Resource Centers for Agricultural Development

SUMMARY OF TRAINING OPPORTUNITIES IN AGRICULTURE FOR MISSIONARIES

A number of organizations are responding to the need for training of those going to work in third world agriculture and/or appropriate technology. ECHO has a Technical Note which summarizes the offerings of many of the programs that we know about. (https://www.echocommunity.org/resources/58f9de3f-343f-4b6f-a441-3b6c2cd951f0)

WHAT HAS BEEN YOUR EXPERIENCE WITH THE INTERNATIONAL RESEARCH CENTERS?

Many of you are aware of the network of international agricultural research centers that have been responsible for much of the green revolution. They are usually known by abbreviations: ILRI in Ethiopia and Kenya, CIAT in Colombia, ICRISAT in India, IRRI in the Philippines, IITA in Nigeria, etc. Each center focuses on just a few areas of agriculture and maintains the international germplasm (seed or other propagative material) for a few "mandate crops." This enables them to avoid duplication of effort and develop an unusual depth of expertise inthose areas. (Universities, in contrast, typically cover all areas of agriculture but in less depth.)

How can we extract the most ready-to-use information from the centers? (We appreciate it when those of you who work at these centers call items to our attention or give feedback to items in EDN). These centers work primarily through

governmental extension networks, but they seem quite open to helping "small" groups too.

We are interested in how these international centers can help folks in ECHO's network, typically a hands-on person in the field with a private voluntary organization (PVO). If you have approached one of the centers and found them helpful in a particular way, drop ECHO a line with details. I would also like to know if you tried to get information or seeds and were not successful. Many government agencies are increasingly recognizing the valuable role PVOs play in development. Most scientists at these centers are eager to see their discoveries implemented. On the other hand, they are very busy with their primary task of research and cannot write lots of letters. We would like to have a practical guide to what you can and cannot expect from the centers, how you decide where and to whom to write, etc., all based both on their literature and your experience. The small farmer, the international research centers and your work will benefit if we increase the use that you make of this incredible resource. Please write!

Most of these centers also maintain genebanks (seeds or other material) which you may contact as a source for information and perhaps seed of their respective staple crops. (For example, ECHO often refers seed requests for major crops to one of these centers.) The addresses and areas of expertise of each center are as follows:

AVRDC (Asian Vegetable Research and Development Center), (http://www.avrdc.org.tw/) Box 42, Shanhua, Tainan 741, Taiwan, ROC; fax (8866) 583-0009; http://www.avrdc.org.tw. Tomato, pepper, onions, eggplant, beans, and other vegetables.

CATIE (Centro Agronamico Tropical de Investigacion y Ensenanza), (http://www.catie.ac.cr/) Turrialba 7170, COSTA RICA; http://www.catie.ac.cr/. Research and education on sustainable tropical agricultural systems for the small farmer. Areas include livestock genetics and nutrition, coffee, cacao, agroforestry, and fruit crops.

CIAT (Centro Internacional de Agricultura Tropical), (http://www.ciat.cgiar.org/) Apartado Postal 6713, Cali, COLOMBIA; fax (57)2-4450-273; http://www.ciat.cgiar.org. Germplasm development in beans, cassava, rice, tropical forages.

CIFOR (Centre for International Forestry Research) (http://www.cgiar.org/CIFOR), PO Box 6596, JKPWB, Jakarta 10065, INDONESIA; fax (62)251-32-6433; http://www.cgiar.org;80/cifor. Conserving and improving productivity of tropical forest ecosystems.

CIMMYT (Centro Internacional de Mejoramiento de Malz y Trigo), (http://www.cimmyt.cgiar.org/) Lisboa 27, Apartado Postal 6-641, 06600 MEXICO D.F.; fax (52)726-7559; http://www.cimmyt.mx. Increasing productivity of resources committed to maize, wheat, and triticale. Note: Web sites for the centers below have the format http://www.cgiar.org;80/acronym [as CIFOR above].

CIP (Centro Internacional de la Papa) (http://www.cgiar.org/CIP), Apartado 1558, Lima 100, PERU; fax (51)14-351570. Potato and sweet potato improvement, Andean roots and tubers. Natural resources conservation in the Andean region.

ICARDA (International Center for Agricultural Research in Dry Areas), (http://www.cgiar.org/icarda) P.O. Box 5466, Aleppo, SYRIAN ARAB REPUBLIC; fax (963)21-225105 or 213490. Increasing productivity of farming system involving wheat, barley, legumes, and forages in North Africa and West Asia.

ICLARM (International Centre for Living Aquatic Resources Management), (http://www.cgiar.org/iclarm) MC PO Box 2631 Makati Central Post Office, 0718 Makati, Metro Manila, PHILIPPINES; fax (63)2-816-3183. Improving production and management of aquatic resources in developing countries.

ICRAF (International for Research in Agroforestry), (http://www.cgiar.org/icraf) United Nations Avenue, PO Box 30677, Nairobi, KENYA; fax (254)2-521001. Mitigating tropical deforestation, land depletion, rural poverty through improved agroforestry systems.

ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), (http://www.cgiar.org/icrisat) Patancheru 502 324, Andhra Pradesh, INDIA; fax (91)40-241239. Contributing to more sustainable agricultural production systems through improved productivity and resources management of sorghum, pearl millet, chickpea, pigeonpea and groundnut.

IIMI (International Irrigation Management Institute), (http://www.cgiar.org/IIMI) PO Box 2075, Colombo, SRI LANKA; fax (94)1-866854. Strengthening the development, dissemination and adoption of lasting improvements in irrigated agriculture in developing countries.

IITA (International Institute of Tropical Agriculture), (http://www.cgiar.org/IITA) P.O. Box 5320, Ibadan, NIGERIA; fax 874-1772276 (no country code required). Sustainable and increasing food production in the humid/subhumid tropics in partnership with African national research systems particularly on maize, plantain, soybean, cowpea, yam, rice, and cassava.

ILRI (International Livestock Research Institute), (http://www.cgiar.org/ILRI) P.O. Box 30709, Nairobi, KENYA; fax (254-2)631499; e-mail ILRI-Kenya@cgnet.com, and P.O. Box 5689, Addis Ababa, ETHIOPIA; fax (251-1)611892; e-mail ILRI-Ethiopia@cgnet.com. Animal health, genetics, feed, and natural resource management.

IPGRI (International Plant Genetic Resources Institute), (http://www.cgiar.org/IPGRI) Via delle Sette Chiese 142, Rome 00145, ITALY; fax (39)6-575-0309. Conserving genepools of current and potential crops and forages. Supports and coordinates genetic resource conservation through regional groups.

IRRI (International Rice Research Institute), (http://www.cgiar.org/IRRI) P.O. Box 933, Manila, PHILIPPINES; fax (63)2-891-1292. Generating and disseminating rice-related knowledge and technology of short- and long-term environmental, social, and economic benefit.

ISNAR (International Service for National Agricultural Research), (http://www.cgiar.org/ISNAR) P.O. Box 93375, AJ-2509 The Hague, NETHERLANDS; fax (31)70-3819677. Institutional development and strengthening of national agricultural research systems.

WARDA (West Africa Rice Development Association), (http://www.cgiar.org/WARDA) 01 BP 2551, Bouake 01, IVORY COAST; fax (225)634714. Improving rice varieties and production methods among smallholder farm families in the upland/inland swamp continuum, the Sahel, mangrove swamps, inland swamps, upland conditions, and irrigated conditions. (https://cdn.ymaws.com/members.echocommunity.org/resource/resmgr/a_to_z/azch1res.htm#Table)

HOW DO I BEGIN AN EXPERIMENTAL/DEMONSTRATION WORK?

Chris Alexander in Zambia asked about how to develop a testing site at the church. I very much encourage this "experimental" approach. God has filled this creation with far more resources than most of us ever imagine. We only need to learn about them and then find which ones can be a blessing to our communities. You can never be sure that any new plant or technique will work until it has been tested in the community where it is being considered. Just remember not to be embarrassed by "failures." If in your personal garden you do not have some things that are not working out, you are probably "playing it too safe," doing things you know will succeed rather than trying many new things, some of which will fail and some be outstanding. Above all, never think that special university training in research is needed to do your own "adaptive" research. (Adaptive research is trying things that have worked elsewhere to see if and how they can be adapted to your community). Several of you have reported how the small farmers themselves enjoy being involved in the research process. Roland Bunch told me that he believes teaching farmers to be experimenters may be more important in the long run than the particular technologies he introduces.

Much of ECHO Development Notes is written for this very purpose, to suggest new things that you might want to try. So in a real sense, we are continually answering this question. The seeds you request through ECHO are likewise a good place to start. This collection of ideas from EDN should be a starting point. You should soon have enough ideas to keep busy for a few years. (https://cdn.ymaws.com/members.echocommunity.org/resource/resmgr/a_to_z/azch1res.htm#Table)

(/resources/48d72353-e193-4740-94df-e6eac30d3cb2)

THE SMALL FARM RESOURCE DEVELOPMENT PROJECT: A MODEL FOR BEGINNING OR STRENGTHENING YOUR AGRICULTURAL WORK (https://www.echocommunity.org/resources/efef5651-44ee-41b7-895a-52fe2183762a)

INTRODUCTION. During the course of each year a number of individuals working in community development spend some days studying and planning at ECHO. In reality their felt need is not so much for a bit more knowledge (study), but for a project plan for how they are going to help local farmers. A number of such visitors have told me that the single most helpful thing I shared with them during their visit was the concept of the Small Farm Resource Development Project.

The central idea is that development organizations wishing to do agricultural projects have little choice but to do some of their own experimentation. Although many might wish it were so, no expert can come into a community and plainly tell

what new idea to begin introducing. Such an expert can suggest many things to try, but little or nothing that one can safely talk farmers into adopting tomorrow.

Many rural development organizations who work in medicine, public health, education, water, sanitation, etc. hesitate to add agricultural components, perhaps because it is less clear what they should do to have a major impact in agriculture than in their other areas of emphasis. The bottom line of everything ECHO does comes down to this very point. How can we help you devise a project plan that will make a significant difference in the lives of peasant farmers?

WHAT IS NEEDED? See page 10 for some characteristics of a satisfactory agricultural project. I have often heard development workers say something like, "I have no need for additional technical information. What I need is more insight as to how to get farmers to act on what I already have to offer." Perhaps. But more likely the problem is that the ideas are not nearly good enough. Although there may be few if any ideas which you can be certain will meet all criteria, there is hope. It is just that there is a step between getting the idea and beginning the extension work. Many things have the potential to be as successful in the community as they have been elsewhere in the world. They just need to be screened and fine-tuned under local conditions and on local farms.

(Ready-to-go agriculture projects do exist, especially in the veterinarian field, where much universally applicable knowledge is available. If chickens are dying of Newcastle's disease, for example, a vaccination program could be immediately useful. Exceptions would also be found if the organization were to come across an innovation that has already been proven in the community but the extension work has not yet been done. But be careful. I saw one such project where a local group had proven that pineapples would thrive. Several private and government pineapple projects soon sprang up. Pineapples were so cheap two years later they were hardly worth harvesting. The average development project gives far too little emphasis to marketing study and projections.)

THE SMALL FARM RESOURCE DEVELOPMENT PROJECT. Both your supporters at home and the farmers you serve have high expectations of you. They are going to look for great (and quick) success in whatever you try, and you will lose credibility quickly if you start things that fail--unless everyone knows up front that you are first going to be doing trials.

Much of the pressure is eliminated if you say something like the following: "Everyone knows that a lot of new ideas outsiders bring in are worthless. But there are a lot of things that have brought an improved life to farmers similar to you in other parts of the world. I'm going to be trying several of those things. Most of them probably will not be worth very much. But probably one or a few will be something that will be very useful to you."

"I invite you to watch the progress of things that we will be trying here at the Small Farm Resource Development Center (SFRDC). When we sort out which ones seem to be really interesting, you can help us by doing a small trial on your own farm."

The purpose of the SFRDC is to evaluate in the community ideas that have been proven elsewhere. The most promising ideas are adapted to become the backbone of the agricultural outreach. This adaptive research, as it is called, is done directly by the private or voluntary organization (PVO) and local farmers. The same approach is

adaptable to almost any size project, whether you establish a formal SFRDC or not. The "Center" can be as simple as an individual development worker's garden or as complex as an organization's headquarters' farm.

We use two names, one for the project itself and one for the piece of land where initial trials are done. The Small Farm Resource Development Project (SFRDP) coordinates trials on a central site called the "Small Farm Resource Development Center" (SFRDC) as well as on fields of individual farmers. Any new ideas, techniques, crops or new varieties of a local crop are first evaluated at the SFRDC. The most promising will be further tested through on-farm trials in the community, thereby also teaching local farmers to do their own testing of new ideas. Marketing studies may also be done.

THE OUTCOME: The goals of the SFRDP include:
(1) finding new sources of income, food and employment,
(2) improving the profitability and reliability of present farming operations,
(3) backing these up with marketing studies and market development activities,
(4) improving both economic security and nutritional balance by including a greater diversity of crops,
(5) reducing vulnerability to global economic swings by minimizing the need for imported items in operation of the farm, and
(6) reversal of the ecological problems caused by erosion and deforestation.

The SFRDP can have two distinct functions. One, the experimental component, is to test and adapt new ideas which have potential to aid the community in development. This is not the kind of research done at universities, but rather adaptive experiments to make sure what has worked elsewhere can be reliably expected to work in this particular community. The other, the demonstration and training component, is to use the center and on-farm trials as a teaching tool. It can be a base from which promising results are taught to your future extension staff and to other interested development groups or farmers in the country. Depending on whether training and teaching is a high priority of your program, this second aspect can be a major or minor component of the center. Charlie Forst, who helped develop a SFRDC for a school in Haiti (the Haitian American Friendship Foundation), described his goal as "developing the farm as a textbook."

WHERE SHOULD TRIALS BE DONE? Trials should be carried out both at a central SFRDC site and by local farmers on their own land. Each has its strengths and limitations.

It will be important to have a central focal point for visibility, both locally and with the diverse private and governmental groups in the country who might wish to learn from the SFRDC. It is also necessary to have a central location where a preliminary screening of new ideas can take place. Experiments that may have less likelihood of success should only be done at the central site initially until such time as they are shown to have definite promise.

Before Tom Post (see below) had an opportunity to establish a SFRDC, some on-farm trials were underway. It seemed like a great idea. The government research station had identified onions as a profitable cash crop that was being imported into the country. They also had selected varieties and developed cultural practices. But

unknown to anyone, there was a disease in that particular part of Belize that ruined the onions. If the SFRDC had been in existence, the first trials would have been done there and farmers would not have had such a visible initial discouragement.

The on-farm trials are economically more efficient, are more representative of the diverse micro-climates, soil types, etc., increase visibility in the community, help farmers learn the experimental approach, give them a sense of ownership in the project, and greatly reduce the likelihood of poor choices for subsequent introductions. Once a success is proven in on-farm trials, much of the work of extension is already done. On-farm experiments will always be on a small scale so that the risk to any farmer is minor.

Project Global Village (PGV) in Honduras wondered if subtropical apples might be the basis for a development project at a remote site very high in the mountains. We helped them arrange to bring in 1,000 subtropical apple trees, which were evaluated entirely with on-farm trials. I believe they were distributed to a couple hundred farmers. This fall I was told that they now have over 200,000 trees in the ground (no one knows for sure how many because farmers now graft their own trees).

A REAL-LIFE EXAMPLE. In the mid 1980's ECHO suggested to Tom Post, country director for the Christian Reformed World Relief Committee (CRWRC) in Belize, that they establish a SFRDP in Corozal Town. Tom shared the following observations on the value of the project.

"1. It provides a place to try crops on our own land that will not hurt the farmers if the crops should fail. We had begun our work directly with farmers before we had the SFRDP. Due to initial failures we dropped from 30 interested farmers to 3 the first year. Now negative results are just part of the expected outcomes of any large number of trials at the Center. For example, we failed to make money on an egg project that had originally looked good, but found that farmers could make money on broilers. A combined solar and wood burning grain dryer that we built turned out to have a design flaw and burned down--but it only involved the SFRDC.

"2. Even though we have degrees in tropical agriculture and years of experience, we need self-confidence and confidence in what we are about to promote. The same applies to the local extension staff. The SFRDC allows us to convince ourselves that what we are recommending really works.

"3. Consistently ideas had to be adapted to the regional climate and local management methods.

"4. It serves as a point of contact between our organization and Belizian institutions (other voluntary organizations, governmental ministries and agricultural research agencies). It gives our small group much more visibility and a "location" where we have a large sign by the highway "Small Farm Resource Development Center." Visitors can see and recognize quality work. We also are now seeing other groups picking up on some of our results. One has ordered 4,000 pounds each of velvet bean and jack bean seed.

"5. The SFRDP concept provides a bridge between the two worlds of research and the small farmer. Most agricultural research is still done on experiment stations with inputs that are not available to many small farmers and goals usually oriented toward more mechanized approaches.

"6. It is a valuable investment in the future. Development organizations tend to go for near-term results, using only ideas which are known to have a high probability of success. A result is that we do not consider other options. At the SFRDC we can try things that, for lack of experience, leave us less certain of success but hold a great deal of promise. Use of the moringa tree was in that category; now it is looking more and more like a sure success for our projects.

"7. It provides a valuable hands-on opportunity for North American supporters to be involved in ways that go beyond just giving donations. Donors feel an increasing need to know for themselves the benefit of their help. If work teams do projects in the village, they may be doing things that the local people can do for themselves [and resentment can result]. But projects done at the SFRDC will not disrupt village life and will be a genuine help to our work. North Americans can try out their skills without doing harm by their trial-and-error learning.

"8. The first-hand experience with a range of ideas (alley cropping, leguminous trees, pasture improvement, in-row cultivation, moringa, neem, small-scale irrigation) has been extremely valuable for me personally in my additional responsibility of project consulting in Central America."

From my reading before actually working in development, I had the impression that farmers were so resistant to change that they would certainly not be interested in doing experiments. I have been pleasantly surprised from reports in our network at how eager farmers are to do experiments, if they have confidence that some of them are worthwhile. Tom Post took me to visit some participating farmers in Belize. Each farmer had a particular experiment he was doing. One eagerly showed us some others he had come up with on his own.

SOME SPECIAL BENEFITS. Expensive infrastructures are avoided. No commitment need be made to multi-year funding. The SFRDP can be continued as long as its results are a clear benefit (or until so many good, proven ideas are available that the extension staff has all it can use) and can be discontinued at any time with minimal waste of money.

Although we had been discussing with Project Global Village the possibility of starting a SFRDP, the apple project ended up having so much potential that all efforts went into its development. Always keep in mind that the SFRDP is there to benefit farmers, not to do research. If you invest little in infrastructure, efforts can be rechanneled at any time without waste.

OTHER POSSIBILITIES.

(1) Once a set of workable technologies have been proven, the sponsoring organization might wish to set up a demonstration area at the SFRDC to use in training. I do not automatically call the "demonstration farm" because that concept has not worked in some situations and cultures. The SFRDC is a place where trials are done, and assumes the added role of a demonstration farm only if that approach seems suited to the local situation.

(2) If an agricultural college or training center is nearby, opportunities for collaboration may exist. The students would benefit by gaining hands-on experience in a very applied kind of research. The SFRDC would benefit by being able to do many more experiments by using the free student labor.

(3) Increasingly donors want to see and experience the work first-hand. Although a missions study tour has advantages over a "work team," in my opinion, many feel obligated to work with their hands to justify the expense of the trip. So "work teams" have become increasingly popular. Having them work on projects in the village which villagers could have easily done themselves can foster resentment. Projects can usually be found on the SFRDC that provide a rewarding experience for the volunteers, which benefit the project, and which avoid misunderstandings within the community. At the same time they can work with and get to know the local people and culture and worship with them.

(4) Many American colleges send their students overseas for a few months of exposure to third world conditions and cultures, but it is difficult to find assignments for which they are qualified. Poor command of language and lack of fully developed cultural sensitivity normally limit the effectiveness of such short-term people. They often return disillusioned because they did not do much of significance. However, the student working primarily with the experimental phase of the program could begin making a useful contribution the day after his/her arrival! Students would come to work under supervision of the SFRDP staff, not to introduce change into the society.

(5) Periodically a professor looking for a sabbatical opportunity calls to explore whether he/she might do something in the area of world hunger. You might put out a call for help from such a person.

WHAT KIND OF TRIALS SHOULD BE DONE? The primary focus of the small farmer is raising crops and livestock and related activities. Depending upon need, the SFRDP may concentrate on: finding new crops or improved varieties of presently cultivated crops; conserving topsoil; storing grain; increasing yield and decreasing labor; seeking better techniques for cultivation of crops that will not require cash (and foreign exchange) for purchase of inputs; animal husbandry; growing feed for animals; aquaculture; post-harvest storage and handling. The farm is free to use a mix of organic and chemical methods depending on your philosophy and the local situation.

Growing for export markets is very risky for the typical, relatively small, organization in ECHO's network. Don't even think of exporting unless a large, proven organization is already doing it and your farmers are just plugging into their program. Even then, one fruit fly scare or United Nations embargo can bring disaster.

Appropriate technologies may be chosen for the demonstration part of the farm, but they usually are included in the experimental component only at a minor level. Chances are there are so many good designs already that what is needed is someone with perspective to pick the one or two best suited and go with them, rather than making new designs. As a general rule, I believe that westerners are more enthused about appropriate technology than are most peasant farmers. (There are surprises though. Three organizations which built self-composting toilets for their staff in Central America told me that the toilets generated intense interest in the community.)

WHERE DO WE GET IDEAS FOR THE TRIALS? The place to start is to carefully observe what farmers already do, ask where they feel that they need help (though remember they will not know to ask for things they have never heard about) and

consider how to make their work easier or farms more productive with their current crops. Networking within your country will turn up promising ideas that have already been proven not too far away. Each issue of EDN contains many suggestions and seed offers that could become the basis for trials. Careful study of the back issues of EDN should give you more ideas than you will have time to try.

TAKING THE LONG VIEW. Development projects seem to proceed in units of a few years, but communities develop over long periods. Trials should be directed at both short- and long-term needs of the community. Some ideas should be selected with the anticipation that in the very near term (less than a year) they will be ready to go. (An unfortunate side effect of the short term nature of most projects, especially funding for them, is that only ideas with near-term payoff get serious attention.) Some trials that will not be completed for years should be started right away, e.g. in evaluating fruit tree varieties, trees should be planted so they can begin growing. If you start a SFRDP please keep us closely informed of your experience and what you learn.
(https://cdn.ymaws.com/members.echocommunity.org/resource/resmgr/a_to_z/azch1res.htm#Table)

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