



Winrock International Worldwide-Nigeria Farmer-to-Farmer Program

Executive Summary

Final Report

The goal of USAID's Nigeria Farmer-to-Farmer (FTF) Program is to strengthen NGOs, associations, and financial institutions to help farmers and agribusinesses meet consumer demand for increased food quantity and quality, and to improve the effectiveness and environmental sustainability of farming and marketing. This report will highlight the results of the Nigeria FTF Program.

Since 2001, Nigeria FTF has completed 182 volunteer assignments with 74 hosts, benefiting 10,200 women and men. During FY 2003, 59 volunteers completing 70 volunteer assignments traveled to Nigeria, 2,857 Nigerians directly benefited from FTF (including 722 women), and 860,000 indirectly benefited. During the fourth quarter FY2003, Nigeria Farmer-to-Farmer volunteers completed 33 assignments. Over the life of project Winrock International and our volunteers:

- Worked directly with approximately 3500 woman (34% of the total direct beneficiaries)
- Worked with 58 agricultural NGOs and associations, and 14 private farms or agribusinesses.
 - 99% of hosts targeted provide new or improved products/services.
 - 99% of hosts targeted increased business efficiency.
 - 99% of hosts targeted increased production.
 - 99% of hosts targeted use improved business planning techniques.
 - 94% of hosts targeted created new training programs.
 - 89% of hosts targeted increased revenue.
 - 93% of hosts targeted increased profits.
 - 99% of hosts targeted adopted improved waste or natural resource management techniques.
- Leveraged over US \$4,600 in contributions from volunteers and other U.S. sources.
- Helped create over 13 new organizations.
- Encouraged FTF hosts to contribute over US \$108,000 toward the cost of the volunteer assignment.
- Assisted their hosts in accessing over US \$275,000 from various sources of credit, state assistance, PL 480 local currency, and other donor assistance from within their own country.

Examples of tangible impacts

During the fourth quarter FY2003, field staff completed 18 impact surveys with 12 hosts. Since 2001, field staff completed 60 impact surveys with 38 hosts or approximately one half of Nigeria hosts. Twenty-one projects are profiled in **Appendix B**.

- With the help of animal science volunteer Thomas Tylutki, Garko Farms in Kano, Nigeria, has increased milk production by 70 liters per day. This will increase the revenue of the 70-cow farm by approximately \$910 per month. A better calf feeding strategy was introduced by the volunteer that increased revenue from calf sales by \$3,825 a year. Another result of this assignment was the establishment of a regional dairy producers association.
- Alan Lessler helped a women's micro credit foundation in Nigeria increase its client list from 80 to 500 within six months. His training on spreadsheets has minimized errors and sustainability has been improved with an introduction of membership fees, which increased revenue by \$500.
- The Nigerian Union of Fishermen and Seafood Dealers opened two new chapters in Ondo and Kano states and recruited 3,000 new members as a result of interest generated from the successful work of two FTF volunteers.
- Following FTF assistance to develop an operational strategy and fundraising plan, Kaltungo Center for the Deaf (KCFD) in Gombe State, Nigeria, received a \$7,000 grant from the American Ambassador's Self-Help Program to construct a Teachers' Training Center for the deaf. Groundbreaking occurred in March 2003. As a result, KCFD will provide new services to farmers suffering from hearing impairments.
- John Marenic helped two groups of women farmers in Nigeria to decrease their postharvest losses and improve fruit and vegetable processing. In Oyo State, Marenic helped 50 women fruit growers to resuscitate a fruit juice processing plant that had been abandoned due to bankruptcy. He helped another group of female farmers to develop a tomato and pepper puree cooperative.

Winrock International Worldwide-Nigeria Farmer-to-Farmer Program

I. Program Results and Analysis

A. Anticipated and Actual Results

Over the three-year period of the Nigeria Farmer-to-Farmer Program, Winrock International anticipated that a total of 161 volunteer assignments would be completed from 2001 to 2003. The total number of assignments was met and exceeded for a total of 182 assignments completed.

Winrock and Land O'Lakes identified the following four objectives for the two-year program:

- Increase productivity and efficiency of 60 private agricultural enterprises.
- Increase capacity of 30 selected agricultural NGOs and associations to achieve sustainable service delivery, benefiting thousands of Nigerian farmers (at least 30% female).
- Strengthen 10 rural finance systems to provide credit and other services to agricultural enterprises.

Below is a table with success indicators for these objectives and the final results.

Table 1. Major Objectives Met by the Nigeria FTF Program

Program Targets FY2001 to FY2003	Results	Anticipated Results*
Impacts	<i>Based on surveys of approximately 50% of Nigerian Hosts</i>	<i>Anticipated Results Based 50% sample of Nigerian host</i>
40 enterprises with production increases over pre-assignment levels	21 enterprises increased production	42 enterprises increased production
35 enterprises receiving increased revenue	16 hosts increased revenue	32 hosts increased revenue
35 enterprises with increased business efficiency or resource conservation	28 hosts increased business efficiency	56 hosts increased business efficiency
10 enterprises adopting one or more practices to improve natural resources management	14 hosts improved NRM and environmental practices	28 hosts improved NRM and environmental practices
14 organizations formed	13 organizations formed	26 organizations formed
25 hosts that have increased their membership	20 hosts that have increased their membership	40 hosts that have increased their membership

25 hosts using new or improved planning techniques, program methodologies and/or management practices, including the use of a business plan or a strategic plan	24 hosts using new or improved planning techniques, program methodologies and/or management practices	48 hosts using new or improved planning techniques, program methodologies and/or management practices
30 hosts providing new or improved products and/or services	29 hosts providing new or improved products and/or services	58 hosts providing new or improved products and/or services
15 hosts with improved training materials and skills	15 hosts with improved training materials and skills	30 hosts with improved training materials and skills

***Due to program interruption and political instability, 35% of the assignments were fielded within the last nine months and were not able to be surveyed.**

B. Results this Period

1. Program Inputs and Outputs

Volunteer Assignments

During the fourth quarter of FY2003, Nigeria FTF fielded 29 volunteers to complete 33 assignments, directly benefiting 1,200 women and men. Four of the volunteers completed multiple assignments.

Over the past quarter the volume of volunteers fielded and placed with hosts was the highest in program history. Summer schedules in the US are often more conducive to volunteer availability and this year was no exception. This quarter, 33 volunteers came to and went safely from Nigeria, a Farmer-to-Farmer record.

This high volume of volunteers in country allowed for some unique opportunities for multiple volunteer collaborations that more often than not resulted in added benefits for both hosts and volunteers. For example, volunteer Randall Dickey worked with Sister Nora and DDS core staff members developing a pension plan for the Nigerian DDS staff. Randall gained valuable insight into management conditions at DDS prior to his arrival there in Kogi state from volunteer Bryan Cole's report on business plan advising and specific steps necessary to improve the water bottling business at DDS. Mr. Cole's report also provided background on typical challenges faced by Nigerian SMEs (Small and Medium Sized Enterprises) for food processing volunteer Jeff Neville (founder of Concord Foods in Massachusetts).

When Mr. Dickey and Mr. Neville were both in the Winrock offices in Abuja they discussed their experiences; Dickey at DDS in Kogi State and Neville in Kaduna State involving honey processing and marketing. Dickey was inspired by what he saw at DDS and has embarked on researching possible funding from Catholic Dioceses in the United States to help DDS purchase more automated [water] bottling equipment. Jeff Neville has joined Dickey to help source

appropriate equipment if the funds come through. Both Neville and Dickey are in contact with Bryan Cole, the original author of the DDS pure water business plan.

Nigerian American fisheries volunteers, Dr. Jonathan Eya and Dr. Fasina participated in roundtable discussions with FAO representatives, the President of the Fisheries Society of Nigeria (FISON), the National Institute for Freshwater Fisheries Research deputy director and private catfish farmer, Ade Alakija of Durante Fish Industries. One of the outcomes of these meetings is that the FAO will sponsor the publishing of the proceedings for the upcoming conference being held by FISON in New Bussa (home of NIFFR) on fish feed production and fish farm management.

2. Examples of Results at Host Level

Since 2001, field staff completed 60 impact surveys with 38 hosts or approximately one half of Nigeria hosts. The impacts reported here are the result of assignments that occurred over the life of the project. Seven of the surveyed hosts are private enterprises and farmers, 21 hosts are farmers associations and other agribusiness organizations, and 10 are nongovernmental organization. Additional descriptions of FTF results are in **Appendix B**.

Revitalization of Shell Petroleum Development Program (SPDC) beekeeping project

As a result of an earlier Winrock volunteer technical assistance assignment with SPDC titled, “Appraisal of the Shell Petroleum Corporation Beekeeping Projects”, the organization has requested proposals from the volunteers to enable Shell to re-organize and revitalize this sector of their community development initiative. During the quarter, volunteers (Nathan Emery paired with Nigerian volunteer Alhaji Idris “Bee”) identified areas of technical deficiencies with the SPDC [beekeeping initiatives] but also provided useful and relevant on the spot suggestions for improvements in the current situations. The volunteers gave a presentation to the entire SPDC community development team who became interested in their recommendations (for the full presentation please see annex 2 of the 2003 third quarter Nigeria Farmer to Farmer report). This sparked a request from Shell for the volunteers to make a proposal for interventions and initiatives to rehabilitate and revitalize a higher return on the beekeeping “development” investment initiative. In response to SPDC’s request, the volunteers worked together and wrote a \$50,000 proposal to do a one-year project in the four locations where SPDC has introduced beekeeping. The management of SPDC community development project for funding is presently reviewing this proposal.



Nigeria begins the process of environmentally sound commercial shrimp production

Winrock International volunteer Bill Rudd visited and appraised Shell Petroleum Development Program's (SPDC) intended freshwater shrimp culture location and recommended the culture of brackish water shrimp instead of exotic freshwater shrimp (*Macrobrachium rosenbergii*).

SPDC had originally planned to import the exotic freshwater variety for their project. Mr. Rudd supported this recommendation by pointing out that most disease occurs in the exotic species, while the brackish water species (*Penaeus monodon*) indigenous to the Delta in Nigeria has been disease free for many years. After a careful selection period, the volunteer identified a site in Idema that was technically feasible for commercial production and free of mangroves (as stipulated by the international code of conduct for shrimp production). The volunteer's report was presented and



submitted to USAID, SPDC and other donor organizations within Nigeria. As a result, USAID Nigeria and SPDC have included commercial shrimp production in the list of potential projects for partnerships and funding. SPDC has made enquiries to Winrock International for partnering and next steps for this activity. Shell would also like to see reports showing studies of social dynamics of communities that have been under shrimp production outlining successes and failures. According to one of the managers of the SPDC community development program, their interest in this project is because shrimp production has the potential to be a big income earner as well as providing a significant number of new jobs. Shrimp culture could help empower communities for the development of other businesses, while also creating employment for youth.

Winrock volunteer helps with production of high quality fish feed

The Managing Director of Durante Fish Industries, one of the foremost fingerling and fresh fish producers in Nigeria, Mr. Ade Alakija identified the acquisition of fish feed as contributing 60% of Durante's current production costs. Durante presently imports feed from Coppens, Netherlands at a cost of about US \$1 per kg for the operation that produces 100 metric tons of table fish per annum and 250,000 fingerlings per month. The locally available fish feed (that costs about \$.56 per kg) has very low and unreliable quality. This lack of consistent quality results in longer growing periods, malnutrition, deformities and even outright death of thousands of fish, especially when the fish are raised in intensive (re-circulating) systems. Durante has been working on producing fish feed on-site using a combination of local and imported ingredients, but could only attain about a 1:3 feed conversion ratio as against 1:1 to 0.8 ratios of the imported (high quality) feed. Hence, Durante requested Winrock volunteer technical assistance on improving their fish feed



production. Winrock volunteer Dr. Oladiran Fasina, a Nigerian-American and Assistant Professor of Biosystems Engineering at Auburn University was recruited by Tuskegee University (Winrock partners) to work with Durante Fish Industries for a one-week period. After series of experimental trials between staff of Durante and Dr. Fasina, they were able to produce pelletized fish feed with quality that is close to that which is currently imported. Mr. Ade Alakija tried this feed after the volunteer's departure and has recorded a 1:1.1 feed conversion ration as of August 2003.

Alternative poultry feed takes center stage after VTA assignment

Winrock International in collaboration with the Raw Material Research and Development Council (a government parastatal that promotes the use of local raw materials) fielded volunteer



Dr. Joseph Orban, a Nigerian-American in April 2002 to work with selected poultry farmers in Ilorin. Dr. Orban's assignment had two main goals, the first was to analyze the locally used diets for nutritional value. The second goal was to design new diets to reduce the quantity of maize in poultry diets from 60 to 10-20% by using other alternative raw materials available in Nigeria. Preliminary reports indicated that one of the three diets experimented by the three commercial farms has been fully adopted because of

its excellent performance in reducing cost of production and increasing efficient utilization of raw materials. The government of Nigeria has mandated Raw Materials to build on the outcome of this assignment to reduce the cost of producing poultry feed, which is presently on the high side because of the 60-65% maize input (that competes as food staple for human consumption). According to a senior program staff of the Council on Raw Materials, funding has been made available for such trials to be conducted in all six geopolitical zones of Nigeria while exploring the possibility of commercializing the production of promising diets with other public and private stakeholders.

Private organization receives Winrock assistance

Wilbahi Investment Limited a private company has a window of funding for up to \$1.5 million for agricultural projects from the Nigerian Agricultural Credit and Rural Development Bank (NACRDB). However, the Bank requires proper cost/benefits analysis, feasibility studies or business plans before the funds can be released. Wilbahi has farm locations in Epe, Lagos State and Ewohimi, Edo State that are planted with oil palm and pineapples (major crops) with potential for expansion. Wilbahi farms are interested in adding value to their produce (oil palm and pineapple), as well as introducing new areas like fisheries and beekeeping that are low cost, high return and relatively easy to manage. Hence, they sought the assistance of the Winrock International volunteer technical assistance program. Three Winrock International volunteers

John Underwood (livestock), Charlie Johnson (aquaculture) and Alhaji Idris Bee (beekeeping) conducted a site assessment of Wilbahi farms and submitted several reports that will serve as basis for the feasibility studies. Alhaji Idris Bee helped set up beehives at Wilbahi farm in Ewohimi, Edo State. Alhaji's training helped the villagers overcome the hitherto existing myth that bees are a bad omen. The farm owner, Prince Solomon Aguele informed Winrock field staff that he stopped buying imported honey after he was trained on honey processing by the volunteer. He estimated a harvest of about 40 liters of honey from his five hives over the last 5 months. He



has requested Alhaji Idris Bee to draw up a plan for commercialization, which he is willing to fund. Prince Solomon has made a commitment to provide further training and community participation in the expansion of the beekeeping efforts of the farm site. John Underwood recommended livestock integration into the farm with pig production, using exotic breeds as the starting point. He presented a cost/benefit plan for this venture and Wilbahi has prepared a site for immediate

take off. Also they have acquired an import permit from the Federal Ministries of Agriculture and Environment to bring in exotic breeds of fast growing hybrids of pigs. Volunteer Charlie Johnson helped Wilbahi farms with an initial design for a fish farm. They have also contacted another Winrock International host organization (Durante Industries) for supply of fingerlings and fish feed, as well as for assistance with the feasibility studies.

Local consulting capacity of Farmer-to-Farmer host developed

Alhaji Idris Bee, an extension officer with Kaduna State Agricultural Development Project (ADP), the Nigerian Government Extension Program, is the founder of Biye Beekeepers Society (BBS). He received funding from USAID Nigeria in 2001 to build the capacity of 50 traditional beekeepers and provide them with modern beehives and beekeeping apparel. He contacted the Winrock International VTA program for technical assistance. Two master beekeepers, Ann Harman and Bob Cole worked with Biye Beekeepers for two weeks in early 2002 and several others conducted follow up assignments in various aspects of beekeeping and honey production such as hive maintenance and pest control, honey processing and utilization of by-products and marketing of honey and by-products. Within three years of working with the VTA program, Alhaji Idris Bee has been promoted twice from Extension agent to Head Beekeeping Unit (created recently by the ADP because of the growth of beekeeping in the locality) of the ADP.



Alhaji Idris Bee also received grant proposal writing training from Winrock International, after which one of the proposals he wrote received a grant of about \$10,000 from FAO (Food and Agriculture Organization, a United Nations group). The experience and knowledge gained by Alhaji Idris Bee was put into use by the Winrock VTA program when he was used as an “in country” volunteer for several assignments. He paired with another beekeeping volunteer, Nathan Emery, an American now living in Lesotho, to appraise and revitalize the beekeeping operations of the Shell Petroleum Community Development program. He also worked with Diocesan Development Services (an FTF strategic host in Kogi State) as a follow up volunteer when their beehives had pest invasion problems. He recently introduced modern beekeeping to Ewohimi community in Edo State, when he was invited to set up beehives by Wilbahi Investment Limited, a private company that hosted Winrock FtF volunteers.

Winrock FtF creates linkages between hosts

Wilbahi Investment Limited (a private company) received several Winrock volunteers to help highlight basis for development of feasibility studies and business plans to enable them access a 200 million Naira loan window, which they have with a local commercial bank. The volunteers



helped with the pre-feasibilities for fish farm, piggery, beekeeping and agricultural produce processing. Two former Winrock volunteers, Alhaji Idris Bee (beekeeping) and Mr. Ade Alakija (Durante, aquaculture) helped Wilbahi farms with the initial information for the feasibility studies. Wilbahi has finalized arrangements to hire Mr. Ade Alakija as a consultant to conduct the feasibility for their fish farm. While, Alhaji Idris Bee will be working on the feasibility for commercial beekeeping operation.

Winrock volunteers assist FtF hosts leverage funds from donor agencies

Volunteer Patrick Ball was recruited to work with Fantsuam Foundation, a rural micro finance institution based in Kafanchan, Kaduna State that received a \$250,000 grant through Winrock VTA assistance, on improving their Research and Development (R & D) Department. After helping Fantsuam Foundation reorganize their bookkeeping and accounting issues as well as report writing and presentation, Ball developed a two-page profile of Fantsuam Foundation, which he presented to various donor agencies (World Bank, UNICEF, DFID, Irish Aid, etc.) as a way of introducing the activities Fantsuam Foundation. This was very helpful to Fantsuam Foundation as they have been able to contact these organizations formally because of the initial introduction by Winrock.



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Nathan Emery, a commercial beekeeper in Lesotho was recruited to work with Biye Beekeepers Society and Alhaji Idris Bee on processing and marketing of honey and by-products

as well as working out modalities for the set up of a beekeeping extension center in Kaduna State. Besides providing Alhaji Idris Bee with ideas on processing and marketing of honey and setting up of the beekeeping extension center (please see full power point presentation in the Nigeria Farmer to Farmer 2003 third quarter report), the volunteer also visited several donor agencies (Canadian International Development Agency-CIDA, Irish Aid, World Bank, etc.) with Alhaji Idris Bee while introducing these ideas. CIDA and Irish Aid asked Alhaji Idris Bee to submit proposals, which are presently under review at these organizations.

C. Program Effectiveness

While supplying high-level technical assistance to host organizations, FTF volunteers also provide ongoing mentoring and a personal commitment that far surpasses what a traditional “consultant” would supply. This moral support and ongoing technical engagement shows to our international counterparts the sincere interest in their economic growth and development. This period, roughly 95% of volunteers surveyed report they continue assisting hosts after their assignments, mostly via email.

Some examples of returned volunteer impacts follow:

- Volunteers have provided, at their own expense, equipment, seeds, plant materials, software and other items to help support the host they had worked with
- Volunteers have returned home and designed plans for dairy systems, irrigation systems, research proposals, business plans, applications for grants and a multitude of support not called for in their assignment
- Volunteers have returned home and arranged, and paid for, medical care for contacts they made on an FtF assignment (eye surgery, for example)
- Volunteers have maintained e-mail contact (sometimes through country staff) with the host on a continuous basis
- Volunteers have paid for the trip of a host to the U.S. to acquaint them with technology that would be of use to them. They also arrange tours of U.S. facilities and meetings with industry specialist.
- Volunteers have provided significant funding to the operation of a host that they were working with.
- Volunteers have been visualized by hosts as caring people who were happy to share their knowledge, friendship and culture.

Diffusion of Improved Science and Technology

The Nigeria Farmer-to-Farmer program provided technical assistance, through Winrock/Land O’ Lakes, on artificial insemination to pastoralists on the Mambila Plateau. The pastoralists were first organized into livestock cooperatives. With the assistance of the volunteer, the pastoralists identified their needs in the areas of animal health and nutrition and the genetic improvement of the local stock. FTF provided a volunteer on animal health and nutrition to help the pastoralists understand the implication on productivity of their herd. The cooperatives requested for training

on artificial insemination to coincide with the arrival of 500 doses of semen procured by the pastoralists from worldwide sires. This was facilitated by Land O' Lakes.

Since their contact with Farmer-to-Farmer program, members of Mambila livestock cooperatives have become popular on the Plateau. Shortly before volunteer Thomas Dobler touched down on Mambila, two new livestock associations were formed and indicated interest to benefit from the training. The volunteer provided direct practical training to over 30 pastoralists on recto-vaginal artificial insemination (AI) technique. He started with fresh reproductive tracts before taking them to the cows. At the end of the AI training, more than 16% of the participants performed at an excellent level. He superadded heat detection, semen handling, semen tank maintenance and all sanitary precautions associated with AI to the training. A follow up retraining on artificial insemination was conducted in July 2003, which resulted in another 30 new AI technicians trained. AI technicians were also trained in Kano (Garko Farm), in Kaduna (Pastoral Resolve [PARE-NGO]), and in Adamawa (Sebore Farm) States.

Other improved technologies that have been diffused by six volunteers, under the Farmer-to-Farmer program, include animal health; semen collection, processing and preservation; livestock husbandry and nutrition; transition cow management; calf and heifer management; and, feed formulation, in addition to 3 artificial insemination trainings. These highly technical trainings benefited over 165 pastoralist and private livestock farmers across five States in Northern Nigeria.

II. Public Outreach and Impacts in the United States

A. Volunteer Outreach

Each period, Winrock surveys the volunteers fielded in the previous period regarding their post-assignment outreach activities, such as newspaper articles written, radio or television interviews, and group presentations. Winrock emails or faxes an outreach survey to all volunteers. During FY2003, 9 volunteers reported that they have conducted public outreach regarding their FTF assignments. Over the life of project, 16 volunteers have reported that they completed 15 group presentations and participated in 6 media events such as newspaper articles or radio interviews.

III. Administrative Information

During this quarter the partner database was refined. This tool enables partner organizations to have a place on the Winrock system to have their own volunteer management and tracking system. All aspects of volunteer support from volunteer application to submission of the final report are tracked using this system. The Tuskegee team was briefed on these changes. Tuskegee University team members also traveled twice to Nigeria last quarter to assist with impact gathering. They also recruited and conducted outreach.

Financial Information

Table 1 presents financial information for this period and project to date.

Table 1. Summary of Nigeria FTF Financial Analysis for Life of Project

Financial Analysis Life of Project	Expenses Project Life to Date	Total Budget	Remainder	Percent Spent
Program Total	1,212,368	1,452,948	240,580	83%
Sub-recipient	1,045,220	1,183,843	138,623	88%
Procurement	131,967	174,675	42,708	76%
Indirect Costs	317,162	435,144	117,982	73%
Total USAID Amount	2,706,716	3,246,610	539,894	83%

Table 1 does not reflect total project expenditures since there are still outstanding billings at the time this report was prepared.

Appendix A

Volunteer Impact Summaries

Volunteer Impact Summary

FTF Expert: LeRoy Vanicek
Host Enterprise: Graduate Farmers Multipurpose Cooperative Society, Karsana, Abuja
Dates at Site: January 29 to February 6, 2002

Assignment Objectives:

- Train all members in co-op organization and function
- Assist the co-op to review its by-laws, prepare and conduct elections of officials, develop a mission, vision and goals and assist the co-op in drafting a work plan

Volunteer Profile: LeRoy Vanicek is a seasoned farmer and manager of cooperatives and associations for over 50 years. He has worked on the Farmer-to-Farmer Program and similar agricultural developmental assignments in various countries with cooperatives, associations and government agencies.

Host Background: Graduate Farmers Cooperative Society was established in 2002 to serve its members who run a poultry business. These farmers were brought together under the Graduate Farmers Training Program, which the National Directorate of Employment (NDE) oversees.

Principal Impacts: The hosts were trained on co-op development and function; responsibilities of members and officials to the co-op; as well as running a co-op as a business. The need to trust each other and be committed to the common goals of the cooperative was brought to the forefront. Membership rose from 9 to 17 and revenue from entrance fee increased by \$78. The co-op reviewed and adopted its by-laws, which resulted in the first democratic elections of officers to run the affairs of the cooperative. The host was able to define their mission statement, vision and goals. A work plan framework was initiated for the co-op to develop pertaining the expansion of their broiler production business. The host was able to put together a cost analysis and stage a convincing presentation to bank officials on their farm site. The bank officials are willing to help the co-op to develop the business plan for a loan of \$4,348. Productivity of active members climbed from an average of 270 chickens per unit every 8 weeks to an average of 450 chicken every two weeks. Revenue increased from \$1,174 every 8 weeks to \$1,957 every 2 weeks. This adds up to \$5,870 over six weeks. A National agricultural bank is considering the cooperative for a loan of \$3,044 where the co-op now runs an account. As a result of increased production the labor requirement doubled. Six new jobs were created for the local community to help with dressing and packaging the chicken. Recently, the co-op selected two members to participate in a grant proposal writing training workshop organizes by Land O' Lakes/Winrock in collaboration with USAID. They intend to apply the skills from this workshop to approach other financiers.

Local farmers have indicated their willingness to join the Graduate Farmers Cooperative as result of the volunteer intervention, while 3 groups requested information on cooperative organization and function from the beneficiaries of the intervention. Recently, NDE took a renewed interest on the project and have called the representatives of the farmers to a roundtable meeting.

Direct Beneficiaries:

Female: 5
Male: 12

Volunteer Impact Summary

FTF Expert: Allen Gerber
Host Enterprise: Akugbalodo Byazhin Cooperative Society, Kubwa-Abuja
Dates at Site: September 2 to 13, 2001

Assignment Objectives:

- Train all members in co-op organization and function
- Assist the co-op to review its by-laws
- Assist the co-op to prepare and conduct elections of officials
- Assist the co-op to develop a mission, vision and goals
- Assist the co-op to draft a work plan

Volunteer Profile: Allen Gerber, a seasoned cooperative member with experience in other countries. His early childhood on the farm makes him very appreciative of the co-ops circumstance. His ability in systematic and orderly approach to problem solving and patience with the host inability to quickly get up to speed of what their needs were was a plus.

Host Background: Akugbalodo Co-op was formally registered in 1997 with an initial 39 members. Since registration, they have never conducted business through the co-op and the leaders were hand picked to manage the affairs. Apathy had taken over and the co-op was losing its meaning to the so-called members. The supposed benefits that come from government to cooperatives never got to them and so they had no use for the co-op for several years. Meanwhile, middlemen were exploiting them and they were losing produce in store to rot and rodents. They were not sure of what to do to redeem them.

Principal Impacts: Akugbalodo Byazhin yam producers' cooperative witnessed rejuvenation as result of the volunteer intervention. They had no idea what to do with their co-op but thanks to the volunteer FTF assistance provided by Allen Gerber, they now have a reviewed byelaw that reflects their aspiration, which was adopted by the general assembly; they have in place elected officers to run their co-op business. Their renewed commitment and collective action has earned them 70 bags of compound fertilizer at a subsidized price. The co-ops treasury is richer by \$267.90 (\$207 from entrance; \$60.9 from entrance fees). The co-op has been noticed by government agency and have benefited from an on-farm cowpea variety trail, and with 36 committed members they are set to take control of their destiny. It is agonizing and very despairing to find people traveling so far, for so long on the wrong road, but the result of allowing one to be guided unto the right track is so remarkable and the outcome is close to miraculous.

Direct Beneficiaries:

Male 70

Volunteer Impact Summary

FTF Expert: John Marenic
Host Enterprise: Yan Kuli Kuli Women Co-op, Yar Kasuwa, Lere LGA, Kaduna State
Dates at Site: August 28 to 30, 2002

Assignment Objectives:

- Improve product quality
- Suggest alternative ways of improving product marketability
- Identify ways to increase productivity

Volunteer Profile: John Marenic is a consultant in agricultural produce processing. He has experience dealing with both small-scale and industrial ag produce processing. He runs a processing equipment fabrication outfit. He has devoted part of his time to consultancy and volunteer services for development activities.

Host Background: Yan Kuli Kuli Women Cooperative is a group of local women who have been involved with peanut oil processing most of their lives as a family enterprise. Unfortunately, over the years it has become less and less profitable with no strategy to stop this trend.

Principal Impacts: John Marenic had very brief contact with two local oil processing women groups in Lere local government area of Kaduna State. After a short examination he offered two suggestions. The first of these suggestions was to increase the price of a gallon of oil by N160 or \$1.39; this price increase immediately resulted in an 80% increase in sale revenue. The increase also attracted 12 new members to the group, which resulted in revenue increase in fees from N1800 (\$15.7) to N2400 (\$21). Marenic also suggested an easy method of oil storage that can be used to store the peanut oil until a period when price and demand were high.

Direct Beneficiaries:

Female 36

Volunteer Impact Summary

FTF Expert: Wayne Nishek
Host Enterprise: Gadangu Himma Fadama Farmers' Cooperative Society
Dates at Site: August 18 to 28, 2001
Person interviewed: Bala Isa, President, Gadangu Himma Fadama Farmers Co-op Soc. Kunchi Local Govt. Area Kano State
Date of Interview: August 28, 2002

Assignment Objectives:

- Provide new or improved products and/or services
- Increased business efficiency or resource conservation
- Successfully intervene on behalf of members with government or business
- Production increases over pre-assignment levels

Volunteer Profile: Wayne Nishek completed undergraduate training in Ag Engineering at North Dakota State University in 1967. From 1977-1981, he participated in an appropriate technology project in Tanzania. From 1986 to 1990 he was an irrigation specialist for USAID/LAPIS project and Acting Head of Department of the Agricultural Engineering Department at Lesotho Agricultural College, Lesotho. In August 2001 he was recruited to provide technical assistance regarding repair and maintenance of water pumps in Kano, Nigeria.

Host Background: The Gadangu Himma Fadama Farmers' Cooperative Society was formed by vegetable farmers in the lowland (Fadama) areas to benefit from a government input distribution program. They were loaned money to buy small 2"-3" water pumps for irrigation of their small plots. Because the pumps gave the farmers problems and are often short lived (average of two years) the farmers were finding it difficult to make their loan payments. It was likely that most of the farmers would not be able to pay back the loan. This would halt the loan process and other farmers waiting for the same loan would not benefit unless something was done.

Principal Impacts: Through this assignment the host organization was able to considerably improve the quality and expand the range of services provided to the members of the cooperative. Following the volunteer's recommendation the host successfully intervened on behalf of the members with the local ADP office and secured additional training to be provided to the co-op members through the extension agents of the ADP office. The skills and training from the volunteer were successfully disseminated among other co-op members. Through the improved use of the agricultural equipment the co-op members managed to increase production of vegetables by 43% on average, which allows them to increase the overall profitability of their operations. The financial sustainability of the host was enhanced as the members pay their membership dues more eagerly now when they are offered better quality services by the co-op and are making more out of the resources they have. Overall, the frequency of visits to the local mechanic has been reduced by 40%. According to the co-op, loan payment has increased by 20% because farmers adhered to special checklists introduced regarding the preparation of the water pumps for work and for storage.

Direct Beneficiaries:

Male 10 (+54 from other cooperatives)

Volunteer Impact Summary

FTF Expert: Dennis Bergquist
Host Enterprise: College of Agric Staff Multi-purpose Co-op Society, Jalingo-Taraba
Dates at Site: June 23 to July 5, 2001
Person interviewed: Auta Biyos, President; Holiday Mikailu, Treasurer
Date of Interview: December 2, 2002

Assignment Objectives:

- Assist the cooperative to determine their vision, mission and goals
- Provide intensive training on cooperative function, organization and management
- Assist the cooperative to review their by-laws
- Assist the cooperative to draw a work plan and develop a business plan

Volunteer Profile: Dennis Bergquist established the Center for Global Education in Agriculture, which responds to the needs of the global community requesting academic and technical programs to improve economic development through partnerships with United States and global colleges, universities, business and industry. He facilitates networking to provide technical training for agriculture with a humanitarian emphasis. Bergquist has provided services to extension advisory service orientation training in US and arranged equipment financing through cooperatives.

Host Background: The College of Agric Multi-purpose Cooperative Society, Jalingo, was formed in 1998 with the aim of pooling funds for the purpose of providing relief to members in times of need, particularly during farming season. In 2000, the co-op sought a short-term loan of over N3million (\$26,087) on behalf members from a commercial bank for the purpose of undertaking farming activities. The loan and interest thereto was paid promptly. However, the money generated from members' share and contribution is used mainly as loan for the purchase of cars and household electronics. The cooperative does not conduct any business on behalf of members and therefore, depends only on the internally generated funds. Pressure is mounting on the directors on the distribution of the loan and other members waiting on the queue are restless and disgruntled. This therefore calls for finding other ways of making money for the cooperative to be able to take on more members per loan.

Principal Impacts: College of Agric Multi-purpose Cooperative Society, Jalingo adopted a 52-week work plan for the poultry project. The board expressed to the general assembly the need for additional business for the cooperative. The general assembly gave approval for the establishment of a poultry (egg) business based on the presentation of the report of a 2-man business plan committee. The sum of N320,000 (\$2,783) was released to the newly constituted poultry project team for disinfectants for the poultry pen and procurement of accessories and 500-day-old chicks. The day old chicks were expected in December 2002, two poultry attendants and a poultry assistant have been employed. Bergquist assisted in putting together a new vision and mission for the cooperative and also helped them to realize the patronage principle of cooperatives. The volunteer assisted the co-op with inputs for their by-laws and was able to provide straightforward and concise information on the roles and responsibilities of members and officers of cooperatives. As a result, the members are considering reexamining their officers for future responsibilities.

Direct Beneficiaries:

Female 5
Male 73

Volunteer Impact Summary

Winrock Expert: Bob Dever
Host enterprise: Chedin Nasarawa Fadama Farmers Co-op Society Lmt.
Dates at site: December 13, 2002.
Person interviewed: Mallam Ali Umar (Treasurer)

Assignment objectives:

- To train the co-op how to develop business plan.
- To train how to keep records.
- To train how to develop short and long term goals.
- To train how to conduct election.
- To train how to conduct effective services to members.

Volunteer profile: Bob Dever has over 20 years experience working closely with cooperatives. From 1970-1997 Bob worked in several capacities in various cooperatives. His strength however, is in financial and accounting matters, marketing and sales. He also participated actively in long range planning. His responsibilities while working with Land O' Lakes included member relations, public relations and government relations, all which are cardinal in the progress of a cooperative.

Host background: The co-op was established in 1989 by December of 2002 membership had grown to 26 paying members. They produce tomatoes, sugar cane and onion in the dry season and corn, sorghum, millet, cowpea, and peanut in the wet season. Presently the co-op has assets worth \$370. Since its establishment 14 years ago, the co-op members have had little success at working together.

Principal impacts: Since the co-op received training on cooperative development it has improved the services provided to the members tremendously. They have requested the drilling of tube wells for dry season farming and have procured seeds on behalf members. As a result of the training and skills received from the volunteer the co-op members, for the first time are jointly cultivating a half hectare of mixed crops from June to December 2002 and harvested 350kg of mixed crop. This led to an estimated profit gain of \$93. The volunteer's financial contribution of \$148 also encouraged the host. The co-op purchased one bull for the fattening program at the cost of \$155 using the money offered by the volunteer. As a result of this FTF assignment a new co-op with 25 members was formed in December 2002, six months after the FTF assignment.

Direct beneficiaries: 175 Men

Volunteer Impact Summary

Winrock Expert: Janelle Eggert
Host Enterprise: Unguwan Magajiya Fish Farmers Cooperative Society
Dates at Site: February 17 to March 1, 2002
Person interviewed: Salihu Ahmed Suleiman-Secretary

Assignment Objectives:

- Increased production
- Increased business efficiency
- Increased revenue
- Increased profit
- Adopting practices to improve water management

Volunteer Profile:

Janelle Eggert is a community and cooperative development specialist. She has worked in cooperative development, training, marketing planning and community visioning and planning with foundations and cooperative development organizations for over 10 years. Ms. Eggert has experience in environmental protection, agroforestry, extension techniques, report writing, decision making, business principles, financial management and business planning, and has implemented income generating projects to expand nursery activities.

Host Background: The cooperative was formed in 1999 with 20 members who started growing fish in burrow pits abandoned after road construction works. At the time of the assignment the co-op had 12 members, with 10 participating in the training. They were encouraged to produce fish by Kaduna Agricultural Development Authority extension staff. Water supply to the pits is dependent on rain during the periods of May to October. The members work together but do not keep records of activities or events. They do not have a decision-making structure or set goals for the cooperative. Therefore, they are unable to determine the status of there cooperative business.

Principal Impacts: The cooperative realized the need for a record-keeping system, including financial records. This system was created with the assistance of the KADP cooperative officer for the cooperative to maintain. The cooperative gained more respect and acceptance by the greater community through the visit of Ms. Eggert and KADP staff. Through the collaboration with staff from the fisheries department of the KADP, they learned some low-cost improvements that could be made. As a result, membership increased from 12 to 16 within 3 weeks bringing a corresponding increase in revenue receipts from fees. The number of their fishponds increased from 4 to 8. Catch weight increased from 120kg to 160kg in ponds fertilized with poultry waste from poultry feed waste.

Direct Beneficiaries: 10 Men

Volunteer Impact Summary

Winrock Expert: Wallace Rusch
Host Enterprise: Cassava Processing/Soap Making Women Industrial Co-op
Dates at Site: April 24 to May 4, 2002
Person interviewed: Rhoda Makama, President

Assignment Objectives:

- To provide ways of reducing labor in cassava processing.
- To evaluate the cooperative's marketing strategy.
- To advise on how to alleviate raw material constraints.
- To train members on business planning.

Volunteer Profile: Wallace A. Rusch is an agribusiness volunteer specialized in development courses in human resources, employee development and education. He provided recommendations/supervision of capital expenditures, lead board in policy developments, have the cooperative become more involved within the community and provide leadership and vision for this multi-faceted farm supply cooperative. He has over 40 years experience in managing a farm supply cooperative and is the owner/manager of his own private business. He possesses excellent problem solving, interpersonal, teambuilding, financial and time-management skills. He also has the drive, dedication and skill needed to provide effective leadership in a volunteer assignment of this nature.

Host Background: The cooperative was formed in 1987 with 27 members. The group undertakes the production of cassava, which serves as raw material for garri production. They also produce other crops such as maize, rice, sweet potatoes and sorghum. Garri is a staple food in the community and highly demanded in the market. Processing is maximized during peak harvest from November through to March. During this period the price of falls, however from April through to October the price increases dramatically when supply of raw cassava thins. In a typical year scarcity of raw material causes a large number of processors to halt production and close temporarily until there is an improvement in the supply of cassava.

Principal Impacts: Through the volunteer intervention there is an opportunity to create wealth and also provide members with more time to do other things. An improved cassava press donated to the co-op has not only reduced intensive labor in the processing activity but also improved the efficiency in the processing and quality of the product while improving the quality level of hygiene in the processing. The sharing and distribution of responsibilities among members of cooperative has further strengthened their capacity to produce more and reduce production time. This resulted increase in production is followed by a corresponding increase in income from \$14 to \$28 per week.

Direct Beneficiaries: 90 Men

Volunteer Impact Summary

Winrock Expert: David A. Koehler, Ph.D. & Mr. Steve Popovich
Host Enterprises: Family Unity for Sustainable Development Foundation (FUSD), Ibadan, Oyo State, Nigeria.
Community Development and Mobilisation Services (CDMS) of the Farmers Development Union (FADU), Ibadan, Oyo State, Nigeria.
Dates at Site: April 22, 2002
Person interviewed: Mrs. Mercy O. Ekop Executive Director, FUSDF

Assignment Objectives:

- Increase capacity of agricultural associations to achieve sustainable service delivery
- Strengthened rural finance system to provide credit and other services to agricultural enterprises

Volunteer Profile :

Dr. David Koehler is a self-employed environmental consultant and this is David's third Winrock assignment in 3 different countries. Steve Popovich is a private natural resources consultant and sole proprietor of Wildhorse Consulting, Shoshone, Idaho. Steve has fifteen years federal government service implementing management and conservation of vegetative resources on public land in Western US. This was the first Nigerian experience for both of them.

Host Background:

FUSD Foundation is a non-governmental, non-political organization established to promote cooperation in finding solutions to meet with and accomplish the need for sustainable development, especially at grassroots level and with women. The foundation has its headquarters in Ibadan. One of the foundation's area of activities is to help transfer new technology to the grassroots farmers either as groups (cooperatives) or as individuals in the area of agricultural production, food processing, post-harvest processes, training development and financing of agricultural enterprises. Community Development and Mobilization Services (CDMS) is an entity with an NGO (Farmers Development Union, FADU) that deal with grassroots involvement in agricultural practices. They give out loans to small groups of farmer's cooperatives. They also help in organize these cooperatives in the areas in which they specialize e.g. crop/livestock production, processing of agricultural products etc. They also support the farmers with production inputs. The loans they give range between \$50 and \$1000, on which the interest rates is between 3% and 5%.

Principal Impacts:

David Koehler and Steve Popovich's training on organization of cooperatives and rural associations helped the farmers in southwest Nigeria increase from 226 to 281 cooperative societies. Each organization increased in membership by an average of ten and those that increased to over 100 were split into two separate organizations for better management. David and Steve trained the farmers on using farming practices such as, crops, post-harvest, processing, and utilization as criteria for structuring their cooperative. Based on this recommendation the farmers have reconstructed their old cooperatives; as a result the cooperatives have been strengthened, due to more common goals. They have also worked together to acquire market information on market demand and prices. The farmers have now successfully developed new market strategies to reduce the dependence on middlemen and they now market their produce directly, which has increased profits by 10% .

Direct Beneficiaries: 156 Women
105 Men

Volunteer Impact Summary

Winrock Expert: George Awalla
Host Enterprise: Rural Sector Enhancement Program (RUSEP), International Institute of Tropical Agriculture (IITA), Ibadan, Oyo State.
Dates at Site: September 12 to September 29, 2002
Persons interviewed: Dr. Kehinde Makinde, Agricultural Economist, Rural Sector Enhancement Program, International Institute of Tropical Agricultural (IITA), Ibadan, Oyo State.

Assignment Objectives:

- To develop strategies and train farmers on marketing of agricultural products
- To train farmers on how to produce quality produce that meets market demands
- To develop training materials on marketing of agricultural products

Volunteer Profile:

George Awalla has a B.S. degree in Agriculture Education and Extension from Egerton University, Kenya. He also has a certificate in microcomputer applications and a certificate in information system management from the Institute of Management of Information Systems (UK).

Host Background:

The Rural Sector Enhancement Program (RUSEP) is a market-led technology transfer initiative funded by United States Agency for International Development (USAID) and implemented by IITA in partnership with Winrock International and the Projects Coordinating Unit of the Federal Ministry of Agriculture and Rural Development. The program was established in July 2001 and it is currently operating a pilot phase in 4 of the 36 states in Nigeria (Abia, Adamawa, Katsina and Oyo states). The primary objective of RUSEP is to develop domestic and regional agricultural markets through the identification of market opportunities, dissemination of market information, training, technology transfer, and development of linkages that will enhance profitable agribusiness entrepreneurship and agro industrial expansion in Nigeria. In each pilot state, RUSEP provides appropriate technology options with identified market opportunities. This is complemented with support services such as facilitating access to seed, fertilizer, and other agrochemicals, processing machines, and credit through innovative partnerships with relevant institutions.

Principal Impacts:

Farmers were introduced to the processes involved in meeting marketing standards such as grading, weighing and packaging. The farmers now dry their maize and sorghum on clean platforms, pick out dirt and foreign materials, weigh and package properly against the previous method of packing grains unsorted in any available bag. The farmers discovered potential markets for their maize and sorghum as a result of market analysis and development. During the assignment, farmers were linked to agro-industries for marketing of their grains and agro-chemical firms for purchase of fertilizers and other inputs. The farmers revenue has increased by about 28% due to price increase from \$14 to \$17.5 on a 100KG bag of maize or sorghum. They developed action plans and strategies that were used to train other farmers as facilitated by the Farmer-to-Farmer volunteer; Mr. Awalla in conjunction with Winrock RUSEP staff, Dr. Makinde. The skills for market analysis and development were passed on to extension agents for further training of other farmers.

Direct Beneficiaries: 15 Women
60 Men

Volunteer Impact Summary

Winrock Experts: Mr. Martin Klein and Mrs. Barbara Klein
Host Enterprise: Poultry Farmers Association affiliated to Farmers Development Union (FADU), Bashorun, Ibadan, Oyo State.
Dates at Site: November 29 to December 13, 2001.
Persons interviewed: Mr. Samuel Gbegbin, Field Operations Manager, FADU.

Assignment Objectives:

- Increase production
- Increase agro-business efficiency or resource conservation
- Improve training materials and skills
- Improve capabilities, practices or technologies

Volunteer Profile :

Martin and Barbara Klein are the owners of a poultry farm with 40,000 laying hens. They have raised chicks and practiced a complete immunization and disease control program. They are also involved in wholesale and retailing of chicks throughout New England. The retail store on their farm premises included dairy, health and gourmet foods. They hire, train and manage residential agricultural workers and part time egg packing employees. They are also responsible for all bookkeeping, marketing, operations, diagnosis of infection, nutrition, and conservation and pollution control.

Host Background:

The poultry farmers association is an affiliate of Farmers Development Union (FADU) are solely engaged in layer production with few combining broiler enterprise targeted at period of festivities. The farmers have an average population of birds ranging from 500 to 15,000. Their system of management is intensive, but all farm operations are manual. Most of the farmers operate a deep-litter system with few using battery cages. Egg production rate ranges between 60-80% at peak periods. The farmers operate in semi-urban and urban areas.

Principal Impacts:

As a result of volunteers' intervention, there is a gradual shift from the usual deep litter system of poultry farming to the battery cage system of poultry farming. The adoption process is gradual because of the relatively large capital requirement of the system. But the farmers now have a firm understanding of the advantages of the battery cage system, which include; efficient space management, better sanitation, less labor input requirement, reduction in egg breakage and cannibalism among the birds.

The farmers have also learned to established a joint marketing systems, a platform upon which they can jointly determine and control the supply and pricing of their produce based on market information and in addition, learned to seek external markets and supply outlets for their produce.

It was observed that some farmers were using the same feed ratio for broilers and layers due to lack of knowledge of feed formulation to meet layers' and broilers' nutrients requirement. The use of the same feed formulation for different birds resulted in delayed growth and expenditure on inputs and feeds otherwise not necessary. Since the farmers began to separate their broilers from the layers and feed them with the appropriate rations based on the volunteers' recommendation, the stunted growth problem has been reduced to a minimum. Similarly the gestation period of layers before the start of egg production has

been reduced from 24+ weeks to 20-21 weeks while broilers attain table size by 9-10 weeks compared with the previous record of 12 weeks.

After the assignment, the poultry farmers numbering 55 came together to form a common marketing outlet in which they jointly determine the price of their produce based on market information. This enables them to sell at least at the average market price of \$2 per crate of 30 eggs and at the same time seek external markets and supply outlets.

Furthermore, some of the farmers who practice integrated farming now use the poultry wastes as organic manure as recommended by the volunteers to enhance the fertility of their farmlands, thus, reducing environmental pollution from poultry wastes.

Direct Beneficiaries: 2 Women
55 Men

Volunteer Impact Summary

Winrock Expert: Mary Carmen Yamamoto
Host Enterprise: Organo-Mineral Fertilizer Pilot Plant, University of Ibadan
Dates at Site: September 7 to September 21, 2002
Persons interviewed: Professor J. A. I. Omueti, Project Co-ordinator

Assignment Objectives:

- Reduce composting time

Volunteer Profile:

Mary Carmen Yamamoto holds an Associate degree in Agricultural Administration from Apukay Institute, Lima Peru and at the time of the assignment a final year student at Earth University, Guacimo, Costa Rica. The assignment provided her an excellent internship and an opportunity to share her technical expertise and experience in composting and waste management research and development.

Host Background:

The Organo-Mineral Fertilizer Production Pilot Plant was established in 1995 at the University of Ibadan to help alleviate the fertilizer need of especially resource poor farmers and to promote environmentally friendly agricultural production. It is located on a two-hectare plot of land within the University of Ibadan, Nigeria. In 1999, this Pilot Plant received a grant of \$50,000 from Raw Materials Research and Development Council (RMRDC), a parastatal under the Federal Ministry of Science and Technology, to promote and increase the production of organo-mineral fertilizers. The grant was for the installation of machines and other material and/or logistic support. The research into organo-mineral fertilizers was initiated to alleviate the fertilizer needs of farmers. The organic materials are composted in open sheds, dried before being pulverized by passing them through the fertilizing blending plant. This process takes about eight weeks and is considered a major problem, as it will affect the turnaround time and production levels.

Principal Impacts:

The volunteer's assignment helped the University and Federal Government of Nigeria save about \$40,000 as it displaced the need for three Nigerian scientists to travel to Malaysia for a three weeks training on how to collect natural microorganisms to facilitate composting.

The volunteer provided this technical knowledge on how to collect, mix and cultivate the appropriate micro-organisms to effectively reduce composting time from eight to four weeks. She helped to establish long term tests that would confirm this reduction in the composting period for several different mixes of organo-fertilizer compounds. As a result of Mary's technical assistance, the production level of the organo-mineral fertilizer pilot plant at the University of Ibadan, which is seven tonnes per production cycle, will increase to about 14 tonnes per production cycle.

Research students of the institution have taken up the challenge from where the Winrock volunteer stopped to further research into many other areas necessitating the manipulation and regulation microbial environment such soil and water pollution. Ms. Carmen Yamamoto also created simple training brochures for the students and farmers.

Direct Beneficiaries: 7 Women

4 Men

Volunteer Impact Summary

Winrock Expert: Mark Rieger

Host Enterprise: Cross River Cashew Development Project (CRCDP), Nigeria.

Dates at Site: June 2 to June 23, 2001.

Persons interviewed: Messrs Julius Egede and Ben Ubi, Project Officers, CRCDP.

Assignment Objectives:

- Introduce project Field Officers to alternative methods of establishment of cashew plantations, other than seedling transplant.
- Educate staff on the maintenance and utilization of cashew pulp and nuts.
- Sensitize rural farmers on the importance and profitability of cashew as a cash crop for export.

Volunteer Profile: Mark Rieger is a Professor of Horticulture with specialization on tropical tree crops at the University of Georgia, Athens, USA. He has conducted research on the environmental stress physiology of many fruit crops with grants from various donors. Professor Rieger has won many academic awards including the President's scholar award, University of Florida 1986. His present employment involves 54% research and 46% instruction.

Host Background: Cross River Cashew Development Project (CRCDP) is an arm of the Agricultural Development Program (ADP) of Cross River State. The CRCDP is commissioned to oversee the establishment of 10,000 hectares of cashew plantation by the State Ministry of Agriculture. It has a coordinator and six Field Officers with a range of education in agriculture (Masters Degree – Diploma in Agriculture). The state government directly funds the group.

Principal Impacts:

Messrs Julius Egede and Ben Ubi reported that CRCDP adopted about 60% of the volunteer's recommendations. A major achievement was the discontinued use of seedling transplant for plantation establishment as advised by Mark Rieger. The cost of plantation establishment has been reduced from \$34.50/ha using seedling transplant to \$4.32/ha using direct seeding. This is a significant \$30.18/ha drop in cost representing 87.5% savings, which translates to saving more than \$38,000 on the 1265 ha that have been established through direct seeding. Also, ten private farmers have individually established 24ha of new cashew plantations after discussions with the volunteer. Another three farmers have established 5ha of cashew trees under the United Nations Development Programme (The UNDP's rural livelihood program is supporting the promotion of cashew as an export cash crop for small farmers). With the training from Mark Rieger, the CRCDP staff members are now providing technical assistance to the UNDP farmers. Mark Rieger is currently facilitating the acquisition of improved cashew germplasm from Brazil that will be grafted on the existing stands at maturity. This will add improved varieties as well as prolonging the productivity of the plantations.

Direct Beneficiaries: 35 Women
234 Men

Volunteer Impact Summary

Winrock Expert: Kathleen Friedman

Host Enterprise: Diocesan Development Services (DDS), Nigeria

Dates at Site: June 28 to July 14, 2001.

Persons interviewed: Sister Catherine Oguonu, Program Coordinator DDS Women Resource Center

Dates of Interview: April 21 to April 23, 2002

Assignment Objectives: The main objectives of the assignment were to:

- Provide improved training to resource persons in adult literacy program on effective methods of communication.
- Improve the training skills and materials of elementary school teachers in Igalaland.

Volunteer Profile: Kathleen Friedman is an elementary school teacher with about 29 years experience. She holds an MA in Educational Psychology. Her expertise is in developing curriculum and writing skills for infants' education and creating Classroom aids on how to teach reading. Mrs. Friedman has received several educational awards amongst which are Governor's Teacher Recognition Award for the State of New Jersey 1989; Montclair Fund for excellence Grants 1991, 1993 and 1995. This FtF assignment is Mrs. Friedman's first time a volunteer and was her first trip to Nigeria.

Host Background: The Diocesan Development Services (DDS) is a non-governmental organization (NGO) operating in the Igalala area Kogi State, Nigeria. The organization represents the development branch of the Catholic Diocese of Idah (DOI). Its remits and functions are guided by Christian principles: loving your neighbor as yourself, justice and equality. The major thrust of DDS is agriculture and agro-related projects. These form the broad base for self-reliant projects in an area as rural as Igalaland, which lacks industries. The savings and loans scheme initiated in 1971 continues to be a major means of capital accumulation as well as collateral for the agricultural credit scheme, still enjoying a repayment rate of about 99%. The four major thrusts are Farmers Self-Reliance Program (FSRP); Agricultural Innovations Programs (AIP); Village Development Program (VDP) also known as the Women Resource Center (DDWRC); and Water Development Program (WDP). DDS gets funds for its activities from international donors and revenue general from their local activities that includes farming (crop and livestock) and farmer credit and savings scheme.

Principal Impacts: Sister Catherine Oguonu reported that DDS Women Resource Center adopted all the recommendations by Kathleen Friedman to the animation of adults (women) towards educational empowerment. Fifty-nine of the 66 trainees that participated in the communications lessons can now read and write as against 28 before the volunteer's intervention. This represents 47% increase. Also the 5 elementary school teachers that attended the training have adopted Kathleen Friedman's methodology (which includes use of pictorials as learning aids) in their respective schools. This will improve the capabilities of about 200 pupils/session (40 pupils/teacher/session).

Kathleen Friedman also introduced the use of pattern books and magazines to knitting in the skills acquisition program of DDWRC. Forty-five percent (30) of the 66 women in attendance have adopted the use of these materials thereby producing new designs of knitted woolen items that sell at an average of \$2.50 (250 Naira), an increase of 66.7% over the usual average cost of \$1.50 (150 Naira). With an average monthly production of 60 knitted items (720/year), an additional income of \$7200/year is expected. Also, additional 18 adults have registered for training with the program this year.

Mrs. Friedman has donated knitting materials worth about \$300 to DDWRC since her return to the US.

Direct Beneficiaries:

Female: 70

Male: 1

Volunteer Impact Summary

Winrock Experts: Julie Albrecht, Ph.D.
Georgia Jones, Ph.D.

Host Enterprise: Nasarawa Agricultural Development Programme.

Volunteers' Dates at Site: January 31st – February 16th, 2002

Person interviewed: Mrs. Janet Sunday

Dates of Interview: September 26, 2002

Assignment Objectives: The main objectives of the assignment were to:

- Increased production and marketing of high-value agricultural products.
- Generation of new or improved set of products.
- Increased revenue through increased sales of soya bean products as a result of volunteer intervention.
- Hosts providing new or improved products and /or services.

Volunteer Profile :

Julie Albrecht and Georgia Jones, PhDs. are Associate Professor and Assistant Professor respectively of the Department of Nutritional Science and Dietetics at the University of Nebraska - Lincoln. Both Dr. Albrecht and Dr. Jones had vast experience in extension work and are Extension Food Specialists at the University of Nebraska. They both have several research publications to their credit. While Julie had had international work experience in third world countries, Georgia had none, however, this was their first assignment in Nigeria. It was successful and they enjoyed every bit of it.

Host Background:

These groups are basically women farmer multipurpose cooperative societies formed between 1997 and 2000 within the same geographical area. They are mostly into soya bean production and processing into local uses such as, soya bean flour, soya bean soup, and soya bean 'kunu' (a local beverage). Most of what is processed is for family consumption and the bulk of the soya bean is sold unprocessed at low prices. Each group is made up of an average of 25 members all of which are women. Apart from their individual farms, their joint farms size ranges from 8-10 ha yielding between 4-8 metric tons per annum.

Principal Impacts:

Generally, farmers in the communities produce soya bean where these women groups exit. The bulk of it is sold at very low prices due to lack of sufficient knowledge on processing and utilization. This has led to continued poor farmers income and low standard of living. However, the intervention of the volunteers greatly improved the farmers' knowledge and skill in soya bean processing and utilization, thus adding value to their soybean. This has led to better income for some of the farmers at Garaku and increased soya bean production by 60% in the area. However this figure could not be confirmed, as there were no previous records apart from the average land sizes of the groups. Also Garaku reported an increase in membership of the group from 26 before to 72 after the workshop. While in Obi, women that were not into soya bean production have gone into the business as a result of the workshop. The cumulative effect of these would be improved processing and utilization of soya bean thereby improving the nutritional status of the families involved, their income from soya bean and ultimately improved standard of living of the farmers.

Direct Beneficiaries:

Female:198

Male: 32

Volunteer Impact Summary

Volunteer Expert: Thomas Dobler
Host Enterprise: Mambila Dairy Cooperatives
Dates at Site: November 11-22, 2002
Person interviewed: Dr. Usman Ardo, Coordinator, Mambila Dairy Cooperatives; Ardo Dabo, Chairman, Kautal Dairy Cooperative, MayoNdaga.
Date of Interview: June 27, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Training to impart practical technique of recto-vaginal artificial insemination of cows.
- Training on handling of semen and AI accessories

Volunteer Profile: Thomas Dobler who is currently running his own dairy farm-Cedar Rose Dairy Farms Inc, Burlington, Colorado began a lifetime of dairy with 20 grade cows and 160 acres of farmland and grass. During the next 25 years the farm grew to 400 milking cows and all supporting young stock. He exports females as well as bulls into artificial insemination organizations. The milking herd has continued to grow and currently is at 475 cows with a rolling herd of 23,500 pounds of milk. Apart from working on his farm, Tom has traveled wide sharing his knowledge and expertise: Forage production and management, Egypt (2001) for ACDI/VOCA; manure management, Egypt (2000); Dairy management in Macedonia (1997); dairy management in Tanzania (1995); Milk quality and marketing in Nicaragua; Herd management in Ecuador (1990).

Host Background: Mambila Dairy cooperative was initiated by Land O' Lakes in 2001 through the assistance of volunteer Leroy Vanicek. Through the Farmer-to-Farmer program, Land O' Lakes formed five dairy cooperatives in Mambila, Taraba State to enhance the production activities of the livestock farmers. The have democratically elected their officers and have set up committees to run the affairs of the primary cooperatives. Through their coordinator, the cooperatives contributed money and procured 500 does of Holstein - Friesian bulls from Worldwide Sires, Ltd, California with the assistance of the Nigerian Federal Ministry of Agriculture, through Land O' Lakes.

Principal Impacts: 33 cooperative-based Fulani pastoralist of Mambila plateau, drawn from the five dairy cooperatives were trained and have acquired the skill of recto-vaginal technique of artificially inseminating cows, handling of the AI accessories and placement of semen. The five cooperatives decided to form a coordinator body. This resulted in the formation of the FOMBINA DAIRY UNION with the assistance of Land O' Lakes volunteer. The UNION established linkage with the National Veterinary Research Institute in Vom-Jos for sourcing liquid nitrogen to preserve their semen.

Direct Beneficiaries:

Male: 33

Volunteer Impact Summary

Volunteer Expert: Thomas P. Tylutki
Host Enterprise: Garko Farms
Dates at Site: March 9-23, 2003
Person interviewed: Danjuma Ali Garko, Chief Executive Garko Agricultural Enterprises, Kano
Date of Interview: June 24, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Formulate dairy feed using local ingredients such as crop residue.
- To impart skill for feed formulation to Garko Farm
- Increase milk production by 5% over current production level

Volunteer Profile: Thomas P. Tylutki is a professor of animal science in Cornell University, Ithaca, NY. He is currently an independent consultant for Venture Milling, assisting in technical support, research and development, quality control, and formulation. At the Cornell University, Thomas is responsible for teaching animal nutrition course, leading the development of an integrated nutrient management tool, and assisting in the management of a group of graduate students. From 1995-1999, Thomas worked as an extension dairy specialist on the CCTTS dairy and Field Crops team in Dryden, NY.

Host Background: Garko Agric Services is a private cattle ranch made up of breeding stock, milking cows and fattened bulls. It was established in 1991 as Sheep farm and latter was up graded to cattle ranch in 1992. The farm started with local white Fulani 'Bunaji breeds and the red bororo 'Rahaji' breeds. In 1995 he brought in one Friesian bull from West African Milk Company (WAMCO) in Jos. Today, there are over 90 cows all of which fall within 25-50% Friesian and Simmental, crosses. There are over 70 are dams with only two bulls, the rest are calves. This farm plays a great role in the area of milk and meat supply to the populace of Kano city; through the supply of fresh milk to processors who collect the milk directly form the farm. The business of the farm involves local rearers and cattle owners who depend on the farm for their household and commercial milk during the dry season. The average milk yield from the farm is 150 liters per day (average yield of milk per cow per day is between 7-8 litres). The aim of the farm is provide milk to the public and generate revenue to the farmer to cater for his needs.

Principal Impacts: Outline of improved cattle nutrition via inclusion of sugar or starch feedstuff was offered to the host; further improved nutrition through the use of modern feed analytical methods and formulation technology. Due to the improved nutrition, milk production on all farms implementing the improved nutrition would increase by 25-50% per cow per day. This translates into an increase from 3 liters per cow per day to 3.75-4.5liters per cow per day. With a unit price of N50 per liter, an expected increase in revenue of N37.5-N75 per liter will bring in about N1,125-N2,250 (\$8.8-17.6) per cow per month. The feed formulation and feeding strategy recommended will save Garko Farm and all the farms implementing this strategy N24,483 (\$191) per weaned calf. On Garko Farm that receives 20 calves a year, this adds up to N489,666 (\$3,825.5). As a result of this assignment, a regional dairy producers association (Kano State Dairy Producers Association) was established. This association will focus on improving communication among farmers to increase their productivity and share new ideas.

Direct Beneficiaries:

Male: 5 (+30 members of Nyamruki Dairy Cooperative)

Volunteer Impact Summary

Volunteer Expert: Dave Calley
Host Enterprise: Garko Farms
Dates at Site: June 24-July 3, 2003
Person interviewed: Danjuma Ali Garko, Chief Executive/Managing Director, Garko Agricultural Enterprises, Kano State.
Date of Interview: July 3, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Design a new or improved housing plan for proficient herd management.
- To impart skill for calf and heifer management to Garko Staff
- Reduce cost of feeding by 5% over current cost of production

Volunteer Profile: Dave Calley retired from Pioneer Hibred International, Colby, WI. He has returned to his farm, which he began in 1958 and managed while working with Pioneer Hibred. While on the farm he worked as a Dairy Farm Operator up till 1989 during which he nurtured the project from start to peak. Dave also had experience working as a volunteer for Land O' Lakes in Mexico twice, as a Nutrition and Forage Production Specialist.

Host Background: Garko Agric Services is a private cattle ranch made up of breeding stock, milking cows and fattened bulls. It was established in 1991 as Sheep farm and latter was up graded to cattle ranch in 1992. The farm started with local white Fulani 'Bunaji breeds and the red bororo 'Rahaji' breeds. In 1995 he brought in one Friesian bull from West African Milk Company (WAMCO) in Jos. Today, there are over 90 cows all of which fall within 25-50% Friesian and Simmental, crosses. There are over 70 are dams with only two bulls, the rest are calves. One of the bulls is a 75% cross between a Simmental bull with and Friesian dam. The second bull is a progeny of Friesian parents (75% cross). 80 cows on the farm, ranging from 50-70% crossbred cattle with Simmental and Friesian breeds. This farm plays a great role in the area of milk and meat supply to the populace of Kano city; through the supply of fresh milk to processors who collect the milk directly from the farm. The business of the farm involves local rearers and cattle owners who depend on the farm for their household and commercial milk during the dry season. The average milk yield from the farm is 150liters per day (average yield of milk per cow per day is between 7-8litres). The aim of the farm is provide milk to the public and generate revenue to the farmer to cater for his needs. Through Garko Farm, Kano State Dairy Producers Association was formed with 5 foundation members.

Principal Impacts: Host and members of Kano State Dairy Producers Association can weigh their cows and monitor the progress of improved nutrition on their cows, thanks to volunteer Dave Calley, who brought along two heart girth tapes and taught the farmers how to use them. In addition, they now know when to take the calf away from the cow after calving; the number of days of milking the colostrums for the calf and when to begin milking for the market; the appropriate quantity of milk to be fed to the calf; when to start the calves on starter mix and the right time to wean the calf for maximum productivity. This assignment was just concluded, we anticipate and more definite impact in 6-12 months time. Following the progressive trend of volunteer assignment, the members of Kano State Dairy Producers Association have elected officers of the association to take over from the steering committee.

Direct Beneficiaries:

Male: 9 (+30 members of Nyamruki Dairy Cooperative)

Volunteer Impact Summary

Volunteer Expert: Phillip W. Woodworth
Host Enterprise: Garko Farms
Dates at Site: June 24-July 3, 2003
Person interviewed: Danjuma Ali Garko, Chief Executive/Managing Director, Garko Agricultural Enterprises, Kano State.
Date of Interview: July 3, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Provide comprehensive management strategy of transition cows.
- To impart skill for transition cow management on Garko Farm

Volunteer Profile: Phillip Woodworth has diversified background in farming with extensive experience in crop production, dairy production, swine production, sheep production, beef production and poultry production. He owns and operates family farm of 700 acres for 20 years. His dairy project includes 60 milking cows with an average production of 20,000 pounds per year; raised 30 heifers per year for replacement and sale; raised 30 steers per year for slaughter

Host Background: Garko Agric Services is a private cattle ranch made up of breeding stock, milking cows and fattened bulls. It was established in 1991 as Sheep farm and latter was up graded to cattle ranch in 1992. The farm started with local white Fulani 'Bunaji breeds and the red bororo 'Rahaji' breeds. In 1995 he brought in one Friesian bull from West African Milk Company (WAMCO) in Jos. Today, there are over 90 cows all of which fall within 25-50% Friesian and Simmental, crosses. There are over 70 are dams with only two bulls, the rest are calves. One of the bulls is a 75% cross between a Simmental bull with and Friesian dam. The second bull is a progeny of Friesian parents (75% cross). 80 cows on the farm, ranging from 50-70% crossbred cattle with Simmental and Friesian breeds. This farm plays a great role in the area of milk and meat supply to the populace of Kano city; through the supply of fresh milk to processors who collect the milk directly from the farm. The business of the farm involves local rearers and cattle owners who depend on the farm for their household and commercial milk during the dry season. The average milk yield from the farm is 150 liters per day (average yield of milk per cow per day is between 7-8 litres). The aim of the farm is provide milk to the public and generate revenue to the farmer to cater for his needs. Through Garko Farm, Kano State Dairy Producers Association was formed with 5 foundation members.

Principal Impacts: Host and members of Kano State Dairy Producers Association were trained on how to sort cows and heifers to separate pens 3 weeks prior to calving and the type of feed for each category of cows. A simple record-keeping template was designed for milk production to serve as guide for culling procedure, which was done, arbitrary. Host and other farmers realized that the level of sugar and starch in the feedstuff is low accounting for part of the reason for the low milk yield per cow. Specifically, the farmers learned to group their cows as follows: Calves on milk; Weaned calves of 4-5 months; calves 5 months to breeding; Heifers to be bred penned with dry cows and a suitable bull; and, milking cows that in the first 60 days with a suitable bull. This assignment was just concluded, we anticipate and more definite impact in 6-12 months time. Following the progressive trend of volunteer assignment, the members of Kano State Producers Association have elected officers of the association to take over from the steering committee.

Direct Beneficiaries:

Male: 9 (+30 members of Nyamruki Dairy Cooperative)

Volunteer Impact Summary

Volunteer Expert: John Dale Dunivan
Host Enterprise: Sebore Farms
Dates at Site: June 7-23, 2003
Person interviewed: Admiral Murtala Nyako, Executive Chairman, Sebore Farms, Mayo-Belwa, Adamawa State.
Date of Interview: June 23, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Provide new service.
- Develop new training courses
- Improved training materials and skills
- Using new improved planning techniques

Volunteer Profile: John Dale Dunivan has extensive experience in international development programs throughout Central and Eastern Europe, Central Asia, Central America and the Philippines. Mr. Dunivan has been directly involved in farming most of his life, including swine, dairy, beef, grain and forage production. He has served as a supervisor with the Dairy Herd Improvement Association (DHIA), providing assistance with production testing, record keeping and financial management. On his farm of about 640 acres, he deals with the basic responsibilities associated with improving genetics, feeding and nutrition, animal health, marketing and financial management to achieve maximum productivity and profitability.

Host Background: Sebore Farm is located in Mayo-Belwa, a town 116km from Jalingo. It is situated on 500ha of land, which is currently comprised of 60 Freisians, 20 Simmentals, 385 Adamawa Gudali breeds, and 35 crosses of Simmentals x Adamawa Gudali, Simmentals x Sokoto Gudali. Currently there are 50 milking cows producing about 500liters of milk daily. 80% is processed into yoghurt, which is sold wholesale or retailed on Sebore Farm. As the National President of the Practicing Farmers Association of Nigeria (PFAN), the Chief Executive Sebore Export Processing Farm, Vice Admiral Nyako decided to use his facilities to create a favorable environment for providing technical assistance to members of the PFAN in Adamawa Zone comprising semi-permanent pastoralist groups in 5 contiguous local government areas. The request for training on livestock husbandry and nutrition was informed by the generally interest expressed by local farmers on the need for improved management system.

Principal Impacts: Emphasis was made on the prevention, early detection and control of mastitis. (The volunteer provided the farm with a California Mastitis Test kit and demonstrated its use with the cows). Staff and farmers acquired skill of conducting Body Condition Scoring as a tool in determining adequate nutrition for improving production and reproduction. From the volunteers recommendations, Sebore Farm commenced the separations of the calves into distinct pens; categorizing the cows according to the body condition scoring; separating the pregnant cows approaching calving from the rest of the herd; using the energy requirement of the cows to estimate amount of feed needed for the dry season. He also left behind books, journals, dairy herd management magazines, template of formats for recording keeping, and publications on Management issues in raising calves and replacement heifers; overall quality issues, including cleaning, sanitation and cooling of milk for references.

Direct Beneficiaries:

Female:3

Male: 6 (+150 members of a pre-Dairy Cooperative)

Volunteer Impact Summary

Volunteer Expert: Bill Healey
Host Enterprise: FOMBINA DAIRY UNION
Dates at Site: June 26-July 1, 2003
Person interviewed: Dr. Usman Ardo, Coordinator-FOMBINA UNION; Alhaji Ahmadu-Chairman FOMBINA UNION, Mambila, Taraba State.
Date of Interview: July 1, 2003

Assignment Objectives: The main objectives of the assignment includes:

- Provide new services to members.
- To increase business efficiency
- To use improved planning technique using action plan
- To acquire improved training skill

Volunteer Profile: Bill Healey is widely traveled with experience in conducting seminars on financial management and reporting. He has developed and promoted international reseller channel. Programs include cooperative advertising and trade shows. His volunteer work and activities include instructor for one week in Washington, DC. each year with “A Presidential Classroom for Young Americans.” which makes him familiar with group dynamics, an essential ingredient in cooperative development. He has worked for Land O’ Lakes as a cooperative development volunteer in Kano State, Nigeria with four cooperatives, including a dairy group Nyamruki Yeso Wainabe Dairy Cooperative.

Host Background: Land O’ Lakes initiated the formation of three cooperatives on the Mambila Plateau, namely: Jiji (Gembu), Kautal (Mayo-Ndaga) and Chabbel (Nguroje). Training was provided in cooperative development followed by seminar on animal health and husbandry. In November 2002, another training on artificial insemination was provided to selected members of the three cooperatives by Land O’ Lakes through the Farmer-to-Farmer Program. Prior to the A.I. training, two new cooperatives emerged. Nara Gori Cooperative Society of Kakara-Yerimaru and Maisamari Cooperative Society. These cooperatives participated in the A.I. training. After the training, the five cooperatives decided to form the FOMBINA DAIRY UNION (FDU) to serve as a coordinating body. Officials of the Union were elected from representative of the five primary cooperatives. A follow up training on A.I. is being planned for 2003, in addition to strengthening the cooperative management skill of the Union officials and, health and nutrition training for selected cooperative members.

Principal Impacts: Increase in commitment from the member cooperatives of FOMBINA DAIRY UNION through payment of N22,000 (\$172) each by the five (5) primary cooperatives, this raked in N110,000 (\$859.4) into the UNION’s purse as revenue from the artificial insemination package. The UNION is committed to sourcing AI education and feed on a collective basis from National Animal Production Research Institute (NAPRI), Shika-Zaria. The UNION has set a regular time for their meeting, which was not the practice in the past. The volunteer developed a business plan for the UNION and an action for six months (June to December 2003). As a result of this assignment, two women pre-cooperative groups: Jiji with 20 members and Maisamari with 16 members, were formed. Both groups have put in place their respective steering committees.

Direct Beneficiaries:

Female:20

Male: 150