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INTERIM REVIEW

BASIC VILLAGE EDUCATION PROJECT

EVALUATION COMPONENT

UNIVERSITY OF SOUTH FLORIDA

FEBRUARY 2-4, 1976

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ABSTRACT

The original plan for the Basic Village Education Program included some specific evaluation requirements. They were stated as follows:

The Evaluation plan deals specifically with:

1. Evaluation of the differential effectiveness of a series of communication treatments in producing change in attitude, knowledge, practice and production.
2. Measurement of such changes in two highly different cultural settings (Oriente-Ladino, Occidente-Indian).
3. A related cost benefit analysis following the experimental aspects of development.

Measurement of change is based primarily upon degrees of significance of differences between various treatment and control areas in changes in knowledge, attitudes, practices and production. Given the measurement of differences, together with crop yields and program cost elements, cost effectiveness will be determined and extrapolated for a larger population by an agricultural economist.

THE PROCESS OF EVALUATION

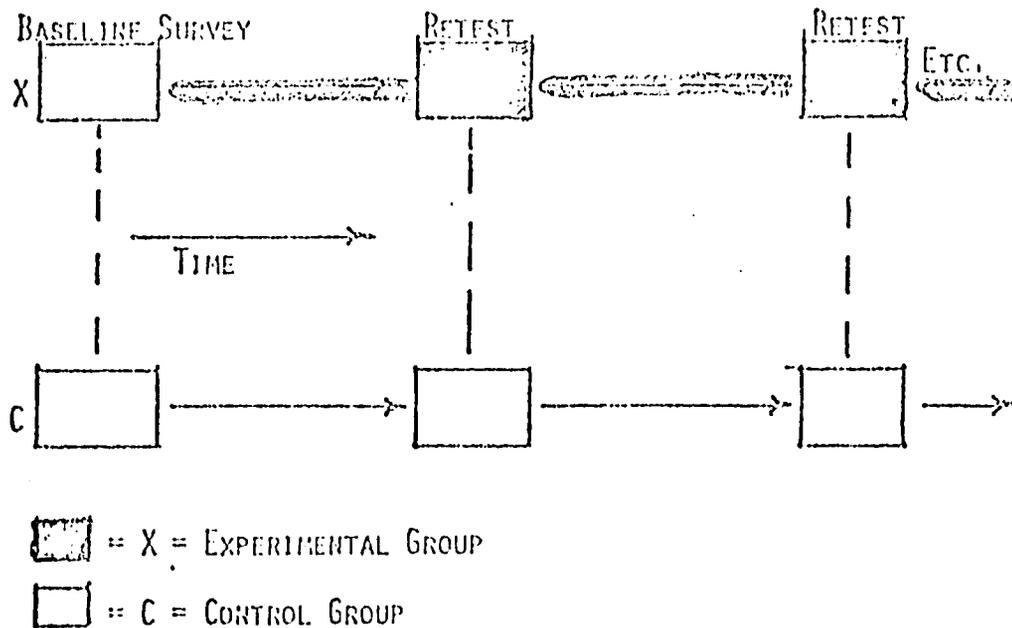
1. DEVELOPMENT OF THE RESEARCH DESIGN.
2. SELECTION OF THE AREAS FOR INTERVIEWING.
3. SELECTION OF THE FARMERS TO BE INTERVIEWED.
4. PREPARATION OF THE QUESTIONNAIRES.
5. SELECTION AND TRAINING OF INTERVIEWERS.
6. INTERVIEWING STRATEGY.
7. DATA PROCESSING.
8. ANALYSIS OF DATA.
9. INTERPRETATION OF RESULTS.

EVALUATION PROCESS

It is not always easy to separate the overall goals or products from the process or activities by which the goals are achieved. In order to measure the impact of the Basic Village Education it was necessary to develop a research design. The features of the design are outlined in this section. The evaluation activities, both in the field and at the University of South Florida, are also included.

A. Evaluation Research Design. A modified form of standard experimental design was selected to meet the evaluation requirements of the Basic Village Education. Figure 11 best describes the basic experimental design. Change is measured by using an experimental group which receives the treatment to be measured (educational program in this case) and a control group which is not exposed to the treatment. It also includes a pre-test before the treatment begins and a post-test after the treatment.

Figure
BASIC FEATURES OF EXPERIMENTAL DESIGN



DESIGNED TO MEASURE THE RESULTS OF AN EXPERIMENTAL TREATMENT OVER TIME

The characteristics of the Basic Village Education design are described below:

1. It measures change by treatment over time. The BVE program has been prepared in such a way that one group of people will receive new information by way of radio (R), another group of equal size will receive radio accompanied with community meeting led by a local leader called a monitor (RM) that has had some training, and a third group that will have radio information with monitor accompaniment and the addition of a technical advisor (RMA) that visits the farms. Two additional aspects have also been added at the suggestion of sponsoring agencies. A monitor control (CM) group has been added which will get the same program treatment as the RM sub-area except it will not get radio broadcasts. Provision has also been made for field testing of different combinations of materials and media within the treatment areas.
In order to measure the impact of these three information treatments over time using experimental design which includes both experimental and control groups, the control group must be selected with all of the same characteristics as the experimental group except that it receives no treatment as part of the educational program. Both experimental and control groups are measured before the educational program is initiated and again at periodic intervals. In the BVE program, there are three experimental groups (R, RM, and RMA) and two control groups (C and CM). All are of equal size (5 villages each with approximately 125 total people). The baseline survey was completed in November of 1973 in Quezada and Yupi and the same people were reinterviewed in November of 1974.
2. Monthly measurement of change. The monthly time sample is an additional feature of the design for formal evaluation in the BVE program. This gives immediate feedback on the results of the prior months educational programming. It also serves to explain and confirm the results of the surveys done at the end of the year.
3. It measures change by geographical area over time. It would be expected that any change in geographical location would be accompanied by changes in many things that could effect the results of an educational program such as BVE. In order to see how geographical difference might effect the results the original area chosen for programming and measurement in 1974 was replicated to include two additional areas in Oriente for programming and evaluation in 1975 and 1976. These areas are Yupi and Ipala.
In addition to the people and villages chosen for the expanded program, another group was chosen for a further experimental treatment. This fourth treatment (CM) which was mentioned above is identical to the radio-monitor (RM) except it does not include radio. In one way it serves as a control to test radio against no-radio, and in another way it gives a link between the experimental and control areas. The three geographical areas thus included in Oriente are Quezada, Yupi and Ipala.
4. It measures change across cultural areas.* One of the reasons that

*This aspect of the design has become inoperative because of programming delays in Occidente (see Amendment).

Guatemala was chosen as a setting for this experiment in nonformal education was because of the existence of more than one culture within the national boundaries. The contrasts between the Ladino culture of the Oriente and the Indian culture of the Occidente offer excellent possibilities for comparative measurement of change. A design was developed for Occidente which included the same features as that in Oriente. When added onto the Oriente design it offers the opportunity for a number of comparative measurements:

- 1) Month by month with time samples.
 - 2) Year by year with the baseline and year-end surveys.
 - 3) By four experimental treatments.
 - 4) By geographic area in five separate settings.
 - 5) Across two major cultures in Oriente and Occidente.
5. It measures changes by types of practices. Even within a given subject matter area such as agriculture, not all practices are equally subject to change. A comparative study of change by practice can give further assistance in the selection and timing of program content. The baseline and year-end surveys contain 258 items that can be analyzed separately and compared to each other. Further comparison of these items can be made through the analysis of the time sample surveys (see Table I) and yield surveys.
6. Measures Change in Total KAP Over Time. If the educational programs of the Basic Village Education are effective, there should be some measurable changes in the agricultural practices of the people. At the same time it is clear that traditional people do not immediately change their behavior. The sequence of change that takes place starts as the point of new knowledge (K), continues with a favorable attitude (A), and finally may result in practice (P) change. In a short time span of a year (or even in the total evaluation time span allocated to the BVE program) there may be little change in agricultural practices (P) but there should be a noticeable change in knowledge (K) and attitudes (A). For this reason the measuring instruments (questionnaires) used have included provisions for measuring knowledge (K) and attitudes (A) as well as practices (P).
7. Relation of change to age, size of farm, education, travel, contact with change agents, group membership, risk orientation, off farm work, diet, etc. Not all people are as willing or able to change. In any given population of people it is important to recognize those individuals and communities that are more receptive to change so that limited resources can be used where more results are possible. The survey data can be analyzed to give this kind of information.
8. Modification of the control group. A fundamental modification in experimental design has been made regarding the control group should be noted. The control group is discontinued after the first year-end survey. This modification was necessary due to the non-laboratory nature of the project. It is impossible to continue to ask people questions without arousing their interest in the subjects and their desire to get information related to problems that they face daily. Survey research serves to stimulate the desire for new information. The requests from individuals as well as the combined political pressure left no alternative but to include the control groups in the experimental treatment areas after the first year. Projections from the first year will be made into

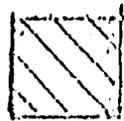
following years to approximate the effect of the treatments vs. the control. With the addition of a radio-free monitor treatment in both Oriente and Occidente, a measure of the effect of radio vs. no radio will be measured.

9. Overall Evaluation Design. The overall design provides for the measurement of change as a result of the experimental BVE program. It includes provisions to measure change comparatively: 1) over time, 2) by experimental treatments, 3) by geographical areas, 4) by month for immediate feedback, 5) across-cultures, 6) by levels of knowledge, attitude and practice, 7) by practice and 8) by socio-economic characteristics of the people and villages.

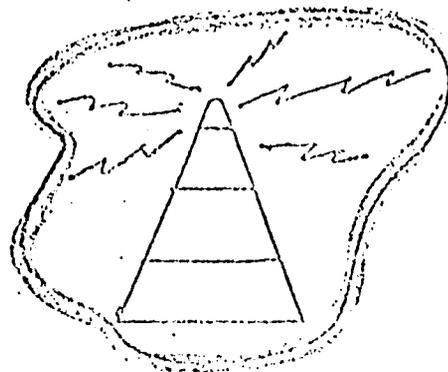
In carrying out the design, there were over 2200 interviews conducted in 1974. There will be approximately 3500 additional interviews conducted during 1975 and a like amount in 1976. The total scope of the data gathering requirements of the project is shown by the 10,250 separate interviews anticipated over the four-year period.

10. The remainder of this report deals with a summary of treatments, dimensions of measurement and major approaches to analysis.

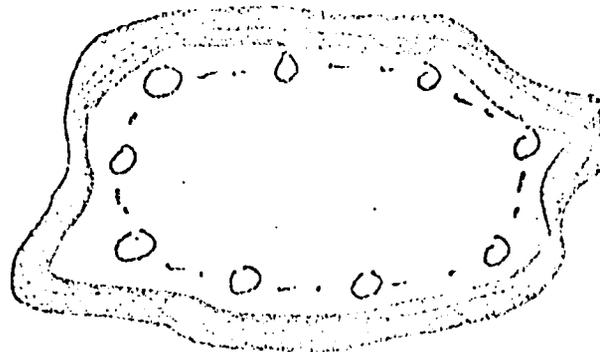
EXPERIMENTAL TREATMENTS TO BE MEASURED IN BVE EVALUATION



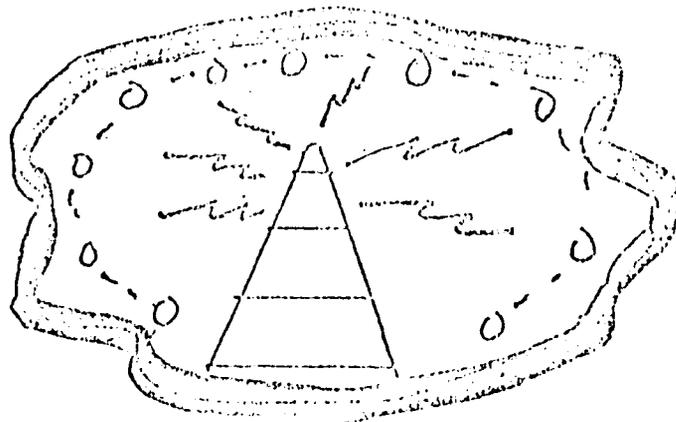
R = RADIO



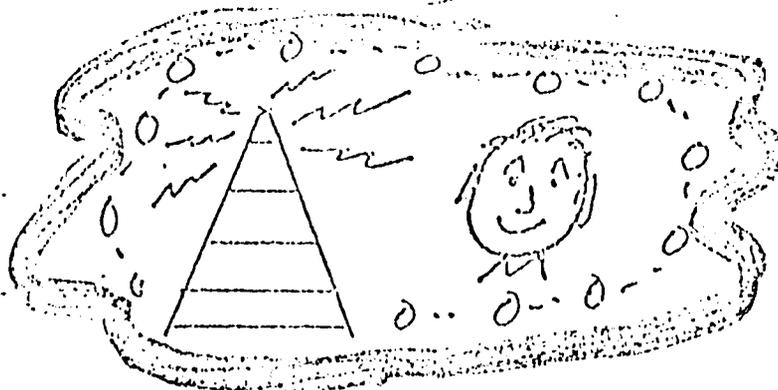
M = MONITOR



RM = RADIO +
MONITOR



RMA = RADIO +
MONITOR
+
AGRONOMIST



MAJOR DIMENSIONS OF MEASUREMENT

I. EXPERIMENTAL TREATMENTS:

RADIO

MONITOR

RADIO + MONITOR

RADIO + MONITOR + AGRONOMIST

II. POPULATION CHARACTERISTICS AND RELATIONSHIPS TO CHANGE IN:

AGE

EDUCATION

TRAVEL-MOBILITY

GROUP MEMBERSHIP

RISK ORIENTATION

FARM SIZE

DIET

III. RECOMMENDED PRACTICES:

INITIAL LEVEL AND CHANGE IN MAJOR FARM PRACTICES IN TERMS OF KNOWLEDGE,
ATTITUDE AND PRACTICE.

BASIC VILLAGE EDUCATION

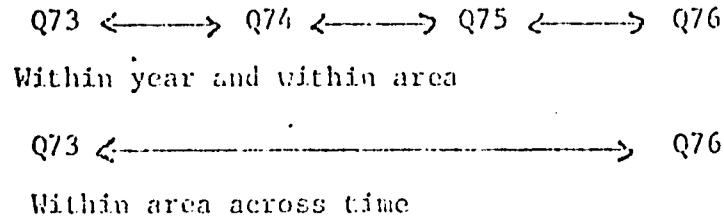
RECOMMENDED PRACTICES MEASURED IN 1974 TIME SAMPLE SURVEYS

- TS-3 3 Soil disinfecting
 8 Selection of corn seed
 13 Number of corn seed per hole
 18 Type of fertilizer at seeding
 23 Amount of fertilizer per manzana
 28 How to apply fertilizer
 33 How to measure amount of fertilizer applied by hill dropping
- TS-4 3 Use of insecticides
 8 Height of weeds at first weeding
 13 Association of weeding and hilling
 18 Use of weed control
 23 Use of fungicide
 28 How to drain steep land
 33 How to drain flat land
 38 How to drain low land
- TS-5 3 Control of insects in beans
 8 Safety precautions with insecticide use
 13 Type of insecticide to control corn ear worm
 18 How to plant second crop/association
 23 How to obtain second crop--sorghum seed
 28 How to obtain second crop--corn seed
- TS-6 3 Use of compost piles
 8 Advisor for fertilizers
 18 Type of fertilizer/initiation of flowering corn
 23 Amount of fertilizer per manzana on corn/bean association
 28 Amount of fertilizer per manzana on sorghum/bean association
 33 Proper time to disinfect soil with insecticides
 38 Advisor to identify crop diseases
 13 Timing of fertilizer at initiation of flowering
- TS-7 3 First weeding of the corn field/determined by weed height
 8 Second weeding of the corn field/determined by weed height
 13 Order in which you should weed, hill and fertilize
 18 Order in which you should weed and hill your first crop of corn
 23 Insecticide most effective for the diabrotica beetle
 28 How to mix the insecticides used to control the diabrotica beetle
 33 Advisor about use of insecticides on the crops

MAJOR APPROACHES TO ANALYSIS

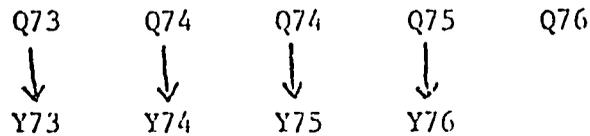
1. Within Area Comparisons - Each area will serve as a self-control with comparisons with the initial baseline and change over treatment periods.

Example:



2. Across Area Comparison - Each area will be measured against other areas of comparable treatment and control conditions.

Example:



3. Across Culture Comparison - Each area and each condition will be measured against comparable areas in the two major cultures under study.

Example:

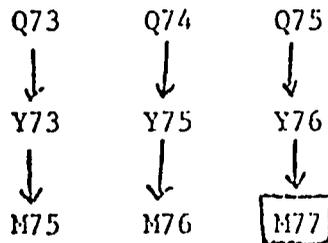
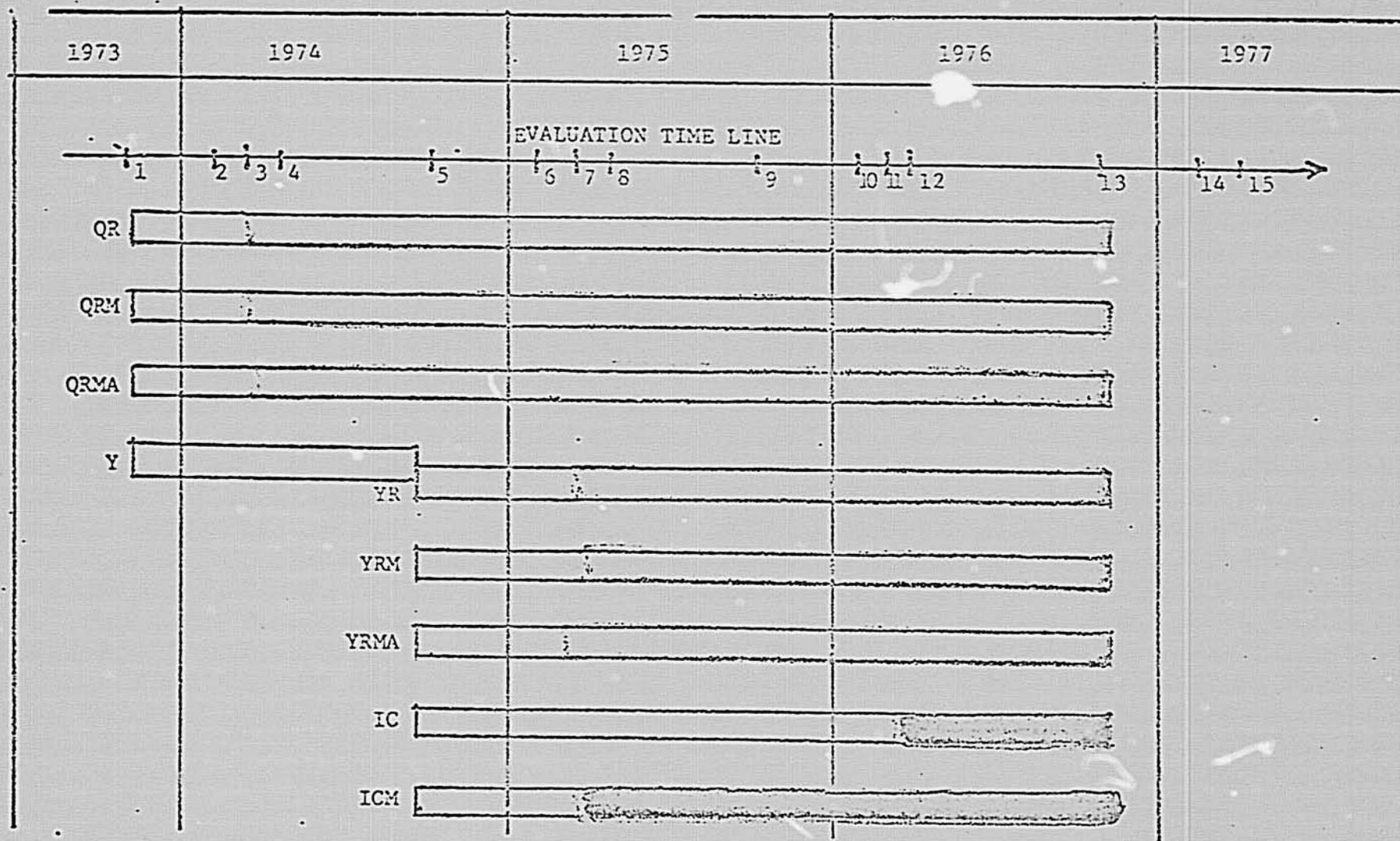


Figure - BVE EXPERIMENTAL PROC - PLAN FOR ORIENTE 1973-1977

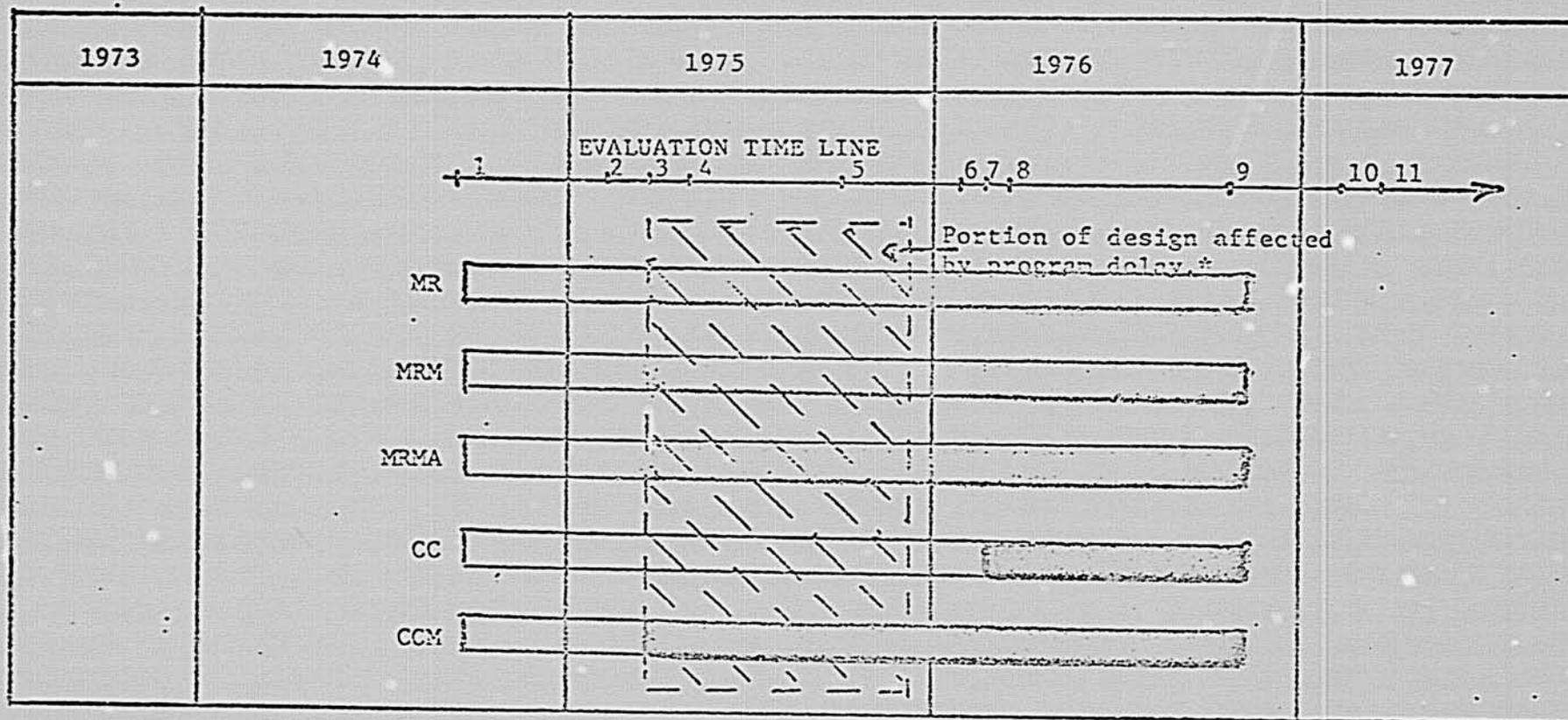


A graphic representation of the research design as presently being used in the Oriente area of Quezada. The stages are outlined in the Evaluation Time Line: 1) August-November 1973, Baseline survey in sub-areas selected for QR*, QRM, QRMA, and YC. 2) January 1974, a yield survey for 1973 crops. 3) March, 1974: Initiation of educational program. 4) April-September 1974: Monthly time sample surveys. 5) September-November 1974: Year-end survey Quezada areas; baseline surveys for Yupi and Ipala. 6) January 1975: Yield Survey for 1974 crops. 7) March 1975: Initiation of program in new areas. 8) April-September 1975: Time Sample Surveys all areas. 9) September-November 1975: Year-end surveys all areas. 10) January 1976: Yield survey for 1975 crops. 11) March 1976: Initiation of program in IC sub-area. 12) April-September 1976: Time Sample Surveys all areas. 13) September-November 1976: Year-end survey. 14) January 1977: Yield survey for 1976 crops. 15) January-July 1977: Final analysis and reporting.

*Areas: Q = Quezada; Y = Yupi; I = Ipala. Treatments: R = Radio; M = Monitor; A = Agronomist; C = Control.

Figure . . .

BVE EXPERIMENTAL PROGRAM PLAN FOR OCCIDENTE 1973-1977*



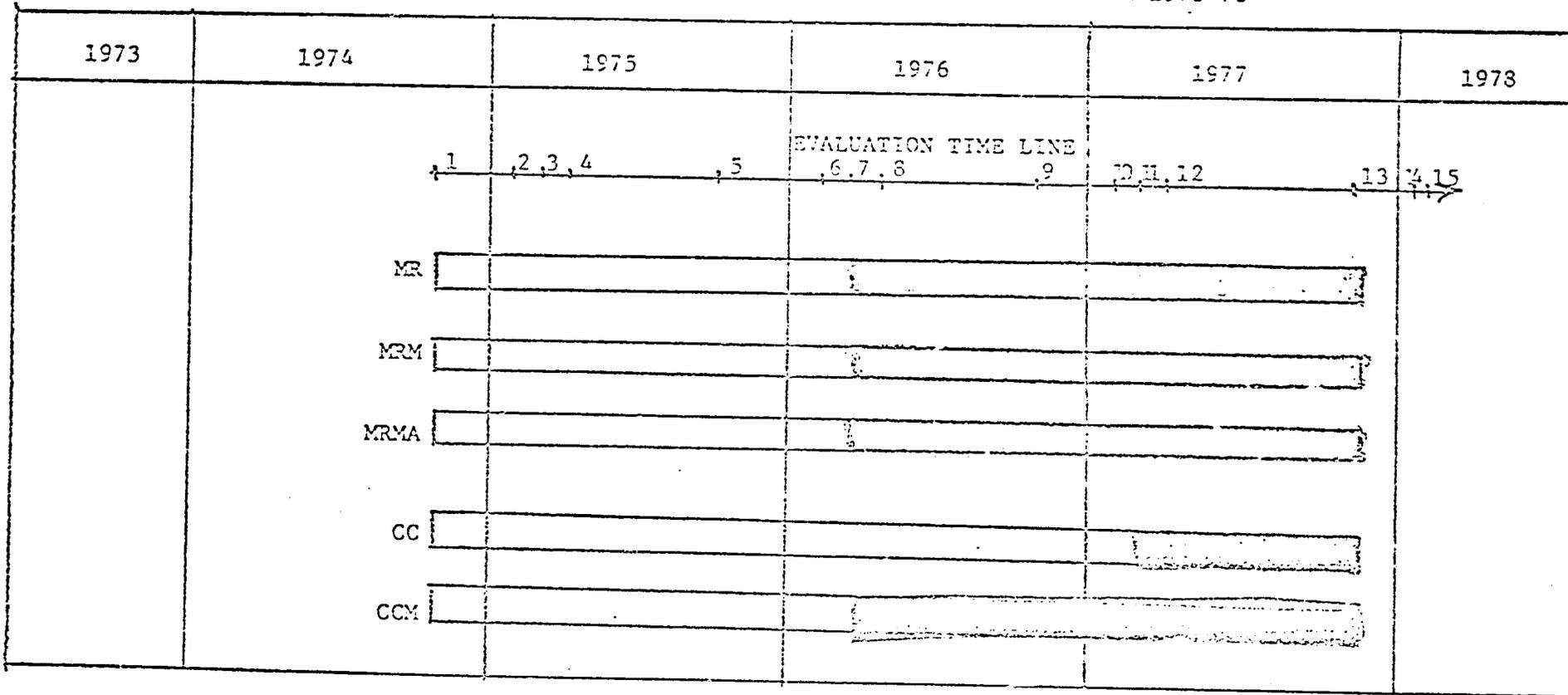
A graphic representation of the research design as proposed for use in the Occidente area of Guatemala. The stages are outlined in the Evaluation Time Line: 1) August-November 1974: Baseline survey in MR**, MRM, MRMA, CC, and CCM. 2) January 1975: Yield survey for 1974 crops. 3) March 1975: Initiation of educational program. 4) April-September 1975: Monthly Time Sample Surveys. 5) September-November 1975: Year-end survey. 6) January 1976: Yield survey for 1975 crops. 7) March 1976: Initiation of educational program in CC sub-area. 8) April-September 1976: Monthly time sample surveys. 9) September-December 1976: Year-end survey. 10) January 1977: Yield survey for 1976 crops. 11) January-July 1977: Final analysis and report.

*The educational program was not initiated in March 1975 as planned so that the design has become inoperative.

**Areas: M = Momos; C = Chichi. Treatments: R = Radio; M = Monitor; A = Agronomist.

Figure

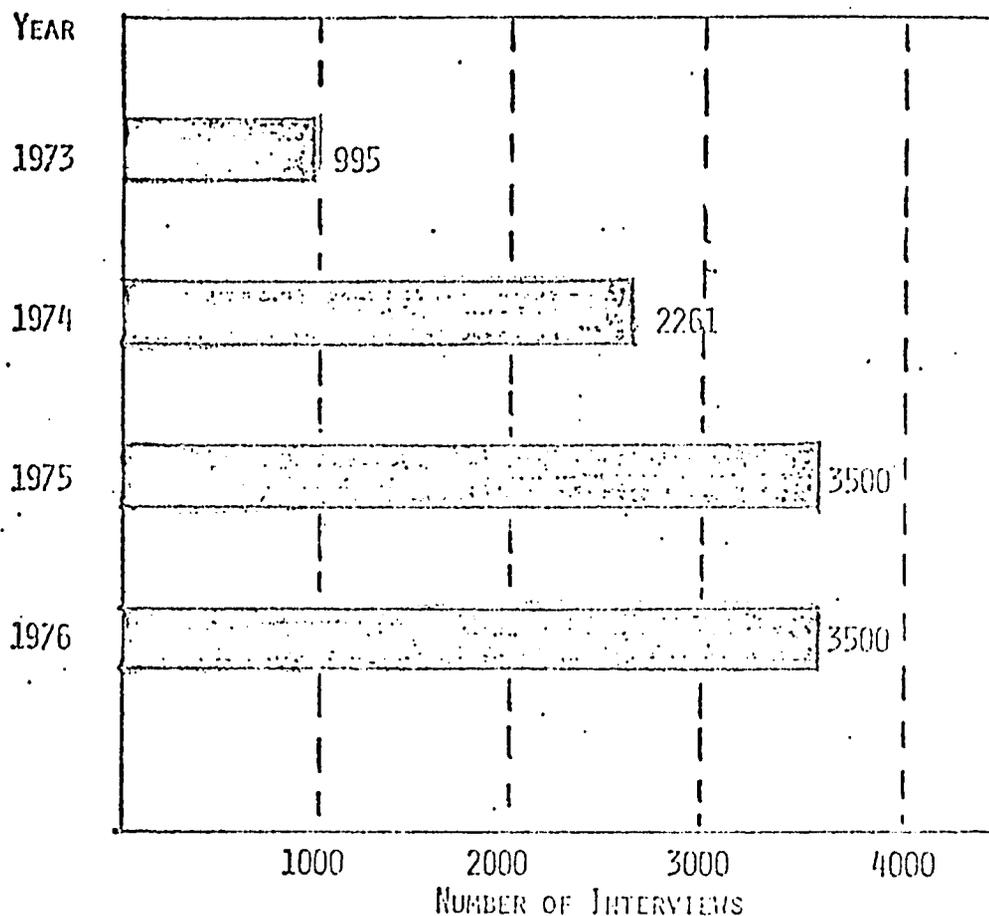
BVE EXPERIMENTAL PROGRAM - ALTERNATE PLAN FOR OCCIDENTE 1973-78



A graphic representation of the research design as proposed for use in the Occidente area of Guatemala. This does not effect in any way the plan for Oriente (Figure 13) which remains in effect. The stages are outlined in the Evaluation Time Line: 1) August-November 1974: Baseline survey in all sub-areas. 2) January 1975: No yield survey. 3) March 1975: Educational program not initiated. 4) April-September 1975: Monthly time sample surveys not conducted. 5) September-November 1975: Year-end survey (all sub-areas considered as program-free control areas during year). 6) January 1976: Yield survey for 1975 crops. 7) March 1976: Initiation of educational program in all sub-areas except CC. 8) April-September 1976: Monthly time sample surveys. 9) September-December 1976: Year-end surveys. 10) January 1977: Yield survey for 1976 crops. 11) March 1977: Initiation of educational program in CC sub-area. 12) April-September 1977: Monthly time sample surveys. 13) September-December 1977: Year-end survey. 14) January 1978: Yield survey for 1977. 15) January-July 1978: Final analysis of Occidente data, cross-cultural comparison and final report.

Figure

INTERVIEWS CONDUCTED AS PART OF BVE EVALUATION



DURING LIFE OF PROJECT:
APPROXIMATELY 10,250 SEPARATE INTERVIEWS
WITH 1561 FARMERS
IN 49 VILLAGES
IN 14 TREATMENT AREAS
IN 5 MAJOR GEOGRAPHICAL AREAS, AND
IN 2 CONTRASTING CULTURES.

Figure 16 is a graphic representation of the number of interviews that will be conducted as part of the measurement of the results of the Basic Village Education experimental program. In 1973 there were 995 interviews conducted; in 1974 there were 2261; and 3500 are planned for both 1975 and 1976.*

*Due to delays in 1975 programming in Occidente, some modifications will be made. See Appendix 1.

RESULTS OF EVALUATION

- I. WHAT CHANGES EXPECTED?
- II. WHAT LEVEL OF CHANGE?
- III. WHO CHANGES?
- IV. HOW MUCH AND WITH WHICH TREATMENTS?

RESULTS OF EVALUATION

- I. WHAT CHANGES EXPECTED:
 - AGRICULTURAL PRACTICES
 - ALSO --EDUCATIONAL LEVEL
 - HEALTH PRACTICES
 - DIET
 - HOME IMPROVEMENTS

RESULTS OF EVALUATION

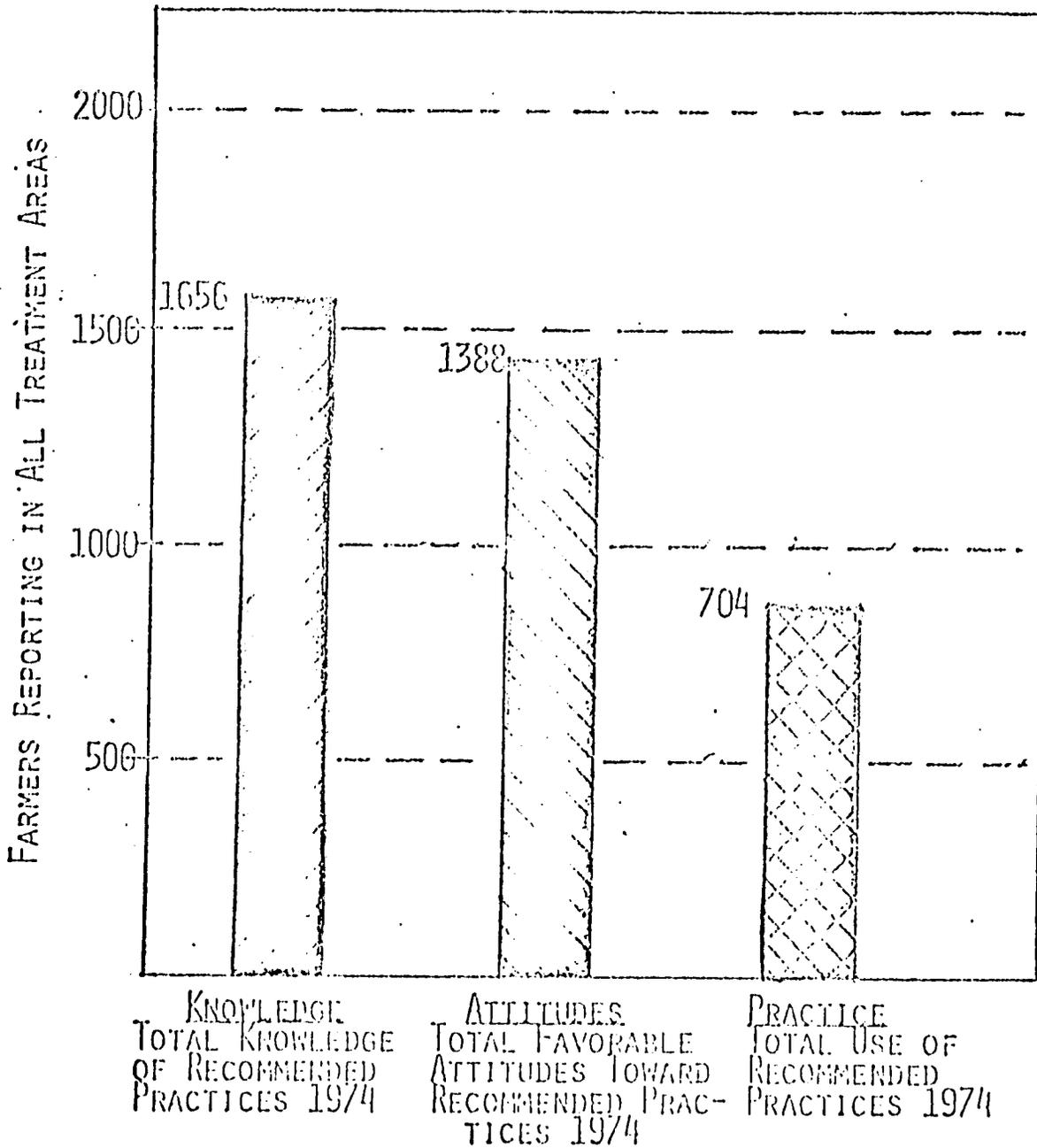
II. WHAT LEVEL OF CHANGES

- K - KNOWLEDGE "I KNOW THAT 200 POUNDS OF COMPLETE FERTILIZER SHOULD BE APPLIED PER MANZANA AT THE TIME CORN IS PLANTED."
- A - ATTITUDES "I FEEL THAT IT IS BEST TO USE 200 POUNDS OF COMPLETE FERTILIZER PER MANZANA AT THE TIME CORN IS PLANTED AND PLAN TO USE IT IF I CAN GET FERTILIZER AND CREDIT."
- P - PRACTICES "I USED 200 POUNDS OF COMPLETE FERTILIZER PER MANZANA AT THE TIME CORN WAS PLANTED EXACTLY AS WAS RECOMMENDED BY RADIO GUEZA"

CHARACTERISTICS OF SUBSISTENCE FARMERS
PARTICIPATING IN BVE EVALUATION

	ORIENTE	OCCIDENTE
LANGUAGE SPOKEN	SPANISH	QUICHE
LITERATE (%)	46	34
ATTENDED SCHOOL (%)	37	23
AVERAGE YEARS OF SCHOOL ATTENDED (ATTENDERS)	2.5	2.3
LISTEN TO RADIO DAILY (%)	92	54
SANITARY TOILET FACILITIES (%)	8	10
FULL-TIME FARMERS (%)	100	98
OWN LAND (%)	81	99
AMOUNT OF LAND OWNED (ACRES)	5	4
USE INSECTICIDES (%)	37	29
AVERAGE CORN YIELD (BUSHEL/ACRE)	11	19
USE CREDIT (%)	18	25
USE FERTILIZER (%)	11	15

COMPARISON OF KNOWLEDGE, ATTITUDES AND USE OF RECOMMENDED PRACTICES 1974



SOURCE: 1974 TIME SAMPLES III - VII

RESULTS OF EVALUATION

III. WHO CHANGES?

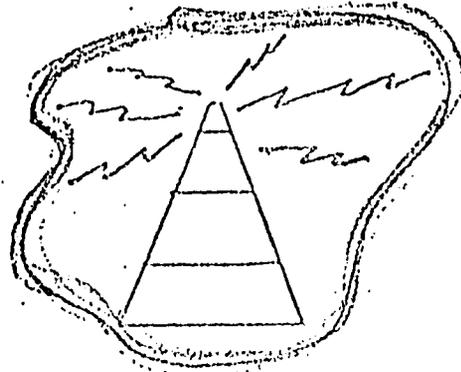
- OLD/YOUNG
- SPANISH-SPEAKING/QUICHE-SPEAKING
- LITERATE/ILLITERATE
- LARGER FARMS/SMALLER FARMS

RESULTS OF EVALUATION

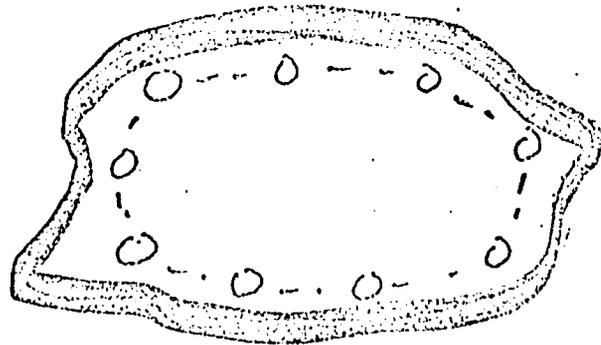
IV. WITH WHICH TREATMENTS?



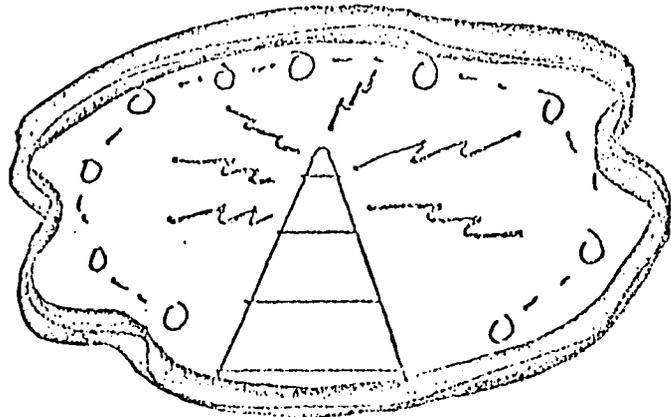
R = RADIO



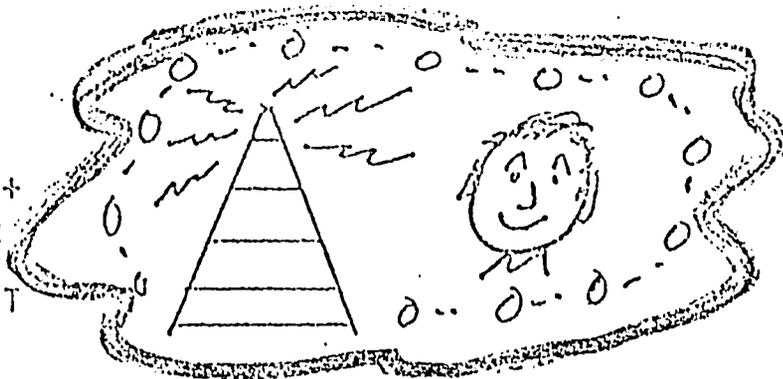
M = MONITOR



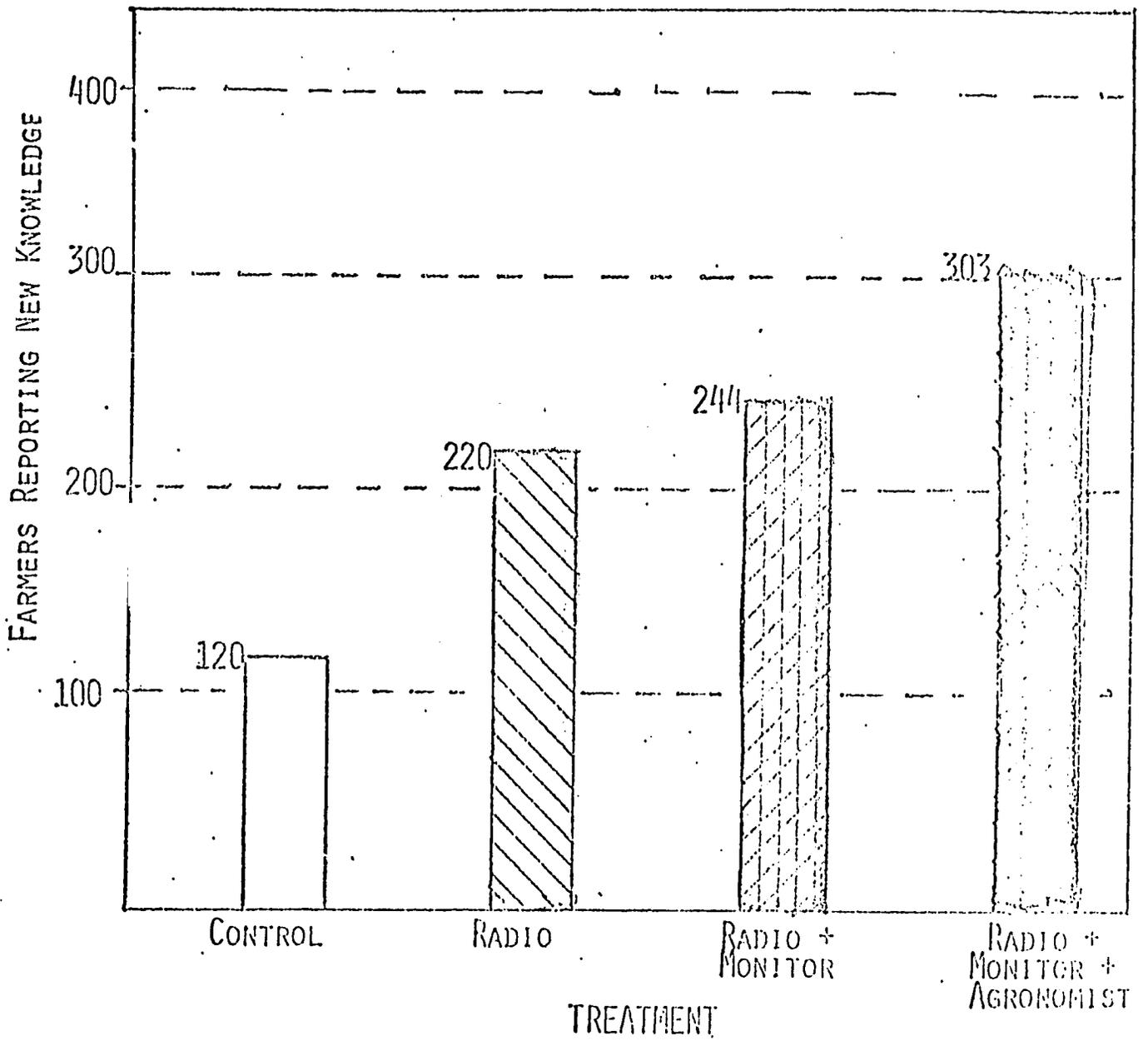
RM = RADIO +
MONITOR



RMA = RADIO +
MONITOR
+
AGRONOMIST

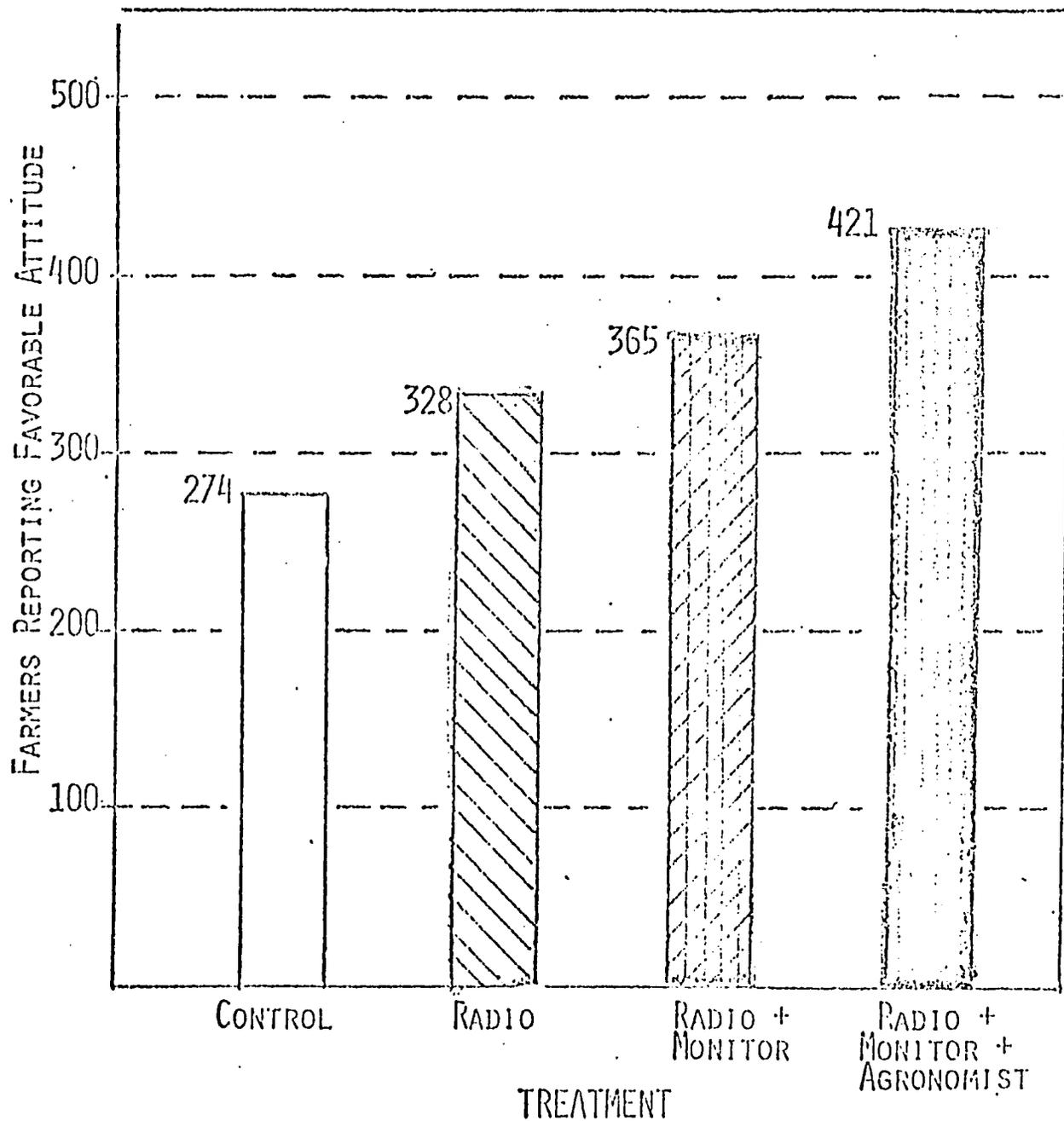


NEW KNOWLEDGE OF RECOMMENDED PRACTICES REPORTED 1974



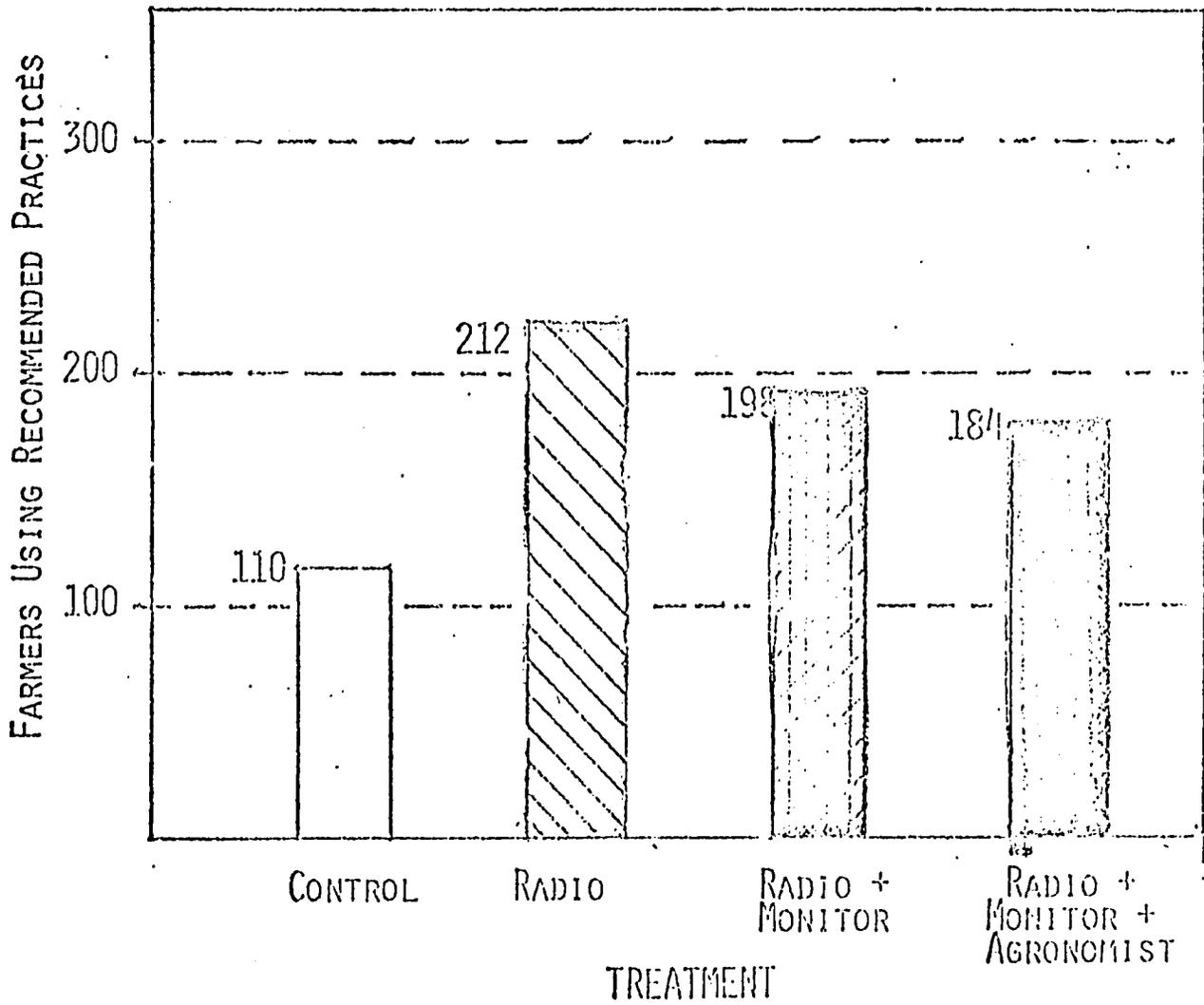
SOURCE: 1974 TIME SAMPLES III - VII

FAVORABLE ATTITUDES TOWARD RECOMMENDED PRACTICES REPORTED 1974



SOURCE: 1974 TIME SAMPLES III - VII

USE OF RECOMMENDED PRACTICES REPORTED 1974



SOURCE: 1974 TIME SAMPLES FII - VII

BASIC VILLAGE EDUCATION: GUATEMALA

COMPARATIVE INFORMATION

SELECTED ITEMS FROM 1974 SURVEY

Major Area Comparisons

TABLE I

Area/s	<u>Oriente</u>			<u>Occidente</u>	
	Quezada	Yupi	Ipala	Momos	Quiche
13. Occupation: "Farmer" (%)	100.0	99.7	100.0	98.3	100.0
26. Use hybrid seed corn (%)	3.2	1.6	0.4	0.0	0.0
45. Average corn yield (growers only) (qq/mza)	11.0	10.45	9.92	19.0	15.82
46. Average bean yield (growers only) (qq/mza)	8.53	6.88	18.0	5.2	2.61
99. Use insecticides (%)	37.1	24.1	13.3	29.3	11.1
122. Use chemical fertilizer on corn at flowering time (% using more than 1 qq/mza)	10.5	5.4	1.2	14.6	9.2
125. Use chemical fertilizer on corn/beans at flowering time (% using more than 1 qq/mza)	2.5	0.5	5.9	40.1	30.2
169. Use credit (%)	18.1	9.1	7.9	25.2	12.5
174. Visited by agronomist (%)	73.7	37.0	20.0	3.6	0.0
182. Own land (%)	80.5	69.6	52.5	99.3	99.5
Average size of land owned (owners only) (mzs)	3.05	2.52	2.73	2.35	1.57
183. Rent land (%)	27.3	42.6	60.1	2.6	4.8
Average size of rented land (renters only) (mzs)	1.93	1.87	2.14	0.0	0.8
184. Has communal land (%)	9.2	4.5	0.4	0.3	0.0
Average size of communal land (communal operators only) (mzs)	2.75	3.7	0.0	0.0	0.0
185. Has sharecropped land (%)	10.7	19.2	0.0	0.9	0.5
Average size of sharecropped land (Sharecroppers only) (mzs)	2.25	2.19	0.0	0.0	2.0

*The original computer print-out did not include all of the cases. All 373 cases have been included in this summary. (Yupi)

TABLE I, continued

Area/s	Quezada	Oriente		Ipala	Occidente	
		Yupi			Momos	Quiche
195. Spends time working away (%)	46.1	42.6		28.5	77.3	50.0
210. Listen to radio daily (%)	91.8	83.1		76.3	53.5	53.9
251. Has toilet facilities (%)	7.7	0.8		5.1	9.5	0.5
254. Average number of children	5.75	3.97		4.63	4.27	3.56
255. Illiterate (%)	54.4	63.8		59.6	66.3	82.7
256. Attended school (%)	37.4	29.1		30.1	27.5	15.9
Average years of school attendance (attenders)	2.51	2.28		2.52	2.33	1.79

Evaluation Reports. There have been more than 50 Evaluation Reports prepared since the project began in 1973. These reports are prepared for immediate field use and distributed to a limited audience. They are often revised and included in other reports at a later date. Sixty of these reports are listed below.

1. Procedures for Data Processing. 3 pp., September 19, 1973. Notes from discussion of data processing procedures with Ray, Rich, Anderson and Nesman on 9/18/73.
2. Evaluation of an Experiment in Non-Formal Education. 30 pp., April, 1974. Report prepared for presentation at Annual Review in State Department.
3. Procedures for Analysis of Data. 2 pp., September, 1974. Proposed procedures and questions to guide in the analysis of the data from the field surveys.
4. The Use of Paraprofessionals in Nonformal Education. 61 pp., February 7, 1975. A summary of general principles in the recruitment, training, supervision and evaluation of local leaders.
5. Data Processing Check on 1973 Baseline Survey (Phase I). 8 pp., February 24, 1975. Procedures and rationale for complete and final check of all data being used for computer analysis.
6. Radio Use in Occidente. 39 pp., February 25, 1975. A summary of radio ownership and use in the Momos area of Occidente. The 1974 Momos data is also compared to the 1973 Quezada data.
7. Field Interview Techniques. 7 pp., February 24, 1975. Suggestions for field interviewers made by Astolfo Mellado, field interviewer for Oriente 1973-74.
8. Behavioral Objectives and Time Sampling. 28 pp., February 26, 1975. A summary of the 1974 Time Sample Surveys in the Quezada area.
9. Comparison of Selected Characteristics of Farmers in Oriente and Occidente. 1 pg., February 28, 1975. A comparison of 11 items from 1974 Baseline Survey in sub-areas of Ipala (Ote.) and Momos (Occ.).
10. Ranking System. 2 pp., February 28, 1975. A proposal for a method to measure change using a scoring system for recommended practices.
11. Comparative Information From 1974 Baseline/Year-End Survey. 13 pp., April 16, 1975. A selection of 24 items to compare major areas and treatment areas in Oriente and Occidente including information on occupation, land tenure arrangements, radio use, home sanitary facilities, family size, education, selected agricultural practices and crop yields (with revisions on May 30).
12. Disease Control: Momostenango. 5 pp., April 22, 1975. A summary of responses relating to disease control for Momostenango from 1974 Baseline Survey.
13. Disease Control: Ipala. 5 pp., April 22, 1975. A summary of responses relating to disease control for Ipala from 1974 Baseline Survey.
14. Insect Control: Momostenango. 5 pp., April 23, 1975. A summary of responses relating to disease control for Momostenango from 1974 Baseline Survey.
15. Insect Control: Ipala. 5 pp., April 24, 1975. A summary of responses relating to insect control for Ipala from 1974 Baseline Survey.
16. Measurement of Change 1973-74 in Oriente 1 Experimental Area. 5 pp., April 28, 1975. Outlines procedure for scoring and scaling of items on 1973 and 1974 surveys so that an accurate measure of change can be obtained (see May 30 revision).

17. Disease Control: Yupi. 5 pp., May 3, 1975. A summary of responses relating to disease control for Yupi from 1974 Baseline Survey.
18. Insect Control: Yupi. 5 pp., May 3, 1975. A summary of responses relating to insect control for Yupi from 1974 Baseline Survey.
19. Insect Control: Chichi. 5 pp., May 5, 1975. A summary of responses relating to insect control for Yupi from 1974 Baseline Survey.
20. Disease Control: Chichi. 5 pp., May 5, 1975. A summary of responses relating to disease control for Chichi from 1974 Baseline Survey.
21. Oriente Evaluation Time Line. 4 pp., May 9, 1975. An outline of the research design for Oriente including major areas, treatment areas, villages and respondents for each year.
22. Occidente Evaluation Time Line. 3 pp., May 9, 1975. An outline of the research design for Occidente including major areas, treatment areas, villages and respondents for each year.
23. Revised Computer Card and Case ID Numbering System. 8 pp., May 28, 1975. A standardized system to distinguish major areas, treatment sub-areas, villages, individual cases, and survey number (revised June 6, 1975).
24. Notice of Coding Change. 1 pg., May 30, 1975. A notification of an error in treatment area coding in the 1974 Quezada Year-End Survey data.
25. Disease Control: Quezada. 5 pp., May 30, 1975. A summary of responses relating to disease control for Quezada from the 1974 Year-End Survey.
26. Insect Control: Quezada. 5 pp., May 30, 1975. A summary of responses relating to insect control for Quezada from the 1974 Year-End Survey.
27. Measurement of Change 1973-74 in Oriente 1 Experimental Area. 5 pp., May 30, 1975. An update on the Evaluation Report of April 28 regarding scoring and scaling of items on the 1973 and 1974 surveys so that an accurate measure of change can be obtained.
28. Evaluation Report for Annual Review. 57 pp. of background material prepared to accompany slide presentation at State Department on June 16/17, 1975.
29. Annual Review - Project Presentation: An Outline of Topics Discussed. 12 pp., June 20, 1975. Summary of topics discussed.
30. Results of 1974 BVE Program in Jutiapa, Guatemala. 35 pp. with 34 graphs, July 22, 1975. Graphs show both 1973 and 1974 levels. Items include: information sources, technical assistance, credit use and recent practice changes; land clearing and planting methods; insect, disease and weed control.
31. Characteristics of "Progressive" Farmers in Jutiapa. 1 pg., August 8, 1975. A summary of items found in correlation analysis of 1973 Baseline data.
32. Data Summary: Quezada. 76 pp., July, 1975. A complete summary of all responses by treatment sub-areas on 1974 Year-End Survey in the Quezada area.
33. Data Summary: Yupi. 76 pp., August, 1975. A complete summary of all responses by treatment sub-areas on 1974 Baseline Survey in the Yupi area.
34. Data Summary: Ipala. 76 pp., August, 1975. A complete summary of all responses by treatment sub-areas on 1974 Baseline Survey in the Ipala area.
35. Comparative Information for Occidente. 29 pp. with 28 graphs, August 15, 1975. Graphs show selected items from 1974 Baseline Survey for treatment and control sub-areas of Momos and Chichi.
36. Average Amount of Crop Land Available for Planting in 1974. 2 pp. with 1 table, August 20, 1975. A summary of total crop land available for planting.

37. Time Sample Data Processing Procedures. 2 pp., August 25, 1975. Revised procedures and checklist used with each time sample survey.
38. Judges' Rating of Questions Used in 1974 Baseline Survey. 4 pp., August 29, 1975. Check on validity and reliability of each question asked in survey.
39. Data Summary: Momos. 76 pp., August, 1975. A complete summary of all responses by treatment sub-areas on 1974 Baseline Survey in the Momos area.
40. Evaluation Component: List of Fall Jobs, October 1, 1975 to December 31, 1975. 2 pp., September 5, 1975. Itemized list of jobs to be done.
41. List of Cases Used More Than Once During 1975 Interviewing. 9 pp., September 9, 1975. Includes the Yield 1974 Survey, TS-8, TS-9, TS-10, and TS-11.
42. Basic Village Education: Measurement of Change by Comparing 1973 and 1974 Score Values. 15 pp., September, 1975. Shows advantage scoring methods have over percentage methods.
43. Revised Computer Card and Case ID Numbering System. 8 pp., May 28, 1975. Revised September 24, 1975. A standardized system to distinguish major areas, treatment sub-areas, villages, individual cases, and survey number.
44. Data Processing Steps for 1975 Year-End Survey. 2 pp., September 26, 1975. Procedures and checklist for year-end survey.
45. The Relation of Fertilizer Use and Corn Yields in Quezada in 1974. 3 pp., September 29, 1975. Results of the analysis on the relation of the amount of fertilizer used and corn yields in the Quezada experimental area in 1974.
46. Data Summary: Chichi. 76 pp., October, 1975. A complete summary of all responses by treatment sub-areas on 1974 Baseline Survey in the Chichi area.
47. Agricultural Practices and Corn Yields in Quezada, 1974. 4 pp., October 2, 1975. This is a report on the practices and conditions that are related to corn yields in the Quezada experimental area in 1974.
48. Average Amount of Crop Land Available for Planting in 1974. 3 pp., October 8, 1975. (Revision of E.R. #36). In addition to the average amount of land available, this report includes a table that contains the actual number of farms in each size category in all of the treatment sub-areas and major areas.
49. Characteristics of Farmers of the Quezada Area Who Reported High Crop Yields in 1974. 2 pp., November 25, 1975. A report on general and agricultural characteristics of farmers in the Quezada area who reported high crop yields in 1974.
50. Recommended Agricultural Practices and Number of Adopters During First Program Year of Basic Village Education Program. 1 pg., November, 1975. A report of the analysis of change in the use of recommended farm practices from the time of the baseline survey in the fall of 1973 to the time of the year-end survey in 1974.
51. Characteristics of Farmers that Adopted More Recommended Farm Practices During First Year of Basic Village Education Program. 2 pp., November 25, 1975. A report of the related characteristics and conditions of those farmers of the Quezada experimental area that adopted more of the recommended agricultural practices during the 1974 agricultural year.
52. Profiles of Change. 7 pp., December 30, 1975. A report on six farmers that were high change individuals during the first program year in the Quezada area.
53. Data Summary of 1973 Crop Yields Survey. 18 pp., January 16, 1976. A summary of data collected in January 1974.

54. Data Summary of 1974 Crop Yields Survey. 26 pp., January 20, 1976. A summary of data collected in January 1975.
55. Time Sample Survey - TS8--Data Summary - Oriente 1975. 21 pp., January 22, 1976. A summary of the data from the Time Sample Survey conducted during April of 1975 in the Quezada, Yupiltepeque (Yupi), and Ipala areas of Oriente.
56. Time Sample Survey - TS9--Data Summary - Oriente 1975. 17 pp., January 23, 1976. A summary of the data from the Time Sample Survey conducted during May of 1975 in the Quezada, Yupiltepeque (Yupi) and Ipala areas of Oriente.
57. Time Sample Survey - TS10--Data Summary - Oriente 1975. 23 pp., January 23, 1976. A summary of the data from the Time Sample Survey conducted during June of 1975 in the Quezada, Yupiltepeque (Yupi), and Ipala areas of Oriente.
58. Time Sample Survey - TS 11--Data Summary - Oriente 1975. 24 pp., January 23, 1976. A summary of the data from the Time Sample Survey conducted during July of 1975 in the Quezada, Yupiltepeque (Yupi), and Ipala areas of Oriente.
59. Time Sample Survey - TS 12--Data Summary - Oriente 1975. 26 pp., January 23, 1976. A summary of the data from the Time Sample Survey conducted during August of 1975 in the Quezada, Yupiltepeque (Yupi), and Ipala areas of Oriente.
60. Time Sample Survey - TS 13--Data Summary - Oriente 1975. 18 pp., January 23, 1976. A summary of the data from the Time Sample Survey conducted during September of 1975 in the Quezada, Yupiltepeque (Yupi), and Ipala areas of Oriente.

Working Papers. The working papers represent an intermediate step in the process of reporting the findings from this unique experimental program in nonformal education. These papers are circulated to a limited audience for comments and suggestions. At a later date necessary revisions and corrections will be made so that the papers can be circulated to a wider audience through the Academy for Educational Development or other suitable publishing outlets. The following paragraphs describe the working papers that have been prepared to date. Fifty bound copies of each have been prepared and distributed.

1. The General Characteristics of Subsistence Farmers in the Department of Jutiapa, Guatemala. Working Paper No. 1, University of South Florida, October, 1974, 93 pp. This is a descriptive report based on the data from the surveys conducted in November, 1973. It contains eight pages of summary narrative and 81 pages of tables. The text is included in Appendix V.
2. The Agricultural Characteristics of Subsistence Farmers in the Department of Jutiapa, Guatemala. Working Paper No. 2, University of South Florida, February, 1975, 130 pp. This is a descriptive report based on the data from the baseline surveys conducted in November, 1973. It is much like Working Paper No. 1 except that it deals in agricultural characteristics instead of general characteristics. It contains 44 pages of summary narrative and 86 pages of tables. A summary is included in Appendix VI.
3. Evaluation of Changes in Knowledge, Attitude and Practices Among Subsistence Farmers in the Department of Jutiapa, Guatemala: A Time Sampling Methodology. Working Paper No. 3, University of South Florida, May, 1975, 134 pp. This paper is of both descriptive and analytical nature based on the data collected in the 1974 monthly time sample surveys. It contains 19 pages of narrative and 115 pages of tables. For further details see Appendix III.

Professional Papers. Measuring the results of a non-formal educational project such as BVE go far beyond the requirements for increased efficiency in the project itself. The expected findings even go beyond the needs of national development of Guatemala. The results of this unique experiment have far reaching consequences for development the world over. Not only applied natural scientists have interest in the results but all branches of the behavioral sciences are interested in the theoretical aspects of attitude and behavior change in non-laboratory settings. Guatemala offers a special opportunity for this study because of the present stage of development and the presence of diverse cultures.

TENTATIVE FINDINGS

I. Within Area Comparisons

A. Differences Reported in Quezada Area 1974 on Selected Items

	<u>C</u>	<u>R</u>	<u>RM</u>	<u>RMA</u>
1. Use of hybrid seed corn (%)	1	7	2	3
2. Use of insecticides (%)	26	46	48	30
3. Use of fertilizers (%)	7	21	10	5
4. Credit use (%)	10	29	17	18
5. Land rental (%)	40	14	12	40
6. Communal land (%)	0	22	17	0
7. Sharecropped land (%)	19	8	10	5
8. Daily listening to radio (%)	81	95	97	97
9. Toilet facilities (%)	0	2	28	3
10. Literacy rate (%)	50	37	50	45

B. Differences Reported in Yupi Area 1974 on Selected Items

	<u>R</u>	<u>RM</u>	<u>RMA</u>
1. Corn yields (qq/mza)	9	13	10
2. Insecticide use (%)	20	31	21
3. Use of fertilizer (%)	3	9	4
4. Technical assistance (%)	17	30	63
5. Land ownership (%)	57	73	78
6. Communal land (%)	5	0	0
7. Sharecropped land (%)	4	38	14
8. Literacy (%)	17	45	44
9. School attendance (%)	14	33	39

C. Differences Reported in Ipala Area 1974 on Selected Items

	<u>C</u>	<u>CM</u>
1. Fertilizer use (%)	1	18
2. Technical assistance	24	15
3. Land rental (%)	53	70
4. Off farm work (%)	37	16

D. Differences Reported in Quezada Treatment Sub-Areas in 1974 as Compared to 1973 on Selected Items

	<u>C</u>	<u>R</u>	<u>RM</u>	<u>RMA</u>
1. An increase in radio listening (%)	9	17	14	18
2. An increase in knowledge of recommended agricultural practices (%)	13	24	27	34
3. An increased expression of favorable attitudes toward recommended agricultural practices across treatment areas (1974 only) (%)	30	36	41	47
4. A decrease in use of recommended practices although it is not consistent across treatments (%)	-4.2	-4.7	-0.2	+1.9

E. Differences Reported in Relative Levels of Knowledge, Attitude and Practice in 1974 as Compared to 1973 in the Quezada Area

1. The ^{total} ~~increase in~~ knowledge of recommended agricultural practices is greater than the expression of favorable attitudes toward those practices (K = 46% vs. A = 39%).
2. The expression of favorable attitudes toward the recommended practices is greater than the actual use of the practice (1974 only) (A = 39% vs. P = 20%).

F. Differences Reported in the Use of Selected Practices (and results) in 1974 as Compared to 1973 in the Quezada Area

	<u>C</u>	<u>R</u>	<u>RM</u>	<u>RMA</u>
1. A general increase in insecticide use in all areas (%)	13	11	34	10
2. A slight increase in the number of farmers using some fertilizer in all areas except control (%)	-15	9	3	6
3. A decrease in corn yields (qq/mza)	-4.0	-3.8	-2.0	-1.4
4. A decrease in bean yields (qq/mza)	-4.3	-0.9	-1.9	-4.0
5. A slight decrease in sorghum yields except in Control and RM (qq/mza)	+0.2	-0.7	0.0	-1.4
6. A positive relationship between use of fertilizer and higher corn yields				
a. On corn alone at seeding time	40.5% increase			
b. On corn alone at flowering time	44.2% increase			
c. On corn and beans at seeding time	27.5% increase			
d. On corn and beans at flowering time	49.5% increase			

G. Differences Reported in General Characteristics of High Yield Individuals in Quezada 1974

1. The farmers who reported higher crop yields in 1974 were also outstanding in a number of other characteristics (see Evaluation Report 49 attached).

(NOTE: Further within-area comparisons are presently in process using the data from the 1975 surveys gathered in Yupi, Ipala, Momos and Chichi in addition to Quezada.)

II. Across Area Comparisons

A. Differences Reported in Oriente Areas in 1974 in Selected Items

	<u>Quezada</u>	<u>Yupi</u>	<u>Ipala</u>
1. Beans yield (qq/mza)	8.5	6.9	18.0
2. Credit use (%)	18.0	9.0	8.0
3. Technical assistance (%)	74.0	37.0	20.0
4. Land ownership (%)	81.0	70.0	53.0
5. Land rented (%)	27.0	43.0	60.0
6. Communal land (%)	9.0	5.0	0.4
7. Land sharecropped (%)	11.0	19.0	0.0
8. Work away from home (%)	46.0	43.0	28.0
9. Radio listenership (%)	92.0	83.0	76.0
10. Sanitary toilets	8.0	1.0	5.0
11. Literacy	46.0	36.0	40.0
12. Total land available for planting (mz)	8.0	7.8	7.6

B. Differences Reported in Occidente Areas in 1974 in Selected Items

	<u>Nomos</u>	<u>Chichi</u>
1. Beans yield (qq/mza)	5.2	2.6
2. Credit use (%)	25.0	13.0
3. Work away from home (%)	77.0	50.0
4. Sanitary toilets (%)	10.0	1.0
5. Literacy (%)	34.0	17.0
6. School attendance (%)	28.0	16.0
7. Total land available for planting (mz)	6.7	6.8

(NOTE: Further across-area comparisons are in process using the data from the 1975 surveys. Comparison will be made by BVE experimental treatment, by levels of KPA, by type of practice and by farmer characteristics.)

III. Across-Cultural Comparisons

A. Comparative Differences Between Oriente and Occidente in 1974 on Selected items

1. Corn yields: higher in Occidente
2. Fertilizer use at flowering time: higher in Occidente
3. Credit use: higher in Occidente
4. Technical assistance: higher in Oriente
5. Land ownership: higher in Occidente
6. Land rented: higher in Oriente
7. Communal land: higher in Oriente
8. Sharecropper land: higher in Oriente
9. Number working away: higher in Occidente
10. Radio listenership: higher in Oriente
11. Literacy rates: higher in Oriente
12. School attendance: higher in Oriente

(NOTE: Further across-cultural comparisons are in process using the data from the 1975 surveys. Comparisons will be made by BVE experimental treatments, by levels of KAP, by type of practice, and by farmer characteristics.)

CHARACTERISTICS OF FARMERS OF THE QUEZADA AREA

WHO REPORTED HIGH CROP YIELDS IN 1974

This is a report on the characteristics of the farmers in the Quezada experimental area that had high crop yields in 1974. The information is separated into two parts, (1) General Characteristics and (2) Agricultural Characteristics.

The analysis is based on the question "What are the related characteristics or conditions of the farmers that have high crop yields?" Pearson Coefficient of Correlation is used as the basis for analysis.* In this report, a relationship is considered "strong" if the correlation coefficient is 0.500 or above; it is considered "medium" if it is between 0.200 and 0.500 and it is considered "slight" if it is between 0.100 and 0.200. Anything under 0.100 is not listed. There are a few cases of negative correlations also indicated.

I. General Characteristics

- A. Strong Relationship: none
- B. Medium Relationship
 - 1. The use of lard and milk in weekly diet
- C. Slight Relationship
 - 1. Literacy
 - 2. Years of school completed
 - 3. Use of radio, newspaper and magazines as sources of information
 - 4. Personal ownership of radio
 - 5. Number of hours of daily radio listening
 - 6. Membership in organized community group
 - 7. Frequency of visits to Jutiapa (regional city)
 - 8. Good health
 - 9. Use of bread, rice, vegetables, meat and cheese in weekly diet
 - 10. Use of improved materials in construction of roof, walls and floor of home
 - 11. Use of improved cooking and lighting facilities in the home
- D. Negative Relationship (slight)
 - 1. Age
 - 2. Amount of time working away from home

*The correlation coefficient is a measure of association. The correlation is at a maximum when it approaches 1.000. As an example, if there was a high correlation (0.8000) between amount of fertilizer applied and corn yields this would indicate that the same farmers that report high yields would also report greater amounts of fertilizer applied (lower yields are also related to lesser amounts of fertilizer, etc.).

II. Agricultural Characteristics

- A. Strong Relationship
 - 1. High crop yields previous year
 - 2. Reported high yields in "best" year
 - 3. Proportion of grain crop sold
 - 4. The use of recommended type and amount of fertilizer on corn at flowering time
- B. Medium Relationship
 - 1. Use of improved corn and sorghum seed
 - 2. Use of oxen (or tractor) for soil preparation
 - 3. Use of recommended amount of fertilizer on beans at flowering time
 - 4. Use of recommended amount of fertilizer on sorghum at seeding time
 - 5. The use of granaries to store corn
- C. Slight Relationship
 - 1. The use of credit
 - 2. The number of times the land was plowed before planting
 - 3. The area planted to sorghum
 - 4. The method of selecting sorghum seed
 - 5. The type of bean seed used and the method of selection
 - 6. The amount of fertilizer on beans at seeding time
 - 7. The amount of fertilizer on sorghum at flowering time
 - 8. The use of fungicides on corn
 - 9. The area planted to corn in second crop
 - 10. The storage of beans and sorghum in granaries
- D. Negative Relationship (Slight)
 - 1. Area planted to corn (1st crop)
 - 2. Area planted to beans (1st crop)
 - 3. Area planted to sorghum (2nd crop)