

INERA Support Project
Midterm Evaluation Report
Participatory Research

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A central feature of the INERA Support Project is the involvement of farmers from surrounding villages in a participatory model of agricultural research. As applied to production and the development of improved production "package", this means that the farmer must be an early evaluator of the practicability of the introduced technology and participate from the beginning in the testing of introduced inputs, technologies, methods, systems or complete production package. In this participatory role, the farmer provides judgments useful and essential to the orientation of research and to its further improvement.

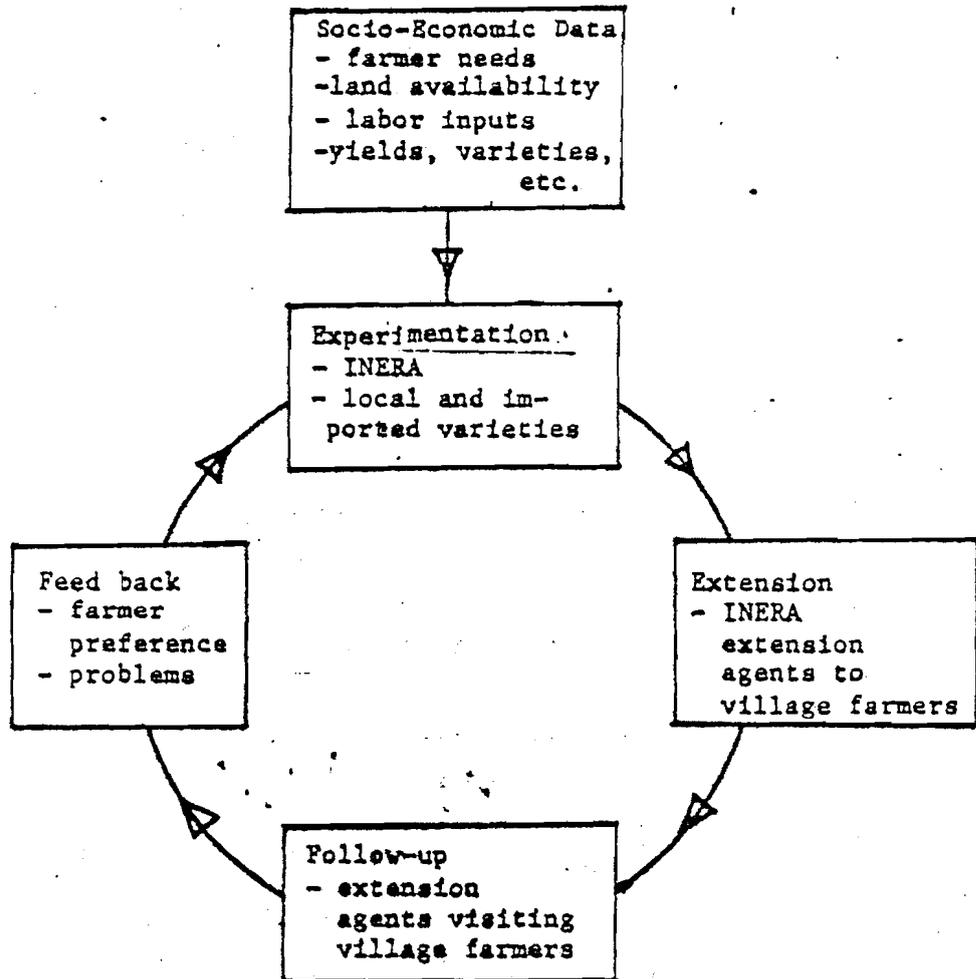
If the research facility is not functional or ready to supply innovations based on informed understanding of local farming systems and farmer needs, the highest priority should be assigned to a coordinated program of collecting essential data upon which to base choices of introducible technologies. Lacking such data, the proposed innovative techniques should be limited to simple, low cost changes which have tangible attractiveness to the farmer. They should preferably be single factor practices which show a yield advantage, risk reduction, labor efficiency, or other profitable character. They should be farmer-manageable techniques not limited by external constraints such as lack of markets, controlled low farm prices, or unavailability of inputs.

The diagram below shows the information flow pattern beginning with socio-economic descriptive data on present farmer agricultural practices, constraints, and preferences. Given this information, agricultural research can focus more specifically on plant varieties that are agronomically well suited to the soils and are socially and culturally acceptable.

Once the new varieties have undergone thorough experimentation and are deemed likely to yield well under actual farmer conditions, area farmers are asked to try the new varieties.

The farmers thus participate directly in the research process by installing and conducting the tests on their farms. These real life conditions lend a local credibility to the results of the tests, avoiding the suspicion attached to tests performed out-of-sight by unknown methods.

At the same time, the direct contact of the extension agent or adaptive researcher with the farmer through on-farm tests provides a pipeline through which current farmer reactions can be used to avoid waste of costly effort on inappropriate technologies. When effectively implemented, the relationship forms a closed loop through which the farmer feedback works to the benefit of not only the farmer but the researcher as well.



Extension Activities

The Department of Agriculture's official extension service suffers from deep-seated resentment and mistrust by villagers. Historically the poorly-trained extension agents served a "policing function of forced cultivations of cotton and collection of licence fees". (PP, p. 17). Without sufficient training to offer technical advice to farmers, they

were seen solely as agents of the Belgian policy of "exploitation imposee".

To avoid having to reform villager perceptions of the extension service, the project chose instead to circumvent the extension service, at least initially and to work directly with the farmers. This approach, dubbed by the project as the "modern farmer" way, is similar to the World Bank's "leading farmer" philosophy where each village selects its more motivated and successful farmers to receive special attention from project technicians on the belief that if the leading farmer experiments successfully with a new technique, seed, etc., the other villagers will be inclined to imitate.

Working through the well-established Bishagala, the Catholic village committees (Communaute de priere), the project visited each of the 15 villages in the area surrounding INERA (7 villages in Bushumba and 8 in Mit'i), describing the INERA approach to community development. Groups based on the Bishagala were enlarged into development committees to include the non-Catholic population. Each village committee has an elected executive committee with three officers. The vice-president is usually a woman.

Farmer days. Each village committee selected 2 men and 2 women farmers to attend a 2-day training session at INERA's Extension Headquarters at Nyamunyunye in August, 1980. In fact, 18 women and 40 men participated in a workshop to learn new planting techniques for soybeans, corn, dry beans and sorghum, planting in lines with proper spacing, crop rotation, mixed cropping, anti-erosion measures, composting, green manure, nutrition and farm planning. The training staff consisted of the rural sociologist, his wife and his counterpart, the INERA nurse, and an INERA counterpart agronomist.

Participants were asked to plant about 2 x 5 meters of their own land following the new techniques, and to each train 5 more farmers from their villages. In all, about 300 people were to be reached; these farmers also received approximately 2 kilos of YRO-9 variety soy, and 3 kilos of golden corn. Since INERA's spring 1980 dry bean crop had largely failed, no dry beans seeds were available for distribution.

The workshop participants have received one follow-up visit by a woman extension agent on loan from ISDR (Institut Supérieur de Développement Rural). INERA has been especially fortunate in their relations with ISDR due to the INERA sociologist's long-time association with the Institute. The extension agent enjoyed extremely easy relations with the villagers who seemed to both like and respect her. Increased INERA contact with ISDR through a formalized internship program for ISDR students would offer INERA the benefit of full-time extension agents at minimal cost and would provide the student with a challenging internship. Several issues, however, need to be resolved. The greatest of these is INERA's responsibilities toward the student for housing and food.

According to the ISDR stagiaire who visited each Farmer Day participant the women proved to be better students than the men farmers, but fewer women were able to attend the session because of "too many household responsibilities".

The comparison between the modern farmer experimental plots and the land cultivated in the traditional manner are inconclusive. Only where corn was planted in rows was the increase in productivity said to be noticeable. Soy and dry beans seem to yield similarly whether planted in rows or planted traditionally. According to the extension agent, women will be reluctant to plant in rows anyway because it would require a radical change from their present "spitting the seed technique". The evaluator also spoke to a few women trainees who reported no noticeable difference between experimental and traditional plots. The great advantage to having participated in the workshops then seems to be that the farmers had gained easy access to seeds.

A second follow-up visit to measure yields will be done by the two ISDR graduates recently hired by the project. Unfortunately both are men, which could well pose a problem in visiting women's fields. It is strongly recommended that women extension agents (stagiaires from ISDR) be hired to work with women farmers, thereby reducing the suspicion of the women's husbands.

The extension demonstrations were held at Nyamunyuye, seven kilometers

from the central INERA operations. The Belgians had tried Nyamunyuye as a satellite station for slightly lower altitude farming research. As at Mulungu, the buildings and equipment remained after their departure.

The compound consists of 5 offices, 7 rooms suitable for small animal raising, a classroom, granary, covered drying floor, two roofed enclosures suitable for large animal husbandry, and a house suitable for a dormitory. It is surrounded by about 30 hectares of cropland, a slope suitable for anti-erosion demonstrations, and a swamp in which crops can be grown during the dry season. (April - June quarterly report).

Building renovations are slowly transforming Nyamunyuye into a demonstration and extension center. The classrooms have been cleaned, chicken and rabbit-raising enclosures have been constructed, and an anti-erosion terrace was built by the trainees during the August program. There are also 4 INERA houses on the premises, which could provide living quarters for extension agents.

Although the Project Paper called for establishing a "simulated farming system" to help the researchers understand traditional Shi agriculture, the rural sociologist has wisely preferred to establish a model farm for extension purposes. With traditional agricultural techniques practiced only yards away the technicians' houses, it seemed more beneficial for pedagogical and practical reasons to use the Nyamunyuye resources for demonstrations.

Other extension activities. The project sociologist, his wife and his counterpart, Aliya, held meetings with the village development committees, urging them to define their priorities and to outline a plan of action.

Foremost among problems expressed by the villagers were: the lack of potable water, scarcity of land, erosion, and lack of seeds. Other problem areas were animal husbandry (cows and small ruminants), nutrition, and health.

Water points development. Springs development has been a major activity of the Murhesa Development Committee, the Catholic group based in Murhesa (approximately 6 kilometers from Mulungu), composed of village groups (Bishagala) within 40 kilometer radius of Murhesa. The Murhesa Development Committee receives a large part of its funding from the Italian

Catholic organization Mondo Giusto, as well as UNICEF support for its water points development projects.

INERA's extension team of Sensenig and Aliya became active members of the Murhesa Committee, especially in the area of springs development. Twenty-five springs have been developed and cemented since early 1980, and another 5 await cement, sand and the dry season. Villagers contribute a total of 50 Z per spring, helping defray the cost of cement (gift of the Murhesa Committee), and are responsible for the labor.

Working-through the well-organized and respected group of Catholics (Bishagala) has greatly facilitated the community contacts for INERA staff. Their efforts to expand the Bishagala to include non-Catholics seem to have had little impact as yet. For example, the women interviewed corrected the evaluator when she asked about the development committee's role in water point development. "The Bishagala organized it, not the development committee".

Two production projects were introduced by the extension team and neither has, nor is likely to, prove profitable or popular. During the organization and definition of needs and priorities phase, meetings with the village committees indicated a desire for help with cattle raising. Assistance to cattle raisers, or even to small ruminant (sheep, goats) owners falls out of the mandate, expertise, and financial means of the INERA support project. In lieu, the extension team decided to introduce chicken and rabbit raising. Cattle, however, and increasingly small ruminants have important cultural significance for the Shi of South Kivu. They are used for bridewealth and for other kinds of exchange. To assume that villagers would be receptive to chicken and rabbit-raising instead of assistance to livestock does not take into account its cultural significance.

Both projects have run into major difficulties. Rabbits need housing, feed, and care. Vaccines are not easily obtained and several rabbits have died of syphilus as a consequence. Theft has also been a problem.

The chickens need special feed (soy and corn), and vaccines, again not easily found in Bukavu. When the special feed composed of soy and corn for the Nairobi-purchased cocks ran out, the project was forced to sell all 24

of the imported hens and five of the 10 imported cocks at 60 Z each to recoup costs. At such high prices, no Zairois purchased any. According to Peace Corps/Bukavu chicken and rabbit raising specialist Cit. Kapeleti, few (if any) of these projects succeed because of the high cost, risk of disease, lack of vaccines and feed. Poor farmers are unwilling to invest in such a high risk proposition.

Extension efforts for women. Separate activities for women have been organized under the sponsorship of foyers sociaux (social circles). The idea of the foyer dates back to the Belgian missionaries, sewing circles where women learned the European domestic arts of sewing, cooking and homemaking.

Using the commonly known idea and name of foyers, the extension team tried to reorganize the women, keeping the name and hence a certain set of expectations, but changing the curriculum to concentrate on nutrition and health. The organizational model is similar to the "modern farmer" or training of trainers approach used in agricultural extension. Each village group selects two or sometimes three women to attend lectures given at the INERA headquarters. These women will in turn communicate the information and skills to the women in their own villages.

There were presently seven active foyers sociaux with membership ranging from 25-50 women and a newly hired woman extension agent is being trained to replace Ms. Sensenig who was recently repatriated.

Although the extension team has tried to use the well known and popular concept of foyers sociaux as a vehicle for organizing women, their effort seems to be ill-conceived, poorly planned and of questionable value to the goals of the INERA Support Project.

Nutrition education. The South Kivu area of Zaire suffers from an especially high incidence of malnutrition among its children. Infant mortality rates are estimated at 230 per thousand. The chances of dying before the age of five are double (Project Paper). Kwashiorkor in South Kivu is believed to be the result of a diet high in calories (manioc) and low in proteins (soy, and other legumes). Missionaries introduced soybeans in an effort to increase the protein content of the villagers' diet. (The appropriateness

and acceptability of soybeans will be discussed in the next section). The anti-Bwaki (anti-malnutrition) committee of Bukavu has tried to encourage consumption of protein-rich soybeans by subsidizing the price of soybean flour to local dispensaries as part of their nutrition campaign.

Since soybeans require special preparation to be acceptable to villagers a nutrition education campaign has been an integral part of the soybean outreach program.

The nutrition classes held for the women of the foyers sociaux were part of this Anti-Bwaki effort. The 7 classes conducted by Ms Sensenig and Chemi Sole, the INERA nurse, covered the three basic food groups. Women were given recipes for preparing soy so that it was suitable for weaning and other daily dietary supplements. The problem was that most women for various reasons did not grow soybeans, and consequently could not use the recipes. Of the 35 women participants in one foyer social, only 2 women grew soybeans and none had used any of the recipes. The cost of soy flour is prohibitive, they say; and they could not get any seeds to plant.

Surely efforts to improve diet start somewhere and nutrition education is crucial to the successful introduction of new food. But the inability of the INERA team to provide soybean seeds to the women meant that the women were taught "quite useless" information, and not able to apply it. The integrity of the extension effort suffers from severe credibility problems in such instances. Until the extension team can provide soybeans, or they can be purchased in the market, the necessary ingredients for a successful nutrition education program, it is better not to raise villager expectations. This example demonstrates real limitation to the extension efforts.

Secondly, a nutrition education curriculum should be designed by a qualified, experienced nutritionist after completing a nutrition survey (24-hour recall) to determine what food elements are commonly found in the diet. The approach used by the extension team was 'both feet first' without having any concrete data upon which to base the curriculum. (The National Nutrition Program and IRS have done nutrition surveys in the south Kivu area, this did provide a basis, but not a substitute for first data).

Vegetable growing. Common extension philosophy contends that one does

not extend and encourage agricultural practices until they have received the benefits of qualified, rigorous experimentation and have a reasonable chance of success under actual farmer conditions. Otherwise, the professional credibility of the extension program can be seriously undermined and farmers will lose confidence.

Unfortunately, untried imported varieties of vegetable seeds were sold to women under the auspices of the foyers sociaux. The extension team lacked the agronomic information needed to multiply the vegetable seeds. Although the harvest from this year's crop is just coming in, preliminary reports from both the extension team and women vegetable growers indicate dismal results. Vegetable seed production should not continue until adequate experimentation is done by qualified agronomists.

Sewing. The concept of foyers sociaux has a long history and represents a definite set of expectations by women members. Broadening the range of usual activities of the foyers sociaux to include nutrition and health may be a good idea, but the women will not be short-changed. During two foyer meetings attended by the evaluator, the women made it quite clear that they want to learn to sew as a first priority. Sewing classes pose a whole set of problems. Who will teach? Where and how will the materials be purchased? How will women organize to purchase the material? All of these questions must be dealt with jointly by the extension team and women members. The evaluation team finds time spent on such activity is of marginal importance (and probably negative effect if the team can't deliver the goods) to the INERA Support Project.

Role of women as producers. It is well known that Shi women contribute a substantial labor input to agricultural production in the south Kivu region. (Data was not collected by the MASI team). Any project whose goal is to increase agricultural production and to improve the living standard of the villagers through new technology must necessarily target much of its interventions at women. Women must be a primary focus of extension efforts.

With the limited human and financial resources available at INERA, the extension team should concentrate on helping women farmers better fulfill their roles as producers. Encouraging women to attend Farmer Days by schedul-

ing them so that they don't conflict with other farm and household activities, hiring women extension agents to facilitate contacts with farmers, and urging women to at least attend village committee meetings are just a few steps the project can, and in some cases is, taking to ensure the full participation of women. Dissipating resources on sewing circles and endangering the extension team's credibility through untried vegetable projects do not seem to be in the purview or best interest of the INERA Support Project.

Data Collection

In a country desperately needing to increase its food production such as Zaire, the greater value of agricultural research lies in its direct applicability. Applied agricultural research (in this project, the development of a culturally acceptable legume package), requires the combined efforts of agronomists, soil scientists and social scientists. Each contributes vital information to the determination of such a package.

The social scientist is responsible for collecting various types of economic, technical and socio-cultural data. Without information on inputs, yields, income, cultural practices land tenure systems, division of labor and family size, the agriculturalists risk devoting years of time and money to a socially unacceptable package. In short, we need to know who grows what crops, how, why and where.

Unfortunately, despite the fact that data collection was the single most important aspect of the social scientist's scope of work (and certainly received adequate coverage in the project paper), none of that information became available to the agriculturalists (or to the evaluation team which found it difficult to evaluate the social acceptability of the project with no one able to offer even a brief description of the ethnic group in the area). There has been no effort at systematic data collection.

While the evaluation team appreciates the team social scientist's desire to establish a rapport with the villagers in the 15 villages surrounding INERA prior to data collection and the problem with mobility due to the late arrival of project vehicles, it seems irresponsible and short-sighted that descriptive data (labor inputs to different crops, sex division of crops and labor, intercropping systems, land tenure arrangements) was not

collected sooner while more sensitive data (production figures, income, sex division of income, migrant labor) collected at a later date. The importance of this information to agricultural research cannot be overestimated.

A very rough approximation of the number of inhabitants in the INERA extension area is available for planning purposes. The census was undertaken by the newly formed village development committees as a first task. No explicit instructions were given to the census-takers, except to count the number of people on each coline (hill). Consequently, the figures received provide gross estimations at best, since it is not specified whether the figures represent the total number of family members, or those presently living in the compound. Nor is there a definition of production and consumption units.

Training

Although accounting for only 6% of total project costs, the training component is perhaps the most important project component. Certainly the Zairois, in discussions with the evaluation team, perceive both the on-the-job training and U.S. training aspect as one having the most long-term tangible impact of the INERA Support Project.

According to the Project Paper eleven Zairois were to be sent to the U.S. for training in the following fields: soil science (3), agronomy (2), land classification (4), plant pathology (1), entomology (1). In addition, several Zairois are to receive on-the-job training in soil surveying (8), rural sociology (1); agricultural economics (1); lab technology (3), field crop technology (2). Extension agents are to be trained in data collection and in technical aspects of food legumes production packages.

Progress has been slow: only 2 Zairois have left for the U.S. (January 1981), 5 potential candidates are now at Mulungu, and no one claims to have trained anyone on-the-job. The one notable exception is the counterpart relationship between the rural sociologists, Sensenig and Aliya. They work as a well-coordinated team, consulting each other on all program decisions. Both benefit from the two-way relationship. Aliya is now applying to Cornell University's rural sociology program for the fall, 1981 semester.

There appear to be three major reasons for training delay and

ineffectiveness: (1) lack of equipment; (2) insufficient language skills of the American technicians causing communication difficulties; and (3) difficulties in recruitment and retention of the counterparts.

1. The late and piecemeal arrival of laboratory equipment has meant that both American technicians and Zairois counterparts have lacked the necessary material for conducting applied research. The counterpart to the soils fertility technician has had "nothing to do" for 18 months. The land classifier has taught his counterpart how to collect soils samples, which now await the reagents for any further work to be done. The plant pathologist suffers from the same problem. Only the rural sociologist's counterpart has been unaffected by the delay. (Aliya's major problem was with lack of transportation, a situation not redressed until his motorcycle finally arrived).

2. The combined rudimentary English language skills of the Zairois counterparts and the rudimentary French language skills of the American technicians leaves an enormous communication gap. The basic soils fertility course given by the soils men were, according to the counterparts "totally incomprehensible" and hence of "minimal value". Since they had already taken the 3-month course in French during their university days, they were able to follow the basic concepts, but learned nothing new.

Again the sociologist's counterpart was the exception because Sensenig not only speaks French, but has also learned Swahili.

3. Low salaries, and no equipment and operating budgets at the INERA-Mulungu station do not offer attractive rewarding professional opportunities for agronomy graduates. Young graduates would prefer to live where the work environment is conducive to productive research. These conditions do not exist at Mulungu, and so the station suffers from a high attrition rate and low morale of its personnel. With no vehicle with which to go to the field, barely subsistence salaries (2/3 of what the local high school teachers receive), and no laboratory equipment, Mulungu can neither attract the best graduates nor keep the ones assigned.

Recently, housing of Zairois counterparts has become a contentious issue between the MASI team and INERA. The Director of the Mulungu station is

requesting - in fact insisting - that AID pay for refurbishing counterpart houses. Apparently, INERA has no funds with which to do this and if the Americans want counterparts, they have to house them according to Dr. Mundundu.

The situation is quickly reaching an impasse, exacerbated by personal tensions between U.S. and INERA staff, and must be resolved expeditiously in order for the maximum number of Zairois counterparts to benefit from U.S. training.

It seems to the evaluation team that counterpart housing is a Zairois responsibility. Questions such as whether or not the family of a U.S. bound trainee continues to occupy the same large house while the trainee is in the States definitely need to be resolved by the Zairois. However, if some U.S. financial assistance (in Zairas) would help alleviate the problem, such assistance should be given serious consideration.

Other problems. In addition to the 3 areas mentioned above, the training of Zairois counterparts has encountered other difficulties. Because the American plant pathologist is also Chief of Party and preoccupied with apparently overwhelming logistic and administrative problems, the counterparts to the plant pathologist complained that they have received little instruction in plant pathology and a bit more in general agronomy. The counterparts told the evaluator that what they needed most was field experience. "We learned the theory in university" they said, "and now what we want most but are not receiving is practical experience". The Chief of Party admits that in an inordinate amount of his time has been spent on administrative detail.

Secondly, there has not been enough interaction between the technical and extension components of the project, as both parties readily admit. The agronomy and soils people complained that their advice and participation was not enlisted for the extension demonstration (Farmer Day) held in August. One agronomist who is now in the U.S. did participate, but the technicians argue that they should all have been involved, especially as they have little else to do.

The lack of interaction between and among staffs seem to be due mostly to interpersonal and institutional problems and are reflective of the

project team's overall lack of strategy and purpose.

Several actions are incumbent upon the MASI team and the INERA staff to take full advantage of the training opportunities.

1. The laboratory equipment must arrive soon.
2. English classes for the Zairois counterparts began in February 1980, but stopped upon the departure of the English teacher in June. English instruction must recommence soon if the counterparts are to score acceptable results on the TOPEL exam in May.
3. The American staff must learn to speak French to communicate with the Zairois.
4. INERA must resolve the housing problem for its counterparts.