

*Belize's most complete agricultural publication*



**Harvesting the Ag News  
from All of Belize**

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The Belize Poultry Association (BPA):

**Industry:**

Although the poultry industry commenced organizing itself more than 20 years ago, it wasn't until 1996 that it was formally registered as a non-profit organization. The majority of producers and thus its membership come from the Mennonite communities of Spanish Lookout in the Cayo District, Blue Creek and Shipyard in the Orange Walk District and Little Belize in the Corozal District. A few small producers raise some poultry outside of these communities mainly for their own use or for local processing and retail. The commercial farm productive sector is made up of 190 Broiler Producers; 180 table egg layer producers, 16 broiler breeders, 1 table egg breeder).

The Poultry Industry is the largest Domestic industry in Belize. It plays an important role in national employment with more than 2500 persons employed across the industry. This includes employment in the various sectors from Breeders, hatcheries, broiler and egg production, processing  
*Continue on page 18*



**Taiwan Technical Mission**

Republic of China (Taiwan) and the Belize Government signed "The Agricultural Technology Cooperation Agreement" in Taipei on October 15, 1990. The ROC Taiwan Technical Mission was sent to Belize in January 1991 to work with Government and people of Belize in agricultural development. The Mission has been engaged in Rice Seed Production, Vegetable and Crop Production Improvement and Extension Projects. In April 1991, a group was sent to Punta Gorda (Toledo), to work in rice technology improvement and demonstration; in August another group was sent to Belize City to work on a project of aquaculture for shrimp cultivation. In January 1992, an extension team worked on a rice and horticulture project in Orange Walk. In December 1999 the ROC Mission started the Agro-Processing Project. After almost 20 years of agricultural technology cooperation, the ROC Mission has established a deep foundation in agriculture, subject to the affirmation from Belize people. At present, ROC Mission has four core projects: Horticultural Crop Project, Rice Seed Production Project, Agro-Processing Project and an Information and Communication Technology Project (ICT).

*Continue on page 8*



**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.



## LEARNING TO LIVE WITH CITRUS GREENING DISEASE (Huanglongbing or HLB)

We are all familiar with CGA (Citrus Growers Assn), but less of us with CREI – the Citrus Research & Education Institute. In 2005, during regular citrus disease screening surveys, the vector (carrier of the bacteria) of HLB, the Asian Psyllid bug, was found by CGA nursery employee Ery Burgos. Mr Fernando Majil, another of the CGA team, identified the villain, and sent it off to Dr. Susan Halbert at U.Florida, Gainesville for confirmation. At that time, HLB was added to the list of potential citrus diseases for which Belize must survey and test (other diseases CGA are vigilant for include Leprosis [Guatemala and all of C.A have, except Belize], Citrus Canker, and Citrus Variegated Chlorosis. )

CGA and CREI, along with BAHA and OIRSA (Regional Org. for Plant & Animal Health), rightly suspected backyard trees as the most likely place where HLB might make its appearance. Laboratory confirmation of the disease in Belize, occurred in May of this year, and, it was from backyard trees, not a commercial grove. Why was this so? Speculation and experience concur that exotic diseases often gain entry via tourists – fruit, plants, etc. smuggled into the country.

Where has HLB been confirmed in Belize? In Punta Gorda Town, Corozal Town, Crooked Tree in Belize District, and down south; the most heavily infested area detected is Hopkins Village, and speculation is that Hopkins may have been the point of entry for Citrus Greening into Belize. Almost every tree in Hopkins is infected. Since first detection, some of the commercial groves have also become infected, but that has not been quantified yet. The area around Middlesex has cases, which superficially appear to decrease towards Belmopan. One backyard tree has been confirmed by lab analysis in Belmopan. No cases have been found from Roaring Creek and westward, as of the last testing, which was 3 to 4 months ago. The movement of citrus plants (*see notice page 3*) is illegal. It is imperative to get the cooperation of the public to put the brakes on HLB. The Peten, Guatemala has not diagnosed the disease.

As another signal of warming relations between our countries, CREI hosted and shared training techniques for identifying symptoms of HLB with PROFRUTA, a division of the Guatemalan Agriculture Ministry, in late September of this year. In Mexico, HLB has been confirmed only in Tizimin, Q.R.

When the EMBRAPA (Brazil's Ag Research/Education giant) sent a team to Belize in July of this year, Dr. Juliana Freitas-Astúa, a citrus expert accompanied the team. She pointed out that HLB is something we all have to learn to live with – there will be no eradication of this disease, in Brazil, or Belize, or anywhere.



Psyllid Galls on citrus leaf

It is a question of minimizing damages and constant vigilance from now on. CREI/CGA has a well trained staff in country, already astute in field diagnoses of HLB. Ms. Veronica Majil of CREI, says that well trained people can attain a 98% accuracy rate – that is, field diagnosis confirmed in the lab. Ms. Majil, trained by University of Florida, says that we already have Belizeans here who she feels have around 95% accuracy. (We might include Ms. Majil in that group.)

Belize Ag understands that there are new Statutory Instruments pending, which may increase GOB's mandate on disease control measures for HLB. In Brazil, 'symptomatic' trees are mandated by law to be removed, and the owner is given 2 days for compliance. After that, a Brazilian gov't team will return, remove the tree, and send the owner a bill for services. In Belize, we are still in the learning stage, and figuring out what will be our approach, which would then be implemented by BAHA. CGA recommends that trees should be removed and destroyed a.s.a.p. after diagnosis. Merely cutting the infected limb will NOT be effective – the entire tree must be removed. The stump may remain, and herbicide applied to it. Care should be taken to select a chemical which will not damage the roots of other trees nearby.

A task force is working in country now, and will make their report and recommendations for action before the end of 2009. Belizeans will have noted that September 28<sup>th</sup> of this year, SAGARPA and SENASICA, approved transfer from OIRSA-Mexico of \$700,000.USD to OIRSA –Belize. This is to be used to assist the citrus industry in containment of HLB. More information on HLB is available at all the Ministry of Agriculture field stations countrywide, and on CGA's website [www.belizecitrus.org](http://www.belizecitrus.org)  
B.R.

The Belize Ag Report wishes to thank both Dr. Juliana Freitas-Astúa of Embrapa, and Ms. Veronica Majil and Dr. Stephen Williams of CREI/CGA for their assistance with this article. Issue #5, Jan-Feb 2010 will feature a Citrus Production article by Dr. Williams.

Dear Editor,

It's interesting for me to read the BAR, specially all about organic farming. Is it possible to raise milk cows in a 'natural way'? I mean, to treat them with natural medicine in case of ticks and parasites or mastitis? It seems to be special in this tropical country- a difficult thing.

Yours Sincerely,  
Angelika Schiemann  
Cayo District

Dear Mrs. Schiemann,

We ask our readers to share their knowledge with us all. We do know a family in Pilgrimage Valley who use Colloidal Silver for internal parasite control with horses and dogs. Another interesting fact we have come across, is that cattle which are fed with 'omega 3' feed (i.e. salvia hispanica meal, byproduct after oil taken out), have remarkably less veterinary issues. The article where we gleaned that fact, was actually bragging about the greatly reduced methane output from these bovines (re global warming pollution), hence the added health benefits were not targeted, but were noted as quite remarkable (dairy farm in Vermont, U.S.A.). **Is anyone in Belize feeding ANY livestock with omega 3 feeds??** Even if fish, we want to know. We ask readers to send in your info/experiences, and we will print what we can either in the Editorial section, the Ask Rubber Boots section or as a separate article. Thanks for bringing such a fascinating topic to our attention. Editor

Dear Editor,

I live in Teakettle village and I see hundreds of loads of oil going past my house every month. I know nothing about oil, but I asked a kinda smart Mennonite man and he told me they were pumping 9 wells a 500 or 600 barrels a day. That would be maybe 5000 barrels a day and he said that the world price is about \$150.00 a barrel. Wow, that's \$750,000 everyday - every 30 days that's \$22,500,000 every month. Now this oil business has been going on for several years and I would like to see some numbers showing how much a month and what percent the oil company gets and what percent G.O.B gets. Also what is Spanish Lookout share. I know this government promises transparency and to fight corruption - when you don't get the information you could get suspicious. I know that there are some court or constitution issues that the G.O.B. says will be more fair for the people - fair could begin with sharing the numbers with the people.

Michael James Usher

## Important Notice



**Belize Ag Report visited CREI at CGA (Citrus Growers Association) who reminded us that, as published in their CitriScope, Aug-Sept 2009 issue:**

### **ILLEGAL TO MOVE CITRUS PLANTS AND MATERIALS THROUGHOUT THE COUNTRY**

Until further notice it is illegal to move citrus or laminaria (orange jasmine) plants anywhere in Belize. This ban has been imposed through the signing of a Statutory Instrument (SI) by the Minister of Agriculture and has become necessary to reduce the possibility of spreading the devastating citrus disease, citrus greening, through Belize.

It is likely that some citrus or laminaria nursery plants are infected with greening disease and the fastest way of spreading the disease is by moving plants around the country. Growers, nursery owners and members of the public will be kept informed of any changes in the status of this regulation.

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## Organic Production

### Reflecting Journal...

This month I would like to take a break from the normal direction that the previous articles have taken. This month I would like to give my personal triumphs and failures in relation to getting to the goal of viable organic production.

Our team tested many different plant types to seek the best appropriate cultivars for full production growth in Belize. Many test results were less than desirable, but from the failures, we developed an immense knowledge base to progress. We were told of many products that would not work in the soils of Belize, but due to our persistence in discovering the results for ourselves, we forged ahead. Our progress was slightly hampered by the fact that it takes time to build the soils to sustain adequate organic farming results. We started with soils that had never been farmed, and then incorporated many organic ingredients to start the process of building the soils to the level that they would enhance the plant they were nourishing. This process cannot happen over night by throwing down a few items, but over a long period of time. But, once the soil is built, the microbial activity in the soil will perpetually produce great results with minimal input. The reason behind discussing this process is to ensure that starting with organics will not give instant results, but the results will increase every planting. The current status of the soils we farm are reaching levels that we now approve as acceptable. The hard work that is required in the beginning conversion of soils, decreases at the same rate as the performance of the soil increases. For reference, refer back to the article in the first edition of the Belize Ag Report about "Visiting the Bank".

Now that our soils are producing, we are revisiting some of the specialty plants that have an opportunity to make a difference in Belize. Currently, Asparagus and Strawberries are growing very well. We have had success with Stevia and Moringa, which products are targeted as a Sugar Substitute and Nutritional Supplement, (Fresh Moringa cooked as Spinach is wonderful). Both of the products will require education for the consumer to understand the amazing health benefits for the products. We tested two different types of peanuts for organic production, and both species grew well, but production was low due to the soils not reaching the feeding potential that it is now. The new planting of peanuts are flourishing.

Until now, I have not discussed the insect impact on our organic methods, but I do want to get to that part now. To be honest, it was very hard to watch a seedling protrude from the ground, and be amassed in beetles, white flies and other voracious critters, but with some patience and companion planting, the beneficial insects moved in. Due to my impatience, we still planted and started growing pyrethrum to attack the critters if necessary. Fortunately, I have not had to resort to utilizing the spray from the pyrethrum as of yet, but we have it ready if necessary. So, for the insect learning process, the little critters taught me a lot about being patient.

Our education with powdery mildew and fungus was given to us in one of the hardest courses we could take. We watched 3 acres of squash and watermelons wither away due to the fun-

gus attacks. Now we have added the Corn Meal to the soils and have great producing squash and melons. We carried the Corn Meal treatment forward to other crops and have had wonderful results. I highly recommend that you read the article about Corn Meal in the previous Belize Ag Report, it does work very, very well.

The biggest set back we have experienced is something that we cannot control, but can avoid. Tomato Leaf Curl Virus decimated the various Tomato plants we were testing. There is no solution with the exception of growing Tomatoes that are resistant to the virus. We have now changed to grow the specific resistant plants and they are flourishing.

I would like to say that many farmers have stopped by to visit with me, and the passion for organic production is recognized on their face. For the production of Organic products to increase in the country of Belize, we all have to share our failures and successes together. Stop and visit, I will gladly share my experiences with you.

Greg Clark  
[organic@belizeagreport.com](mailto:organic@belizeagreport.com)

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**At last, by popular demand, we are accepting subscriptions to The Belize Ag Report.**

Belize addresses: price for 6 issues (one year, at current rate of publication) is \$15.00(fifteen) Bz\$.

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U.K./Europe/South America/Africa: price for 6 issues, as above is \$44.00(forty-four)Bz\$, or \$22US\$

Other regions, contact us for rates please. Payment should be sent to Belize Ag Report, PO Box 150, San Ignacio, Cayo, Belize. Payment should be in BZ\$ or International money order.

Due to postage constraints, only Belize subscribers will receive inserts (if any), inside the magazine.

**IN THE LOOP**

**BELIZE DIRECTORY**

COMING SOON to the ONLINE [BelizeAgReport.com](http://BelizeAgReport.com)

A Directory of Ag Assn's, Ag Ngo's, AgriBusinesses, Farms, and Individuals  
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look for us before 2009 ends, and expanding greatly in the new year!

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**Chess? Agriculture? The common factor of these two is brain nutrition .** The benefits from learning chess are important to mental health just as food is important to physical health.



*Benefits of chess*



- Discipline Concentration Patience
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- Critical Thinking English Skills Creativity
- Planning Ahead Team Spirit Communication Abilities
- Empathy for others Responsibility for Actions
- Persistence Logical Reasoning Commitment
- Academic Competition for All
- Social Skills Ability to strategize Cultural Enrichment
- Decision Making Analyzing Actions & Consequences
- Dealing with Undesirable Situations

Our Belize Chess Program impressed even the international Grandmaster of Chess Maurice Ashley, who was the key speaker for the Educator's Symposium that took place on Oct 10, 2009 in George Price Center. There were 325 people from all over the country in attendance to hear his thoughts on Benefits of chess.

If your school doesn't have the chess club, your child is missing all those benefits... How do you start the club in your school? We can schedule training sessions for the teachers, principals and parents and that will enable them to start their own clubs!

Get involved in our Adventure of chess!

E-mail Ella Anderson, Program Director, with questions or requests at [belizechess@cavesbranch.com](mailto:belizechess@cavesbranch.com)

## Integration of Belize into the Multilateral and Regional Trading System

I had the privilege of attending a 9 day session on learning about trade between countries around the world. This very special school was sponsored by the OAS (Organization of American States) and held at the UB campus in Belize City. Belize is a member of the WTO (World Trade Organization) and Caricom (Caribbean Community). They talked a lot about Trade Liberalization which means eventually doing away with Tariffs, Quotas and Subsidies. The object is to level the playing field for all. But there will always need to be negotiation between countries that will need to consider food shortage, weather and war factions, environmental issues and controlling the movement of people and animals for disease and sanitary reasons (sensitive areas).

I believe I learned quite a bit about "What Negotiators Do and How They Think". If a country sends unprepared negotiators to the table and the other side has 6 trained people, you can guess the outcome. A teacher told us that 95% of the success of a trade negotiation is in the preparation. Governments usually do the trades, but private sector needs to encourage government.

The original Guatemala/Belize PSA (Partial Scope Agreement) was signed on the Belize side on June 26 2006- the Guatemalan Congress signed in October, 2009. This PSA is probably 60 pages long, (you can find it on line). This is the part about yellow (Maize) corn- Tariff line 1005.90.20- 20,000 Metric tons- In Quota duty 0%- 3% of annual growing

for 5 years. Black Beans- Tariff line- 0713.33.10-875 metric tons- In Quota duty 0%- 3% annual growing for 5 years.

This document is quite complicated for a cowboy, but I learned a lot about what is very important. The Rules of Origin, and the Sanitary and Phytosanitary rules and measures. These apply to every export and while they try to standardize, there may be some unavoidable differences. I sat under a very highly intellectual group of teachers from all over this hemisphere. They came from Argentina to Canada, but a Belize/ Caribbean twist was always there.

By John Carr Banana Bank Ranch

## Banana Bank Auction

Banana Bank held its horse and bull sale on Oct 3<sup>rd</sup> 2009. There was a fairly large crowd (150 people), the bidding was active and 33 horses and 3 simbrah bulls were sold. All the animals had a painted number on their backs so that everybody knew exactly what was happening. The top selling mare was a great ex- Danny Wolfe horse. She brought \$5,200 Bze. The others ranged mostly from 650 to 1200. The bull bidders were scarce and they brought \$1400 and weighed about 1,000 pounds. For a 1<sup>st</sup> sale of this type, the buyers and sellers were happy. Isaac Wolfe was the auctioneer.

The advertisement features a background image of a worker in a yellow hard hat and safety vest, operating machinery. On the left, a green map of Belize is overlaid with a list of attributes. At the bottom, the text 'BELIZE NATURAL ENERGY' is displayed in large green letters, with a logo for 'BELIZE NATURAL ENERGY' featuring a stylized flame.

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### **Horticulture Crop Project:**

This project is mainly to (1) continue the demonstration farm established by the Mission and Ministry of Agriculture in Central Farm, by means of training courses and demonstration, (2) counsel farmers in crop cultivation work, and (3) produce fruit and vegetable seedlings to supply the farmers to plant.

To achieve the goal of a year-around market supply of fruits and vegetables, ROC Mission in Cayo, Orange Walk, and the Corozal Districts are setting up 10 covered structures to help farmers produce good quality and high quantity vegetables in the rainy season; for example, sweet peppers, onions, tomatoes, and cucumbers.

ROC Mission has been counseling farmers groups to improve production technology, and supplying diverse vegetable seedlings to increase market supply. The technology of organic fertilizer production is important for reducing the use of chemicals and the cost of crop production. In fruit production, the ROC Mission is promoting Taiwan guava, papaya, pineapple and sour sop, and assisting farmers with the potential crops. At present, it is estimated that this project can result in US \$300,000 annual production, and can benefit about 200 farmers.

### **Rice Seed Production Project:**

Since 1991 the ROC Technical Mission in collaboration with the Ministry of Agriculture and Fisheries has been producing commercially-grown rice seeds to provide to rice farmers of the Toledo District. The Poppy Show Farm of Toledo Agriculture Station grew rice seeds under irrigation condition. The "Poppy Show" Commercial Rice Seed Production Project came to a halt in 2006 when financing by the ROC Mission ended. Due to the scarcity of rice seeds to supply farmers, the Ministry of Agriculture and Fisheries requested the assistance of ROC for the evaluation and improvement of rice germplasm and for the production of commercial rice seeds. The ROC Mission restarted the project in December of 2008.

The Mission works along with MAF of Toledo, in the Poppy Show Farm. Twenty-five acres of CARDI-70, Taichung Sen-10, and Cypress have been planted. With the planting of these 25 acres the Mission has produced 100,000 lbs of rice seed for this year. Next year, the plan is to produce about 160,000 lbs. to enable 1,600 acres of rice planting with a yield of about 5,000,000 lbs of rice, which can generate BZ\$3,600,000 for the economy. The current plan is for MAF and ROC Mission to expand the rice production to 600 acres in the Toledo District and expand commercial rice seeds production in Blue Creek in the Toledo District, which will be evaluated for meeting the demand for rice seeds of the District. For the extension work in Mango Creek and Mango Walk the Mission is assisting with 200 acres of rice production. The Mission also plans to cooperate with Grain Growers Association to increase rice production to more than 600 acres.

The Mission, in collaboration with MAF in Central Farm, is producing stock seeds to supply the Poppy Show commercial rice seeds planting in Toledo. In Central Farm the Mission also plans to develop the standards of procedure for cultivation

techniques and purification of rice seeds. Effective cultivation management techniques developed by the Mission have the potential to raise paddy rice production quantity and quality, reduce production costs, increase farmer income, and stable the rice price.

The final aim of the Rice Seed Production Project is exportation to other Central America and Caribbean countries.

### **Agro-Processing Project:**

Belize is rich in tropical fruits: bananas, papayas, pineapples, mangos, oranges, etc. This project, which has been in existence for 10 years, is contributing to the diversification of Belize's agricultural industry by developing value-added products through food processing. The project involves researching and developing processed food products with market potential, training food processing technicians, transferring know-how in building food factories to local enterprises, and upgrading the level of existing small and medium-sized food manufacturers.



In 2006, the Mission collaborated with the Ministry of Agriculture and Ministry of Education in promoting the School Snack Program, using rejected export fruits of pineapple, banana,

and papaya, to produce dehydrated fruit chips. This project not only resolves the problem of the rejected fruits, but also increases the nutrition of school children. Through the Agro-Processing Project 300,000 packages of dehydrated fruits (60g/package) were produced for the School Snack Program by the end of 2008, providing 5,000 school children with nutritious lunch snacks.

In 2009, the Mission continues to collaborate with the Ministry of Agriculture, developing a new drink product to supplement the School Snack Program. The plan for 2009 also includes initiating cooperation with some international organizations, such as UNDP and BRDP, to upgrade the food processing technology in Belize. Of special interest is to help the community of Flowers Bank improve the cohune oil processing procedure. This project also includes providing a food science information technology class to ITVET.

ROC Mission's targets are to provide the processing technology and knowledge to promote the food processing industry and community processing groups, e.g. San Antonio Women's Group, Osh Mu Kaab Women's Group, Esperanza Women's Group (Cayo District). The Mission also plans to organize women's groups in Corozal and Orange Walk Districts to assist with the production of fermented products.

Article by ROC Taiwan Technical Mission in Belize

Article continues in online edition on page 33



**BRDP invest in Agricultural and Rural Development**

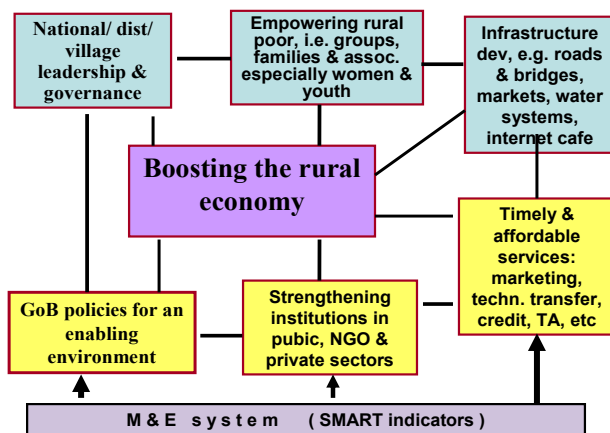
**Contributed by Dr Marcelino Avila**

BRDP supports the sustainable economic growth of Belizean rural areas by empowering the rural poor and investing with them to create wealth in order to eliminate their poverty. Projects supported by BRDP are proposed by potential beneficiaries who decide on what the BRDP grant will be invested and how their 25% contribution will be made. They implement the projects with the technical assistance and mentoring of BRDP and its partners. BRDP invest in capacity building for enterprise development, infrastructure and on improving policies and institutions for rural development. To date BRDP has invested in some 111 villages through 298 micro-grants to very poor families, 42 small grants to rural groups, 11 small grants to rural institutions, 8 large grants mainly to NGOs, and 3 infrastructure contracts. The latter 3 include the Cayo Market, Middlesex Bridge and Valley of Peace Road.

**BRDP is funded by the European Union and the Government of Belize under the 9th European Development Fund, with a budget of approximately Bze \$ 18 million. The present program ends in 2010, and a new phase under the 10th European Development Phase is expected to start in 2010 with an approximate budget of Bze \$ 28 million.** The partners of BRDP include ministries or departments (e.g. Economic Development, Agriculture, Works, Cooperatives, Rural Development, Women, Youth, TDC), semi-autonomous organizations (e.g. UB, SIF, Baha and Beltraide), NGOs (e.g. membership associations (e.g. Toledo Teachers CU, CGA, BLPA, La Inmaculada & St Francis Xavier CUs), and the international organizations (e.g. UNDP and CARDI).

To promote rural development, the diagram below shows what interventions and innovations must be planned, implemented and supported with investments in a coordinated, sequenced and monitored manner to boost the rural economy, whether it is agriculture, tourism, small industry, natural resources, other services, or building linkages among these sectors.

**Challenges for rural development for poverty reduction (BRDP)**



**In Belize today, agricultural development is a high priority** because it is essential for improving the livelihoods of the rural people (about 50% of the population), especially the rural poor (about 44% of the poor of the country). This can be achieved by increasing production and productivity (good natural resources), income and employment (at least to \$ 1,000 per family per month), by enhancing food security (for several vulnerable groups in rural & urban areas) and reducing the food import bill (stands now at \$ 160 million every year), which could mean a lot more money for local producers. In brief, agricultural and rural development must be a high priority for making rural communities more vibrant, dynamic and attractive, especially for the youth of Belize, otherwise they will continue to migrate to the urban areas.



**BELIZE RURAL DEVELOPMENT PROGRAMME (BRDP)**

Mailing address:  
BRDP, P.O.Box 107  
Belmopan, Belize

Office Location: Belmopan Agricultural Showgrounds

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## Pitayas – Delicious, Nutritious, and a Chef's Delight

By Richard Rasp

Have you ever tasted the chilled purple flesh of pitaya? If you have, chances are that you've eaten several since your first one. More and more people are trying these gourmet fruits with fuchsia-pink dragon-like scales and juicy flesh. They like their bright colour, delicious melon-like flavour, and firm texture with crunchy sesame-sized seeds. Of course, many resort chefs appreciate the stunning splash of exotic colour that the pitaya brings to a fruit plate -- and the delightful reaction of their guests. We are fortunate that, unlike most places in the world, in Belize you can usually find them at fruit stands and several larger supermarkets during the fruiting season from June to November.

Just what is a pitaya and where do they come from? Pitaya, also known as "pitahaya" and "dragon fruit", is a climbing cactus whose ancestors are native to Mexico, Central America, and northern South America. You can find them growing on trees in Belize. This native fruit was taken to Southeast Asia, where commercial varieties were developed and later brought to Belize for cultivation. One species of red-skinned pitaya (*Hylocereus undatus*) has white flesh, while the other more popular variety (*Hylocereus polyrhizus*), and sports a reddish-purple interior. Both have spineless fruits that range in size from about one-half to two pounds. Besides their popularity as an attractive and delicious fruit, pitayas are packed with nutrients.

A recent article in the American Journal of Applied Sciences stated that red-fleshed pitayas are considered as a rich source of nutrients and minerals such as vitamins B1, B2, B3, and C, protein, crude fibre, flavonoids, thiamine, niacin, pyridoxine, kobalamin, glucose, carotene, phosphorous, iron, calcium, potassium, and phytoalbumins (highly valued for their antioxidant properties). Researchers also found that pitayas help the digestive process, neutralize toxic substances such as heavy metal, and reduce cholesterol levels and high blood pressure. Like beets, red-fleshed pitayas contain betalain pigments that may help protect pitayas against fungi. Betalain is soluble in water and used in industry to colour foods. In humans, it serves as a powerful natural antioxidant, helping to neutralise free radicals that can cause cancer and certain oxidative stress disorders. Pitayas are the only betalain-containing fruit on the world market.

Research at Taiwan's National Chi-Nan University has found pitayas are rich in polyphenols, good sources of antioxidants that inhibit the growth of melanoma cancer cells. Another health benefit involves the ability of the soluble fibres in pitaya fruit to help regulate blood glucose levels. Some people who suffer from Type 2 diabetes have obtained positive results by adding pitaya to their diabetic diet. One study found that within one hour of eating a large fresh pitaya with a well-balanced salad, a diabetic can lower his or her blood glucose level by as much as 30.

Whether you enjoy pitayas for their flavour, novelty, or nutritional benefits, you can make this inexpensive gourmet fruit a regular part of your healthy diet during the harvest season.

For more info go to;  
<http://dragonfruitpitaya.com>  
<http://biolife.wordpress.com/2007/10/09/why-dragon-fruit/>

### Food Value per 100g (3½ oz.) Serving of Red Pitaya

|             |                  |
|-------------|------------------|
| Moisture    | 82.5 - 83 g      |
| Protein     | 0.159 - 0.229 g  |
| Fat         | 0.21 - 0.61 g    |
| Crude Fiber | 0.7 - 0.9 g      |
| Carotene    | 0.005 - 0.012 mg |
| Calcium     | 6.3 - 8.8 mg     |
| Phosphorus  | 30.2 - 36.1 mg   |
| Iron        | 0.55 - 0.65 mg   |
| Vitamin B1  | 0.28 - 0.043 mg  |
| Vitamin B2  | 0.043 - 0.045 mg |
| Vitamin B3  | 0.297 - 0.43 mg  |
| Vitamin C   | 8 - 9 mg         |
| Thiamine    | 0.28 - 0.30 mg   |
| Riboflavin  | 0.043 - 0.044 mg |
| Niacin      | 1.297 - 1.300 mg |
| Ash         | 0.28 g           |
| Other       | 0.54 - 0.68 g    |



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## Rural Roots: Stann Creek News

Submitted by M. James, Manager, GSC, Stann Creek

The recent appointment of Mr. Justaquio Tush as District Agriculture Coordinator for Stann Creek is already improving the ongoing growth in agriculture begun by Mr. C. Martinez. Students at area schools are benefiting from the assistance of the M.A.F. in agriculture classes and a new initiative introduced by GSC at Delille Academy and Ecumenical High School. GSC Stann Creek, a community-based organization, is working with students and faculty to expand the agriculture curriculum to include (1) visits to local farms that use sustainable practices and (2) growing vegetables at home. Both efforts are designed to encourage students' understanding and appreciation of agriculture and its role in the growth of the students and Belize overall. A background in agriculture can lead to many different career paths – much more than just growing crops and working in the fields. The University of Arkansas, who has been working with schools over the past 3 years, is also assisting Stan Creek in its educational endeavors. A summer student exchange program is planned.

A new *farmers market* is expected to open shortly in Dangriga on the compound of Mr. George Dueck of Dangriga and Spanish Lookout. The market location is opposite the B.E.L. facility on the Valley Road in Dangriga. The market will feature local produce of all kinds: from vegetables and fruit to meat and herbal medicines. To inquire about the Dangriga market please call GSC Stann Creek as soon as possible; booths will soon be gone! Contact numbers are:

Mr. Justaquio Tush, D.A.C. , M.A.F. – 522 2214

Mr. Santiago Pop, Rural Development Officer – 522 0161

Mr. George Dueck, Dangriga Farmers Market - 674 0405

Mr. Abraham Bull, Pomona – 666 7300

Mr. Matthew James, GSC Stann Creek – 668 9341

Mr. Herman Haney of Haney Farm on Southern Highway is expanding his impressive range and variety of fruit trees. There are some 60 different types available in season. These will be available at the Dangriga farmers market.

Another example of growth is a program by M.A.F. and U.N.D.P. on integrated farming, which will start shortly.

Mr. Abraham Bull is having success with his efforts in tilapia farming. He has 3 ponds of fish and 2 duckweed ponds to grow the weed used for feeding the fish. Mr. Bull is using his farm as a demonstration farm and is willing to share his knowledge with others interested in tilapia.

The opportunity for farmers to learn new methods of sustainable farming is available to farmers in the rural communities. GSC Stann Creek is offering a *traveling classroom* concept to allow farmers in the rural areas the chance to experience these methods. Classes involve “hands on see and do” training in such things as making compost, using mulch and cover crops, using organic and non-hybrid seed, and using charcoal to improve soil.

*Continued on page 27*



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## BEYOND THE BACKYARD

### FOOD FOR THOUGHT

BY JENNY WILDMAN

When I was a young girl my Grandmother Bella often used the saying

“Well .....I’ll eat my hat” an expression of great surprise that something actually happened or of disbelief that something could really happen . There are many claims as to the origin of this yet historically this phrase dates back to the 1700’s about the time of Charles II . It is highly possible that one of the earlier seafaring explorers had discovered remarkable straw hats in other continents and used this phrase from then on.

Out of choice no one would actually eat a hat.....but could they? Panama hats have long since had the reputation of being the best quality iraca straw hats and they are made from the dried palm leaves of the Jippi Jappa originating in Ecuador. The American government purchased some 50,000 of these hats during the Spanish American war of 1898 from merchants of Panama . The hat became extremely popular and was donned by the construction crews of the Panama Canal . Hence the name.

There are probably various varieties of palm which are termed Jippi Jappa such as the screw palm in Jamaica of the Cyclathaceae family but the Toquilla Palm *Carludovica Palmate* grows wild here in Belize mostly in rainforests and fields. In Toledo it is prized and traditionally used by the Ketchi and Mopan Maya to create beautiful baskets. With it now being in much greater demand people are having to cultivate this very useful plant. You can weave it , use it for tying ,dyeing and as a culinary delight.. The plant has stalks of about 5 feet in length, has no true stem and is fully developed at 3 years of age. It prefers a moderately moist, heavy soil and light shade. A lot of palms are threatened by development and agricultural demand for more lucrative crops .**THINK** before chopping down this palm ..... it is **EDIBLE** .....the new white shoots are tender and delicious and can be eaten raw or cooked lightly as one would asparagus then tossed in a vinaigrette dressing. To harvest for basket making the phase of the moon is respected but when looking for dinner you simply

pull up on the new shoot .It looks a bit like heart of palm

(palm cabbage) and similar in flavour but much easier to obtain. The pod

and the flowers are also edible .

With so many tasty palms it would be hard to starve in the jungle .....

as for eating my hat , it would be definitely dry but certainly not impossible.

So if you have never tried this plant I do recommend it and go ahead include some in your vegetable patch.

Send any comments or your favourite Jippi Jappa recipes to the editor or Jenny Wildman  
spectarte@gmail.com

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Mrs Susie Wolfe – 620 8808  
Or Email [milton@btl.net](mailto:milton@btl.net)



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## Light Rein

### DIFFERENCES

Fact: You and I are different. Certainly we have some similarities: we are both human, we have skin and organs, hair and teeth. You get the idea. But we are probably more unlike, than alike. Between race, age, genetics, personal tastes, attitudes, opinions...

What people/humans need to understand is that just because all horses are fairly large creatures with hooves, ears and a tail, they are also, completely different from one another. Even if they look similar or are from the same dam or stud, they are significantly different. Even if they are similar in some traits, they need to be considered as individual. For example, some can take harsh treatment and deal with it; others given that treatment, will have it crush their spirits or their minds. Some can have an average size saddle or bit fit them fine; others may need a narrower/larger tree or a smaller/wider mouth piece. Some are very athletic, others... not so much. Some love to do a certain thing like jumping or cutting cattle. Others may be afraid of an obstacle to cross or a cow facing them down. Some may simply not be built to do what they are being asked to do.

The point is, every horse needs to be looked at and treated as an individual. A good horseman feels the difference between horses: not just saddle and bit fit, but personality and attitude. There are those horses who crave the human touch and attention and those who could care less about mankind. Some thrive on being worked with and enjoy learning new things. While one horse may catch on quickly to a certain training technique, the next one may not like that style or understand what is being asked, so a different way of asking is necessary. It is not that horse number 2 is stupid; it just did not "get" that technique. The old adage of "101 ways to skin a dead cat" is also true for dealing with horses. There may be several ways to teach a horse to do something, to achieve the same end result. But, trust me, there are 101

ways to mess them up and confuse them and frustrate yourself and the equine.

"Feel your horse". Watch its response to a situation...angry, bored, frightened, or interested? Learn to think ahead of what his response may be, so that you can avoid those situations that may cause fear or frustration to both you and the horse. And keep it fresh so you and your hooved friend do not get tired of the same thing.

For those new to the equine attitude, learn the basic similarities: such as, if any horse pins the ears flat back on its head, IT IS NOT HAPPY! The horse is getting ready to revolt with either a bite, kick, or push, the push or **smush** being the least aggressive offense. Herd behavior can vary greatly from aggressive-the flat ear spin kick, to a simple tail swish or hoof stomp as a minimal threat. As you enter their area, they may take on herd behavior. As in article one, I am always alpha mare, but that does mean I am always aggressive. I am most often the "dominate-with-acceptance" creature, forgiving slightly rude behavior if not deemed as a true threat - especially at feeding time, when a horse may be particularly sensitive.

Marjie Olson Henley

Light Rein Farm

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

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

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

| Belize Cattle                        |     | T            | A                 | B           | Grains, Beans & Rice  |             |              |
|--------------------------------------|-----|--------------|-------------------|-------------|---|-------------|--------------|
| Young strs. & bulls- 750- 1100 lbs   | L   | .98 -1.03    |                   | .93 - .98   | L   | .18 - .20   | .18 - .19    |
| Cows & Heifers                       | L   | .80 - .90    |                   | .70 - .80   | L   | .21 - .25   | .20 - .21    |
| Heifers for breeding 650-900 lbs     | S   | 1.05 - 1.20  |                   | .95 - 1.05  | L   | .23 - .30   | .25 - .27    |
| Young grass cattle- 350- 650 lbs     | S-L | 1.05 - 1.15  |                   | 1.00 - 1.05 | L   | .12 - .14   | .11 - .12    |
| U.S price -corn fed- 1000- 1200 lbs  | H   | 1.70 - 1.75  |                   | 1.60 - 1.70 | L   | .30 - .34   | .26 - .30    |
| U.S price - feeders 600- 800 lbs     | L   | 1.90 - 2.00  |                   | 1.80 - 1.90 | L   | .16 - .18   | .15 - .16    |
| U.S price- calves 450- 600 lbs       | L   | 2.20 - 2.30  |                   | 2.10 - 2.20 | L   | 1.30 - 1.40 | 1.20 - 1.30  |
| U.S price- aged butcher cows         | L   | .90 - 1.00   |                   | .80 - .90   | S   | 1.00 - 1.25 | .75 - Spa Lt |
| <b>Belize Hogs</b>                   |     |              |                   |             | S   | .32 - .34   | .30 - .32    |
| Weiner pigs- 30 -50 lbs- by the head | S-H |              | \$85.00 - \$95.00 |             | <b>Citrus</b>   |             |              |
| Butcher pigs 125 - 200 lbs           | S   | 1.70 - 1.75  |                   | 1.65 - 1.70 | Oranges per 90 lb box- lb. solid basis (H) (\$6.80 final est. price)  |             |              |
| <b>Belize Sheep</b>                  |     |              |                   |             | Grape fruit- per 90 lb box (H) (\$3.75 final est. price)  |             |              |
| Butcher lambs                        | S   | 2.25 - 2.50  |                   | 2.00 - 2.25 | <b>Sugar</b>  |             |              |
| Mature ewes                          | S   | 1.70 - 1.75  |                   | 1.60 - 1.70 | Cane per ton- after 2nd payment (S) \$45.00 per ton   |             |              |
| <b>Belize Chickens</b>               |     |              |                   |             | White Sugar- 112 lbs (S) \$46.00 per bag  |             |              |
| Broilers- live per lb                | S   | 1.27- 1.29   |                   | 1.24- 1.27  | Brown Sugar- 112 lbs (S) \$39.00 per bag  |             |              |
| Old hens                             | S   | .63- .65     |                   | .60- .63    | <b>Bananas</b>  |             |              |
| <b>Belize Milk</b>                   |     |              |                   |             | Export @ 40 lb box (S) \$16.84.   |             |              |
| Pd to farmer per lb                  | S   | .49 - .51    |                   | .46 - .49   | Local Wholesale #2 quality- 40 lb (S) \$8.00.   |             |              |
| <b>Special farm items</b>            |     |              |                   |             | Retail #2 @ 8 per sale (S) \$1.00 - \$1.50  |             |              |
| Shrimp Retail- Farm Raised           | S   | 7.00 - 9.00  |                   | 6.00 - 7.00 | <b>Fruits &amp; Vegetables</b>  |             |              |
| Pitaya fruits                        | S   | 2.00 - 3.00  |                   | 1.00 - 2.00 | Tomatoes, Cabbages, cucumbers (S) 1.00 - 1.75   |             |              |
| Eggs-case of 30 dozen                | S   | Wholesale 63 |                   | Retail 72   | ***These prices are best estimates only from our best sources and simply provide a range to assist buyers and sellers in negotiations.*** |             |              |

Notes- Probably the best news is that Guatemala Congress signed the PSA (Partial Scope Agreement ). All of the dust hasn't cleared yet but we believe we may be able to ship farm products - corn, beans, and rice without an applied tariff. Our current issue is the over supply of corn. (this amount could be 450,000 bags). Most of the people that I am talking to are sharing the idea that selling products are hard because we are over supplied. This includes cattle, corn and rice. At the BLPA annual meeting on October 24th, we talked mostly about getting ready to ship cattle to Mexico. The Belize ag production sector is increasing yields because of better seeds, better genetics, better husbandry and the increased results are really obvious. We are definitely in the need - to - export - zone - We must talk to Mexico, the Caribbean, Honduras and Guatemala. Thanks to the Ministry of Agriculture and the Ministry of Foreign Trade for helping to make PSA a reality. Material and information gathered by John Carr

Continues from front page

plants, egg depots, transport, distribution and retail. It is also a major contributor to the national GDP at 3.5 %, 14.5% of Agricultural GDP and 71.5% livestock GDP(2007-2008). Poultry meat represents 80% of all meats consumed in the country, with poultry meat consumption being about 100 lbs per person per year, and eggs at 115 eggs per person per year from commercial production. This can be attributed to the fact that poultry and poultry products are high in nutrients, rich in taste and low in cost. These consumption figures rate us among the highest consumers of poultry meat in the western hemisphere but also among the lowest in table egg consumption. The Poultry industry in Belize has 6 major processing plants that process chicken and distribute its products across the country. There are some 6 feed mills of economic importance and two major hatcheries. The industry raises its broiler breeder flocks and thus produces some 90% of all broiler chicks.

**Related Industries:**

Additionally, the poultry industry is extremely important to the grain sector especially the corn industry. It is estimated that the poultry sector utilizes some 70% of all the yellow corn produced. The feed mill subsector utilizes corn as the major carbohydrate source in all its feeds of which poultry feed represents some 80 percent of its sales. In 2007, some 84.5 M pounds of yellow corn was produced with a value of some 22 million Belize dollars, while sorghum production was at 16 M lbs. and a value of 3.8 M dollars. (source: MAF)

**Investments:**

Over 55 million U.S dollars are invested in the poultry sector, including feed-mills, processing plants, poultry production barns, hatcheries, refrigerated storage, dry storage, distribution, vehicles and other equipment. New investments of more than 3 M USD have been made over the past three years in construction of two new processing plants and the refurbishment of three others so as to meet both industry and regulatory requirements. Other investments have been made in the upgrading the hatcheries, feedmills and storage and distribution needs.

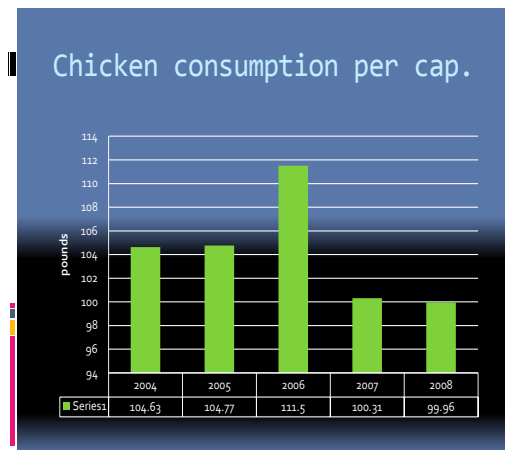
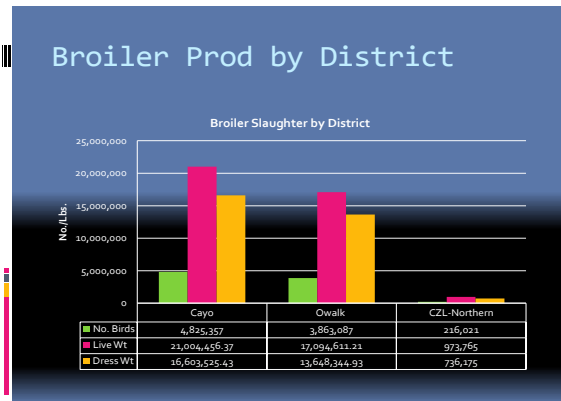
The Industry has also invested in farm food safety and product food safety having the Belize Agricultural Health Authority (BAHA) doing the daily and regular on-plant food inspection. The Poultry Association in collaboration with BAHA does routine sampling, testing, laboratory analyses and vaccination to keep Poultry Meat safe for consumption. The BPA also sponsors a poultry health active and passive surveillance program for the major poultry diseases of economic and health importance. A poultry Health Committee composed of Industry, BAHA, Ministry of Agriculture and OIRSA set the policies and direction for poultry health.

**Production:**

In 2008 there was an increase in broiler production at 8,904,465 birds slaughtered. A total of 30,988,045 lbs of poultry meat was available on the commercial market for consumption. There was 359,411 lbs of dressed Turkey on the market in 2008.

Table Egg production for 2008 increased by 11.25% with an output of 2,988,581 dozens.

Production and consumption have remained fairly stable throughout the past three years (table 1)



Although we have been self sufficient in Broiler meat production, there have been some shortages of table eggs toward the end of the year due to increased demand during the festive season. While production of eggs to meet increased consumption during the Christmas season is not a problem, the industry faces extreme challenges in selling the additional production of eggs after the short increased demand and therefore it is a matter of looking at the feasibility of increased output for a short period. Attempts to increase consumption of table eggs during the past 5-6 years have been futile. However, the industry continues to promote egg consumption on continuous basis.

Turkey production has been geared to suit the demand. Until a few years ago, most of the consumption of turkey meat was during the US celebrated 'Thanksgiving' in November and again during the Christmas season. However, during the past 4 years, an increase in consumption in other months of the year has forced the industry to have some production to meet those "out of season" demands.

Continues on page 20

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|---------------------------------|--------------------------|---------------------------------|
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| Boneless Breast in Tray \$3.76  | Special Chicken \$2.38   | Wing in Tray \$3.64             |
| Skinless Boneless Breast \$4.52 | Special Quarters \$2.46  | Chicken Ham Slices \$6.92       |
| Whole Breast in Bag \$2.82      | Leg in Bag \$2.32        | Chicken Patties \$4.32          |
| Breast in Bag \$2.68            | Leg in Tray \$2.40       | Chicken Steak \$4.56            |
| Breast in Tray \$2.80           | Thigh in Bag \$2.52      | Breakfast Sausage \$6.00        |
| Chicken Cuts in Bag \$2.20      | Thigh in Tray \$2.60     | Ground Chicken \$3.96           |
| Chicken Cuts in Tray \$2.28     | Drumstick in Tray \$3.00 | Smoked Chicken Sausage \$4.20   |
| Neck & Back \$0.72              | Liver in Tray \$1.44     | Seasoned Leg in Bag \$2.62      |
| Feet \$0.96                     | Variety Pack \$2.92      | Special Seasoned Quarter \$2.64 |
| Giblets \$0.64                  | Whole Cut \$2.40         | Stewing Hen \$2.00              |
|                                 | Gizzard in Tray \$1.96   |                                 |

## Turkey Products

- |                        |                          |                       |
|------------------------|--------------------------|-----------------------|
| Quality Turkey \$3.75  | Butterbell Turkey \$4.25 | Grade B Turkey \$3.25 |
| Boneless Breast \$5.72 | Drumstick \$3.80         | Ground Turkey \$5.50  |
| Boneless Thigh \$3.80  | Turkey Leg \$2.92        | Turkey Neck \$4.12    |
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**Remember when you buy Belizean you build Belize!**

**Affiliation:**

The Belize Poultry Association has membership with the Caribbean Poultry Association (CPA), the Federation of Poultry Producers of Central America (FEDAVICAC), and the Latin American Poultry Association (ALA). Membership in these Associations allows for the regional harmonization of standards that are now becoming mandatory in all states. Like the Poultry sector in Belize that of Central America is fast becoming one of the largest agro-industries. In CARICOM, in 2007, The Poultry sector became the largest agro-industry providing poultry meat and eggs to satisfy the domestic and tourism demand across almost all states. These affiliations also serve as political support groups by collective bargaining and lobbying at the local and regional and hemispheric level. They also serve as representative bodies that have major private sector influence on government, especially in trade related matters. Through these affiliations, major inputs into the formulation of legislation, directives and standards for production, processing and food safety have been developed and adopted by individual countries.

**Related activities:**

The BPA invests as sees fit into local and regional and international meetings and conferences so as to keep in tune with new developments in the industry. It also provides its membership with production schools locally (2004 and 2007), brings in consultants and organizes seminars and workshops in production, processing, feed milling and other areas.

Sponsors the disease surveillance programme, and liaises with Government and other institutions in areas of interest and benefit to its membership.

**Challenges:**

Despite the current economic crisis, the Poultry industry foresees no slowing down because poultry will always be a desired commodity especially due to competitive pricing within the industry and among the other meats available on the market. As long as there is a good working relationship and understanding between industry and government, but players will reap benefits. While world market prices of major production inputs severely affect domestic production costs, the industry has been further challenged to become more efficient and has focused on productivity by better management practices, improved genetics, optimal feeding and disease prevention. This has now afforded the industry to move from a production cycle of 8 weeks some 15 years ago to one of 6 weeks. Further improvements through investments in housing and equipment could reduce the production cycle for broilers to some 37 days. However, feasibility studies and cost recovery would need to be made before further investments are made in this area. Utility costs and labor costs are two of the largest costs after feed costs in the poultry business. Reducing these is a major challenge. Automation is one way of reducing costs of labor but also increases utility, equipment and repair costs. Increasing consumption market is a major challenge since domestic consumption for broiler meat is fairly saturated. Looking for an export market remains the only viable solution and this too has its challenges

when all countries in our region are self sufficient.

Another major challenge is that of maintaining competitive pricing. While pork, beef and fish remain relatively higher than poultry, consumers choose chicken over the other meats. The industry wholesales more than 90 % of its production but has no control over retail prices. Often times it is observed that price promotions/discounts offered to consumers so as to boost sales, is not passed on to the customers by the retailers and thus the activity has no effect on increasing sales.

**World Figures:**

The United States of America is the largest producer of broiler meat in the world with China and Brazil being second and third, respectively, with the European Union being fourth and Mexico holding the fifth place. Brazil, however, is the largest exporter of poultry meat, exporting to 168 countries around the world. Latin America and the Caribbean is the largest producer of poultry meat, producing close to 60 % of world production. Mexico is the largest consumer of table eggs averaging a little over one egg per person per day or close to 400 eggs per person per year.

The Food and Agricultural Organization of the United Nations (FAO) estimates that within the next 12-15 years poultry meat will be the meat of largest consumption in the world and pork will then fall to a close second place.

Orlando Habet, BPA Manager

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# ASK RUBBER BOOTS

Dear R.B.,

Why don't we have avocados, those small ones with the darker skin when ripe, available in the Belize markets year round???. They are so plentiful, all year long in neighboring Guatemala and Mexico. What is the issue? What is that variety, and would they grow here? Does ANYONE grow them in Belize? We remember that Mr. Ken duPlooy at the Belize Botanic Gardens was taking on that project, or looking into it, before his untimely departure from us.

Thanks for any enlightenment on this.

Rubber Boots consulted with the Belize Botanic Gardens and here is their reply;

It is true that Ken duPlooy wanted to have an example of early to late avocados that could be grown in Belize. Unfortunately, he was not able to realize this before his death. Lucky for us, however, the Ministry of Agriculture has been working on establishing avocado varieties for a number of years.

I contacted Thomas Tillett from the Ministry of Agriculture to see if he could shed some light on this question. Thomas was, until a recent move to sugar diversification, our national fruit tree coordinator, so he was well equipped to provide me avocado information.

Although there is a green variety, the smaller, darker avocado in question is most likely the Hass avocado. You won't find many around the markets of Belize, except perhaps in Orange Walk and Corozal, because they are not as marketable in Belize as other avocado varieties. According to Thomas, Belizeans are typically looking for large green to yellow pears with an abundance of flesh. Hass avocado is small with dark, wrinkled skin. It also has a large seed so it does not provide as much flesh as the more popular varieties of Belize.

In the rest of the world Hass is extremely popular and many consider that it has a superior taste as well as being easy to

ship. You will find that Hass makes up a large share of the avocado markets in Guatemala, Mexico and the USA.

It is so popular in the US, that it makes up 95% of the entire avocado crop in the state of California. In stark contrast you will find only a few Hass trees in Belize and these you will find most of them in the Orange Walk and Corozal districts.

The Ministry of Agriculture has been promoting growing later variety avocados in Belize. They not only recommend Hass but other late fruiting varieties such as: Hass, Lamb Hass, Gigante Verde, Pinkerton, Lawrence and Noche Buena. MAF have set up two germ plasm banks one maintained by Bob Griffith of Corozal District and one at Central Farm in Cayo. These plots contain a large variety of avocado trees that will be used to propagate material for farmers. Thomas said that these plots are only a few years old and as it takes about 5 years for avocado to begin bearing, it will be another couple years before they are able to produce any quantity of the many varieties.

The key to having any fruit or vegetable available year round is to grow as many varieties as possible. So, keep in touch with MAF to find out when other avocado varieties will become available and when they are, plant as many as you can. Hopefully we can soon all enjoy avocados at any time of year.

Heather duPlooy, Curator  
Belize Botanic Gardens

Dear RB, here's a helpful hint:  
NEVER NEVER.....

park under a CASHEW TREE..... This was an expensive lesson ! The juice and sap will eat into , under and through your paintwork. My shiny truck looked like it was vandalized by Halloween revelers . I thought I must wash off that sticky stuff when I get round to it ....little did I know it was already too late. Had I cleaned immediately with citrus power (GREAT PRODUCT)

it would have most likely been fine. So when seeking shade check out the species overhead. Regards, JJW



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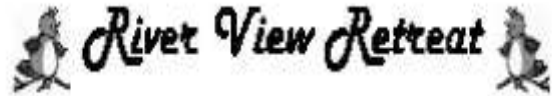
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## BELIZE LAND OWNERS ASSOCIATION, LTD.

- Press Release -

Monday, October 12, 2009 - The Belize Landowners Association held its first annual general membership meeting on Saturday, October 10, 2009 at the University of Belize, Belmopan Campus Auditorium from 9:00 AM to 1:00 PM. Three new members were elected to the Board of Directors: Leonard Reimer of Spanish Lookout, Carl Cambridge of Belmopan and Thom Grimshaw of Belmopan. The remaining six members are John Rempel, of Blue Creek and Orange Walk, Chairman of the Board of Directors, Dr. Larry Johnson, Secretary/Treasurer from Ontario Village, Rev. Macarena Rose of San Ignacio, Dr. Errol Vanzie of San Ignacio, John Carr of Banana Bank and David Penner of Spanish Lookout.

The association has adopted "Keepers of the Land" as its slogan with the Iguana as its symbol, in keeping with the Mayan meaning and describes a "member" as any person or group who is an owner, renter, lessee or legal occupier of a lot, acreage or communal land who has submitted the prescribed application form, paid registration fee (\$10.00) and whose name has been entered into the BLAL membership registration book. All Belizeans are encouraged to join.

Benefits of membership include: Preservation of constitutional rights, protection of landowner rights in property and leases, contribution to sustainable environmental development, advocacy of fairness in compensation to government and landowners alike. empowerment of landowners to address land issues and problems relating to usage, and illegal or unfair

abrogation of property, land leases, crops, livestock or other legal use of one's land, empowerment of landowners to address land issues as they relate to usage, trespass and business opportunities such as farming, animal husbandry, reforestation, cash lumber crops, aquaculture, eco-tourism, access, roads, and right of way issues. and networking with GOB, NGO's and other stakeholders with vested interest in wildlife and environmental protection.

Several of these topics were addressed by various speakers during the educational/technical presentations on Saturday: The Commissioner of Lands was represented by Carren Williams who spoke on Land Lease issues and procedures. Thom Grimshaw introduced the group to the various aspects and issues of environmental impact studies, Graham Herbert spoke on Jathropa ("Soil to Oil") Plantations, and Howard Oldham and John Carr gave a joint presentation on the cash lumber crops of teak, mahogany and cedar.

The association envisions "financial security for Belizean Land owners through protected land tenure in harmony with the environment" and sees its mission as "forging a partnership for progress and positive land stewardship with the government and civil society, in a spirit of mutual respect and fair compensation to all, with commitment to harmonized efforts and initiatives with our partners, in order to achieve an environmentally sustainable development of the land".

*Continue on page 25*

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*Continue from page 24*

For more information about BLAL or to become a member, contact Dr. Larry Johnson, 622-1997, Belize Landowners Association, Ltd., P. O. Box 22, Belmopan, or email: [dr.larryjohnson@yahoo.com](mailto:dr.larryjohnson@yahoo.com). Or contact any member of the BLAL Board of Directors.



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**Speech of H.E. Luis Manuel Lopez Moreno on the occasion of the XXXII Annual General Meeting of the Belize Livestock Producers Association**

**October 24, 2009, Belmopan**

Hon. Dean O. Barrow, Prime Minister of Belize: Hon. Rene Montero, Minister of Agriculture and Fisheries: Dr. Gabriel Rodriguez Marquez, IICA Representative to Belize; Dr. Errol Vanzie, President of the Belize Livestock Producers Association: ladies and gentlemen, good morning:

I remember that last year on October 4<sup>th</sup>, I had the privilege of meeting most of you for the first time, and that on that date I was asked a simple question, "Ambassador, can we export beef to Mexico?" I took it seriously and today it is an honor to stand before you and say to you that yes, it is possible. But that it is only possible in great measure due to the tremendous interest shown by the Belizean livestock producers and the work of both governments to advance in the corresponding compulsory procedures.

In 2008 and 2009 several meetings were held to start the process between Mexican and Belizean sanitary authorities. On June, 2009, Mexican and Belizean agricultural authorities took a bold step forward and signed a Memorandum of Understanding to increase trade and cooperation between both countries through mutual recognition of veterinary authorities, harmonization of health requirements and the technical SENASICA staff visit to Belize.

Again, On October 1<sup>st</sup> and 2<sup>nd</sup>, an extended group of representatives of Mexico and Belize including representatives from IICA and OIRSA met in Belmopan to implement a Strategic Plan previously agreed to by Minister Rene Montero when meeting with authorities in Mexico City. A work schedule and a preliminary budget were agreed for the sweep of livestock in order to evaluate the bovine tuberculosis and brucellosis sanitary conditions throughout the entire country of Belize with the support and assistance of SENASICA. Training courses were also agreed to be provided to sanitary authorities of Belize.

Last week representatives of BAHA, BLPA and MAF met with agricultural authorities in Chetumal to discuss the implementation in Belize of the identification system used by SINIIGA. In upcoming weeks sanitary experts of Belize will participate in a 5-day seminar to further learn on bovine tuberculosis, brucellosis and bovine spongiform encephalopathy.

Considering the results achieved, it is convenient to emphasize that in the following weeks the government of Mexico will publish the list of requirements which formally opens the Mexican market to the offer of importing livestock from Belize.



**H.E. Luis Manuel Lopez**

Nevertheless, our primary focus now should be to ensure that the cattle meet all of the requirements.

The Government of Mexico and the Government of Belize have done a great effort and many members of the Association have strongly supported this initiative but it is necessary to emphasize that the participation of the producers is essential in the fulfillment of the strategic plan. The door that you all were seeking to open has been opened and all that is left is that through your active collaboration the process can be finalized.

Thank you.

---

**Check out the online annex**

**For more pages online**

Continue from page 11

While most of the techniques are well-known, the use of charcoal, used by the Maya, is only recently coming back into general use.

Charcoal holds water and nutrients, slowly releasing them to plants while not being affected by rainfall. When combined with compost charcoal makes plants healthier and stronger and improves the soil. It is important to remember that healthy soil is vital for healthy crops! Classes are organized in the villages by GSC and Mr. Santiago Pop, Ministry of Rural Development, Stann Creek District.

The farmer goes into his banker and meets with the president of the bank. He tells the presidents of the bank that he has good news and bad news. The bank president asked for the bad news first, so the farmer tells him, "you know all that money I got from you to plant the crop, well the army worm ate all my corn, and the weevils got in my beans." The banker said "that is bad news." The farmer tells him he is not going to be able to pay him his money and the banker asked for the good news and the farmers said "I am going to stay with you for another crop."

Submitted by Oscar, Bush Camp One

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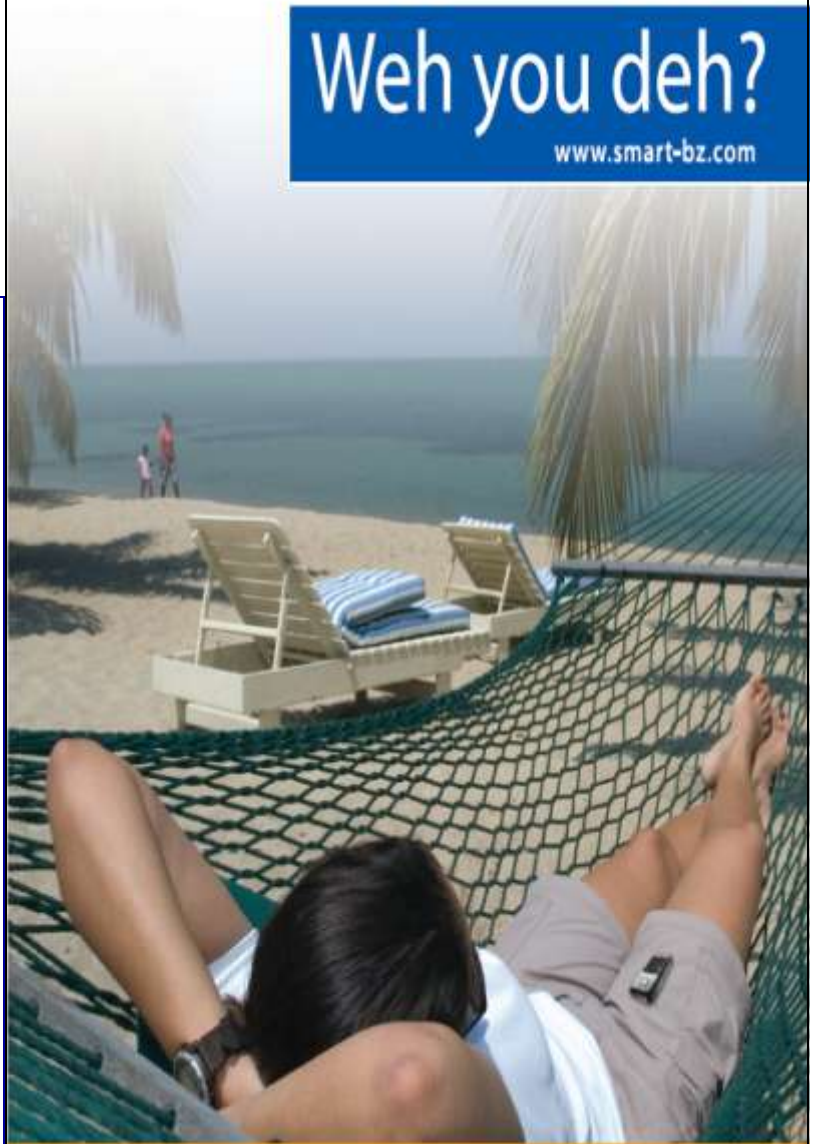
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|--------------------------------------|--|
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| Sábado 7 de Noviembre                | Libre  |
| Domingo 8 de Noviembre               | Libre  |
| Lunes 9 de Noviembre                 | 8:00 a.m. Peaje y Revisión Dentaria  |
| Martes 10 de Noviembre               | 8:00 a.m. Peaje y Revisión Dentaria  |
| Miércoles 11 de Noviembre            | 9:00 a.m. Calificación de las Razas, Indobrasil, Guzerat, Sardo Negro y Gyr. |
| Jueves 12 de Noviembre               | 9:00 a.m. Calificación de Las Razas: Nelore y y Nelore Mocho.                |
| Viernes 13 de Noviembre              | 9:00 a.m. Calificación de la Raza: Brahman                                   |
| Sábado 14 de Noviembre               | Libre  |
| Domingo 15 de Noviembre              | Libre  |
| Lunes 16 de Noviembre                | Libre  |
| Martes 17 de Noviembre               | 9:00 a.m. Calificación de Razas Europeas                                     |
| Miércoles 18 de Noviembre            | 9:00 a.m. Calificación de Razas Europeas                                     |
| Jueves 19 de Noviembre               | 9:00 a.m. Exhibición de Equinos  |
| Viernes 20 de Noviembre              | Libre  |
| Sábado 21 de Noviembre               | Desfile de Campeones, Comida de Premiación y Reconocimientos                 |
| Domingo 22 de Noviembre              | Libre  |
| Lunes 23 de Noviembre                | Cambio de Ganado   |
| Martes 24 de Noviembre               | Libre  |
| Miércoles 25 de Noviembre            | Día del Productor Rural  |
| Jueves 26 al Domingo 29 de Noviembre | Tianguis Ganadero  |

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 Hotel San Jorge tel. (986) 863 2037  
 Hotel 49 Sr Carlos Loeza (986) 863 5821  
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We all want something for nothing. We all secretly believe that we deserve more than we are getting and the world owes us something. Thus, the peccary are busily destroying the farmer's crop because it is easier to eat a nice ear of corn than hunt for roots in the dirt. Likewise, the jaguar, hearing the greedy peccary, sees a perfect opportunity for an easy meal with little effort and far more pleasure than the rat or possum he might otherwise be forced to eat. And how about the farmer himself who was too lazy to pick up the sticks out of the field, just hoping for a little something for little effort? Besides, when he sees the damage done to his corn and realizes that the jaguar will return, he will wait for the jaguar, shoot him and sell the skin. After all, he deserves something for nothing. In the end, who really wins?



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The back side of a race track like the back side of life is not for the weak or squimish. There is little mention of the years that go into a moments glory, the heart aches, blood, sweat and tears that are never seen by the adoring public. All they care about is the finish line and the trophy soon to be set on a shelf and forgotten. So it is with life. The things we work so hard for are only appreciated by others if they see the mark of success. There is no better illustration of this than the life of those in agriculture.



Continues from page 8

### Information and Communication Technology

**Project:** The ICT Project started in 2006, with the objective of applying Taiwan's advanced ICT abilities to assist the Government of Belize in planning and promoting the information and communication technologies, including establishing an ICT Centre, developing the e-Government System, enhancing government efficiency and conducting the education and training related to information and communication technologies to improve the quality of human resources. It is expected that the construction of an ICT Centre will be completed at the end of April 2010, when the digitally-capable building can be used not only to offer education and training courses, but also as the facility to hold activities such as seminars and video conferences and as a place to display the ICT cooperative projects between Taiwan and Belize. It is intended that the Centre also be used for related policy consultation across the government units of Belize.

The Mission is active in developing and installing software systems and web portals for the Government of Belize including Ministry of Foreign Affairs. In addition, a user-friendly back-end portals management system maintains these portals so that all the contents in these portals, such as news releases can be updated at any time. People in Belize can use these portals for all government transactions, services, and information. Two database systems, Suppliers Control and Gaming & EPZ, have been installed for the Ministry of Economics to maximize use and enhance the reliability of data.

The ultimate goal of the ICT Project is to build up an information society for countries with diplomatic ties with Taiwan.

**Taiwan Overseas Volunteer Programme:** A volunteer agreement between Belize and ROC (Taiwan) was signed in August 2002. Since then the International Cooperation and Development Fund (ICDF) has been used to send volunteers from Taiwan to Belize, to assist in medical education, food processing, agriculture, library management, horticulture education, web page design, etc.

Presently the Mission has two ICDF volunteers; one is assisting UB with Information Technology Administration and the other has been assigned to work in the ICT Centre with the Ministry of Public Service.

This volunteer programme is accepting applications from the public in Belize.

Article by ROC Taiwan Technical Mission in Belize



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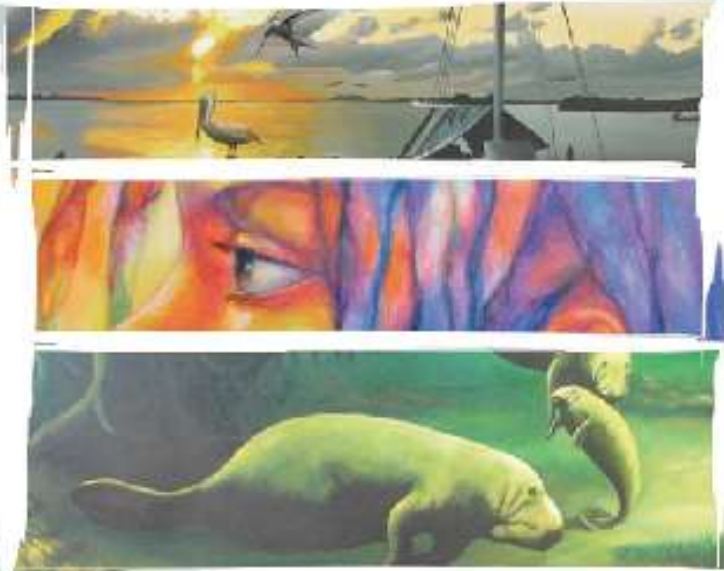
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# About Pitayas



Pitaya, also known as “pitahaya”, “strawberry pear”, and “dragon fruit” (Asia), is a climbing cactus whose ancestors are native to Mexico, Central America, and northern South America.

Commercial varieties were developed in Southeast Asia, especially Taiwan and Vietnam, and brought to Belize for cultivation. Its scientific name is *Hylocereus undatus*.



In March or April, flower buds begin to form on the stems, marking the beginning of fruiting season. About every two weeks, until late October, a new set of buds appears. Ants

collect a sugary substance secreted by buds.



Fragrant flowers open in early evening and close around dawn. Each bloom lasts for only one night and is pollinated by bats, sphinx moths (also called hawk or hummingbird moths), bees and ants. The creamy white flowers, the largest of any cacti, are known as “night-blooming cereus”.



Pitaya vines produce fruit for 15 to 25 years. Large pitayas weigh about a pound, but can reach three pounds. The spineless pitaya fruits have fuchsia-pink, dragon-like scales. The most popular varieties are red to purple on the inside. Tiny edible seeds resemble black sesame seeds.

three pounds. The spineless pitaya fruits have fuchsia-pink, dragon-like scales. The most popular varieties are red to purple on the inside. Tiny edible seeds resemble black sesame seeds.

Delicious and versatile, pitaya fruit is eaten fresh but is also used in ice cream and yogurt, and can be made into preserves, juice, wine and other foods.



Enjoy pitayas — the gourmet fruit of the 21st century.

The juicy magenta flesh of the pitaya fruit decorates your plate and stimulates your taste buds.

## Recipe for pitaya punch:

1/2 lb. pitaya juice  
strained Juice of 2 limes or lemons  
1 quart Sprite  
Sugar to taste  
add ice

### **Belize Pitaya Growers Association**

**P.O. Box 365  
Belmopan, Belize  
Email:  
rasp.pitaya@yahoo.com**

## Pitaya Planting Information

In choosing the best location to plant pitayas, consider soil quality, amount of sun, access to water during the dry season. Pitaya can grow on a variety of soil types, but seems to do best in dark soils. It prefers a pH of 5.3 to 6.7 with high organic matter. Mounding is recommended for flat terrain that is subject to periodic flooding. Pitaya is shallow rooted with most roots concentrated at the top 15-30 cm soil depth.

*Hylocereus polyrhizus* tolerates full sun. Shade during a couple of hours is acceptable, but too much shade may result in low production and poor quality of fruit.

Space posts 10 feet apart, with two stems per post. Support posts are required to hold the heavy weight of the pitaya stems, which can reach over 200 lbs per plant when mature. A typical arrangement would be a treated post that is 7'6" long and 5" in diameter, buried 18" deep. Two four-foot 2x4s are fastened to the top, forming a cross to support the stems.

The sturdiest and longest lasting post is made of concrete, 4-1/4" square x 7' 6" long, reinforced with two 3/8" steel rods and equipped with four six-inch lengths of 3/8" threaded stock to hold the wooden trellis supports at the top. Two of the lengths emerge from the top to secure a 4' long 3" x 4" cement post, reinforced with two 3/8" steel rebars, Two other threaded lengths come out the side just under the top of the post to hold another 4' long 2" x 4" cement post that extends in the other direction.

Once the posts and their supports are secure it is time to prepare the holes for planting. Loosen soil in an area of about one square foot on each side of post, about 4" away from post and about 10" deep. Remove weeds and roots. Level out surfaces if planting on a hill. Add a quart or so of chicken manure or compost and mix well into soil.

Plant two cuttings, one on each side of post and angle stems so they rest against the post. Plant at a shallow depth, about 1 – 4 inches deep. Tie the stems against the post so that they send out aerial roots and anchor themselves. Then water the base of the stems to allow proper settling of the soil and encourage growth of roots. Don't use too much water, as that may encourage stem rot. As stems grow, tie them to support posts as necessary. Use plastic ties, cord, or more cheaply, strips of plastic cut from plastic bags.

To control outward-growing stems, gently bend them toward the vertical post and tie (loosely if necessary to prevent breaking, then follow up later to tighten). When you find broken ties and fallen stems, just gently place them against the post and re-tie. As long as the round stem core is not broken, the triangular fleshy portions should heal. Stems will grow high above the horizontal support posts and then bend over under their own weight. You should strive for an "umbrella" arrangement with the stems draping over the post supports. During the dry season, especially an extended one, watering may help the plants better survive the intense sun.

Stems may produce flowers during the first 3-4 months after planting (if during the period from May-October) Full production is reached when plants are 3-4 years old.



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