesticides are noted to reach as far as 50km offshore. See charts on Belize pesticide use on pgs. 18 & 19.

On April 23, 2014, Governor Shumlin of the progressive US state, Vermont, signed into effect H.112, (passing the Vt. Senate's bill by a whopping 114 for to 30 opposed), which **requires labeling GMOs in Vermont by 2016.** Unlike 2 other New England states, Connecticut and Maine, who also passed GMO labeling regulations, Vermont's does not require any neighboring states to pass similar bills before implementation. The law does not apply to labels for milk, eggs, and meat from animals fed GMOs. The law said that GMO foods "potentially pose risks to health, safety, agriculture and the environment". Vermont wisely appropriated \$1.5M to be set aside for implementation and to meet the costs of challenges to the law expected from food and biotech industries.



A viral disease in pigs known as **Porcine Epidemic Diarrhea (PED)** struck the US for the first time in November of 2013 and since then has been identified in 30 states, with mortalities estimates between 2.7 to 6M+ pigs. The disease, which thrives in cold weather, does not spread to humans, and is not a food safety concern. It might have originated in China, where there have been repeated outbreaks since the 1980s. There is currently no vaccine for this disease. PED attacks pigs of all ages, but the mortality rate is highest with the youngest suckling piglets; when it strikes animals under 2 weeks old, there is virtually 100% mortality and many farmers reluctantly euthanize. Older animals with a more developed immune system can better resist dehydration. Although the disease is not rated as an international reportable disease, the US has taken measures to require reporting of both PED and Swine Delta Coronavirus, is tracking movement of pigs. It is estimated that one thimbleful of infected feces could contain enough virus to infect all of the pigs in the United States. The financial losses caused by PED are somewhat mitigated by a roughly 10% increase in live prices, which are expected to last through the summer. The USDA estimates that the US national pig herd has reduced by about 3%, to approximately 63M pigs. Recent reports claim PED is in Mexico.

Continued on page 26



MAGAL RIVERFRONT LOTS

Minutes from Town

With Electricity

On the River

Only a Few Left

Starting as Low as \$28,000 USD

Call Court: 607-7229 or 668-0749

Ag Briefs....Continued from page 26



Sri Lanka

Following release of a study in The *International Journal of Environmental Research and Public Health* which found that **glyphosate is directly linked to chronic kidney disease (CKD), which includes total kidney failure, Sri Lanka banned all glyphosate sales** in

March 2014. CKD incidence is especially high among farmers and in farming communities. This follows a similar ban in El Salvador in October 2013, for the same reason.

A new use has been developed for a former waste product – **coffee flour from coffee cherries**.

Utilizing this new concept, they are dried, roasted and ground to produce a flour rich in iron, protein and fiber. The flour is gluten-free and not high in caffeine. Chefs recommend using approximately 20 -25% coffee flour, the balance wheat flour, for traditional recipes. When cooking with it one should add more liquid, to compensate for the high fiber content. The flavor is said to be a flavor brightener, similar to vinegar and fats. Production is underway in Hawaii, Honduras, Guatemala, Nicaragua, Mexico and Vietnam.



Currently the US's 314M people consume more processed food (ready-made meals, cookies, chips, soda) than China's 1.4B population. If current trends continue, by 2015 China is expected to consume 107M

tons, which would beat the US 2015 projection of 102M tons in annual processed food consumption. 112M people, or 12% of adults in China now suffer from diabetes. That trend is also expanding epidemically.

In March of 2014 Brazil's Federal Court of Appeals (TRF4) set international precedence by annulling the decision of the Technical Committee on National Security (CTNBio) which had allowed Bayer's LibertyLink corn into Brazil. Now **LibertyLink GMO corn, is not allowed to be grown in Brazil**. LibertyLink



contains a gene from *Streptomyces* bacteria which makes it resistant to glufosinate (Ignite, Liberty & Basta herbicides). Glufosinate was included in a biocide ban proposed by the Swedish Chemicals Agency and was approved by the European Parliament on January 13, 2009. Furthermore, the judge ordered CTNBio to operate in a more transparent manner, share studies and allow numerous experts to participate in the decisions on trade, especially those concerning GMOs.

The week following Brazil's Appeal Court decision on the GMO corn, another blow was stuck with a **demand by the Federal Prosecutor to ban all glyphosate (Round Up) herbicides**. The action requests that all sales are banned until the "National Health Surveillance Agency (ANVISA) re-evaluates the toxicity of 8 active ingredients suspected of causing damage to human health and the environment".

FARMERS TRADING CENTER

phone: 823.0111; fax: 823.0272

email: info@farmerstrading.com

- Chain Link Fence
- Barbwire
- Field Fence
- Poultry Netting
- Fence Grid Panel
- Fence Post
- Horse Shoe Nails
- Nails
- Staples

- Tying Wire
- Mesh Wire
- Hog Floor



DEACERO



BELIZE
NATURAL ENERGY
LIMITED



Belizean
**BUTANE
PROPANE**
[LIQUEFIED PETROLEUM GAS]

**Now in 5 locations
throughout Belize**

Burrell Boom
CDS Gas

San Ignacio
Sirrom Gas

Benque Viejo Town
Benque Gas Depot

Punta Gorda
Caribbean Gas Co. Ltd.

Belmopan
Commodities Stores-Energy



*Belize Natural Energy is
proud to supply a Belizean
product that is more affordable
than imported LPG and is made
from Belize's very own oil.*

PROVIDING DIRECT BENEFITS TO THE PEOPLE OF BELIZE

www.belizebutane.bz

www.belizenaturalenergy.bz

AQUARIUS
Well Services Ltd.

Essential for Life

Countrywide Service

669-4000

aquariuswell@gmail.com



Atlantic Bank

■ **Savings Accounts**

Save for your future with competitive interest rates and a low opening balance

■ **Checking Accounts**

Flexible means of payment, a low opening balance, personalized checks, with employee payroll options.

■ **Credit Cards**

Access revolving credit at competitive interest rates to facilitate business or personal expenses

■ **Credit Facilities**

Financial solutions to get you closer to your goals whether business or personal.

■ **Online Banking**

24 hr. access to your accounts allowing you to check account balances, pay bills, transfer funds and make credit card payments in a secure environment.

■ **GoMobile**

Add credit, pay bills and perform daily banking transactions, using your savings, checking or credit card accounts from the convenience of your cellular phone.



**Partnering to meet all your
financial needs...**

Cor. Cleghorn Street/Freetown Road,
P. O. Box 481, Belize City, Belize
Tel: 501-223-4123 • Fax: 501-223-3907
Email: atlantic@atlabank.com

www.atlabank.com



John Deere

- Replacement Parts - Filters - Lubricants - Attachments - Tractors

westracbelize.com

Here is an **OPPORTUNITY** for YOU!

Residential Commercial
 &/OR
 Investment

**FOR
 SALE**
 BY OWNER
 Jenny

2 MOTEL sites approximately 2 acres each in quiet location steps to the sea. priced to sell at US\$275,000
 ALSO 6 large Residential well treed lots on cul de sac at US\$38,000 each

501 533 8019 or cell 604 8910

Spectarte@gmail.com

 **Consejo Shores®**

www.consejoshores.com/interactive-sub-division-map