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The Potential Role of Farmer-Field Days In the Integration of
Research and Extension Programs: The Experience of Adaptive
Research Planning Team in Western Province, Zambia

Mukelabai Ndiyoi

Presented at Farming Systems Research Symposium, October 5-8, 1986 KSU

DAN-0700-G-SS-0042-00

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Ndiyoi, Mukelabai

INTRODUCTION

Research is no longer an activity restricted to the experiment stations or laboratories. Considerable amounts of research must be conducted in the conditions that farmers face in different parts of the country or district. Further, on farm testing can make important contributions to the extension process even while itself being research.

Similarly, extension should not be narrowly viewed as a field activity in which the chief professional skills are special teaching methods. It is being realized that those giving information about new technologies to farmers must themselves be involved in the generation of those technologies. Consequently, intimate and continuous interaction between research and extension workers is now seen as a key activity in generation and dissemination of appropriate agricultural technologies.

PRESENT LEVELS OF EXTENSION AND FARMERS PARTICIPATION ACHIEVED BY RESEARCHERS

Glancing through literature on collaborative research reveals that most of the efforts to integrate research with extension or enhance farmers' participation in technology development comes from the research workers. Consequently the degree of participation achieved or desired depends on the objectives and background of the researcher. The following are some of the reasons for soliciting farmers or extension worker participation in research programs.

- 2.1 The extension workers' knowledge about the local situation at the farm level and the responsibility they will eventually have for disseminating the results of FSR make it imperative that the extension worker be involved or at least consulted at each stage of the FRS project.
- 2.2 Farmer participation is often limited to mean the farmer accepting to host a trial--i.e. providing part of his resources to the field trial.
- 2.3 The need to involve the extension worker has also been prompted by the realization that the extension worker was the link between the farmer and the researchers because the extension workers were dealing with a much larger audience than the researchers, therefore, if adequately involved in technology evaluation, can offer practical insights from their experience.
- 2.4 It is accepted among FSR circles that farmers will participate readily in tests directed towards what they consider to be major constraints. Perhaps what is not so easily apparent is that the methods used to identify the major constraints determine the degree to which farmers will participate.

THE NEED FOR A VEHICLE FOR SUSTAINED RESEARCH--EXTENSION INTEGRATION

Three areas of OFR/FSP offer potential integration with the extension worker:

- 3.1 Diagnostic surveys; where extension workers may participate as enumerators or indirectly by answering questions.
- 3.2 On-farm site trials.
- 3.3 Organizing farmer-field days to observe and discuss technology alternatives.

Normally, for a given target area, the last two are the most recurrent and therefore, offer the means by which continued interaction between farmer, extension and researcher can be achieved. The interaction produces certain output. This output then forms the basis for integrating research and extension programs. It is more realistic to effect integration at program initiation rather than opting one into the other at some later stage.

OUR EXPERIENCE

The Adaptive Research Planning Team (ARPT) became operational in Western Province in November 1981 (following an informal survey in August 1981). Since then three farmer field-days have been held. The first was held in February 1983 in Kaoma. The second and third were in March 1984 in Kaoma and in Senanga.

The position of ARPT in the general structure of the Ministry of Agriculture and how it links with other branches is shown in diagrams 1 and 2 respectively. This paper is largely concerned with diagram 3; the involvement of farmers and extension workers in the research program.

PLANNING THE FIELD DAY

Long term:

During the planning of the experiment program, thought should be given to how the treatments are going to be used in explaining your objectives to the farmers and extension workers. The idea of replications and their use in establishing the consistency and hence, the validity of a conclusion is strengthened by having replicates on several farms. The act of moving from one farm to another and seeing a similar lay-out brings more to mind the sameness of what is seen and the idea that it is being repeated than by seeing five replicants on one site. In other words, the farmer is more likely to appreciate that the replications have been repeated when they are on different sites than when they are on the same site.

The field day should not be a spontaneous activity. Familiarity with the farmers should be cultivated well beforehand. This is necessary to ease out inhibitions in self expression--particularly in situations where the farmer may want to comment negatively on the technology.

Frequent visits to the sites and discussions with the farmers, no matter how brief, help in removing communication barriers between research and farmers. This period also helps the researcher to know what type of farmers he has: outspoken, timid...and special constraints they might have that condition their response to the technology.

It is during the same period that, where necessary, the comprehensibility of the trials should be improved. Mention to the farmer the names of other farmers who are participating in the program--this creates a sense of belonging.

Short term:

Ensure that you have enough food for the number of people involved. Ready cash will prove helpful.

Contact the District Agricultural Officer and make known your program. We have had variable success in degree of co-operation obtained from the District Agricultural Officer. A positive response we got from one district meant the District Agricultural Officer drawing up the program of the field-day, chairing the meeting, and writing up the minutes with the Trial assistant.

Arrive on time. Unless your reputation is good, you may lose some of your participants.

HANDLING STATISTICAL CONCEPTS

Statistical concepts that are normal use in Agronomic data interpretation are foreign to most farmers. Drawing up analogous examples has proved a convenient tool in conveying the concepts to the farmers.

SIGNIFICANT DIFFERENCE: is interpreted as the difference between 5 ngwe and 5.0 kwacha--as opposed to 5 ngwee and 10 ngwee (100 ngw = 1 k). Replications are there to establish the truth that treatment differences are real. A person is convinced only after seeing something happen the same way several times. The sun rising from the east everyday is used to draw a parallel with repeated observations (i.e. everyone is convinced the sun won't rise from the west). The idea of Randomization is similarly handled by explanations. It is not always necessary to explain randomization. One case where it is necessary is where the treatments are below the eye level of the participants. Where treatment differences are noticeable farmers will pick out the same treatment across blocks.

Throughout the tour, the researcher must be on the alert to correct any misconception arising from drawing of wrong conclusions from what the farmers observe. A significant amount of the content for discussion will be obtained from the comments/questions participants make/ask among themselves. These should be noted and a decision made on how to use them in the meeting.

Organization:

In each case one day was set for touring the trial sites with the farmers and the following day for a discussion based on what had been observed on the farms. The touring usually took the whole day particularly where the sites were many. Discussions during the tours were necessarily brief; farmers being encouraged to note their observations and bring them up during the meeting. The design did not allow for detailed discussions right in the field.

Besides the trials/observations on farmer's farms, the program included visiting the research station trails. The farmers were particularly impressed, 1984, with ZSV-1 and ICP-220 (varieties of sorghum and millet). In general they were surprised and pleased to learn that so much work was going on in their districts. They all agreed that what they had seen could not be conveyed by word of mouth.

After the tour, ARPT provided food the FTC provided catering services and accomodations. The following morning was occupied by the discussion.

HANDLING THE DISCUSSION

Equality of Roles:

Start by stressing the equality of the roles of each group of participants played; the farmer, the extension workers and the researcher. Show also how these interact in addressing agricultural problems. This is most important to achieve an atmosphere of free expression directed at the problem. Aim to divert attention from you to the problem which each trial addressed.

Trial Rationale:

Ensure that as each trial is discussed, the farmers know what the idea behind the trial was and why and how they should incorporate it into their farming. Calling back on the rationale for the trial has proved useful.

Let the Farmer Be:

You too are a participant--you only differ from the farmer because you know the difference between MM 752 and SR 52 (related varieties). That should be your role; to supply technical information. Chip in your knowledge in the manner that everyone else is doing, do not dominate the discussion.

Farmer Circumstance:

The circumstances in which farmers learn about new agriculture practices and decide whether to adopt it tend to be unique to each individual. But the individuality with which agricultural innovations are considered and decided upon is the ultimate manifestation of numerous environmental influences. By recognizing and accepting the individuality

of each farmer and the uniqueness of his particular circumstance, the researcher is better able to guide the discussion.

For example, an opinion expressed by one farmer may be referred to another who is felt to be in a slightly different circumstance for comment.

The researcher should weigh and relate farmer's comments to his resource base. He should deduce the degree of objectivity in what the farmer says based on his (researcher) knowledge of how his (farmer's) circumstance might influence the farmer's opinion.

Leverage points:

Look out for leverage points during the discussion. For example, when a farmer is critical about a technology, guide him into listing the disadvantages. Follow the lead with other farmers who might have similar objections. When you are satisfied that all have put their criticism across, ask for suggestions for improvement on each point raised. The same procedure can be used for pursuing a positive statement about a technology.

Never downgrade or scorn a farmer's suggestion or opinion no matter how "obviously" useless. He might have made it out of ignorance but definitely not in jest. Your task is to realize the nature of the ignorance manifested in such a comment and correct it as you would make any other contribution (see above). It is necessary to exercise infinite patience and pay precise attention to detail.

BENEFITS (See Appendix also)

Farmer Participation:

Field-days are potentially useful vehicles for effecting farmer participation in programs.

Creation of Awareness:

Communication is a process by which one person recommends an innovation to another, with the intent of favourably influencing his behavior. This need for awareness creation is (should be) present in the farmer, the extension worker and the researcher. Field-days provide a forum for achieving a cumulative effect through repeated exposure to an idea.

Creation of Common Focus for Research and Extension:

The output from the field days that need attention is considerable. The output can be used to draw up a program of work that utilizes both extension and research. The advantages here is that the program or area of focus is formulated or selected jointly with the extension workers--arising from what both had discussed with the farmer (Diagram 3).

Revealing Priority Constraints:

A field-day improves focus of effort on constraints perceived by the farmer. In particular, it helps in weighing the importance and possible approaches to addressing such problems.

PROBLEMS ENCOUNTERED

Inability to Act on Suggestions:

The most important problem that needs attention is the lack of capacity to move with suggestions obtained from the field-day. For example, one experiment on the jab-planter was shelved after one season despite constructive criticism from the farmers. The need for reliable backup services is emphasized.

Relation with Extension Workers:

We have had mixed success in establishing working relations with extension. How do you address an indifferent officer, or one who is very sympathetic to the team effort but does not tolerate the farmer's "unsound" ideas, talks for extended periods of "teaching" the farmers what is "right"?

Trial Versus Demonstration:

In 1984, we received many requests to extend our trials beyond Kaoma central block. How would you respond to this in a hall full of extension workers and farmers?

A compromise was that if possible, farmers from other areas should be brought in to see the trials. It was also suggested that more emphasis should be placed on discussing issues right in the field than postponing them to the meeting. Two days (or more) instead of one should be allowed for the tour.

REFLECTIONS

Farmer field-day is a useful tool that needs serious attention. It is not only a tool for extension of messages but also for program formulation that affords integration of research and extension programs.

This paper has stressed that extension cannot be passively opted into research. For the two branches to work together a strong link must be found. Organizational changes in funding and personnel have their place in bringing the two together. But as farmers are the confessed clients of both, they should form the strongest link between the two. If farmers stated their problems clearly, it is suggested that both research and extension would see how they could jointly use their services to meet the demand of their clients. Farmer field-days provide an invaluable opportunity for farmers to be exposed to the activities of research and extension. This exposure creates awareness which may result in the farmers stating their problems more clearly. The farmers perspectives arising from such close interaction with research and extension workers make the ultimate link between the two branches.

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FOOTNOTE AND ACKNOWLEDGEMENT

The Appendix is a copy of the minutes of a field-day held in Kaoma district, 17-18, February 1983.

I would like to thank the farmers and extension workers who participated in the field-days conducted. I am also grateful to my supervisors Mr. S. A. Kean and Mr. W. deBoer for the trust and responsibility they gave me.

Ndiyoi, C. M. B., Agric. Sci., University of Zambia, 1981. Worked as farming systems agronomist in the newly established adaptive research planning team, Ministry of Agriculture, Zambia, from 1981 to 1985. Currently studying towards M.S. degree with major in Agronomy and minor in farming systems research, University of Florida.

Address: Adaptive Research Planning Team
Mongu Regional Research Station
P. O. Box 910064
Mongu
Zambia

Current
til Dec. 1987: Agronomy Department
2183 McCarty Hall
Gainesville, FL 32611
U.S.A.

APPENDIX

ADAPTIVE RESEARCH PLANNING TEAM
A.R.P.T. COMMITTEE MEETING HELD AT T.B.Z. FROM 17th - 18th OF
FEBRUARY, 1983

MEMBERS OF STAFF:

Mr. C. Ndiyoi	Chairman (FSRA)
Mr. J. Chiluma	Acting District Agricultural Officer
Mr. O. I. Mutata	Secretary (Block Supervisor/Boma Area)
Mr. G. K. Chisangu	Secretary (Trial Assistant)
Mr. F. Sangandu	A/A Longe Agricultural Camp
Mrs. Mundanya	C. D. Naliele Agricultural Camp
Miss. A. Ilukena	Secretary (TAA Longe Agricultural Camp)
Mrs. J. L. Mubiana	S.D. for Naliele.

FARMERS:CLUSTER ONE LONGE:

Mr. B. Nkwanga
 Mr. Mapongwa
 Mr. I. Nyambe
 Mr. V. Simacha
 Mrs. Chatutwa

CLUSTER TWO NALIELE:

Mr. Lishubani
 Mrs. Kapu
 Mrs. Munalula

CLUSTER THREE NAMALOBA:

Mr. Zeko
 Miss A. Sakubita

PARTY OFFICIALS:

Mr. V. Mutumba, Ward Chairman for Namando Area

ABSENT WITH APOLOGY:

Mr. R. Livingi member of staff Namaloba Agricultural Camp
 Mr. P. Ngenzi Farmer Longe Area
 Mr. Silume, Ward Chairman for Naliele
 Mr. Makalicha, Farmer Namaloba Area

ABSENT WITHOUT APOLOGY:

Mr. Mafuka, Farmer Namaloba Area

ADAPTIVE RESEARCH PLANNING TEAM

PROCEEDINGS OF ARPT COMMITTEE MEETING HELD AT TOBACCO BOARD OF ZAMBIA 17-18 FEBRUARY 1983

1.0 INTRODUCTION

Research and Extension are components of one vital process in Agricultural development: Technology Development and Diffusion. This process is not complete until the farmer has accepted the technology (or methods) developed. In a situation where the Research, Extension and farmers do not meet, it is very difficult to feel whether the technology has been accepted. It may take a very long time before the extension realizes farmers do not want the idea being passed to them. Still a longer time for the research to know and change their recommendations. This raises a finger at the relevancy of Agricultural Research to the farmer.

The need to have farmers participation in the Technology development and diffusion has long been felt, but no clear approach has been defined. This particular tour and meeting, a first of its kind in the Province, is a first attempt to have farmers, Extension Officers and Officers from the Research Branch all participate as one body to solve one common problem. February was the ideal time for the tour because treatments were then showing their effect quite clearly. The tour enabled the farmers to compare identical treatments and account for differences observed between farmers. It was also a necessary base for discussion the following day.

2.0 THE TOUR

The tour took place on 17th February 1983. Farmers from cluster 1 and 2 (Longe and Naliel) were collected in the morning and assembled at the old F.T.C. Members of staff from Extension also joined at this point. A total of three (3) Land/Rovers were assigned for the exercise. The party left for Namaloba (Cluster 3) where the tour was scheduled to begin. Namaloba farmers had assembled at Mr. Zeko's Farm.

2.1 Starting with Mr. Zeko, each farmer whose field was touched took charge and explained to the team what the treatments in his field were. Where necessary the Trial Assistant helped. Mr. Zeko was given 3 varieties: ZH 1, SR52, and R201. The farmer delayed in weeding and fertilizer application due to some commitments. He planted his varieties on 13th December 1982. SR52 was already showing signs of streak virus. ZH1 had the poorest stand of the three varieties, due to poor seed. He weeded his field on 27-01-83.

2.2 Next stop was Mr. Sakubita's trial plot. He participated in the minimum tillage trial using a jab-planter and a herbicide (Primgram) it was obvious to all that the crop was planted too late (30-12-83). The emergency in the machine planted plots was poor and this coupled with heavy weeds cover put the farmer off. He only weeded plot C (see Figure 1) whose management was entirely his.

2.3 The two other farmers visited, Mr. Mwita and Mr. Mafuka, were not at their homes. Mr. Mwita had a minimum tillage trial. His field had never been weeded since it was planted on 3-01-83. He might have been discouraged by the lateness of planting, besides he had a better way to make use of his labour off farm. Mr. Mafuka's field was similar to that of Mr. Zeko and showed similar management. He planted his varieties on 13-12-82 and weeded on 17-01-83.

2.4 From Mr. Mafuka we went on to Mr. Makalicha. Still in cluster three. He too was on varieties SR52, R201 and Across 7844. He was the earliest to plant on 7-12-1982. On day of the tour, his maize had all tasselled. The varieties could easily be identified due to their differences in height. He weeded in January.

2.5 From Namaloba the team proceeded to Cluster 2--Naliele. Our first stop was at Mr. Lishobani's plot. He had the minimum tillage trial. His field was no better than Mr. Sakubita's. Both were planted on 30-12-1982. Again the effect of late planting was overriding.

2.6 The second farmer in cluster 2 was Mrs. Kapau. She had three varieties ZH1, SR52 and across 7844. Stand in ZH1 was poorest and all varieties suffered equally from late planting and other management factors. Streak virus was already showing effect on several plants. She planted her plot on 13-12-1982 and weeded on 31-01-83. Mrs. Munalula, also on varieties suggested there was no need us seeing her plot because it was as poor as her neighbour's.

2.7 Lastly we touched Mrs. Mubiana. She was given SR52 only. Most of the plants in the field were attacked by streak virus.

As we were behind time, we failed to touch Farmer Silume instead we rushed to the research station trials. The touring team was able to see several trials under ARPT and CRT. Intercrop of maize in cassava; Fertilizer Response in Maize; Assessment of five (5) varieties on dates of planting; Bulrush millet fertilizer time and method of application, Bulrush millet date of sowing Bambara Groundnuts Spacing observation and many other. Farmers were impressed by some Bulrush millet that had spikes. They said it was the variety previously grown commonly in the district.

2.8 At this juncture we should have broken off for lunch. Participants were already complaining of being tired (and hungry). But if we were going to have our discussions the following morning, we had to see all farms then. From the Research Station plots we proceeded to Cluster 1--Longe.

2.9 The first site in Cluster 1 was Mr. Kwanga's plot on minimum tillage. His was perhaps the best minimum tillage plot (by our standards). His stand-count in the Jab-planter plots were higher than his hand planted. The effect of herbicide was appreciable. Planted on 28-12-1982.

2.10 The second farmer in Cluster 1 was Mr. Mapongwa on varieties SR52, ZH1, Across 7844. The stand of the crop was fair; the only draw-back being streak virus. He planted his plot on 12-12-1982 and weeded on 05-01-1983.

2.11 Next stop was farmer Chatutwa also on varieties ZH1, SR52, R201. He had the best crop of all participants. It was comparable only to that of farmer Makalicha in Namaloba who planted earlier on 7-12-82. His was planted on 14-15th-12-1982, weeded 30-12-1982; Basal 30-12-1982. Top dress 15-01-1983.

2.12 Our next stop was on minimum tillage trial on farmer Nyambe's. Stand was very poor in machine planted plots compared to his handplanted plot. Weed cover was very high in both machine-planted plots. Planted 24-12-1982.

2.13 Lastly we touched Mr. Makalicha's plot on varieties SR52, R201, Across 7844. The stand was relatively good. The crop had already shown signs of streak virus. He planted on 17-12-1982. He was thus the last farmer to plant. The experiment was not out of his management schedule.

The tour thus ended. Farmers now had a picture of how the trials were performing on their farms and other farmers' fields. From Longe we drove straight to Tobacco Board of Zambia where all participants were to lodge. We had our lunch after 16.00 hours, thereafter participants relaxed in readiness for the meeting the following morning.

3.0 THE MEETING 18-02-83

The Chairman opened the meeting by welcoming all participants. He said the aim of the meeting was to share ideas on problems that face the farmer, therefore, it was going to differ from any training course they would have attended in the past.

To start the discussion the Chairman gave the rationale behind the experiments on the farmers' fields in the 1982-83 season. He said that a survey into farmers' problems in 1981 showed that lack of draft power was a major problem faced by most farmers. A possible solution to this problem was the use of short-maturing varieties or use of minimum tillage practice: a farmer planting in unploughed land using a herbicide to kill weeds. Both solutions were tried on farmers' field and were the subject of discussion that followed.

3.1.0 ASSESSMENT OF THREE VARIETIES

3.1.1 Since all the participants had gone round all the farms visited, the Chairman asked them to account for the differences they saw on the farms from the same variety of maize. A short silence followed which was broken by Farmer Zeko of Namaloba who said that his site did not do well because there was no rain at time of planting. He also said differences in soils accounted for the results. Mr. Simacha of Longe and Mr. Lishobani of Naliele both added that management was an important factor explaining the differences--"Papalelo yeo mulimi afa simu ya hae." Farmer Kapau from Naliele also said moisture, as determined by soil type of site, was important. Her site in Naliele was on hard red soils that quickly dried when rain was lacking. She said her site took a much longer time to germinate than Farmer Chatutwa's (Longe) which was sandy soil and near a stream. It was generally felt that this difference in the two sites explained the difference in their performance though they were planted on

13 and 14 December 1982 respectively. Method of land preparation was also said to contribute to the differences observed.

3.1.2 To conclude the discussion on varieties, the committee agreed that:

- i. The seed was given too late into the season for a good crop to have been realized.
- ii. This year's trial has shown what we would expect if the varieties were planted late. The experiment should be repeated and seed be given as early as October to let the farmer decide his management.
- iii. Whether a variety is 200 days or 20 days the need to plant in time cannot be ignored. This 'time' is mostly November (Naliele/Namaloba) and November/December (Farmer Chatutwa).
- iv. Soil differences played a part in the differences observed for the same variety on different farms: Kapau (Naliele) vs. Chatutwa (Longe).
- v. Time of planting was very important as shown by the good performance of farmer Makalicha who planted earliest on 7-12-1982.
- vi. Management, Papalelo, could not be left out in explaining the results seen on the farms visited.

3.2.0 THE JAB PLANTER MIN-TILLAGE

3.2.1 Next, the focus was on the jab-planter. To open the discussion the Chairman talked on the aims and shortcomings of the trial.

He said the aim was to allow a small farmer who could not have access to draft power plant his field. (This was frequently confused to mean that the planter could ONLY work in unploughed land--which of course caused problems because then it would not plant if the land was not wet enough.)

On problems of the trial, the Chairman said

- i. The herbicide used was supposed to have been applied before the maize germinated. But since it was obtained late, it had to be applied after germination.
- ii. The little metal wheel inside the machine, that picked the seed one by one, was not made to the size of the seed. This gave rise to the less number of plants in the plots.
- iii. The 'fingers' were made of cast-iron (Chrome) and so they easily broke on rough handling.

The planter was then dismantled, to show the seed wheel, assembled and a demonstration of how it planted carried out. After the demonstration, the participants went back into the hall. The discussion followed immediately when the Chairman asked farmer Lishobani of Naliele, who was most critical the little machine. He went straight into attack. His main point was that it wasted seed by throwing it off the line.

3.2.2 The general mood was that the jab-planter was a useless piece of machinery, A KANA TUSO. The fact that the planter was graded useless made it possible for the Chairman to draw attention to each weak point and ask the participants to suggest improvements.

The following improvements were suggested.

- i. Firstly it was agreed that the fact that the planter threw seed around was not an intrinsic feature of a jab-planter but a result of poor workmanship on this particular machine. In other words, it was not the case that all jab-planters would throw seed off the line.
- ii. The rear wheel that covers the seed should be wider--double rings would do, it tends to swerve off the seed line when one was planting thereby leaving seed exposed.
- iii. The 'fingers' should increase in size-length. Some farmers though the present size was alright.
- iv. The idea of each seed wheel corresponding to seed size was put across. It was agreed that the planter should come equipped with the seven wheels.
- v. The iron pieces that hold the fingers should be made larger (area) to prevent the machine from sinking when planting in land just ploughed.

3.2.3 To wind the discussion on the minimum tillage trial, farmers raised further points on the trail

- i. How big is the size of the farm on which you can use the planter?
- ii. How do you go about clearing big land prior to planting? (very little being done in ox-planting)
- iii. In hard soils like Namaloba and Naliele, a farmer would need to wait for sufficient rain before the planter can penetrate the soil. The longer you wait the greater the chances of you planting in the danger zone. Some therefore, felt there was no point owning the planter. (The ox-plough waits also--but does a lot of weed control.)
- iv. Since primgram needed so much good timing, farmers (idea picked up somewhere) suggested.

- a. A granulate herbicide that would melt and become active when the rain falls.
- v. Stand in machine planted plots were generally poor (except Nkwanga) but this was made worse by rats that seemed to attack maize in the weedy plots more than in the clean "farmer practice plots." Probably the rats felt safer under cover of weeds (Sakubita, Namaloba).

4.0 OPEN DISCUSSION

The Chairman invited any questions or points related to Agriculture.

4.1 *AFC LOANS AND LACK OF IMPLEMENTS

The first point raised strongly by Mr. Zeko and Mr. Mapongwa was the manner in which loans were approved. Requests for (farm) implements loans were regularly turned down.

Generally the disconcert was that the farmer got far below what he applied for--quite a frustrating and annoying thing for a farmer who wanted to improve his management by acquiring a piece of machinery. Farmers suggested AFC should visit the farmers to satisfy themselves of the capacity of the farmer. The principal of Farmer's Training Centre enlightened us here that it was not the policy of A.F.C. to visit farmers. A.F.C. depended entirely on recommendations made by the Agricultural Officers and Ward Chairmen. Senior Agricultural Assistant for Longe, Mr. Sang'andu said that actually A.F.C. did hold meetings to explain its policy at every opening of season but very few farmers attended. Mr. Zeko, from Cluster 3--Namaloba, defended himself saying he had never turned down an invitation to a meeting.

The mood was hot but we were obviously making no progress. The Chairman brought the issue to an end by suggesting that participants concentrated on topics that affected them in the fields.

4.2 REPLANTING OF NOW VIABLE STATIONS

To set the pace away from A.F.C., farmer Lishobani of Naliele asked why a farmer would rarely get any good crop from replanted stations. The answer was obvious to all--LATE.

RECOMMENDATION: Replant immediately after viable stations have germinated (Farmer Zeko). Most farmers wait hoping the other stations were merely delayed. By the time they were convinced the stations were nonviable, they would be too late into the season or too late the other plants would shade the replants.

4.3 INSECT PEST ON SEED:

Farmer Munalula of Naliele reported small redish insects that eat away the embryo of seed in the hills.

*Agricultural Financing Company

4.4 FERTILIZER USE/METHODS:

- (a) Farmers do not cover their fertilizer due to labour shortage.
- (b) Mixing base and top then apply as one application had no detrimental effects reported. One however, had to be careful not to depend on "knee-high" for this may not be reached.
- (c) Fertilizer and seed in the same hole at planting should never be considered.

4.5 STORAGE OF MAIZE

SR52 has very poor storage qualities.

The Principal of F.T.C. helped in explaining that SR52 was meant for mealie-meal soon after harvest that is why it was soft and easily attacked by weevils. Further, chemicals for use in storage are virtually absent in the district because the demand is not high (some farmers felt this was not the reason for lack of chemicals). Farmers were advised to adopt the storage bin currently on demonstration from the storage unit (see Diagram 1).

4.6 RATS

The Chairman could only suggest farmers buy Rat-killers on the market. Farmer Mapongwa of Longe suspected the rats came to the district together with hybrid maize! (Lishobani accused fertilizer to be responsible for increased weevil attack on maize.)

4.7 STREAK VIRUS

This was a common problem observed in the field planted mid-December. The Chairman briefed the participants that there was no treatment of the virus. However, a variety resistant to the attack was on the way.

4.8 AGRICULTURAL FINANCE COMPANY

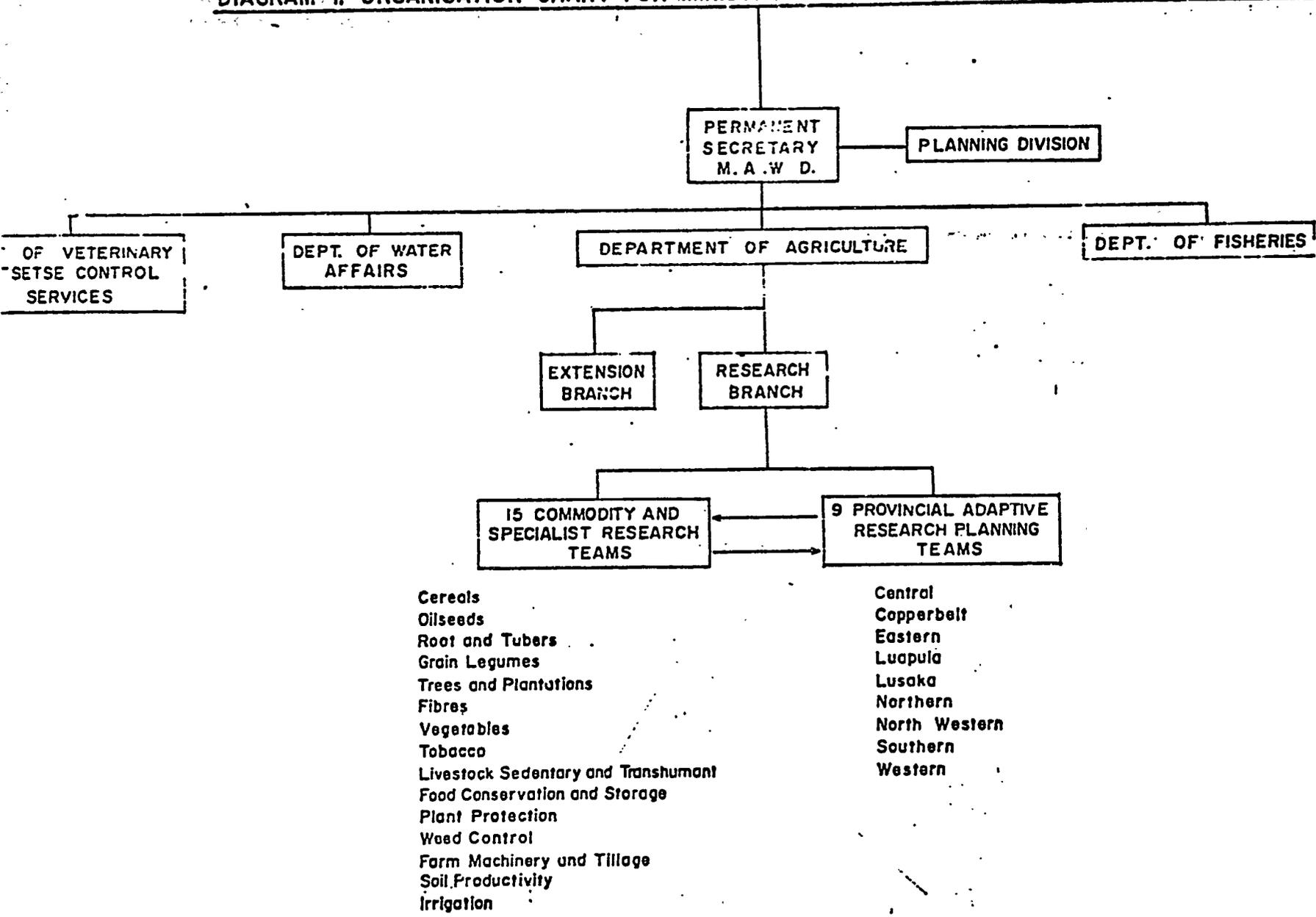
Farmers suggested AFC should be present at meetings concerning farmers. Despite the desire to continue the discussion, the meeting was closed shortly before lunch.

C. M. NDIYOI
CHAIRMAN

O. I. MUTATA
SECRETARY

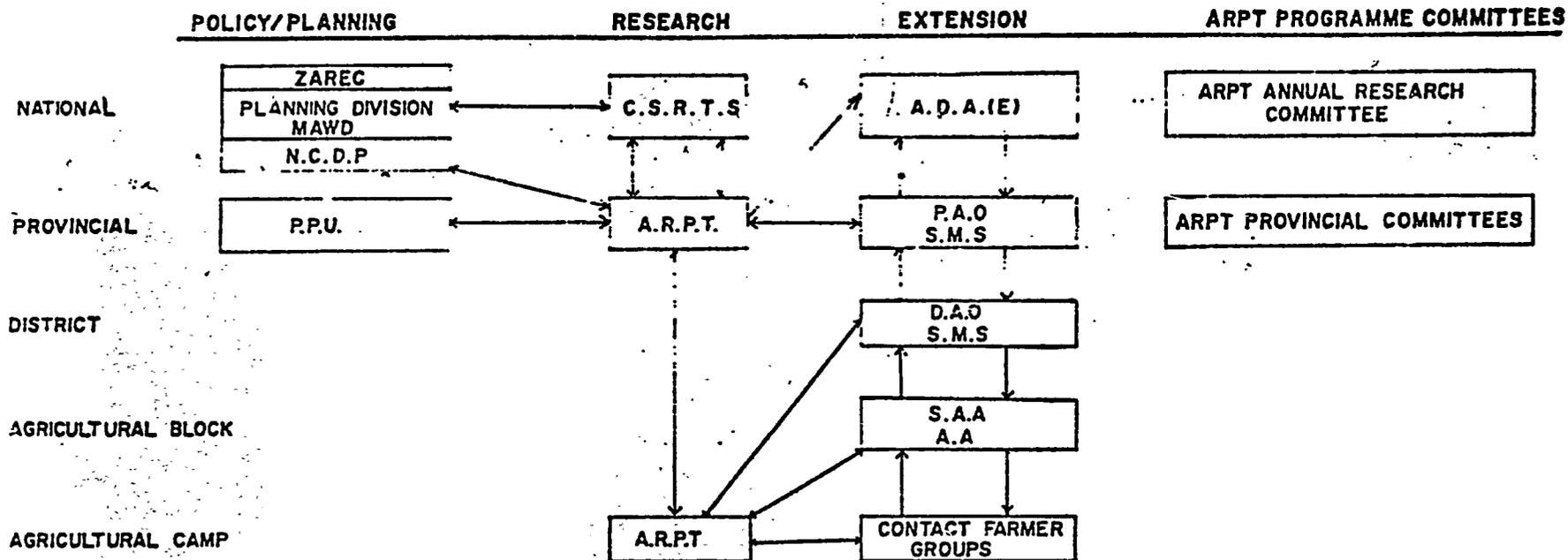
DIAGRAM 1. ORGANISATION CHART FOR MINISTRY OF AGRICULTURE AND WATER DEVELOPMENT

CP



Source: S. A. Kean, M. R. Mdlele, G. K. Patel, 1985 "A Review of Zambia's Systems Based on-farm Programme - The Adaptive Research Planning Team."

DIAGRAM 2: OUTLINE OF THE RESEARCH, EXTENSION AND PLANNING SYSTEM



ZAREC—Zambia Agricultural Research and Extension Council.
 PLANNING DIVISION, MAWD—Planning Division in the Ministry of Agriculture and Water Development.
 N.C.D.P—National Commission for Development Planning.
 P.P.U—Provincial Planning Units.
 C.S.R.T—Commodity and Specialist Research Teams.
 A.R.P.T—Adaptive Research Planning Team.
 A.D.A(E)—Assistant Director of Agriculture (Extension)
 P.A.O—Provincial Agricultural Officer.
 S.M.S—Subject Matter Specialists.
 D.A.O—District Agricultural Officer.
 S.A.A—Senior Agricultural Assistants.
 A.A—Agricultural Assistants.

Source: S. A. Kean, M. R. Mulele and B. K. Patel, 1985 "A Review of Zambia's System Based on-farm Research Programme The Adaptive Research Planning Team."

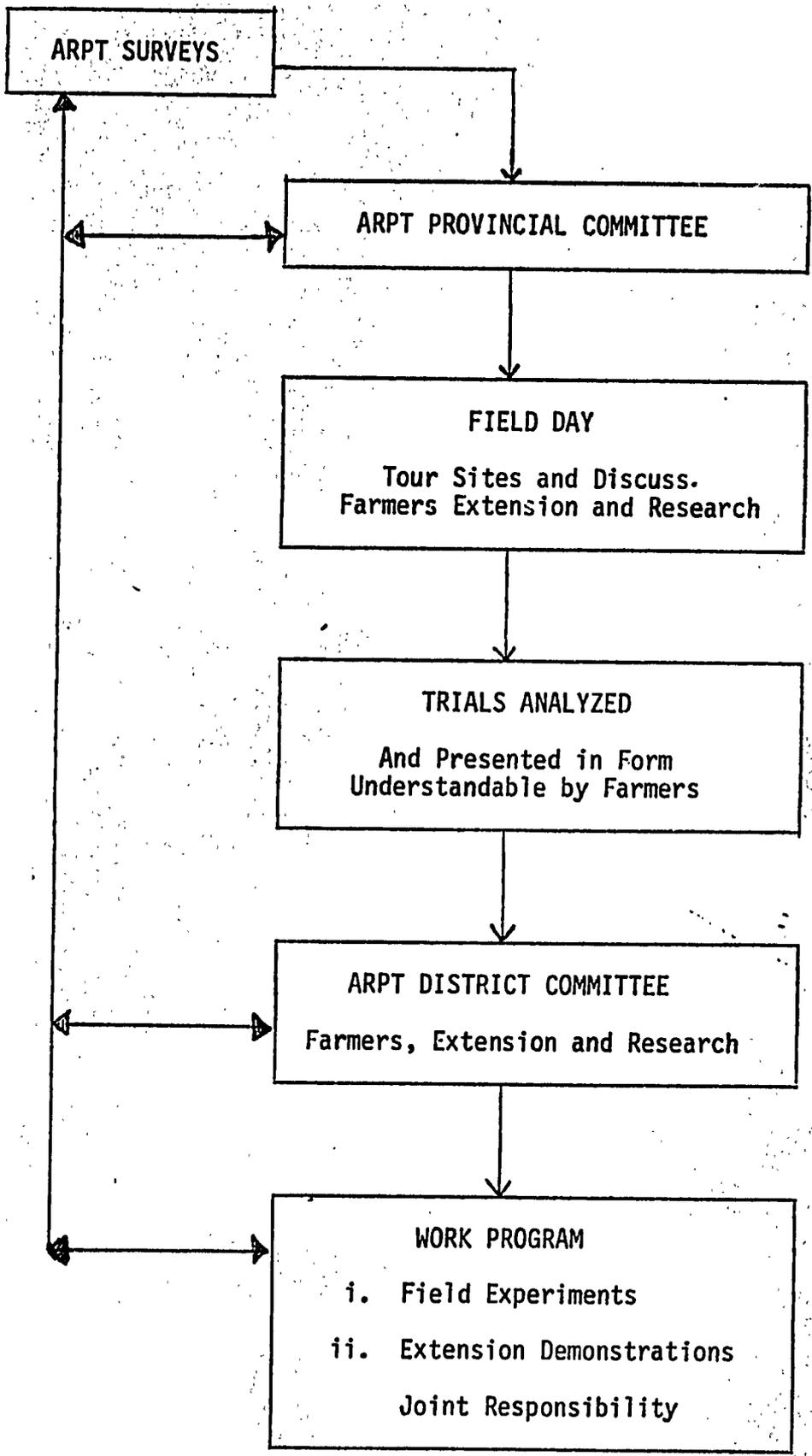


Diagram 3. Farmer Participation in Technology Development.