CARBON SCIENCE LABATORIES

1.0 Intro Summary

Operadora Mexlun S.A. de C.V. is headquartered in Guadalajara Mexico. Their entire business focus is in Bio-Mass "Green Energy" and "Activated Black Carbon" by Growing Bamboo as well as Hardwood trees and Switch grass creating permacultures to benefit the environment, creating employment for Mexican Families.

1.1 The BambuRain Objective:

Social entrepreneurs focus mainly on two bottom lines: a social mission and financial sustainability.
The BambuRain program, by contrast, is about the integration of people, planet, and profit.

At BambuRain, we are mastering the ways in which successful farming businesses make money by learning from, protecting, and restoring ecological systems while delivering an in-demand product.

The program then layers on the skills and techniques of social entrepreneurship. At the end of the day, building an ecologically sustainable and resilient business can only be achieved through just treatment of employees, customers, suppliers, business owners, and the community at large. At the same time, the justice-based goals of social entrepreneurs will be hollow achievements without an ecological sustainability revolution in business, which can lay the foundation for sustainable, shared prosperity.

Everyone could participate; this is your chance at an AVANT-GARDE moment.

The answer is yes; you could be a Modern Farmer helping yourself and securing your future for ever while helping others.

- Mexlun provides the land and the Harvest Centers
- The Modern Bamboo Farmer pays for land use and to maintain the Harvest Centers

To enter the Modern Farmer Program you place your order for a "Harvest Center" you don't have to pay for it all you do is agree to take care of it until it can pay for itself.

This requires a commitment from the Modern Farmer, not unlike any other plant bamboo takes a while to mature before any of its properties have a commercial value, in the case of bamboo you are looking at four years before any return on investment should be expected.

After your investigation and site inspection you are completely satisfied and you feel comfortable owning bamboo plants, also realizing this is a long term financial commitment from any Modern Farmer that is starting their own business venture, you agree to a 48 month Plantation Management Program. Each one of the 33 bamboo plants in your harvest center need special attention including but not limited to the following; 264 square meters of land, a "Culmador" the bamboo specialist, irrigation, pruning, health care, fertilizer, a permit from the agriculture ministry and visits from the owner this could be the reader.

This Plantation care package is a lifetime commitment because your plantation will last into perpetuity when the bamboo is taken care of professionally. The good news for the Modern Farmer is that as the plantation matures it starts producing income for the Modern Farmer in your case precisely 48 months. What this means is that after 48 months your BambuRain Plantation has become self-sufficient. The Harvest center you own will need no further cash investment from the Modern Farmer, the Bamboo bio-mass harvested will not only look after your operating expenses from now on but will also start generating a profit.

Where did this Idea come from?

The world and its people existed before Facebook, television, I-phones, Microsoft, airplanes, professional football, basketball, cars, shopping malls, computers, every convenients you can think of the world can do without except one thing "FARMERS". There is not a single person on earth that could survive without harvesting something, harvesting is farming.

The total surface area of Earth is about 197 million square miles (509 million square km). About 71 percent is covered by water and 29 percent by land. That means 147,610,000 square Km or 48 people per square kilometer.

We share our world with seven billion people. Soon there will be nine billion of us, all aspiring to a good quality of life. Can we meet human needs without destroying the ecological systems and exhausting the natural resources on which our civilization depends?

Let's face the obvious not nearly every person is needed for mankind to survive, the future of machines replacing human labour paints a very grim picture for a host of professions and manual labour.
Most of us are expected to retire early as our jobs are deleted by Robots, and other automation. Our "Modern Farmer "acts as a hedge against the coming phenomenon.

The answer lies in Bambú Rain´s "Modern Farmer" ideology.

The Modern Farmer sustainability revolution in business began when a handful of corporate leaders started to rethink the fundamental purpose of business enterprise. As the pioneering CEO of Mexlun, put it, "What's the business case for ending life on earth?"

The Modern Farmer focuses on the business case for sustainability. We train our farmers how our program can integrate economic, environmental and social objectives—the triple bottom line—to create successful businesses that build a more sustainable world.
Modern Farmers will transform existing ideologies, transform their own thought processes, and pioneer new ways of understanding their future contribution to sustainable human needs while protecting and restoring the earth's natural systems.

The Bambú Rain objective continued:

The harvested bio-mass is processed into Bio-products used by carbon polluters to offset there carbon foot prints.

This process earns money for your "Harvest Center" thus your business venture.

The Modern Bamboo Farmer Program is designed to satisfy long term needs such as, Retirement, College Education or to subsidize future income. Even though this program is designed for long term needs, investors can start receiving harvest income starting the 5th year. * Fifteen (15) years is needed to maximize the program. At the end of 15 years one (1) "Harvest Center" with 33 Bamboo Culms has compounded to be twenty-eight (28)"Harvest Centers" with 924 Bamboo Culms.

The Modern Bamboo Farmer ... How to begin your adventure

Second explanation ...

- Placing your first "Harvest Center" order can be done through your company

representative or by going to www.BambuRain.com and filling out your order on line. You must know your representative's code to place orders on line. *If you are requesting to pay monthly you must first have or fill out a PayPal account. *Full payments are also accepted through PayPal.

- Each "Harvest Center Maintenance Contract" starting March 1st 2015 costs $1,948.80 USD, or $40.60 USD per month for 48 months. This includes 16% IVA Mexico's service taxes.

What happens after you open your account?

- First you are designated a spot address for your "Harvest Center"
- You sign a Modern Farmer "Bamboo Purchase Agreement".
- You sign a "Plantation Management Agreement"
- A personal account is set up on the company's web-site

You are now an official farmer which gives you certain rights

- You have visiting rights to your project
- You can refer others to the program
- You have earning rights to your share of the harvest contract
- All carbon credits your plantation generates are credited to your account

How does the business work?
Your "Harvest Center(s)" will produce income after the fourth year, this income is used to purchase additional "Harvest Centers". By means of compounding, each initial "Harvest Center" with 33 culms, will increase to twenty-eight (28) "Harvest Centers" in 15 years. The owner or beneficiary of these "Harvest Center(s) will receive harvest income into perpetuity.

* Starting the 16th year, each "Harvest Center(s) will receive (spot commercial) market price for their harvest.

Definitions:

- **Harvest Center:** 33 Bamboo Culms growing on 264m2 of land
- **Harvest:** the amount of bamboo tons harvested from each "Harvest Center(s)
- **Carbon Credit:** each harvest center sequesters carbon and each ton of carbon is income

Our own brand of BAMBOO

The long term initiative in Mexico is a national demonstration project that will enhance the use of the bamboo biomass feedstock for the generation of electricity.

The growing of bamboo will assist Mexico in acquiring much needed sustainable biomass feedstock for the co-firing of future power stations. The Bambú Rain plantations translates to 5 million tons of the 120 million tons still needed that the World Bank is projecting of biomass feedstock needed per annum, hence the strategic nature of the project.

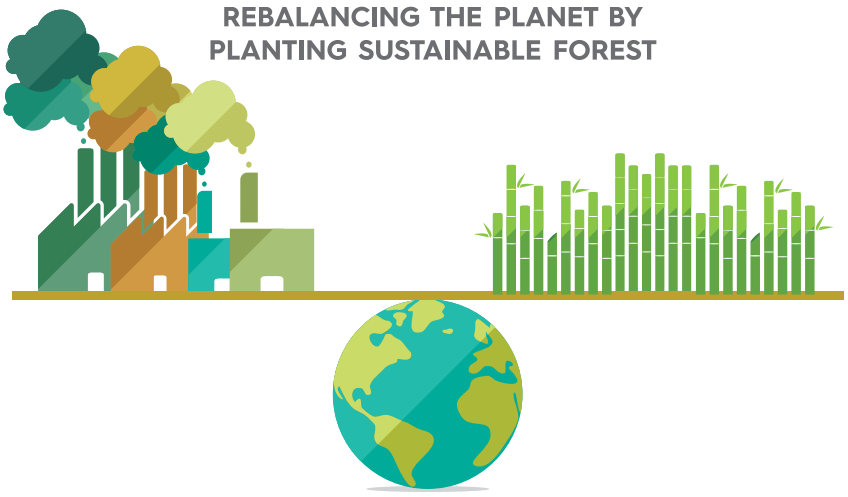
The Mexican Government through their forestry services (SABERNAT y CONAFOR) are actively supporting this project through grants and technical support. The Government is in addition, committed to providing assistance in ensuring that all the legal requirements are met for the establishment of the project.

BACKGROUND

Mexlun Domesticated variety ... Bambu (Char125)

Bambú Rain is committed to researching and developing hybrid Bamboo forests that will sequester the highest amounts of carbon, outperform any other species of bamboo, give the highest return in woody mass production, and create quality jobs for our Culmadors.

Carbon Sequestration.



ADVANTAGES OF Char125 BAMBOO

- Fast Growing
- High Biomass
- Thorn-less
- Thick Walled
- Sterile Plant

Bamboo is the best solution for containing pollution in many ways:

- Bamboo absorbs Carbon dioxide and releases oxygen into the atmosphere 3 to 4 times higher than many other trees.

- One bamboo tree generates plenty of natural oxygen sufficient for more than one human being's daily requirement.

- Grows more than one foot a day and covers with good canopy faster than any other tree and cooling the surroundings.

- Carbon dioxide absorption of bamboo remains the same, since Bamboo keeps growing every year while other trees reach maturity after a fixed period.

- Every part of the bamboo is used to make varieties of products.

- Bamboo can replace traditional wood for all applications such as paper, flooring, furniture, charcoal, wood pellets, and bio-fuel etc.

- Recently developed cotton from bamboo will replace regular cotton, with a productivity of over 10 times from the same land.

- Bamboo co-polymer plastic replaces 50% of plastic which are essential but not eco-friendly.

- Bamboo effectively cleans the water pollution of the septic tank discharge and factories effluent by its natural affinity for nitrogen, phosphorus and heavy metals.

- Bamboo enriches the soil naturally and prevents soil erosion.

From research conducted, to become CARBON NEUTRAL, it takes only 6 Char125 BAMBOO Harvest Centers per person to take care of one's emissions in one's life time. When one takes as much CO2 out of the atmosphere as you put in, you are "carbon neutral"- you are leaving no CARBON footprint! If everyone leaves no footprint, we don't have to worry about climate change. We can reduce the carbon footprint by planting the right variety of bamboo that grows 1.5 feet a day & removes over 400 Kgs of CO2 every year to "offset" the carbon emissions

Conclusion:

Bambú Rain is no longer an idea, we are a going concern. All our plantations are registered with the Federal Government, our research is discovering new things as we study our own plants this is critical for our future expansion because many published results are not completely reliable.

The Bambú Rain Science center is up and running:

The Las Nubes facility is located deep in the Sierra Madre Continentals away from any diseases or chemical interference.

The Las Nubes Bamboo plantation and Invitro laboratory are already producing, although at this writing the construction of the laboratory is not complete. But the propagation center is harvesting every day.

The Bamboo plantation consists of approximately 30,000 plant donors, from 22 different verities. We will be fully operational by March 15th2015.

The following is a map of where we are heading with this project, with a detailed description of the various working components.

How does Bambú Rain go about turning one plant with the desired characteristics into tens of thousands of identical plants in as fast as one year? Through its designer plant tissue culture protocols that we have developed.

Tissue culture is a process that involves exposing plant tissue to a specific regimen of nutrients, hormones, and light under sterile, in vitro conditions to produce many new plants, each a clone of the original mother plant, over a very short period of time. Bambú Rain´s tissue culture plants are characterized by disease free growth, a more fibrous, healthier root system, a bushier branching habit, and a higher survival rate.

There are three main steps to the tissue culture process:

STAGE I is the initiation phase. It concerns the establishment of plant tissue in vitro by sterilizing the material and initiating it into culture.

STAGE II is the multiplication phase. At this stage, the Invitro plant material is re-divided and placed in a medium with plant growth regulators that induce the proliferation of multiple shoots. This process is repeated many times until the number of plants desired is reached.

STAGE III is the root formation phase. It involves the introduction of hormones to induce rooting and the formation of complete plantlets.

Following these three stages, the plants are then moved from the laboratory to the greenhouses for acclimatization and further development.

TISSUE CULTURE

An Introduction to ongoing science in the Bambú Rain Laboratory

Plant tissue culture is the culture and maintenance of plant cells or organs in sterile, nutritionally and environmentally supportive conditions (invitro). Plant cell and tissue culture include the cultural techniques for regeneration of functional plants from embryonic tissues, tissue fragments, calli, isolated cells, or protoplasts. It has applications in research and commerce. In commercial settings, tissue culture is often referred to as micro-propagation, which is in fact one of the techniques in tissue culture. Micro-propagation refers to the production of whole plants from cell cultures derived from explants (the initial piece of tissue put into culture) or meristem cells. Plant tissue culture consists of pollen culture, callus tip culture, stem tip culture, meristem tip culture and protoplast fusion.

Conditions required for plant cells to grow in vitro:

- Freedom from competitions particularly from microorganisms for nutrition and other factors
- Availability of nutrients and removal of waste products for better growth of the tissue
- A controlled environment to maintain the cultures

Tissue culture offers significant benefits over traditional propagation methods.

- Much faster rates of growth can be induced in vitro than by traditional means.
- Multiplication of plants which are very difficult to propagate by cuttings or other traditional methods.
- Production of large numbers of genetically identical clones in a short time
- Seeds can be germinated with no risk of damping off/ predation.
- Under certain conditions, plant material can be stored in vitro for considerable periods of time with little or no maintenance
- Tissue culture techniques are used for virus eradication, genetic manipulation, somatic hybridization and other procedures that benefit propagation, crop improvement, and basic research.

The success for plant tissue culture is based on the principle called totipotency - the ability of undifferentiated plant tissues to differentiate into functional plants when cultured in vitro.

Plant tissue culture is used widely in plant science; it also has a number of commercial applications. Applications include:

- Micro-propagation is widely used in forestry and in floriculture. Micro-propagation can also be used to conserve rare or endangered plant species.
- A plant breeder may use tissue culture to screen cells rather than plants for advantageous characters such as salt tolerance.
- Large-scale growth of plant cells in liquid culture inside bioreactors as a source of secondary metabolites.

- To cross widely related species by protoplast fusion and regeneration of the novel hybrid called cybrids
- To cross-pollinate distantly related species and then rescue of the resulting embryo through culture of embryos to overcome post-zygotic abortion
- For production of doubled plants from haploid cultures to achieve homozygous lines more rapidly in breeding programs, usually by treatment with colchicine which causes doubling of the chromosome number.
- Certain techniques such as meristem tip culture may be employed that can be used to produce clean plant material from virus infected plants.

Technique

A part or an organ of a plant is disinfected with a sterilizing agent and placed inside a test tube containing a nutrition balanced medium under controlled environments in order to culture it into a whole plant. Many explants, for example, stem, leaf, bud, and meristem are used for this purpose.

By means of tissue culture it is possible to produce pathogen free plantlets by mass multiplication in a very limited amount of area from a very small sterile part of a mother plant. This method is also used to produce/ multiply plants that are to be transported across national border and so for their faster multiplication.

But the establishment of a tissue culturing unit needs huge financial investments, skilled labors/technicians and required areas for its establishment are major constraints. Plant tissues grow and multiply in the labs only when there is an uncompetitive, growing condition with uninterrupted supply of nutrients.

Medium:

It contains all the elements that contribute the required nutrients that aid to the growth of the tissues; it is in liquid state or semi-solid in nature. The tissues are grown on the media. It consists of 95% water, major and minor nutrients, plant growth hormones, vitamins, sugar rich compounds and chelating agents.

Totipotency:

It is the ability of a tissue or an organ of a plant to produce the whole plant, under the optional laboratory conditions and this is called Totipotency. This is the baseline on which plant tissue culture relies on.

Callus Culture:

When the cells divide into an undifferentiated mass it is called callus. Any part of a plant can be used to produce the calli. It may be a stem, leaf, meristem or any other part. It is used to produce variations among the plantlets

Suspension culture:

The callus produced from the explants are grown on nutrient solutions (that are

semi solid) for a period of time and they are induced to produce plants with new traits.

Embryo Culture:

The method of culturing mature and immature embryos in media is called embryo culture. By this method, it is possible to produce plants from dormant seeds and seeds with metabolites that inhibit germination. This method is very important in plant improvement programs.

Somatic Embryogenesis:

When the plants are grown on nutrient media, calli are formed. When these calli are subjected to growth in a cytokinin medium, somatic embryos are formed. They are circular, elongated, heart and torpedo shaped. Among that torpedo shaped embryos produce the whole plant that is very robust.

a. Somatic embryos
b. Heart-shaped somatic embryos
c. Elongated somatic embryos
d. Torpedo shaped somatic embryos
e. Whole plant

Apart from this above mentioned method, the suspensions of the callus are transferred to conical flasks and separate somatic embryos are produced and allowed to mature. These mature embryos when induced with cytokinin at the fourth stage produce the whole plantlets. Moreover these plants are hardened in a greenhouse after rooting occurs.

Somatic embryo culture is a very special method in plant tissue culture. Calcium alginate is used to produce artificial seeds from somatic embryos. It is very useful in studying secondary metabolites from the cell and to do research in somatic embryo culturing.

Organogenesis:

Any plant part when placed and cultured on a media, tries hard to get back its own life. In this phenomenon, the callus are produced. These callus are subjected to cytokine treatment which produce the shoots. This method of producing plant organs is called as organogenesis. These shoots are transferred to root including auxin contained media and we thus get the whole plantlets.

Embryo Rescue Culture:

Some commercially important crops hindered in germination due to the constraints related to seed anatomy and physiology. Embryo abortion is a major factor to this. These embryos of such seeds are isolated and cultured on suitable nutrient media so as to regenerate the plants easily. Embryos obtained after incompatible sexual

mating can also be rescued by this methodology.

Shoot Tip Culture:

The meristem tip of a plant is more efficient in creating a whole plant than its tissues from the stem. This idea is made use of in the shoot tip culture.

1. Shoot tip in the medium
2. Shoot callus
3. Growth of stem
4. Root initiation
5. Hardening
6. Whole plant

This method is used to produce plants free from pathogens, for meristems do not support the growth of viral particles. Hence the plants produced by this method can be stored pathogen free for a longer period.

Meristem Culture:

Disinfected small bits of meristem tips of 0.1 to 0.5mm length are used to produce callus on suitable media to produce whole plants. This is called as meristem culture and is used to produce pathogen free plantlets.

Another Culture:

When the pollen/anthers of the correct stage are collected and grown on suitable media, it is called as another culture. It is used to produce haploid plants.

- Pollen on media
- Callus formation
- Shoot initiation
- Root initiation
- Whole plant

The choice of mother plant for collecting the pollen, proper maintenance in lab, the pH balance of the nutrient medium, incubation period for producing the plant are all considered to be major factors.

Two Stages in Anther /Pollen Culture:

The culturing of pollen consists of two stages namely direct and indirect culturing methods. In the direct method, the pollen by themselves produce the plant directly from the medium. In the indirect method, the pollen produces a callus from which haploid plants are produced. Diploid plants are produced from the pollen sacs in a short period of time because the tips of these plants are always pathogen free.

Rejuvenation of Plants:

It is very feasible to produce the whole plant out of tissues collected from old plants in very short period of time. This is called plant rejuvenation. This method was demonstrated successfully in tapioca.

Hybrid Sorting:

It is also possible to produce hybrids from incompatible species (where in the hybrids are hard to be formed) by means of protoplasmic fusion. Hybrid may be formed by culturing the fused protoplasts in suitable nutrient media.

Micro Propagation:

The plant tissues from shoot nodes are used in plant tissue culture to produce thousands clones of a mother plant in a very short period of time.

Synthetic Seeds:

Embryogenesis is the basis for various technologies on biotechnology.

Somatic embryos are used to produce artificial seeds. Sodium alginate and calcium chloride are used to produce the seed coats of the somatic embryos. These are capable of producing plantlets from the soil bed just like the natural seeds.

By this method, it is possible to multiply clonal plants and to create variations in the genetic architecture of the tissues. This method is used to produce vegetables, especially seedless watermelon are multiplied by this method.

Protoplast Culture:

The removal of cell membrane from a cell produces a protoplast. Protoplasts are used to produce variations in the morphology of leaves and flowers, ability/potential of the growth of the embryo, and enhancement of disease resistance in plants.

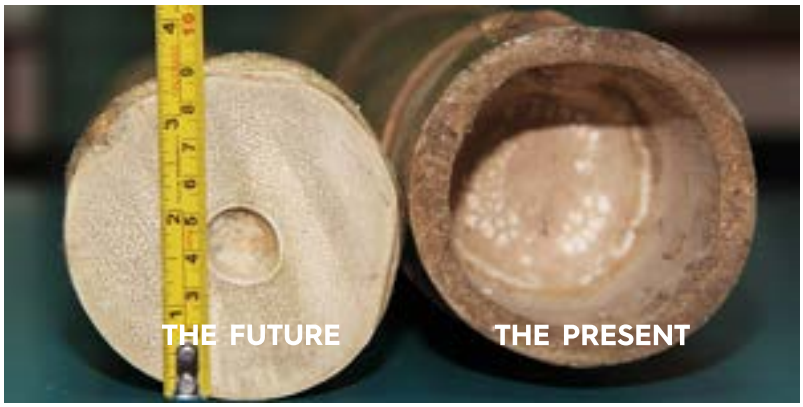
It is feasible to produce a whole plant from a protoplast. Two protoplasts are isolated from two parents from any plant organ and are fused with chemicals that induce fusion between them. This induces variations in the genes and plants are produced with the variations.

Cryopreservation:

Embryo, shoot tip, stem tip/meristem tip and callus are used to be preserved in liquid nitrogen so as to preserve them for a longer period of time.

By now if you are still reading this you realize we did not just wake up one morning and decide to start an Invitro culture propagation laboratory. This is heavy stuff and involves some very smart and dedicated people.

The difference:



The advantage of growing Bamboo in a controlled plantation

Conclusion:

If you take the time to understand the science, you will feel more comfortable with your choice of investment.

We must not expect everyone to agree with the Climate Change argument, it really is not that important, what is important is that we are doing the correct thing by protecting the planet through good stewardship.

We are kidding ourselves if we the regular populace think that we can go against the power of the many organizations that believe human activity is a substantial cause of global climate change. These groups include: the World Meteorological Organization (WMO), the Intergovernmental Panel on Climate Change (IPCC), the InterAcademy Council, the Network of African Science Academies, the European Science Foundation (ESF), the European Space Agency (ESA), the Royal Society (UK national academy of science), the US National Academies of Science, the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), and the US Environmental Protection Agency (EPA).

Whew … if these guys are all wrong then we are in good company … and for that reason and that reason alone we decided "Bambú Rain makes a great business".

Executive Summary Continuation

Operadora Mexlun S.A. de C.V. is a privately held company with no present stock listing. Mexlun is a leader in cooperative type plantations in Mexico through its efficient, vertically integrated approach to growing bamboo. Today, Mexlun has plans for a minimum 60,000 hectares of bamboo plantations. Mexlun provides turnkey development, design, engineering, management and marketing for our Modern Farmer network.

One third of the Mexlun plantations are member owned, mainly people with a direct stake in the success of the company. Along with Operadora Mexlun thousands of farmers and community members "will" own Bambú Rain business/harvest centers through private treaty.

Mexlun holds no long term or short term debt in any form

BIO-MASS ENERGY PROJECT

Although the partnership was formed in 1998 our emphases on Bio-mass started in late 2013.

The Bambú Rain project scope entails the cultivation of 60,000 hectares of bamboo, in the Country of Mexico, the setup of a Micro Invitro Propagation and research laboratory and (Carbon Science) research nursery in the Las Nubes area and in the further future an electrical power plant (3.6MWe).

The project kick off date was November 03/09/2013, with planting of the bamboo shoots starting in 03/02/2014 and continuing forward.

So let's see how we did in 2014 ...
From the minute the meeting closed it was clear that this was not something that we were thinking about, but something that was going to happen and it was happening now. No time would be wasted as the list of accomplishments required for a successful first year was long, here is a partial list of accomplishments as provided by the team members.

1. Needed SWOT analysis of bamboo bio-mass plantations
   - Answer :finished with positive results

2. Send our field personal to the University of Guadalajara for Invitro studies
   - Answer ... Eight workers graduated the course

3. Design a Research facility with field living quarter
   - Answer ... Our architect designed everything in-house completed

4. Buy appropriate property for the plantation and laboratory
   - Answer ... we needed a property that had water rights available we did it (we already owned this property).

5. Construction of laboratory and living quarters for four families
   - Answer construction started almost immediately, the project is finished it needs a few things

6. Get use of water permits
   - Answer ... got them

7. Get use of land permits
   - Answer ... got them

8. Locate bamboo breeding stock to get started
   - Answer ... purchased breeding stock from BambooVer in Veracruz

9. Create a web page

Answer ... working but still under construction www.bamburain.com

10. Create a participation marketing plan
    - Answer ... Harvest Centers are available through our Modern Farmer program

11. Research Carbon Credits and how we will get involved
    - Answer ... The greatest thing that will ever happen to our Modern Farmers, we will operate this under the name Carbon Science and operate as "LACE"

Latin American Carbon Exchange.

12. Hire 30 field workers including professional support
- Answer … done

13. Hire Plant Biologists
- Answer … Done

14. Applied Plant Scientists
- Answer … Done

15. Botanist
- Answer … Done

16. Purchase farm equipment needed for land preparation and planting
- Answer … Done

17. Plant the bamboo seed stock
- Answer … Done

18. Propagate plants from the plantation to prove we can create our own product
- Answer … we have to date propagated over 80,000 of our own plants last I checked they were from four inches to four feet tall

19. Construct Green-house
- Answer … the frame is up all it needs is the cover

20. Reorganize our management
- Answer … we are still in the process

21. Restructure our purpose in this case a complete shift
- Answer … this is difficult because of all the missing links that exist in our expertise, as we fill those things are steadily getting smoother.

22. Have inventory that we can sell before the end of 2014
- Answer … the answer to every business is a legitimate product we are ready to sell bamboo plantation contracts we have land, we have bamboo plants, we have a business plan, and we have a sales team.

23. Immediately start a re-search team that can bring production results and plant info and market results to the table.
- Answer … as you can see it never stops

New Challenges

2015 brings new challenges that include offering private shares to new sophisticated partners, our needs are more streamlined, we have capital expenditures that will need extra funding, other than land purchases the project is projected to be self-funding as "Harvest Center" sales are starting to catch on.

We believe a high percentage of the Modern Farmer project will be purchased by Mexicans. As of March 2015 we expect to be fully operational and have proper inventory to officially launch our "Modern Farmer Program". As of this writing we have 1200 harvest centers growing and 3300 harvest centers in the nursery ready to move to the plantation as soon as the rainy season starts. Plus we have thousands of plants sprouting ready to propagate.

These are honest numbers they may seem low ... please take into account although we are over 15 years old as a company we are not yet two years old as Plantation Operators.

By the way our Plantation Manager has 18 years' operating a very successful Bamboo Plantation; he's one of the greatest bamboo minds in the world today.

It's time to make a decision now. Welcome to Bambú Rain.