

Bahamian Agriculture, an overview

John Hedden

Mr. Hedden holds degrees in Botany from UWI Mona Campus and University of Reading UK and graduated from Government High School, Nassau, Bahamas. He has experience as a Horticulturalist for the USAID project BARTAD Andros, Horticulturalist for the Ministry of Agriculture at CAS (now GRAC), and then extension services. Mr. Hedden is now trying to establish a modern demonstration fruit and vegetable farm on 10 acres of 'crown' land. He presently lives on Abaco and has worked with farmers there for the last 25 years.

Bahamian Agriculture, an overview. Part 1

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Recently much has appeared in the media about agriculture, with senior politicians, pundits, veterinary intellectuals, and the regular armchair philosophers, making their comments and putting forward opinions. However I have seen no comment from the actual farming community about the status and future of farming. This may shroud the real issues involved, and so confuse the general public with rhetoric and other fancy words. Before the reality becomes smothered I feel that as a genuine 'paper farmer' I can probably help cloud the issue even further.

In order to put agriculture and the modern Bahamas in proper focus we must start from the very beginning. This first part deals with historical anecdotes and notes which begin to include geographical, topographical, climate issues, and basic soils and water availability. I have not included dates because these instantly put off any student of history. However a journey into the well documented archives of our country will verify many of my statements.

In the beginning was the Lucayan, the Arawak, The Taino; people who should go down in history as the true Bahamian, and the only people who have sustainably harvested their food from the environment throughout this archipelago. Unfortunately these people do not survive to the modern times.

Since the arrival of the Europeans, and to the present day, no people in the Bahamas have truly subsisted on the products of the native environment. Subsistence production during the many very lean years, after settlement, relied on non native species for the major food source. These introduced species include cassava, sweet potato, yams, pigeon peas, red beans, sheep, goats, and all poultry. Even the wild hogs of many islands were introduced as domestic breeds before going feral.

The early settlers on several occasions had to appeal to their colleagues on the US mainland for help with staple supplies to prevent starvation on many of the inhabited islands.

The purchase of the Bahamas by the proprietors, and the establishment of plantations on many of the more southerly islands, became short lived, because the thin dry, arid soils were unable to supply sustainable commercial harvests. In most cases these plantations were abandoned to the slaves and servants to eke out a kind

of subsistence involving the sea, and slash and burn methods of coppice (black land) and sandy (white land) cultivation. To many of the islanders the Nassau capital may as well have been in Lima, Peru; because communications and transport were non-existent for the inhabitants.

The northern pine islands were not exploited to any degree agriculturally, mainly because the pine land was inaccessible, and the 'cap rock' was unworkable with traditional hand tools and manual labour methods. The pine areas were thus appropriately named "The Barrens", even though fresh water was close at hand. Even the arrival of the 'Loyalists' with their plantation approach resulted in a common survival in which the whites were no better off than their black brothers.

All struggled to survive.

The Bahamas went through many years of the most basic provision for sustenance in order to stave off debilitating hunger, and the early church missions often rescued locals from imminent starvation. Up until the 19th century, church and religious annals take account of the destitution and malnourishment existing in much of the settled out islands.

Less than 100 years ago arrangements were made by the Colonial Service to accommodate workers through contracts in North America. All types of Bahamians took advantage in order to survive the depression, and 2nd world war. Many of these 'migrant workers' earned the name of "American Boy" on their return with adopted American mannerisms.

Even today there is no continuity of agricultural production over the traditional 'lifetimes of farming' experienced in other parts of the world such as Africa and Europe.

There was however a brief spell in our history when agriculture seemed destined to become a major contributor to the economy. During the early to late 1800's pineapple and citrus production became a major source of foreign revenue for the islands. Farming in Eleuthera, Cat Island, and southern Abaco became very prominent; as did the eastern part of New Providence. Produce exported to North America and England made significant contributions to the islands' welfare. However the rise of Hawaiian pineapple and Florida citrus plantings soon put paid to that flourishing industry. A 1 U\$ cent tax was levied on each imported fruit, thus protecting The U.S. producers.

After the end of the 2nd world war the English government introduced the Colonial Development Corporation to various islands in order to foster growth through agricultural entrepreneurship. The pineapple project of the best land in south Eleuthera failed because mechanisation removed the red pineapple soils and introduced raw limestone. This area would later claim fame as the 'Charolais ranch'

that provided the U.S. with its prized French breeding stock. The Andros project failed because the fruit and vegetable land selected behind Fresh Creek was a summer swamp when the rains came, and no amount of pumps could keep the growing area dry. It is ironical that here the water was pumped away from the crops, and not to them. Rice would not even grow in the perimeter canals and drainage ditches. In addition produce shipped out, from Andros, by barge did not even survive the journey into Nassau.

Over the years attempts have been made to introduce sugar cane, large citrus groves, dairy, egg and poultry production to a non-existent agricultural sector. Some survived for a number of years but mainly because protection against competition was the rule of the day. In the modern era with the advent of Bahamian accession to the WTO and the apparent barring of protectionism in any form, bleak prospects for agricultural enterprise are looming on the Bahamian horizon. Many feel disillusioned and upset over the lack of governmental input in order to save the tradition of farming in the country. The reality is that apart from subsistence production purely for survival, the Bahamian agricultural sector is a myth and a non-contributor to any recognisable part of the economy. In fact since majority rule Bahamians have been actively encouraged to move away from agricultural and menial work into tourism and financial services. Today the perception is of agriculture as being demeaning and subservient work, close to being on welfare. The introduction of more modern technology has recently accounted for some apparently successful start-ups, and renovated enterprises in Andros. The use of more modern techniques, even basic ones like efficient irrigation can dramatically improve yields. Management of soil fertility, and pest control are equally important. These issues will be dealt with in the following article.

Bahamian Agriculture, an overview. Part 2

Technology.

In Part 1 I discussed some of the history and myths of agriculture and ended with the perception of agriculture in a modern Bahamas.

This Part will attempt to deal with the subject of agricultural technology and its meaning for improvement of agricultural production.

The original technology of food production through the islands would have been the most basic. It is more than likely that the Arawak were not farmers at all. It is likely that the produce from the land, and the sea were harvested when necessary to provide an immediate source of food. There would have been little need for storage because the natural pantry was always open and access to fresh fish and fruits cannot be surpassed, even today.

These people lived in very close harmony with, and as part of, their natural environment. They reaped and never had to sow. It was only in later years when Europeans and Africans settled on the shores did a technology arrive that was alien to the islands. Agriculture is one of the most devastating practices to an environment because foreign species of both plant and animal are introduced, and man actually alters the physical environment as much as possible to be able to get the best yields for his produce. A third reason may be considered where high yields are sought at the expense of native crops, in order to produce an excess for sale or barter. This latter was the intention of the plantation approach to farm production.

Metal hand tools were used to clear large tracts and foreign species were then grown on this land, Cotton planting is a good example, and here the native species were cut out of the land, and production of a single species on that same tract took place without any thought of soil strengthening, fertility or field rotations taking place. As we would expect, the result very quickly became a succession of poorer and poorer harvests, simply because this new technology was not able to take care of the most basic concern for a reasonable yield; water and soil fertility.

Needless to say the inheritors of these lands very quickly learned that continuing harvests would require a change in technology. The one that became used throughout the islands was known as 'shifting cultivation' with 'slash and burn' land clearing and preparation. This allowed farmers to rough clear a "task" of land and plant a succession of specific crops in order to allow a follow harvest of beans and peas, corn, root crops, benny (sesame), corn and melons. Usually after two seasons the fields were allowed to revert to "bush" for at least three years before they could be used again for crop production. This change in farming technique did allow a subsistence type of production to take place. Any excess was usually stored for leaner years, and of course the seeds for follow planting were taken out first.

Sometimes in a really good year enough would be harvested for either barter or sale to another settlement or island. Seaweed, cave earth and fish remnants were used to 'help' the soil. Very little water was used in crop production, and so planting was done seasonally and "with the moon" in order to take full advantage of soil moisture for the young plants.

Livestock production followed a similar tradition with animals often being tethered in an area, and then moved frequently to another site. 'Cutting Bough' was the normal practice, with cinnecord, rams horn and other legumes being the favourite fodder because of their high protein content. Large livestock were not common and sheep, goat, yard chicken, and pigs were preferred.

This system of food production continued for several hundred years, and today is still practiced in many of the islands where mechanisation is not possible. Even the early commercial production of citrus and pineapples for the export trade followed this example with longer rotational times for land use being implemented.

It was really only after the Second World War that agriculture saw a radical change in technology. The introduction of fertilisers, pest control chemicals and machines are what established more modern farming practices, and the latter were limited to the northern Pine Islands and Eleuthera and Cat Island. The introduction of the crawler tractor made us fall in love with the 'Caterpillar D8'. Land preparation was now possible where the surface could be broken up, and a type of rocky soil produced. However this soil proved to be very alkaline due to its high Calcium content, plant nutrients were non-existent and had to be added as fertilisers.

This introduced a newer technology of farming to the islands and along with this came the expatriate farmers such as Levy and the 'Hatchet Bay' products and the milk stands of Nassau. Others included Crockett and Scott in Abaco, and Scott Madison in Andros. Others eventually involved Gulf and Western, The Owens Illinois sugar plantation of 23,000 acres in Abaco, several large dairy operations in New Providence, and fruit production in all 3 northern pine islands.

So what is this new technology? It is in fact a newer approach to agricultural production where all aspects of crop production, from crop grow out to marketing are mapped out and planned before anything goes in the ground. Perhaps the 2 most important aspects of this are the use of irrigation, and the use of fertilisers.

Water alone can increase field harvest by 100%, while a combination with fertility management can double the yield again. These 2 along with mechanisation which reduces labour costs, pest control which increases the marketable yield, and timely harvesting which improves quality, all make a significant contribution to better farm earnings. The farmers of North Andros who are constantly on the media releases are a product of a newer agricultural technology provided for them by the US AID programme (BARTAD) of the 1970's. Under the present assistance provided by the government corporation BAIC these farmers have been given access to the farm inputs they have been waiting for all these years. In addition BAIC has assisted them with marketing seminars and direct access to clients through the BAIC website.

Other farmers on the central and southern islands have never had access to the training, the relatively improved soils, available water, and the immediate markets open just 25 miles away in New Providence. The very nature of the geology, climate and topography almost eliminates the use of mechanised farming on these more southerly islands.

It must be remembered that a major drawback to improving soil quality throughout the islands is the nature of the soil itself. We have no real soil profile. It is shallow, does not retain fertility or water. It will always be highly alkaline, and so makes many nutrients unavailable to the crop. Organic matter must be incorporated constantly because when it breaks down it disappears without altering the chemical

profile of the parent calcium carbonate. In other words no amount of soil improvement practices will have any long term effect.

Becoming ever more popular with the farming community are 2 highly specialised technologies; greenhouse production and hydroponics. Both work by modifying the impact of the native environment on the crops. The former modifies light, humidity and temperature; while hydroponics seeks to modify the root zone medium. Over the years several attempts have been made with these 2 systems, but seasonality improvements have usually been in the order of 4 weeks on normal harvest periods.

If this can be improved substantially then this technology will prove very useful. On the negative side only about 2% of agricultural land is watered and fertilised efficiently, and pest control is very poorly performed throughout the islands. Efficient transportation is not at hand and shipping costs are extremely high.

So finally I will point out that even though the technology has started to become available to the farming community very few are able to take full advantage of it. For rapid advances in technology to take place support in the form of excellent extension services, physical infrastructure and good input sourcing must all be accessible. Farmer training is non existent and access to capital is more than remote because most farmers have no collateral. In addition farmers are like most of their fellow Bahamians, they are lousy businessmen and keep lousier records. Because of the general perception of agriculture in the psyche few locals who have capital will invest. Financial and property interests are much more attractive.

In my next article I will attempt to deal with land and infrastructure.

Bahamian Agriculture, an overview. Part 3

Infrastructure.

In Part 2 I touched upon the use of technology in Bahamian agriculture; where its application has been most successful (Andros), and why (education).

In this article it will be natural to follow on with the advantage of a strong infrastructure; both physical and logistical. First I will deal with the physical side. This must include access to land, roads, transport and communications, utilities and energy, and equipment.

Access to land is obvious and essential. Access to private land is usually not feasible unless the farmer uses, or rents land; in which case the competition in value from real estate sales will be real and tempting. An example can be seen next to us in Florida where the Homestead area has been changing from an agricultural community to residential/commercial. Why? Simply because land owners can earn

more money from selling real estate than using the land for farming and the returns it generates. Here in the Bahamas that pressure is possibly even greater.

So that leaves other types of land. In the coppice islands generation and commonage properties allow indigenous people access and use of the land but never outright title. This in itself is restrictive because of competition for land from other members of the community. Again, these islands have little crown land of agricultural value to offer for lease.

In the northern islands many thousands of acres of pine and previously forested land is available for farming, and fortunately most of this is public (crown) land. So thousands of acres of previously cleared and farmed land are available on Andros, Abaco, and Grand Bahama; where ample fresh water is easily accessible for irrigation. So why has all this land not been taken up by farming enterprises? The first hurdle comes with the 'lease' of the land from the government through the ministry of agriculture. There is apparently no system in place for legal leases to be prepared and issued to farmers; and farmers are reluctant to invest in an agricultural enterprise without the relevant documentation in hand. Of those that do farm the land fewer still are prepared to build and live on the farm without that essential piece of paper. This means that travel between the settlement and the farm can be time consuming and fuel expensive, and leaves the property open to the two legged critters, come harvest time. In addition wild hogs, cattle, and horses become a pest in some farming areas. So the end result is little investment is made; and farmers try to implement the inherited, and traditional, slash and burn system of subsistence production on a twenty five acre block of previously 'cleared' land 'leased' from the crown. This is much, much larger than the traditional 'task' or quarter acre used in previous times. It does not, and can not work.

A more technologically advanced system demands more efficient communication and access to information and physical inputs. Again these are sorely lacking and unavailable to the small farmer. Farm roads are mostly in very poor condition and subject to the vagaries of the politics of the day. Inter island shipping through the contracted mail carriers is inefficient and unable to deliver any volume of perishable farm goods to the other end in good condition.

The ministry runs outlets such as the produce exchange and fish and farm store, both on Potter's Cay, and sadly neither operate in any way close to their intended purpose. Why? No real alternatives are presented, and the island packing house system has never functioned properly.

For livestock production and processing the situation is even more miserable. It doesn't even exist. The abattoir is exactly what its name implies, a place where slaughter and processing are prehistoric and often considered barbaric. No institutions exist in any of the out islands to even remotely accommodate animal

husbandry. No veterinary services, no extension services, no slaughter and processing facilities, and no storage or marketing services.

Access to utilities and energy is mostly absent in the designated farming areas. This naturally puts up farm operator costs, and limits access to timely information needs. One example would be the need for on farm power to access Internet for market prices and accessibility.

As for energy, the cost of fuel is exorbitant for farmers using diesel for farm mechanisation, and gasoline for transportation. These along with poor road conditions puts more stress on potential farm prices due to operating and maintenance costs incurred as a result.

The use of equipment for farming is severely limited due to the lack of financial capabilities of operators. No land title means no collateral; means no financing; means no investment; means little income; means Big Problem. The co operative system, and government guaranteed loans have failed to help solve this because neither institution has been innovative towards agricultural enterprise. Both could have both provided much of the logistical and physical infrastructure needed. On the logistical side of infrastructure farmer education, and extension services are critical for advances in farming systems. Unfortunately neither have been addressed and information on basic physical inputs such as crop irrigation and fertility regimes are not available for farmer assistance. Many islands including Abaco do not even have a viable extension officer.

At the other end, the farmer must actively seek out markets, which are often on another island where a population centre exists. This involves further expense with travel, accommodation and eventually shipping costs. Again, no information is available concerning market demands, prices, seasonality due to consumer numbers, and changes in product preference with time of year. For example Bahamians do not eat vegetables, but foreign visitors usually do. And, by the way, macaroni and cheese is not a vegetable dish.

So these are some of the problems presented to the Bahamian with farming in the blood. It is not therefore surprising to find minimal small farm production in the islands even though there are several thousand registered farmers in the country. The obstacles to being successful as a farmer are immense and daunting. In addition the lack of departmental support amplifies the difficulties.

This merry go round results in a vicious circle of negatives which actively prevent the establishment of any genuine home grown small farming sector, even though the potential is there, and accessible. Don't the politicians keep on pointing out to us that there is a five hundred million dollar a year (\$500,000,000.00) market out there, and we need to do more about it? Talk of self sufficiency, food security, jobs,

pride of production, and endless platitudes to the farming sector abound, but prove to be little more than hot air.

But my question remains. Where is the development of the infrastructural support systems for the agricultural industry? This can only come from the government, and it won't. We see periodic plans, as with the latest 5 year plan from the ministry of agriculture now going in to its second year. But nothing can be seen of this at ground level where most of us live. The only real impetus is coming from BAIC which is trying to streamline itself under the direction of its chairman, himself a successful agricultural businessman. Andros is leading in this respect, and hopefully other islands will follow behind.

As a final word in this article I will say that the political rhetoric and the lip service paid to farming is huge, but unfortunately this does not translate to active input or support for the sector. Rather our politicians would seem to encourage the foreign investor with the big agribusiness programmes, where Bahamians may be employed; as with the mega resort projects still being promoted throughout the country. We haven't yet lost that plantation mentality. Big agribusiness has not yet proved to be permanent, good for sustainable production, or even beneficial for the local entrepreneur. We still haven't cottoned on to the idea that small business enterprises, including agriculture, are the lifeblood of any economy.

In my next article I will present arguments for and against the development of a viable agricultural sector including land usage (our one remaining untapped resource) and the deleterious effects of poorly managed and monitored agriculture on land and ecological systems.

Bahamian Agriculture, an overview. Part 4

Is an agricultural sector viable?

In my previous articles I presented what I see as some of the biggest factors affecting present day agriculture in the Bahamas. These include brief touches on the history of farming, the mental attitude towards the land; infrastructural systems, advances in technology and education, and the urgent need for vastly improved knowledge and application to actual farming practices.

In this article I will present agriculture from an environmental, and hence a sustainability perspective. So what is the environment?

For farming, the environment includes climate and weather, the nature of the soil, water availability, natural vegetation, land profiles, and native supply of farming inputs. In other words our geography.

The climate of the Bahamas is almost ideal for crop production because we have a sub tropical system with pretty much constant seasons from year to year. This is one reason why we are so popular as a tourist destination. However weather patterns show differences, with high summer temperatures, and humidity; and the occasional winter extreme where freezing temperatures may affect the islands of the northern Bahamas. In the southern islands however, temperatures are much warmer and less variable over the year, and rainfall is very low. These will have an effect on the types of crops that can be grown over the course of the year with the different seasons. In the northern region cooler winters allow production of temperate crops from September planting to late June harvest. Crops would include the cabbage, tomato, squash, and lettuce families. Summer production will be limited to more heat adapted crops such as melons, sweet potatoes, cassava and okra. In the southern islands however temperate crops may not be readily adaptable, and the weather pattern will more and more dictate the planting of more heat and drought adapted crops.

Even though the whole of the Bahama chain, which incidentally should include the Turks and Caicos, is made up of limestone, the lower flatter Northern Bahamas is made up primarily of marine sedimentary rock, while the southern Bahamas is made up of wind blown dune sediments; which explains the higher and hillier profile of these islands. Again, the northern islands have a more loosely cemented limestone which allows for easier break up by agricultural machinery (softer rock) than in the south.

As far as soils are concerned the Bahamas essentially has none. What we in fact have are protosols, which literally means 'not yet soils'.

The rooting medium is almost all calcium carbonate (chalk) which is very alkaline (lime), with little additional soil content other than rotting organic debris from vegetation, and some red soils which in times past were wind carried over the Atlantic from Africa. These red soils of course are the pineapple soils of Eleuthera, Cat island, and Long island. Over the centuries these red soils washed, with the rains, into the pot holes and cracks and crevices along with decaying organic matter to form the basis of 'pot hole' farming on the black lands. The white lands were essentially carbonate sands which in past times had blown up into dunes set back some distance from the sea. These areas were considered better for farming because a wider range of crops, including root crops, could be more easily grown. Whole families would migrate from the settlements to these white land areas and actually live there for the season, or sometimes for a period of years when warranted. Water was always in short supply and people were lucky to find a 'spring' or be able to dig a well for fresh water. The soils are in reality very infertile, as the planters quickly found out when they grew the heavy feeders such as cotton and tobacco. This is one of the main reasons why the plantation system of agriculture failed so quickly. Not only do our soils lack a natural nutrition, they are unable to hold any added nutrients such as fertilisers. Because of the high alkalinity of the calcium carbonate nutrients such as phosphates become tied up, by chemically reacting with the soil

particles, and so become unavailable to the roots for absorption and use by the plant; while for others the nutrients wash right through.

Native vegetation is well adapted to our growing conditions, whereas introduced crops grown by farmers would lose out big time if they had to compete in a natural environment with the natives. This is why farming requires the attempt to replace any native competitors with the crop being planted. In modern times this eradication of native species has become a major concern world wide, because the biodiversity of natural growing systems (ecosystems) is affected, and the ability of geographical areas to continue to provide for native plants and animals in an area is threatened. This in turn has a harmful effect on the production of 'biomass' in many areas of the planet and the ability to cope with changing weather patterns, climates, and ultimately food growing conditions all over the world. This is why we now know that agricultural practices must make every effort to protect the natural heritage and its productivity. This ultimately protects us as humans also.

In years gone by with shifting agriculture as a way of life, no access to commercial fertilisers, chemicals, and pesticides was likely because most people did not have the money to buy them. They relied on sea weed, cave earth, burning the land, following the moon, timing of seasonal rains and strong backs, to help them sow, grow, maintain, and harvest their crops. They would watch them 'Come to perfection' in the last days before reaping.

Modern agriculture relies on huge advances in technology, where machinery, large amounts of fuel energy, chemicals, mineral fertilisers, packaging, biological manipulation, and preservatives are all used for the 'seed to consumer' cycle. Here in the Bahamas every single one of these inputs is imported from a foreign country. Even the crop variety and the labour to grow it are imported.

It now becomes apparent that any truly modern approach to field agriculture must take place in the northern islands. This region has the machinery capable land, the cultivatable soil tilth, the water reserves, the relatively large tracts suitable for mechanical technology; and the climate for a wide variety of crop production.

Again, a major concern is the protection of the growing environment in both land and fresh water systems. Pollution of soils and irrigation supplies will ultimately affect potable supplies, mangrove ecosystems, shallow banks and coastal communities, by lateral flow and drainage. Nature's systems in the Bahamas are non renewable, and once damaged will never be capable of self repair.

It should be now readily seen from my previous statements that for us in the Bahamas there will never be any shape or form of either sustainable agriculture, food security, or any approach towards self sufficiency unless we move towards subsistence production methods, which history has already proved can not feed a country. The closest we can possibly come to this is to use all of these imported

inputs to try and ease the food import and foreign exchange bills by creating a value added Bahamian farm product; by quality Bahamian innovation and Bahamian labour on the small farm. To me this would express Bahamian pride.

Large scale agricultural enterprises are not the answer because the agribusiness sector creates large amounts of unmanageable wastes, toxic runoff, environmental damage, and needless animal suffering. Just watch the happenings and concerns over the intensive animal production of hogs and cattle in the first world. If countries like the USA and the UK find these things impossible to harness, then we don't stand a chance.

All in all, looking at agriculture and farming from an environmental point of view, agriculture is a non starter. Land preparation permanently destroys the topographical geology of our land systems, and continuous farm operations do nothing to improve our 'soil' conditions. Any inputs to make agriculture any where near viable must be imported. Foreign, unwanted pest, and harmful species of animals and plants enter the country and, biodiversity is immediately threatened by the monoculture of our practices, and some form of environmental pollution is guaranteed.

And still no security and self sufficiency. Suppose the boat with the fertiliser stops coming? Or the plane with the seeds? Or the ship with the tractor and pump on board?

Next article will be on agricultural policy and the need for environmental monitoring systems.

Bahamian Agriculture, an overview. Part 5

An effective agricultural policy?

In previous articles I discussed the existing and historic status of agriculture as a part of Bahamian culture and food provisions. We have examined the fact that farming and farmers, in spite of the political rhetoric, are nothing more than the outside children of the modern Bahamian economy.

If we look at our large neighbour, the U.S.A., we will see that some 200 thousand people are active farmers; and these feed the population of some 330 million souls. Further more the majority of these are small homestead type holdings. Agricultural production in the United States easily feeds its population, and leaves large excesses to be exported to other countries.

Contrast this with the Bahamas. Here we have some 2,000 registered farmers and a total food bill of some \$700 million dollars of imported product annually for a population of some 330 thousand souls.

In the United States 2 farmers feed 3,300 people adequately. In the Bahamas 2 farmers cannot feed 330 people at all.

I have drawn the above comparison to roughly illustrate the present capability of local production in feeding its own people. I expect politicians and pundits will argue their case and justify their rational in countering my statistics. No matter. What matters is the question below.

So what is the existing national government policy towards agriculture; and where will this policy lead us? Self sufficiency? Sustainable agriculture?

The most apt answer to this was presented by the minister of agriculture in August 2010 (1 year ago) when he announced the 5 year plan for agriculture in the Bahamas. He presented a seven fold strategy for agriculture which would result in the foundation for a sustainable growth and development of the sector. This included education, marketing information, technology transfer, institutional strengthening at ministry of agriculture, research and development improvements, legislation and regulation improvements, and upgrading the physical infrastructure. In other words he has stated that in 2010 agriculture was in a serious state of disrepair. In 2011 it still is.

Now some questions.

1. What is the status of BARTAD (now BARC)? This was a multimillion dollar project funded by the U.S. Government as a gift to the people of the Bahamas in the 1970's. The purpose of this project was for Bahamas-Agricultural-Research-Training-And-Development. The Americans handed a fully equipped and fully functional institution, with an excellent reputation, over to the Bahamian Government. Within a few years the whole project had collapsed.
2. What has happened to the Potter's Cay Produce Exchange? This was set up to assist with marketing for the local farmers.
3. What ever happened to the feed mill set up at C.A.S. (Now GRAC)?
4. What ever happened to the 'Bahama Breed' of sheep, designed and bred specifically for good meat production in our climate? This breed, from C.A.S. In the 1980's, no longer exists; Why?
5. What has happened to the Packing House network specifically set up, and fully equipped, to deal with product grading, packing, and shipment from the islands to New Providence where the market is?

6. What has happened to the Island extension services, the fish and farm supply store, the fruit and vegetable variety trials, the plant propagation unit, the pasture trials, and on and on, and, on?
7. Why is the ministry of agriculture attempting to reinvent institutions and infrastructure that should already be in place? Have we been wasting taxpayer's money all these years? What about the staffing of the agriculture department? Are these the same staff of those lost years? I believe the estimated cost of this plan is some 40 million dollars, which is about the same that was allocated for the now forgotten and failed projects. Is this an example of sustainability? Are we in for another lost investment by the taxpayer?

As usual there is much talk, but no action. We are now into year 2 of this miracle plan. According to the plan, in year 1 some improvements should be:

- Train farmers in good agricultural practice (GAP).
- Assess island needs and increase credit access.
- Promote benefits of local produce and educate consumers.
- Promote GAP to reduce post harvest losses.
- Train extension staff.
- Demonstrate cost effective fruit production systems.
- Research into disease and cropping problems of the country.
- Expand plant propagation facilities.
- Improve packing house systems.

Perhaps the minister, and/or the director would demonstrate the progress in these areas with facts, and not words. I am sure the farming sector would appreciate being directly involved in this wonderful programme.

I won't even begin on what is meant to happen in this present 2nd year of the plan. The only move towards improved agricultural production and marketing seems to be coming from BAIC, which is working outside of the plan, or the direct support of the ministry. Maybe the answer is to fire the ministry and let BAIC take over??? At least we will save the 40 million dollars and the attenuating salaries for hundreds of staff.

Any effective policy for agriculture must involve the private sector in all and every decision process; implying that the people with their feet in the soil should be cultivated and harvested for ideas and innovations. In my opinion the plan requested by the government to the Food and Agriculture Organisation, and since adopted by cabinet, says absolutely nothing new. It is simply a rehash of what has been well known for at least 40 years.

In terms of sustainable agriculture, and food security we need to get real. Our climate is good our soils are not. Our water resources are limited and very fragile.

Our labour is expensive and poorly productive. Our land fetches more as real estate. We have no natural agricultural inputs to make us competitive. As long as we understand that all of our inputs will have to be imported, and that we need a good solid permanent agricultural policy including access to land; we will then be able to lower our food import bill and provide an opportunity to genuine farmers to make a living and develop a sense of pride.

Along with this we need a dedicated, well educated, and well practiced, support team from the Ministry of Agriculture that do not need an air conditioned working environment. Farming takes place in the fields not in the office.

The real answer lies in the institutional adoption of a definitive agricultural policy that is written in stone, being impervious to political manipulation no matter the politics of the day, with Prime Minister as king. Until agriculture is treated as an inside child and given a share of the table and the bed, nothing will change. The only self sufficient facet of farming in the country to date is the amount of hot air produced that could and should be diverted to the sustainable curing of our annual onion crop. Now that is innovation.

Bahamian Agriculture, an overview. Part 6

The Way Forward?

So far in this series we have briefly examined various aspects of agriculture including its history, technology, and infrastructure, its viability, and the existing governmental policy. To date nothing thrown at the problem has stimulated anything, be it politicians, ministers, ministry staff, or the few brave farming souls who seem to end up 'eating dirt'.

So what is the way forward for agriculture and farming in the Bahamas? We have no soil. We have no native mineral fertilisers. We have a raw limestone rooting medium. We have fresh water in limited supply. We have a good winter climate. As any fruit grower will tell you, we have hurricanes. We have loads of bugs and diseases. We have a consuming public with cultured beautiful nails, green with cash and, allergic to the very idea of brown soiled hands. That, pretty much, covers the physical environment. Oh, I forgot to mention the sunshine, plenty of it; we do, after all, cultivate tourists, and quite a crop. Though, like our produce, I can't vouch for the quality.

As for infrastructure and governmental policy, we have a very harsh climate with no favourable conditions to encourage any entrepreneurship, unless affiliated with the appropriate powerful entities. Marketing is hampered by our geography, and the native tastes tend toward name brands and imported foodstuffs. Costs of food

production are really high, and genuine land tenure is pretty much unavailable to the normal farmer.

All of this tells me that sustainable agriculture, and self sufficiency are also pretty much a figment of the politician's imagination. Yet we hear noises to the contrary all the time. Agricultural production accounts for less than 1% of the country's economic output; and this tells me that something is very wrong. Pretty forlorn isn't it?

The only way forward, with any semblance of successful farming to take root in the country, is for the government to create a favourable economic and political climate for the agricultural entrepreneur, with the understanding that there is no such thing as either sustainability, or self sufficiency in the local farming sector.

With this in mind is the government going to put in place the incentives and the policy to genuinely encourage investment and application of modern techniques in agriculture? What is needed?

First of all we need a good and sound policy that plants the farmers firmly and legally on the land for at least 3 generations. Conditions can and should be built into any contract, and the option for a grant or purchase must be included at the end of the contract period. Remember the 'homesteading act' of the U.S. government. Remember the building ordinance of the redlands area of Florida? One dwelling for every 15 acres of farmland.

We also need a good solid policy to encourage the development of the small business model, which would necessarily include the small farmer. We have yet to realise that the small business creates a method of employment and reward that no mega development can provide. And the cost of investment per job created does not range into the \$1,000,000 (million) dollar range. We have to leave our "Plantation Mentality" of employment behind and now become the planters.

The country must also equip the sector with an efficient and practical group of agricultural staff who are capable of assisting farmers with all aspects of production and marketing. In other words the ministry of agriculture must be ploughed in and reseeded, and replanted from the staff up; even to the minister responsible for the sector. What a crop?

The government must also be prepared to make an investment in the infrastructure of farming including, communications, access to farm areas, utilities education, and access to financial tools. Extension services must also be instituted, and must include knowledgeable and practical staff, fruit and vegetable trials and demonstration plots, the primary and secondary school system, and of course, a well structured programme in affiliation with the College of the Bahamas.

Concessions must be made to farmers, overcoming import and tax obstacles, that genuinely encourage investment and growth in the sector. Again conditions must be put in place that disavow favouritism and ensure transparency in the award policy. Strict monitoring must be the rule of the day. Other measures must include duty free fuel and 'energy' that will help accelerate the move towards mechanised and irrigated agricultural production by lowered costs. A spin off of equipment use will be the lower cost of labour intensive grow out, so assisting in reducing the farm gate price. All are financially costly, a minimum of \$5000.00/acre start up, and so the government needs to create an environment where private sector investments are encouraged and partnered. This again requires the removal of the spectre of political interference from the programme.

The really interesting thing about this kind of scenario comes from the World Trade Organisation, the FAO of United Nations, and the rules and regulations for free trade incentives for developing countries, and, the implementation of environmentally friendly agricultural practices. International trade concessions can be made, and financial support is available for the design and implementation of 'green' farming methods. This kind of support can, and should be, actively sought by our "keyed in public service" on behalf of the Bahamian farmer. In addition, the well developed nations have an intricate system of agricultural subsidies that give the perception of cheaper food prices. For example sugar in the US at 11¢/lb has already cost the unwitting consumer 11¢ in taxes. Food for thought?

Active marketing strategies must be developed and must include storage, transport, and product standards, including pesticide use, to ensure quality and consumer safety. Seminars between producers, the middlemen, and the consumer must be brought into play to develop a good dialogue. For some unknown reason the public service is the least public oriented of our institutions, and much prefers to operate hidden away in cavernous offices where John Doe can only hear his own echo.

As I have previously said the Bahamian government in general, and the Prime Minister specifically must take the bull by the horns over this policy issue and move from the subjective policies which exist today, well supported by and with overt political favouritism (at least that bit is transparent). This move towards an objective policy cast in stone will be open, accessible, and a source of motivation to the small agricultural entrepreneur. If the administration is serious then it must first remove itself, and successive administrations, from the basic framework of farm production by putting a genuine and effective policy in place that cannot be interfered with by the politics of the day.

There now exist a few special pockets of more advanced agricultural development, including greenhouse production at Lucayan Tropical in Nassau and, field production by the North Andros farmers around San Andros. However the vast majority of farms in the country still rely on the most basic practices which are essentially slash and burn. As a result production is inefficient and yields are minimal.

How do the farmers themselves need to develop a successful farming venture? Firstly the farmer has to be realistic about the size of holding desired, thus seeking a lease for a land area he is capable of working; not dreaming about the big time, and money like dirt.

Secondly the farmer must realise the reality and effort needed to operate a business efficiently. Living out of a cheque book, or the money in the pocket, cannot build a successful venture.

Thirdly the farmer must ensure all the necessary tools are available, along with a sound and well structured business plan. Finance is essential and we must realise that for start up of a well structured field operation a requirement of some \$5,000. per acre minimum is essential.

A good solid well rounded education in farming practices, maintenance, and financial management is also required.

Minister, by all means tell us again that "Farmers must become more competitive"; but this time provide us with the 'right tools'. An airy fairy, wishy washy, half hearted agricultural plan is not the answer. Words do not germinate into any useful harvest, but actions and policies might just sow the seeds of a greener Bahamas. You hail from the most industrious and independent island of the archipelago. Make your fellow islanders proud of their native son.

This is the second to last article of the series, but the final article will present an alternative view of farming and its history in the Bahamas."The ironies of farming".

Bahamian Agriculture, an overview. Part 7.

Reflections on agriculture and other pastimes.

The ironies of farming.

What a thought.

What to do?

Farming of course, and to be specific earning a comfortable living from a farming plot intensively cultivated.

Cultivated with what? Coca? Indian hemp? Poppies? Neem? Other high value crops.

A money tree? Maybe more mundane crops like rice or perhaps potatoes. Possibly Noni even?

In reality folks, farming in the Bahamas right now is a thankless task, physically demanding, requiring a maximum of 4 hours sleep at night, knowledge of every skill under the sun; including book keeping, (not likely). And to top it all off, at the end of that 20 hour day you just can't move your onions.

You see we don't have that branding like 'Vidalia', or 'sweet yellow', or a label saying 'imported'. Though maybe -- 'IMPORTED' from Andros –

So at the end of that very same day, not only are you dog tired, you are also dog broke. What better result could you ask for, broke and broken.

Farming in the Bahamas has never been a profitable business to be in. Look at the original Arawaks and Lucayans; they lived mainly off the sea which they never had to sow. They also lived off of the wild fruits and berries, herbs and coontie; none of which they had to sow. They never sold anything. In fact the only sale that took place was that of themselves by the white Europeans, who arrived, hoodwinked, and then transported them to Hispaniola to work in the mines and as pearl divers.

Following behind these native peoples came the early settlers who had to be sent emergency supplies by their US mainland compatriots in the Carolinas. This literally prevented them from starving to death in their new found islands of freedom.

Then after the US wars of independence an inundation of loyalists arrived with their plantations on their backs; or rather, on the backs of their slaves. This all under Crown encouragement, because Britain was convinced that if these lazy Bahamian people were prepared to do a little bit of work then they could make a success of agriculture. That way they wouldn't be doing all these pastimes of ill repute like drinking, and trading in illicit items, and prostitution and robbing the high seas, unless of course they were licenced by the Crown. What better way to build character than good solid back breaking work like turning rockland into farmland.

Well the plantation system didn't work either, and the only thing remaining to this day is the 'plantation mentality' which of course is why we blame everything on colonialism, even though our children don't have the foggiest idea of what that means. In fact I am not sure that they know what any thing means, except of course 'more money'. So all the slaves got sold off or earned their freedom, or took their freedom because their masters were so destitute they couldn't afford to keep them any longer.

So next in this saga came another wave of now liberated people trying to eke out a way of surviving on the very same land that broke their backs and the wallets of their masters. Of course it didn't take long to realise that a life of drinking, trading,

prostitution and arms and liquor running were much more profitable and less likely to lead to heat stroke, no matter what the Crown had to say about it.

Boating, and boat building were the means to survival for black and white Bahamians alike; and we forget today that some of our finest sailing boats came out of Andros, and other now forgotten islands. Also some of the world's finest sailors hailed from the Bahamas though never officially recognised. That, maybe because they weren't recognised as officially English.

So they all went sponging. And we still do, but in these times, off the mainly North American tourists who visit our shores.

But I forget, I was talking about farming. So back to it. By the latter part of the nineteenth century the Bahamas was again pretty destitute. Cotton had failed miserably after a few years of good production in the more southern islands. Sisal never really took off, and labour was becoming expensive thanks to these liberated slaves, now called apprentices who wanted more money for the skills they offered. Sea faring won out again simply because it paid more money for regular work. But pineapples, and citrus became the vogue in a now wealthier North America. Europe was just too far away for the sugarloaf pineapple to arrive as a fruit instead of a fermenting juice. So these darned Bahamians discovered pineapple wine and how to make it. Happy times were here again. Well of course the new Americans in the US. discovered that they could grow pineapples in Hawaii, and citrus in California and Florida, being of course new parts of the United Republic, and sober. That quickly put paid to our meagre success of controlling the world markets for those few years. Taxes are the end of the world for farmers, and sure enough 1 cent per fruit killed us and the trade. So back to the party.

Well what better way to work the land, as the Crown still wanted us to, than to go away to farms in the US and work as migrant farm labour on the 'contract'. At least we didn't starve and our families back home received a portion of our wages in the original remittances, which are now a world wide major source of revenue for impoverished countries. Those males that did return from the contract were often given the label 'American Boy' which they then bore proudly on their persona.

Of course then the second world war took place and every piece of metal, and especially steel and iron, was removed from our shores for the war effort and the smelting pots of the arms factories of Britain. Destitute again.

At last the war was over and everybody throughout the colonies of British rule were trying to figure out how to make the price of bread, when lo and behold the colonial government arrives with this really bright idea of, what else but, farming. They sent teams to Andros and Eleuthera to establish projects for export produce to earn foreign revenue, and so help pay off some of that debt to America incurred during the war years.

So what happened? Well Andros attempted to grow export produce in the swamps behind Fresh Creek, and if it wasn't for the rainy season the venture may have been successful. Also of course the Bahamians used to sneak off to the settlements and get drunk. These darned people never seem to learn. And of course the pineapple growing areas of South Eleuthera were ploughed and worked by the new Caterpillar tractors so that these darned drunken farmers could at least try and put their plants in a straight line instead of weaving everywhere. But somewhere along the way the tractors eliminated the valuable winding red soils from the area, and never a pineapple was seen to grow here again.

Well after this the Colonials abandoned us to our drunken ways, and moved on to help other islands like Montserrat. Here they planted citrus trees on one side of the mountain, and built the packing sheds and processing plant on the other side. However they forgot to put a road in to connect the two. After this they pretty much gave up on the Caribbean as a sorry lot, and decided to move to the African countries to see what havoc they could wreak on that other side of the Atlantic ocean.

Still we didn't give up and people like Levy came into Eleuthera and Crockett into Abaco. A succession of operators went into Andros. None were really successful long term farming operations, and I always think that we must have appealed to their philanthropic spirit in some way. In fact to this day we still have our hand out begging from some rich sucker who passes our way.

And now we move into the modern era of information technology, tourism, and international banking. Still we keep our liquor sodden and pirating ways, and almost everybody to a soul is trying to figure out the easiest way to scam our neighbour. So much the better if they happen to be a foreigner.

What is the end result? It seems that our government has been catching up on colonial history, because they want us to go back into farming. What else??? Of course there are no incentives. Other countries offer subsidies and marketing, extension services and financing, insurance programmes and price guarantees.

But Bahamian farmers don't need any of these things. We get really encouraging words from those such as minister Cartwright proclaiming recently; I imagine after much deep thought.

"Bahamian farmers must become more competitive".

'Nah it is much simpler and much more fun to go drinking, pirating, sponging, and prostituting ourselves'.

Bring on the Bachannal!

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