

**An Interview with Dr. Ricky Bates, Pennsylvania State University, on his HortCRSP-funded exploratory project to strengthen informal indigenous seed systems in Northern Thailand and Cambodia. (Interview with Jerry Miner April 26, 2011)**

**How did you get involved in this project?**

After the HortCRSP Inception Workshop in Singapore, May 16-19, 2010, I went to Chiang Mai, Thailand where I had a meeting with the ECHO director and a Maejo University contact. I was interested in a sabbatical or a Fulbright but I thought that the HortCRSP people would be good players. I did not realize until I was at the Singapore meeting that there would be a one-year exploratory component to it. I thought that would be perfect because I had not developed the contacts nor worked on it enough to qualify for putting in a good three-year pilot project proposal. The exploratory program gave us a venue or starting point and so we started talking about ideas for that.

We are now in the middle of this one-year HortCRSP-funded exploratory project. In May we started to lay the ground work for it. We got the award October 1, 2010 and it goes to September 30, 2011 so we are 6 months into it. Most of the field work has been accomplished, but this project with an informal seed system is a one-year exploratory project... What we wanted to do for this exploratory project was central to develop a team and a strategy. The money was really there and you did not have to have a functional team ready to go like for the shovel-ready immediate impact projects. You could spend part of your effort essentially developing the team.

It is interesting how this thing has evolved. About a year and a half ago HortCRSP had one-year immediate projects but last week HortCRSP held a meeting at the University of Davis where we heard from everyone that had had an immediate impact project. These were pretty impressive. The second round was the three-year pilot project program and those were funded up to \$500,000. HortCRSP ended up funding 9 exploratory projects and 5 three-year pilot projects in this last round. HortCRSP is now developing the RFP for the next round. They are not sure if it will be a smaller number of grants for a larger amount of money focused on a region, country or on a particular topic or whether they would split them like last time. Perhaps one year projects and others multiyear projects. We were all flown into Davis to provide input now it is up to Ron Voss and his advisory team to decide how to do it.

**Could you explain something about your project and what your objectives are?**

ECHO was already in operation before we began. From my experience I came to realize that informal seed systems are a very important part of the puzzle when you are dealing with resource-poor farming systems and smallholder farmers in poor places. Another thing that I noticed was that there is a lot of diversity and a lot of underutilized species in many of these local systems. These are off the radar and there is not a lot of attention paid to them. When I started to dig a little bit deeper into this it became clearer to me that what we were doing as a horticultural community in developing communities is to conserve and to collect out of this system, improve it, and to disseminate these indigenous species. They are not doing a very

good job at that. I thought that the fundamental piece of the puzzle that we wanted to focus on was that these informal seed systems were pretty important but they need to be optimized. To be able to optimize them we had to understand some things about the germplasm, the characteristics of what they are using but not only that but the pathways and gate keepers in these informal systems and then to improve the systems for the people that are there operating in them. In order to do this, we need to improve their access to seed information because they are off the radar and the commercial seed business does not really address those and they are not really dealing with commercial cultivars or hybrids. So that was really the beginning of it. And so what we wanted to do for this exploratory project was central to develop a team and a strategy. The money was really there and you did not have to have a functional team ready to go like for the shovel-ready immediate impact projects. You could spend part of your effort essentially developing the team.

I had experience in Chiang Mai so I knew it is where we wanted to work. In addition from my previous experience there were a couple of studies that point out what are eventually biodiversity hotspots. The Northern Thailand area from Bangladesh, the Myanmar border up into Northern Thailand down into Laos is identified as a biodiversity hotspot in terms of plant germplasm. There are a lot of ethnic tribal groups who have migrated there or have been there for a long time who use these specific plants in a specific way. So that is why we kind of focused on that area. So that was the first objective to develop a team and a strategy focused on strengthening these indigenous and informal seed systems as well as the conservation of the knowledge that is in operation around those seed systems. The second objective was really to try to make some headway in characterizing these seed systems. What are the pathways and who are the germplasm gatekeepers and people that are wild collecting some of this material, saving and trading their seed? How does that all work especially focusing on the indigenous annual and perennial vegetable crops? The third objective was to facilitate the exchange of this material and to investigate if we can preserve and disseminate the more important genetic material and resources that we identify after we learn something about the systems. Can we facilitate the exchange, preservation and dissemination of these vegetables? This is where the ECHO seed bank is critical. The fourth objective is what we can do to develop just some good information that would be relevant especially to these ethnic groups pertaining to seed topics: seed harvest, storage or germination. We really wanted to get extension material to them and that would involve the Maejo University system. This university does work with extension and sustainable agriculture and they were very willing to looking at developing some resources that would focus at least on the hill tribe groups in Northern Thailand.

### **Could you explain how you set up this project?**

The way that we set this up was that some staff from the ECHO seed bank and the student help from Maejo University and a couple of hired technicians would go to these identified village clusters and a month in the village. Our approach was for one of our technicians, a US citizen from Massachusetts, go along with a male and female Maejo university student. The first village cluster was a group of villages in the Chiang Gao area of Northern Thailand at the border of Chiang Mai. They spent one month in that village cluster and then they went in another in Chiang Rai and then the third village cluster was a group of Khmer village in Cambodia. So they

spent one month in each of these three places and some of their activities included interviewing the local farmers, the smallholders and even some of the house holders who had substantial vegetable gardens. Interviewing them about where the seeds came from, how they exchanges seeds, what they purchased versus what they saved themselves, who the important gate keepers were and who they purchased seeds from if they did purchase them. Someone who was working through ECHO in Thailand developed a solar powered seed germination chamber. We set the seed germination chamber up in the village to do some seed trials and could compare seed germination of some of their more common species versus the purchase of similar species so by adding a germination component we can look at their storage and handling practices and try to get a handle on how their methods impacted such things as seed germination and viability as there would be certainly room for improvement. So the main crux of what we were doing was from January to March when they were actually in these villages doing these surveys. They were also doing card sort surveys where they had an extensive collection of photographs of vegetables (leaf characteristic and seed characteristics) so we were also identifying what the key species were that they were using were and why they were important to them. For instance they may be growing eggplant but they may be growing 4 or 5 different varieties of eggplant that seem to be pretty locally adapted. They may have specific ideas about when they use each type. This is the kind of information that we had hoped to capture as well. We wanted to focus of the local types and subtypes that they are using so that is the type of germplasm that we wanted to identify and preserve, get them into the seed bank and then disseminate them widely. They certainly have preferences in what works well in that area and what doesn't. That may or may not coincide with what some of the commercial companies are selling in that area. In one of the village clusters, Chiang Rai, we have about 39 accessions into the seed bank that look like they are going to be at least worth looking at. Good locally adapted vegetables that they have not been working with previously. So the other component of this was to help develop this ECHO seed bank.

### **Could you give us some background on ECHO?**

ECHO has been around for awhile. ECHO is located in Ft. Myers Florida and has been around for at least 20 years. They see themselves as more or less as an extension service where they are there to resource and support NGOs and people working all around the world with poor farmers. It is a little like an extension system where they provide information and printed material via online or telephone calls to people who may find themselves perhaps in India with World Vision. ECHO is there as a resource for NGOs that do not have an agricultural background. What grew up with the development of ECHO has been the development of a vey innovative seed bank in Ft. Myers Florida where they sort of specialize in tropical fruits and vegetables. They make these seeds available at low cost or no cost to individuals and NGOs working around the globe in development. What happens when you buy or are given a packet of seeds you are also asked to fill out a survey as to how that performs in your area to provide feedback to the seed bank. So over the decades they have acquired quite a database of good locally adapted material that they have collected from all over the world. Many people are not familiar with what ECHO does but many people are familiar with their seed bank.

ECHO is a private NGO that has existed on private donations. Just recently, here at Penn State, one of our researchers, Jonathan Lynch, has worked with Howard Buffet on a project in Africa developing low phosphorus adapted beans and ECHO Florida is a partner in that project.. Howard is Warren Buffet's son. So ECHO is starting to get a little bit bigger. The other thing that is new is that they are developing regional offices. Their seed bank has becoming so popular that they are realizing that they are probably not in the best position to send out seeds everywhere. They have been focusing on Latin America and the Caribbean. They have realized over time that they have to focus on some other regions and they are developing regional offices. Three years ago the ECHO Asia regional office in Chiang Mai was started. And now they are currently establishing two ECHO regional offices in West Africa and East Africa. This exploratory HortCRSP project is to help them develop capacity in this ECHO Asia regional seed bank. They have identified a seed bank manager. They have brought the seed bank manager over to the ECHO Florida seed bank offices for a month of training. She became very proficient in terms of seed intake, acquisition, seed accessions, labeling, storage, germination and testing. What we are trying to do also with this project is to build capacity within their local seed bank. That has to happen in order to have an impact locally. The ECHO Asia seed bank wants to be a source of these annual and perennial species that enter the seed bank. They want to reach into India and Bangladesh, Myanmar, Laos, Cambodia, Thailand, and Vietnam. They are on the road to doing that.

### **Have you looked into establishing partnerships with private seed companies such as East West Seed or APSA?**

Partnerships with the private seed companies are encouraged and we see it as the next step. That will be the next step as it probably will not happen unless they are involved. We see this one-year exploratory project as essentially verifying the proof of concept to take a region with a lot of biodiversity in terms of the important economic crops that are being used there, document what is good within that system and get that into the seed bank along with the partnership of the university that will then be a good partner in terms of any value chain development around a particular species, presence on the ground and the ability to have staying power in terms of working with those communities and developing enterprises within those communities. It is kind of a proof of concept and the next stage, if there is any kind of scale up that really requires some larger entities. That is where we might have to call on these larger companies like East West to help.

The one thing that we have to be sensitive to is that part of the goal of the project is to make sure that the local people in these local regions who are doing the work will benefit through the development of value chains around these important crops that are identified. Right now we have local individuals that are raising some of the seeds that we are interested in and have been contracted with ECHO to raise some of the species and collect the seed and essentially sell them to the seed bank so they can establish some enterprise around it. It is a dance that you have to go through when you try to get a company that is profit driven involved. You have to look at how they will interface with the people that you want to help. The person that I think has done an excellent job at doing what I have just described is Jim Simon at Rutgers University. He has done an outstanding job in developing a value chain around some of these species. They

have talked to natives recently about working specifically on moringa. He is an excellent example of being able to provide added income for the locals and working with some of the local businesses whether they are restaurants, hotels or bigger companies and make sure that the local communities actually benefit with the development.

What is a twist for us is having the seed bank component there that essentially extends the reach for some of these species that have potential and end up in the seed bank and then because of the reputation of ECHO has the potential of extending the reach via development workers to go to ECHO because of its reputation it allows them to try out these things where they are located. ECHO seed banks are self-supporting so should be around for a long time. NGO's must pay for the seeds but their information and publication development is free so that is where much of their contribution comes from.