

Modernization of the Guyana Extension Service – Phase IIA

Development of a Team Based Approach for Meeting the Needs of Guyanese Farmers

October 27 – November 9, 2007

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“I come here today with a heavy heart. There were several times on my way to this meeting today that I almost turned around and went home rather than be disappointed again. I hope we can come together and achieve something.” An expression of hope by a West Watooka farmer who had become disheartened by a long series of failed attempts by farmers and support agencies to help move agriculture in their community forward.

Background

In 2006 the Guyana Ministry of Agriculture (MOA) approached the Partners of the Americas (POA) staff in Georgetown about helping them modernize their Extension Service so they could be more responsive to the changing needs of the country's farmers. Having had good experiences in working with the University of Wisconsin Cooperative Extension Service (UWEX) in the past, POA asked the UWEX International Team if they would be willing to help them in working with the Guyana MOA. The decision was made to begin with an exploratory phase (Phase I), proceed to an implementation phase (Phase II) if the project seemed feasible and end with an evaluation of the project (Phase III). If the project goes well the hope was that some ongoing relationships may develop that would benefit all organizations involved.

From April 22nd to May 5th, 2007 UWEX faculty members Tom Cadwallader and John Preissing traveled to Guyana as Phase I in the project. Their tasks were to learn more about the current state of the Guyana MOA Extension Service, meet with current and potential extension service partners and competitors, and develop a set of recommendations on how UWEX could possibly help them achieve their modernization goals.

Over the two week period Cadwallader and Preissing met with 48 agriculture and extension professionals, rural development agency heads and farmers. They visited seven national organizations that delivered rural or agricultural development services in the country, interviewed the US Ambassador, USAID Mission Director, and the head of the Guyana Trade and Investment Services (GTIS) Project. They also met with 100 MOA extensionists at a professional development conference where they did a presentation on the Wisconsin model of extension delivery. They were also able to get out in the countryside visiting four different regions, meeting farmers, agricultural extension professionals and local government officials.

What Cadwallader and Preissing found was an Extension Service that had eroded from a staff of several hundred well supported extensionists some 20-30 years ago to less than 100 fulltime employees today, working with very limited resources. The extensionists they met were very passionate in their desire to help their communities but their morale was very low. It was clear that both the farmers and extensionists were very frustrated with the current situation. It was also clear that the leadership of the Guyana Ministry of Agriculture was serious about making the changes needed to improve their Extension Service. And while they knew they needed to look at how they were organized they also knew that they needed to change how they worked together, with stakeholders and with other agencies and institutions.

In their report Cadwallader and Preissing listed their major accomplishments as gaining a more complete understanding of the extension service providers in Guyana, mapping out a strategy for achieving their modernization goals, sharing several current extension practices and strategies with local professionals, and establishing some practical and achievable next steps for the modernization project to move forward.

Below are a number of the macro- and micro-institutional recommendations listed in their report that laid the foundation for the second phase of the project:

- Consider a more strategic focus for the MOA Extension Service.
- Explore the current mission, vision, goals and guiding principles of the MOA and see how they affect their leadership philosophy and policy-making.
- Explore the possible role of self-directed teams, individual accountability and shared leadership within the institution.
- Explore a commodity based systems management approach and an example of a role for Extension as they modernize their strategies and approaches. The GTIS work and Cadwallader's work with a variety of Wisconsin farm organizations, and the Wisconsin Ginseng Board in particular, can serve as examples for this approach.
- Discuss the major questions on the optimal size of an effective and efficient Extension Service.
- If there will continue to be parallel extension organizations operating in the country, discuss mechanisms to strengthen the sharing and complementarities between them.
- Meet with the University of Guyana to learn what their role might be in supporting the agricultural development needs of the country.
- Explore a sub-regional approach for a community-wide or multiple community strategic planning effort. This would focus on commodities and other aspects of the community and provide extensionists and opportunity to learn how to lead an initial strategic planning process in a community.
- Engage an agricultural economist to help analyze the existing staff training, resources and use of economic, business and market feasibility tools; and if appropriate conduct training on how to use these tools. The overall purpose would be to help focus agricultural development efforts on a market-based economic development approach.
- Have POA and the MOA organize some community sessions/focus groups to determine programming and Extension staff skill development needs. This will serve the dual purposes of determining needs and demonstrating group process skills.

- Include a youth development person to discuss strategies for engaging youth in positive community change and encouraging them to explore farming and agribusiness opportunities.
- Meet with the staff training and development leadership to better understand their policies, practices, goals and activities. Share the UWEX recruiting, hiring, orientation, core competency assessment, ongoing professional development and career ladder strategies.
- Explore leadership development and succession planning possibilities. Discuss the role of special projects, exchanges, National Extension Leadership Development (NELD), the Leadership Academy and Lead 21 (three Extension management leadership training programs), and personal learning plans.
- Explore how individual and/or team program planning and program development skills can be enhanced.
- Research information technology needs and uses for both institutional modernization as well as possible tools for delivering information and interacting with producers.
- Strengthen skills in organizational development, facilitate discussion based learning and strategic planning. Training should include both staff development and extending these skills to communities.
- An assessment of small intensive garden possibilities and training programs. The potential for positive impacts in these programs are high and could be monitored to demonstrate how to measure and report impacts.
- Learn more about the current program planning process used by the MOA and its various entities, and if need be, provide initial training on Wisconsin's program development methods and the use of the logic model for outcome and impact evaluation.

Based on conversations with the MOA Extension Service leadership and the POA Farmer to Farmer staff at the end of Phase I it was recommended that three teams (Phase IIA, B and C) of three UWEX faculty and staff visit Guyana over the next several months to work with the Ministry to address as many of these recommendations as possible. The first team (Phase IIA) would revisit all of the various agencies and educational institutions to make sure there is a good understanding of the goals of the project, explain how UWEX has evolved over time to meet the changing needs to the people it serves, what it has learned through that evolution, and then begin the educational process between UWEX and the Guyana MOA Extension Service by working on a couple of community based efforts that would serve as pilot projects.

Phase IIA Activities and Accomplishment Report

Phase IIA of the project had three major goals associated with it. One goal was to bring all of the various agencies and institutes that work with the farming community on board with the effort; another was demonstrating a hands-on Extension strategic planning technique that has been useful in working with Wisconsin farmers; and the final goal was to use the results of that technique to identify some concrete needs that a team made up of farmers, agencies and institutes could work on together to address.

To accomplish the first goal over half of the time was spent visiting the leadership teams of all of the various agencies who have some involvement with the MOA Extension Service. They included:

- New Guyana Marketing Corporation
- Guyana Trade and Investment Support
- National Agricultural Research Institute
- Guyana Rice Development Board – Extension Director
- National Dairy Development Program
- University of Guyana College of Agriculture and Forestry
- Guyana School of Agriculture
- Inter-American Institute for Cooperation on Agriculture

At each one of those visits we shared some of Wisconsin's experiences over the last decade in using a self-directed team approach in making its own Extension Service more adaptable and responsive to the needs of its communities. While modernization is often thought of in terms of using advanced technology, in today's rapidly changing global environment a modern extension service must be more adaptable while at the same time keeping in touch with the people it is intended to serve.

We also explained that rather than tackle the whole Guyana Extension Service the project would take a pilot project approach where it would work with a couple of different farming groups on a commodity and market based approach. Using a particular commodity or market would provide a context that farmers and traditional Extensions advisors are comfortable with and allows them to develop goals that are easier to visualize and measure. The self-directed team approach that Wisconsin has been using for nearly 10 years also brings in members from other agencies and the private sector and it cuts across disciplines to meet the broader, more comprehensive goals that a community of farmers may have. We made sure all of the agencies and educational institutions we visited understood that our goal was to bring all of them closer together so they could accomplish more with their limited resources.

The other goal of this phase of the project was to model a technique called a "gap analysis". A "gap analysis" is a strategic planning methodology that engages farmers and service providers in analyzing a process from start to finish and identifying the gaps along the way if a goal is to be successfully achieved. It is a very concrete approach that farmers readily adapt to because it gets them involved by sharing their own experiences. In the first week of our trip we visited two different communities to see if they would work well as pilots. One was a group of about a dozen farmers in the Parika area, about an hour west along the coast from Georgetown, who were exploring the development of an export market for a non-traditional crop, butternut squash. The other group of farmers was in West Watooka near the city of Linden, a mining community about an hour and a half inland from the coast. This group of 20 or so farmers was struggling with limited resources to meet an increasing domestic demand for their produce.

The gap analysis is done in three parts. The first is a careful description of the process of taking a product from the very beginning to the end of the market chain. Everyone involved in that process gets to describe what they do so everyone has a chance to learn from each other. The next step in the gap analysis is a listing of the major gaps that impede the efficient movement through the process. Next participants try to come to some consensus on what gaps are the most important to be dealt with first and then they discuss who needs to be involved in addressing the gaps. They come to understand that the entire process is a team effort and everyone has a role to play. In the second week of the project we met with the two farm groups and what follows are the results of the gap analyses that Cadwallader and Dane facilitated. The results of the gap analysis met our final goal of developing some concrete needs that a team of farmers, agencies and institutions could work on together to meet in order for them to achieve their production goals.

“Seed to Plate” Gap Analysis
Developing the Export Market of Butternut Squash Project for Parika Backdam Farmers
The gap analysis for this project came from two directions – seed to port and then plate to port.

| Seed to Port | |
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| Steps in the Process | Current Situation & Challenges |
| Land preparation is typically done with a chipper (roto-tiller) or by hand. Initial tilling to set up the plots may be done with a larger tractor. | The equipment is available but very expensive |
| Soil testing done prior to planting. | Soil testing has been very difficult to get done. Nutrients have been added on a trial and error basis. pH measurements are the most common using home test kits. |
| If livestock manure/barnyard waste is available it is used and limestone is added. | |
| Roto-tilling is done to incorporate the added nutrients/soil amendments | Honda four foot wide roto-tillers are very common. |
| Seed is obtained from local suppliers. | Exotics, such as the butternut squash, are being supplied by GTIS and others. Conventional seeds are available through local suppliers. No unbiased variety assessment is available. |
| Planting is done by hand and is generally done in rows. | |
| Early in the growing phase herbicides are commonly used to reduce the labor of weeding. | Access to herbicides is limited and there is poor information on what and how to use them. |
| During the 80-90 day growing phase plants are monitored and treated for diseases and insects. | Disease, insect and nutrient deficiency identification is difficult because of lack of local expertise. Plant samples sent to government labs never come back in time to properly treat the diseases. If pictures and guides to aid farmers in diagnosing plant problems they aren't readily available. |
| Irrigation and drainage are both important during the growing period. | Drainage systems are available but water and irrigation systems are not. Large hoses are commonly used for irrigation but some sprinklers are used. There has been some experimentation with drip irrigation. Squash need to meet size specifications so water is important and they also need to be free of blemishes so drainage is important. |
| At harvest time the vegetables are typically picked by hand and carried in bags or small containers through the plots and brought to a collecting point near the road. | The bags and containers that are used for hauling the squash out of the plots do not do a very good job of protecting them from injury. Better containers, such as boxes and crates, are very expensive and not readily available. A cost:benefit analysis of harvest containers needs to be done. |
| The smaller amounts are generally piled together. | |
| The vegetables are often put in an open truck bed or trailer and transported on to the market. If the farmer is working with GMC the produce goes to their packing house in Georgetown. | Each time the squash are transferred it increases the chance of damage, increasing waste. |
| At the GMC packing house the vegetables are sorted and packed for shipping into 20 or 40 foot refrigerated shipping containers. A 20 foot container will hold 40-50,000 pounds of boxed vegetables, such as the butternut squash, or 63,000 pounds loose. The GMC packing house is certified and inspected by the various export markets. | |
| The packed products are then transported, at cost to the farmers and GMC, to Tropical Shipping to be loaded on transports for shipment to the US market. | Squash that doesn't meet market standards are being sorted off and processed further. Exactly how isn't clear. |
| Once in the destination country the produce must be further inspected by their custom services before the product can move to the final customers. | |

| Plate to Port | |
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| Steps in the Process | Current Situation |
| Restaurants, chefs and various customers in the United States and the Caribbean have expressed an interest in fresh butternut squash for their wholesale and retail markets to importers. | |
| Wholesalers, “big buyers”, approach potential suppliers through various methods and in the case of the case of butternut squash it has been through trade shows. | |
| Once the importer/wholesaler and the Guyana export representative (in this case it has been a partnership between GTIS and GMC) makes the connection, delivery and payment contracts are drafted. These contracts lay out various requirements that need to meet the customers’ requirements and US customs standards. Standards typically include such things as color, variety, size and shape and free from plant diseases, insects and certain pesticides. | |
| The Guyana export representative, in this case GMC, contacts local farmers to assess the potential for growing and delivering the product to its packing house in Georgetown. For butternut squash it would take about 5 acres to fill up a 20 foot container. The customer would also like to have regular, perhaps weekly, deliveries. . | At 5 acres a week that would require at least 260 acres of squash. There isn’t enough acreage planted yet to even fill up one container. The New GMC is a trade representative for the farmers. The farmers themselves are the exporters. |
| Farmers and GMC communicate on product specifications and delivery times and location to the GMC packing house. For the butternut squash project they are looking for squash that are between 1 ¾ and 3 pounds that are at the proper stage of ripeness, free of defects and pesticide residues that are prohibited by the US-EPA and USDA for that specific crop. | Once the squash are packed for shipment at the New GMC packing house they have to move across Georgetown to Tropical Shipping at a cost of \$20,000. |
| The New GMC packing house receives the squash from the farmer, sorts and packs it. The packed squash are then transported through Georgetown to Tropical Shipping. The New GMC handles US FDA notification processes and Tropical Shipping handles quarantine and custom service details. | The cost for moving between the two locations is about \$20,000. |

Gaps That Were Identified

- Soil Testing
 - They discussed buying their own equipment as a group.
- Organization and development of farmer groups.
 - Starting small, being successful and attract others
 - Requesting assistance on group development
- Ensuring safe/effective herbicide/pesticide usage.
 - Reading/understanding labels – take more time.
 - Working with partners to influence the pesticide board.
- Maintaining and expanding drainage and irrigation systems.
- Scaling up
 - Keeping records
 - Analyzing the cost of production to determine profitability
 - Sharing cost information
 - Getting registered with plant quarantine department.

“Seed to Plate” Gap Analysis
Developing of the Local Market for West Watooka Farmers

| Steps in the Process | Current Situation & Challenges |
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| Hand clear the land. | No equipment is available for stump removal and initial land leveling. |
| Set up drainage system. | |
| Plow the land by hand, either with a fork or shovel. | Small tillers are around but not very common. |
| Prepare the beds. | |
| Soil test if possible. | There was an expressed lack of knowledge on soil testing and if they took them getting them tested and interpreting the results is a problem. Some home test kits for pH were mentioned but there is a general lack of knowledge on how to use them or if they work. |
| Correct soil conditions. | This has been on a trial and error basis. There are a few farmers that have livestock and use their manure. |
| Select seeds. | Farmers have been saving seed and sharing/selling to their neighbors. It may be cheap but it impedes the use of improved hybrids and increase the chance of disease carryover. Seeds are available through local suppliers but there is no evaluation of varieties best suited to the local conditions. |
| Plant seeds. | Seeds of squashes are planted directly in the ground in rows. Plants such as tomatoes and peppers are planted in flats but the skill in doing this effectively is variable. |
| Through growth period check plants daily to identify problems. | With the erosion of Extension Field Officer resources this has been left up to the farmers. However, they did not feel adequately trained to identify problems, the only source of disease information has been the chemical companies and if they know what they need to do the ability to buy the materials and properly apply it is limited. |
| Irrigate by hand if needed. | One farmer has a drip irrigation system but it is out of the price range for all of the other farmers. |
| Spray with herbicides to eliminate weeds. | Done to save time. |
| Harvest manually | Produce that can't be sold has been fed to local cows and pigs but only a few farmers have them. In the rainy period of May and June there are problems with product quality and getting the crops harvested. |
| Farmers market their own produce. | The local market is extremely variable. It includes such things as: <ul style="list-style-type: none"> • Taking to individual retailers set up in the Linden markets. There are two markets in Linden and space is tough to get. Even if they could get space the farmers don't want to sit there all day anyways. The price they are paid is based on the retail prices that are being quoted from the Stabroek and Bourda Markets in Georgetown. They aren't posted but the retailers know what they are. One positive aspect of this is some of the local retailers are provided credit on the vegetables and the farmers can be paid later. A good trust relationship can be established. • Truckers who are hauling things to and from Linden will often do "backhauls" with vegetables. They can be going to other mining towns or back to the Georgetown area. • Some truckers will haul for several farmers. They keep track of the amount for each farmer and when they get back to West Watooka they divide up the money. • Many farmers have their own customers that either come out to their farms or they deliver right to homes in the |

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| | <p>West Watooka and Linden Area.</p> <ul style="list-style-type: none">• All of the farmers claim that local produce is preferred but it is tough to meet the local market on a regular basis and they get downward price pressure from farmers along the coast who “dump” their products on the Linden market. |
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Identification and Prioritization of Major Gaps

(Each farmer was given 2 votes. They could use them both on one item or on two different items)

1. Capturing extra dollars for vegetables (Unanimous, they all felt this was their overriding goal).
2. Reducing manual labor (11 votes).
3. Identifying Soil Conditions (7 votes).
4. Ensure good (proper) pesticide management (6 votes).
5. Developing their business skills and becoming more educated on the business of farming (5 votes).
6. Establishing nurseries to get plants started (4 votes).

Possible Solutions to Major Gaps

(Only an initial discussion to show how the next steps can proceed)

Reducing Manual Labor

1. Purchase large equipment that can be used by a number of farmers.
 - The tractor would be a MF 135 or 290 and would need to be able to clear stumps and do primary leveling and tillage.
 - It could be owned either by an equipment services cooperative or an individual.
 - Some of the potential problems that would need to be addressed:
 - Timing of field work to avoid compaction.
 - Breaking the culture of dependency.
 - Maintenance.
 - Calculating the return on investment.
2. Purchase several small chainsaws
 - Individual farmers are willing to clear the trees on some of the plots but they need some chainsaws.
3. What are the farmers willing to do?
 - The farmers said they would be willing to work together as a group to purchase and maintain equipment but they need help in how to do it successfully.

Soil Testing

1. The farmers said they would like to be trained on how to take a proper soil test and would be willing to do it.
2. The regional Extension Office can help the farmers package the samples and get them sent off to NARI. The local Field Officer said she would help in the education and getting samples to Georgetown and apparently NARI is in a better position to the samples analyzed on a timely basis.
3. Guysuco does offer private testing services.

Marketing

1. The New GMC representative advised the farmers to explore ways that they could bring vegetables to market as a group. They would be willing to work with them.

Gap Analysis Process Summary

The gap analysis process accomplished several goals. First of all, it allowed the farmers and agency staff that were present a chance to see how the process worked in bringing all of the players together in analyzing the complete life of a farm commodity, from prepping the soil to getting to the customer. It kept everyone objectively focused on the process. It was looked not about who should or should not be doing various tasks, but what needs to be done to be successful. Everyone is a teacher and everyone is a student in the process.

Another goal that was accomplished was identifying similar major gaps in both processes that need to be dealt with from a national level but also several gaps that must be dealt with at the farm level.

And finally, everyone in the process gained a better respect and understanding on the complexity of the process from start to finish, what each person does, can and could contribute to improving the process and how important it is for everyone to be involved as a team.

Unfortunately it would have been nice to meet again with each group to come up with some strategies to deal with each of the gaps. That will be the task for the next team and the Ministry of Agriculture staff.

Next Steps

From our meetings with the various agencies and educational institutions it was clear that all recognized the need to operate differently and all are anxious to make Guyana a leading agricultural producer of not only commodities, such as sugar cane and rice, but of fresh fruits and vegetables. It was mentioned several times that Guyana has the potential of being the "breadbasket" of the Caribbean. Everyone we met with also expressed an interest in being kept abreast and perhaps involved in any future work that UWEX, POA, the Guyana MOA do together in the training and development of the MOA Extension staff and meeting the needs of the farmers in Parika and West Watooka.

Based on the recommendations from Phase I and the gaps identified in Phase IIA, Phases IIB and C should help the MOA develop their skills in working as a team to address the gaps that were identified by the farmers. UW-Extension faculty and staff can use the needs that were identified by the farmers and agency staff that took part in the analyses as a practical example on how to use the "soft" or "human dynamic" skills that are increasingly more critical for the success of Extension workers in today's rapidly changing world; skills such as dealing with change, group facilitation, conflict management, brainstorming solutions, building consensus and reducing the barriers to interagency cooperation.

To deal with these concepts in the abstract will not be satisfactory. The Guyanese farmers have some real issues to deal with and several were brought up in the gap analyses:

- A better system of getting soils tested, results correctly interpreted and fertilizers properly applied is critical if farmers are going to have crops that can meet the market demands.
- Plant disease identification and being able to rapidly treating them in ways that are safe for the farmer, consumer and environment is also in need. The current methods are not adequate.
- Farmers and agency staff working together to quickly identifying new domestic and international markets, experiment with new crops and adapt to existing markets fluctuations.
- Increase the availability of machinery that can reduce manual labor, either through private or cooperative ownership.

The next two teams will need to work with the MOA and the farmers to develop sustainable solutions to each of these challenges in the two communities.