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Harvesting with Harbest: Agri-Entrepreneurial Lessons from the Philippines

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ABSTRACT

The author discusses his personal account on the humble beginnings of Harbest, a company which he started when he was a young entrepreneur working and staying in Taiwan and soon took shape when he returned to his native land in Negros Island in the Philippines. From a company that first ventured into aquaculture production, it grew and expanded into what is now known as Harbest Agribusiness Corporation. The paper enumerates the struggles, challenges, lessons learned and best practices that made the company one of the best agricultural companies in the Philippines today.

Keywords: Agribusiness, entrepreneurship, farmers, seeds

INTRODUCTION

Today, I would like to share with you the success story that is HARBEST. This is a personal account of what we have gone through to become what Harbest Agribusiness Corporation is today.

I started Harbest in my imagination when I travelled through the rural areas of Taiwan during my four years stay in that lovely country. The farmers are so confident on the quality of the fruits and vegetables that they boxed them with their encircled family name. Almost monthly, I would travel with a friend to visit a farm and learn, take pictures as I love photography, and just be free with nature. My friendship with Mr. Wang Chin Shi, manager of Known-You Seed Co. of Kaohsiung in the 80s, opened my mind and heart to great potentials in farming. Taiwanese farmers are so productive in areas of only 1,000m² to 2,000m². While in the Philippines, we have hectares upon hectares of idle lands. These brought me back to my childhood in Balintawak, my hometown, in northern Negros Island, Philippines. I grew up in the midst of sugar cane fields of my father. Nothing beats the long walks with my brother, Lucio, who managed the farms, and

listen to his vision to provide work and a decent livelihood to the poor farm workers. We ate with the Sacadas, the migrant cane harvesters that are in demand during harvest time. Listened to their stories. Shared with their monggo or mungbean lunch with rice. Living in crowded concrete dormitories. Working for the pesos to bring home to their families in Antique, a province in the neighboring island of Panay. These chapters of my life are the stones that formed the foundation of what Harbest will be.... A friend of farmers.

HARBEST, ITS BEGINNINGS

In 1986, my friend Dr. Rolando T. Dy of the Center for Research and Communication (CRC) of the University of Asia and the Pacific, a foremost think tank for economic policies recommendation for Philippines development, asked me to join their six-day learning tour group made up of successful “hacienderos” and agribusiness entrepreneurs to visit Taiwanese farms, food processing factories and the Ministry of Agriculture of the Executive Yuan. This activity opened my eyes to the great opportunity of supplying the needs of farms by adapting improve technologies from the farmers and research centers of the Taiwan Agricultural Research Institute’s Fengshan Tropical Fruits and Vegetables Research Center, the Tung Kang Marine Research Center and the Asian Vegetables Research and Development Center (AVRDC) in Shan Hwa, Tainan. The materials, supplies and equipment needed by prawn farms were my first salvo as Harbest Aquaculture, a precursor of what Harbest will be.

With my brother Fred, we formed Prawn Asia Co., Inc. I started dealing seriously with the suppliers I met during the CRC Tour and got the deal to distribute Hanaqua Feeds, Longmen water and soil conditioning products for prawn ponds, Nan Rong paddle wheels and gear box spare parts, Show Fou submersible pumps and other supplies. We invited aquaculturists from Hanaqua and Longmen to give training classes in Negros Occidental, then the center of the prawn industry with 80% of total cultured areas. I was the translator and naturally absorbed the technologies taught. My brother Fred, a Chemical Engineer, got hooked to the Taiwanese biotechnology in aquaculture and seriously organized training classes for the prawn growers of Negros and Panay.

Interested prawn growers came in droves when we make phone calls inviting them to attend the prawn technology seminars at a friend’s residence. We got 30 to 50 people in one sitting. Every seminar we organized was the same story. People were like sponge absorbing the technologies on water culture, pond bottom sanitation as prawns were bottom dwellers, feed quality and feeding regimen, vitamin coating for feeds using osterized fresh egg as binder, algal growth control, turbidity of water, daily monitoring of FCR and diseases, environmental sanitation, farm management and incentives for workers. My brother Fred, became known as the Professor for Prawn Farming in Negros and Iloilo provinces, as he continued his passion to teach prawn growers to apply the scientific knowledge imparted by the Taiwanese aquaculturists. Their average age must be 30 at that time, graduates of Aquaculture Science from Taiwan Universities. They were so professional. Prawn Asia prospered as growers loved us for sharing technology and making them profit well from their prawn farms.

This chapter of the beginnings of Harbest as Harbest Aquaculture, was the foundation of the future Harbest Agribusiness Corporation. Our growth was founded on agricultural technology sharing and nurturing quality farmers.

THE SEED IS SOWN

Our first product when Harbest was incorporated in July 1997 was selling seeds from Taiwan's Known-You Seed Co. of Kaohsiung. The first attempt of KY to sell seeds to the Philippines in the early 80s did not prosper. Their partner ended up producing seedless watermelon rather than sell seeds. My only motivation at that time was to prove to my friend, Mr. Wang Chin Chi, the KY Manager then, that we can do better. KY seeds are expensive, so we have to do some confidence building activities. First is to prove that KY honeydew, melons and watermelons are adapted to Philippine conditions. I brought on board, Mr. Diosdado "Dado" Castro, who just retired then from the AVRDC, as Vice President. Together with Dr. Renato "Buddy" Mabesa, Horticulture Department Professor at the University of the Philippines, Los Banos, we did extensive field planting of KY cucurbitae varieties. KY is known world-wide for these.

During our harvest festival at UPLB, watermelon farmers were invited together with the Harbest staff of three. We tasted the harvested fruits with pride. Early on, I realized the need to educate our farmers as most apply traditional farming method and yield was a low of three to six tons per hectare while Taiwanese farmers get 25 to 30 tons. Applying Taiwanese melon farming technologies by Filipinos was an uphill climb. They can't afford the inputs – mulching film, land preparation and basal fertilization, regular irrigation, pruning, pests and diseases control, post-harvest handling. Most do not even do simple accounting of expenses. It was really a challenge.

The only equation then was to make farmers earn good profits so that they can afford our seeds and additional inputs. We have to teach them how to farm melons. From the most basic seedling propagation using seedling tray and the right "soilless" medium. The right distancing of plants. The use of mulching film and its cost effectiveness... and so forth. In short, we have to have good trainers. We sent two of our staff then, Mr. Seles and Mr. Demy to the Known-You farm in south Taiwan for four months to learn the 30 tonner yield technology. When they came back, both of them were on fire to teach our farmers. In the year 1999, Harbest Agritech training modules were formalized.

The seed sown in my heart during our Harbest Aquaculture days became our motivating force. We have to teach farmers make money first. This became our primary marketing strategy. Our profits will come later.

TEACHING FARMERS HOW TO MAKE MONEY

Harbest Agritech training modules evolved through the years. I remember the days when I have to visit Ilocos Norte and Sur provinces weekly for 12 weeks. It was a one-way 12- hour drive. Our first partners in our training program were the two governors – Gov. Chavit Singson of Ilocos Sur and Gov. Bongbong Marcos from Ilocos Norte. That was our very first two full-season of training projects. We introduced the use of seedling trays for seedling propagation, under a bamboo nursery structure with plastic cover. Plastic mulching film from Taiwan covered the prepared plots after applying basal fertilizer, properly weighed and applied before covering the mulch. Dried chicken manure was part of this step. Even the depth of the manure was measured and explained why. The first two to three sessions were met with skepticism by the Ilocano farmers. They are known to be the most hard working Filipino farmers, and quite thrifty at that. These initial two training projects were our baptism of fire in our quest to teach farmers make money.

Lessons learned

- A. It is advantageous to deal with the top politician of the province. In one project, we got to know a lot of local farmer leaders. It was an effective way to introduce technologies to the right people. In three months, Harbest became known to many Ilocanos.
- B. Doing your work right at the start is a must. In agribusiness marketing of supplies, we cannot afford to fail. During the training, farmers were amazed at how the seedlings grew uniformly and with almost 100% survival, using good seeds, seedling trays and Growell medium. The use of mulching film saved them a lot of weeding cost, time and effort. The plants were growing well and yield was high. Management was simplified as they can see the plants growing without the weeds and can easily spot damaged plants. After the third training session, we would win over the hearts of the farmers even though our trainers were a lot younger than them. Confidence building is a slow process yet effective to win hearts. Learning by doing is the formula. At harvest time, every farmer trained were beaming with confidence and pride. Gov. Bongbong Marcos was so happy with the golden honeydew that he coined the word, “Ilocos Gold”, which up to now is the name we give to the Golden Lady variety of Known-You. We also proved to the farmers that we can reach 20 tons of watermelon compared to their usual six tons. Bacarra in northern Ilocos Norte was the principal watermelon growing area. In a short time, we opened up our seeds market. During the harvest festival in Ilocos Sur, President Erap Estrada then was the special guest of honor of Governor Singson. The presidential security helicopter was loaded with the harvested melons and brought back to Malacanan Palace.
- C. Market linkage is essential. As most great tasting varieties from Taiwan were unknown to the local traders and consumers, we have to let them taste the premium quality produce. The taste bud is a very effective market development target. Early on, we developed watermelon traders to encourage farmers to plant our varieties. Our Dragon and China Baby big watermelons became popular with the traditional grower. Formosa and Diana solo-type watermelon were popular with new growers with small areas. They were selling these double the price of ordinary watermelon.

In five years period, we began to see watermelon, melon and honeydew grown with Known-You seeds in public markets and supermarket shelves nation-wide. Up to now, our varieties are preferred by most farmers. Price of seeds is no longer the main issue. In fact, if we ran out of seeds during the planting season, farmers are unhappy.

The Department of Agriculture adapted the Harbest Agritech training modules for vegetables and short-term fruits and Harbest had training projects nationwide under the time of Secretary of Agriculture, Arthur Yap. Dr. Rene Rafael T. Espino was at that time the High Value Commercial Crops National Director. We did more than a hundred training sites. Some are province-wide training supported by Governors. Secretary Yap had one in Bohol, his wife’s home province, with one site in each sixteen municipalities simultaneously implemented by Harbest trainers. It was a grand fiesta during the graduation ceremony with more than six hundred farmers that completed the season-long, hands-on training. The hall was filled with vegetables and fruits.

In 2007, Mr. Henry Sy, Sr., the Philippines’ richest man, advised me to start a training program for poor vegetable farmers. The project, *Kabalikat sa Kabuhayan* (Partner in Livelihood) farmers training program, fully funded by SM Foundation, the charity arm of Mr. Henry Sy’s

SM Group of Companies, is now on its 11th year and has trained more than 18,000 small farmers nationwide. More than half have dignified livelihood in farming now.

Harbest Agriculturists working in different major provinces of the Philippines, are providing free extension services to farmers. Each has cell phone and motorcycle. Friends of Harbest can consult agronomic issues through phone. Farmers welcome them with a hot soup and bread when they visit.

Now, I will show you some agronomic technology Harbest introduced that change the way Filipino vegetable farmers make money.

The way to grow vegetable seedlings

I saw Taiwanese seedling nurseries in big greenhouses with automated irrigation sprinklers in the 80s. It was really amazing to see uniform seedlings by the hundred thousands produced with just two to three personnel. Well, the cost of putting one up is too much investment that ordinary farmers in the Philippines had to make do with direct seeding, placing three to five seeds per hole. That's why when Harbest started to teach them how to do seedlings with F1-hybrid seeds, Growell medium and seedling tray under a simple bamboo greenhouse, it is as if they saw a miracle. Our first venture into this was also memorable. I imported 200 pieces of seedling tray from Taiwan and I could not sell them in one year. Now we sell container loads per year. This is the result of empowering farmers. Now, those that know how to do seedlings with this simple technology no longer go back to their old ways. The pictures we show you will let you understand better.

The way we prepare the Growell medium

A Taiwanese agriculturist from Known-You Seed once taught me that the right material for seedling medium is our coco peat and carbonized rice hull. He taught me the blend with dried cow dung. I found this cumbersome but it was quite good and cheap. We did our own research and later on made our own blend with simpler ingredients. It was a lot cheaper than the imported European growing medium and yet quite effective for 100% survival.

Covering the plots with silver and black mulching film

The benefits a farmer gets using AGRI+PLAS mulching film is five-fold. It is an effective weeds control. Leaching of fertilizers applied is minimized during rainy days. Management of standing crops is simpler. One can easily compute plant population, plant survival rate, spot disease occurrence and pest infestation. Plants are healthier and more productive. Fruits are clean. Pests are driven away due to the heat reflected from the plastic mulch. The most glaring benefit is the higher yield and better quality produce. Hence, our market for AGRI+PLAS products had been growing yearly. Now we see mulching film used in all types of vegetables, melons, papaya, dragon fruit, herbs and even lemons.

As the plastic mulch is usable only in two to three croppings, we have to teach farmers its proper disposal. Most just plow it into the soil. But we remind them to retrieve the used mulch and dispose properly. Hopefully, in the near future, biodegradable materials will become affordable.

Bamboo greenhouse seedling nursery

A simple 3 meters x 5 meters x 2.8 meters high nursery made of bamboo structure has become popular with vegetable farmers. With simple design, ordinary vegetable farmers can safely produce seedlings during rainy days and hot summer days. The covered structure not only protects the delicate seedlings from rain and heat, pests cannot enter. Fungal diseases from the ground is also avoided. This method is quite affordable and farmers had made their own version. The important thing is they know how to care for seedlings. Healthy seedlings account for 50% of a healthy plant growth.

Land preparation and basal fertilization

Simple farm mechanization saves a lot of labor and expenses. The small hand tractor from Taiwan is helping farmers prepare plots for planting and maintain the cleanliness of the farmed area from weeds. We popularized the use of hand tractors 8 years ago for vegetable farming. Many still use manual labor to prepare the planting area. A machine can do the rotavation, weeding, plotting and drainage canal forming at one hectare per day. While it takes about two weeks by manual and carabao labor.

Proper planting distance is a knowledge that obliged Filipino farmers to measure the plots. Plan the land development and preparation. Design drainage canals for rain water and irrigation. Management and cost accounting become a part of their knowledge. These start from the moment they sow their first seeds.

Transplanting

Farmers learn that transplanting has to be done at the proper maturity of the seedlings. They are taught this for different types of crops and varieties. Consciousness to quality and healthy seedling environment becomes a part of their life. Not watering the seedlings in seedling tray two to three hours before transplanting is now a common knowledge. It is easier to remove the seedlings from the tray if the medium is dry. Watering the transplanted seedling immediately after transplanting is a must. Transplanting should be done early morning at sun rise, until about 9 in the morning. This discipline is inculcated to the farmers. If they transplant in the middle of the day when the sun is strong, many seedlings will die.

Planting distance is practiced to provide enough space for the growing and fruiting plants in the future. Hence, holes punched on the mulching film are equidistant. This method also predetermines the number of plant population per plot.

Providing the right trellising material and structure

Vine plants like cucumber, indeterminate tomato, gourds, melon, small squash, string beans and leafy vegetables need a solid structure and strong nets to support the fruiting plants. Harbest introduced the bamboo structure design patterned after Taiwan, and using a machine-woven trellising net, 2.4m x 100m x 17.5 holes. A hectare of bitter melon (Ampalaya) can be prepared with the trellising net and bamboo structure in a week's time. While the traditional hand-tied method can take a month and a half to prepare.

This provides for an earlier harvest time compared to a neighbor using hand labor for trellising preparation.

Pruning technique for solanaceous and cucurbitae

Part of attaining optimum yield by planting F1-hybrid varieties of vegetables is the practice of pruning. It takes just a second or two to do it. Knowing when and how to do it is very important. We teach this to the farmers and they are just amazed at the result. An eggplant that is pruned can yield double to triple compared to those without pruning. We do this for melons, cucumber, tomato, bitter melon, eggplant, squash, string beans and okra.

Back to nature in soil and plant health

The past century has seen the widespread use of chemical fertilizers, pests and diseases control in farming. Soil had become acidic and erosion of top soil is widespread. What once were productive fertile soil became dead. For the past 10 years, Harbest had become a strong advocate of natural farming. Our agriculturists are trained to teach the use of Effective Micro-organism (EM-1) Technology discovered by Dr. Teruo Higa of Japan. Our forefathers had been using natural farming methods before the onset of the green revolution of large-scale farming and the intensive use of chemicals to boost production.

Now, the EM-1 technology of natural farming is part of all our training modules on vegetable farming.

Recently, we have also linked up with DAYMSA of Spain for the distribution of its biostimulants and soil conditioners. These line of products will improve soil health, enhance nutritional absorption by plants from the soil, and strengthen the plants' resistance to diseases. Small dosage yet great benefits. Again, we are back to the field to educate the Filipino farmers on their benefits with the help of Spanish agronomists.

Use of pheromone traps

Harbest used to sell toxic chemical pesticides. But after one client's gardener committed suicide using our Chlorpyrifos 75%, I stopped selling and started doing research on non-toxic pest controls. Our fruit fly trap with Methyl Eugenol is quite popular with mango and vegetable farmers. A sticky trap, SUPERNET, to kill fruit flies, white flies, leaf miner, aphids, black bug and thrips is widely distributed by our nationwide dealers. Filipino farmers love it. We are constantly doing field tests of other pheromone traps. We are also doing research on light traps that are affordable.

Low tunnel greenhouse for leafies

Taiwanese honeydew melon growers in Tainan area transformed their fields into a "sea" of plastic tunnels to grow the winter crop of honeydew. It takes longer due to the cold climate but price is quite high for the end of year harvest in time for the Chinese New Year. Tunnel greenhouse is an effective protective cover against the cold weather and rainy days. The plastic mulched covered plots also provides added heat and protection from weeds and the rain.

In the Philippines, we applied this simple technology very well for lettuce. For low cost applications, bamboo structure is used instead of the spring bar from Taiwan. Although the lifespan is only one cropping. PE plastic film cover is imported from Taiwan. We find the quality better than the locally-produced PE film. 2.7m x 100 meters. For those with capital, they use the spring bar which can last ten years.

Cost is about P200 per lineal meter of one meter wide. With the present price of lettuce of P120 per kg farm gate, investment can be recovered within the two months crop cycle, including the drip irrigation lines.

Drip irrigation from India and Israel

Harbest Hydrobest, our irrigation system department, utilized parts from Naan Dan Jain company to design and install irrigation with fertigation systems for most types of crops. In vegetables, farmers benefit from increase yield and better quality. Yield can double or triple with proper irrigation.

A big stumbling block in the Philippines is the irrational irrigation system infrastructure. Farm lands are of irregular shapes and it is so difficult to do a straight irrigation canal. Oftentimes, right of way through the private lands becomes a hindrance for development. There is really a need to rationalize the land cuts to fit into a planned agricultural land development like Taiwan for vegetables production.

The government through the Department of Agriculture's National Irrigation Administration and the Bureau of Soils and Water Management is implementing the financing of water pumping station and solar pumps for on-site water sourcing. Hopefully, more affordable system will be established to benefit the small farmers. There is also a need to rationalize the thinking of policy makers regarding open irrigation canals with earthen dikes. This is high maintenance and really inefficient for long-term use and benefit. Hopefully, the use of PE and PVC pipes as water transport channels will catch up.

To encourage small vegetables farmers to apply the drip irrigation, Harbest has developed the PATAK-ANI (More harvest per drop) gravity-type drip irrigation system patterned after the Israeli Familia-type system. It is becoming popular. Easy to install and maintain but with great results in yield enhancement.

Greenhouses

Harbest AGRI+ENGINEERING Division evolved through ten years of developing local designs and adaptations to come up with lower cost metal greenhouse design and construction. We started fabricating the simplest tunnel greenhouse using GI pipes. Our first model was a 60 square meters greenhouse nursery for seedlings or leafy vegetables production which we called Maligaya-type greenhouse, after Mayor Maligaya of Magallanes, Cavite. His small nursery inspired us to do this. Now we construct greenhouses for seedlings nursery for coffee, cacao, tissue cultured sugar cane, oil palm, papaya and vegetables. We did most of the UN-FAO seedling nurseries donated to the calamity stricken areas of Typhoon Haiyan in nine provinces. Now Harbest greenhouses are installed throughout the country for commercial farming use.

This market is not so promising yet as the Philippines is typhoon-prone and investors are wary about this. Hopefully, with the higher yield and return for selective high-value vegetables

and melons, we see a big potential for growth in localized production near urban centers. Quality of fruits and vegetables and higher yield will make the ROI shorter and profitability sustained.

Simple farm mechanization

Small seven to ten horsepower hand tractors imported from Taiwan have been beneficial to small vegetable farmers. Although a lot cheaper than the four-wheel drive, Filipino farmers could not afford one. Hence, most of the market now is through government subsidies or private farms with capital. Harbest is still working on the financing package with financial institutions in cooperation with the local government units or tobacco companies doing contract growing with tobacco farmers. Small farms producing high-value crops like vegetables and fruits are our main direct markets. Different business models for the service sector is being developed. Some farmers do cultivation services with their machines. The efficiency is so great that they can recover their investment in less than a year. This again will take nurturing of the minds of farmers.

Thinking out of the box

As Harbest enters its 22nd year since its establishment, opportunities arose to do more public service. We formally set up the Harbest Educational and Livelihood Partnerships. (H.E.L.P.) as our Corporate Social Responsibility arm. Our agriculturists and irrigation specialists had been providing field extensions services to farmers for free. We link up with Local Government Units, Non-government organization, the UN-FAO, in educating and training small farmers to become more productive. We have also started the weekly AGRIBUSINESS KAPIHAN with Zac Sarian, the country's foremost agriculture journalist and editor-in-chief of the monthly Agriculture Magazine. We invite resource speakers, experts in agricultural technologies and successful agribusiness entrepreneurs to share their skills and experiences to inspire the youth.

Four years ago, the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) of the Department of Science and Technology (DOST), a funding agency for research and development programs of State Universities and Colleges, appointed me as a Governing Council (GC) member representing the private sector under the crops category. The GC is the highest policy-making body of PCAARRD that provides or sets directions in the execution of the agency's mandate. We review and approve project proposals for funding in accordance with the research agenda of PCAARRD, for the betterment of the agriculture sector of the Philippines. With my fellow governing council members, we are able to guide and nurture project proponents – brilliant project leaders and researchers to pursue their dreams of improving agricultural technologies, systems and products with the funding assistance from PCAARRD.

Two years ago, I became actively involved in the *Go Negosyo Kapatid* Agri Mentor Me Program (KAMMP), a joint program of the Philippine Center for Entrepreneurship and the Department of Agriculture. It is to mentor start-ups, upscaling micro and small agri-enterprises with the help of volunteers who are successful agri-businessmen.

It is indeed a great feeling to be of help to those struggling to become successful, looking back always to the start-up years of Harbest, overcoming challenges, developing staff, selecting

the right products, developing markets and continuously helping farmers to have a more dignified livelihood.

Helping farmers help themselves

Looking to the future, the basic tenet of helping farmers make money first before we make money will be as real as can be. Harbest shall continue to teach farmers improved agronomic technologies, partnering with government agencies, private institutions, farmers association, universities and foreign suppliers, in nurturing a new breed of young farmers that will continue to grow and produce food. I see Harbest leading the way to sustainable agriculture with traditional and modern technologies. In the near future, Harbest shall lead in applying drones in applying fertilizers, pesticides and fungicides that are none toxic, freeing farmers of long hours in the field. Drones to monitor the field and provide farmers with a quick reaction to threats to standing crops with the applications of IT. Farm machines that will take the place of most manual labor. Robotics in agriculture to lessen manual work and improve efficiency. Fertilization protocols that use less inputs yet provide optimum yield.

We hope to transform farmers into effective entrepreneurs. Wiser, more productive and dignified. With God's help, I am sure the next generation of Harbesters, that's how I refer to our staff and my two children working with me, will lead the way.

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