
COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH
FOOD RESEARCH INSTITUTE



**PERFUME RICE PRODUCTION BY FIVE FARMER BASED
ORGANISATIONS IN THE HOHOE DISTRICT OF THE VOLTA
REGION**

**Final Report for the Food Security and Rice Producers Organisation Project
(FSRPOP)**

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Executive Summary

The above project is an initiative of the Ghana Rice Inter-professional Body (GRIB) with support from the Food Security and Rice Producers Organization Project (FSRPOP). The effort is to facilitate the production and marketing of locally produced rice to gradually substitute for rice imports into Ghana. Five Farmer Based Organizations mostly made up of resources-poor local farmers who have been engaged in rice production for over a decade in the Hohoe District of the Volta Region of Ghana were selected to carry out this intervention. The Food Research Institute (FRI) of the Council for Scientific and Industrial Research was contracted to supervise and formulate control measures to ensure the quality of the produce while the Ministry of Food and Agriculture (MOFA) played a dual role as technical adviser and facilitator between the farmers and the two organizations.

During the initial phase of the project, an FRI team undertook field visits to interact with participating farmer groups and individual farmers with the aim of establishing the input supply system of production and develop with the farmers, an estimated and realistic crop budget. Farmer groups interacted with included those based in Likpe-Bakwa, Lolobi-Kumasi, Akpafu-Odomi and Fodome-Helu. Land tenure systems, cultural practices/agronomic practices and labour requirement, farmers' constraints among others which pertain to the localities were taken note of. A credit facility of one million cedis per farmer to enable them finance their operations was arranged with the Weto Rural Bank at Kpeve. However, the bank pulled out the last hour, necessitating FRI and MoFA to make an ad hoc arrangement to save the situation by providing very essential inputs such as seed and agro-chemicals on credit to the farmers while farmers did land preparation at their own cost.

Farmers were equipped with the requisite knowledge to produce good quality paddy rice that would sell for good price through a training workshop. One professional miller (Kakpor) and three milling assistants each from three mill houses (Odomi, Akpafu and Hohoe) were trained in rice milling and basic record keeping.

The weather in general was not very favourable. Though there were sporadic heavy falls, long periods of drought in between resulted in poor development of the crop in all the communities and adversely affected yields. So bad was the yield that farmers have made alternate arrangements to pay off loans that were taken.

The two major set backs the project has suffered have been the failure of the Weto Rural bank to provide the much needed credit to the farmers and the unfavourable weather condition. These unfortunate circumstances defeated the whole purpose of getting reliable data from farmers to accurately determine the realistic crop budget for the perfume rice production.

**FOOD SECURITY AND RICE PRODUCERS ORGANIZATION PROJECT -
PERFUME RICE PRODUCTION BY FIVE FARMER BASED ORGANISATIONS
IN THE HOHOE DISTRICT**

1.0 INTRODUCTION

The above project is an initiative of the Ghana Rice Inter-professional Body (GRIB) with support from the Food Security and Rice Producers Organization Project (FSRPOP). GRIB is made up of stakeholders in the rice industry including producers, processors and brokers. GRIB, acting as an intermediate body seeks to bring producers (farmer based organizations), processors and the marketers of locally produced rice together. The effort is to facilitate the production and marketing of high quality local rice to compete better with imported rice in Ghana. The FSRPOP of the French Embassy, working through the Ministry of Food and Agriculture (MOFA), supported GRIB in carrying out this intervention by working with five Farmer Based Organisations (FBOs) in the rice growing areas of the Hohoe district in the Volta Region of Ghana.

The FBOs are mostly made up of resource-poor local farmers who have been engaged in rice production for many years in the Hohoe District of the Volta Region of Ghana.

The Food Research Institute (FRI) of the Council for Scientific and Industrial Research was contracted to supervise and formulate control measures to ensure the quality of the produce while the Ministry of Food and Agriculture (MOFA) plays a dual role as technical adviser and facilitator between the farmers and the FRI and GRIB.

2.0 MEMBERSHIP OF THE FBOs

Membership of the FBO's is as follows:

- Akpafu Odomi Mixed Farmers Co-Operative: 25 Members
(15 Men and 10 Women)
- Likpe Bakwa Gugudome Rice Group: 20 Members
(8 Men and 12 Women)

- Fodome Self Help Association (Fosha) Rice Farmers, Fodome: 20 MEMBERS (13 Men and 7 Women)
- Kukudevi Rice Farmers, Fodome and
- Buabra Elle Rice Farmers Association (Lolobi): 18 (12 Men and 6 Women)

3.0 INITIAL PHASE OF PROJECT

3.1 Field Visits

During the initial phase of the project, an FRI team undertook field visits to interact with participating farmer groups and individual farmers. This was done to establish the input supply situation, the system of production and to develop with the farmers, an estimated and realistic crop budget. Farmer groups interacted with included those based in Likpe-Bakwa, Lolobi-Kumasi, Akpafu-Odomi and Fodome-Helu all in the Hohoe district of the Volta Region.

3.2 Costing of Rice Production in the Hohoe District

This report focuses on costing of rice production in the areas visited. The subsections review land tenure, the various cultural practices undertaken by the farmers and costing. Other considerations are labour, credit arrangements and constraints faced by farmers.

3.2.1 Methodology

A representative sample size of 35% of each group (giving a total of 30 farmers) was interviewed using a semi-structured questionnaire. Table 1 presents the number of farmers interviewed in each group.

Table 1: Number of Respondents in the areas visited

Areas	Total Number of farmers	Sample size	% of Total Interviewed
Likpe-Bakwa	21	8	38
Lolobi-Kumasi	20	7	35
Akpafu -Odomi	25	8	32
Fodome-Helu	21	7	33
Average	22	8	35

Data collected was analysed with SPSS and Excel. To be able to make a decision on the appropriate figures, the three measures of central tendencies (mean, median and mode) were compared for each variable. In most cases the representative average measure was either the mean or median especially when the two measures are close in value. However, to eliminate the effect of extremely high or low values on the arithmetic mean and thereby introducing bias, the median was used as a check for the arithmetic mean.

3.2.2 *Land Tenure*

The predominant land tenure arrangements in the four farming areas include hired land and free/community/family land. Farmers in the Akpafu and Likpe areas have unhindered access to community or family lands. Those in Lolobi and Fodomie however, pay for land use either directly in cash or indirectly in kind with 2 bags (165Kg) of paddy per acre on the average.

3.2.3 *Cultural Practices*

3.2.3.1 *Land Preparation*

- **Likpe-Bakwa**

Rice farmers in Likpe undertake land preparation with the use of human labour (hired/Family) because of unavailability of tractor services in the area. This has resulted in high demand for casual (hired) labour and consequently high cost of wages, which is currently estimated at ₦15,000.00 per man-day. Land preparation starts in the month of May involving either initial spraying with weedicides or slashing. This in most cases is followed by manual turning prior to planting of seeds by broadcasting.

- **Lolobi -Kumasi**

Farmers in this area are also constrained by the unavailability of tractor services, which compelled them to resort to land preparation manually. Cost of labour is high and is estimated at ₦20,000.00 per man-day, which is higher than what pertains at Likpe-Bakwa. Land preparation here involves slashing or spaying with weedicides such as "Roundup". Ploughing may or may not be carried out prior to planting by broadcasting.

- **Akpafu- Odomi**

Similarly with the farmers in this location, tractor services are non-existent and the land preparation is done manually using family and hired labour. Here wages range from ₦15, 000-20,000 per man-day

- **Fodome- Helu**

Land preparation is sometimes, done mechanically here but there is serious inadequacy of tractor services. Land preparation using tractor services cost about ₦400, 000.00 per acre (ploughing and harrowing). Cost of hired labour for land preparation is usually based on the workload.

3.2.3.2 *Planting*

The various varieties/seed types used include local red, local white and TOX 3108, also referred to as “*sikamo*” and the local “perfumed” rice. With the exception of farmers at Fodome-Helu who were planting only the local red rice, the other farmers interviewed in the district plant all the three varieties. On the average about 20kg/acre seed rate is used in Fodome-Helu while farmers in the other areas visited used seed rate ranging between 30-40kg/acre.

3.2.3.3 *Fertilizer and Agrochemical Application*

- **Likpe-Bakwa**

Fertilizer and Agrochemical used by farmers include Sulphate of ammonia, “propanil” (selective weedicide) and “*roundup*”. “*Roundup*” is used at the land preparation stage, Fertilizer is applied either in the solution form by spraying with the weedicides or done separately by broadcasting. On the average 1bag of sulphate of ammonia is used per acre.

- **Lolobi -Kumasi**

Roundup, NPK and selective weed killer are some of the fertilizer and agrochemical used. On the average 1 bag of compound fertilizer, NPK is used per acre of rice field. For the

agrochemical, 3-5 litres/acre is often used for initial land clearing and the subsequent selective weed control.

- Akpafu- Odomi

The use of fertilizer was not common among farmers in this location. Urea and NPK were the most commonly used fertilizer by a few farmers at a rate similar to those discussed above (1 bag per acre of paddy)

- Fodome -Helu

All the farmers in this location perceived that their nutrient rich land is fertile enough and did not require fertilizer use. They therefore do not use fertilizer. However, with regards to agrochemical usage, both selective weedicides such as “propanil” and “*roundup*” are used to control weeds. For these farmers, 3 liters of agrochemical is enough for an acre of paddy field.

3.2.3.4 Weed Control

Interaction with farmers in all the four areas revealed that in addition to using chemical for land clearing, selective weedicides are also used for subsequent weed control in paddy fields. Some farmers however resort to the manual hand pulling of weeds

3.2.3.5 Harvesting and Threshing

This practice in all the farming areas is done with the use of family labour and/or casual (hired) labour. While in some areas daily charges for harvesting is in place, in other areas, harvesting charge is based on harvesting prescribed area and payment may be in cash or in kind. In kind payment, this is normally a bag (83kg) of paddy for an acre harvested. The same payment arrangement applies for threshing and bagging.

3.2.3.6 Irrigation and Water Control

In all the four farming areas, it was observed that no elaborate irrigation and/or water control schemes were in place. After the usual channelling of water to flood the fields,

farmers do no other maintenance. Crop residues are used as bunding material rather than sacks filled with sand bags.

3.2.4 Labour

Table 2 provides information on the labour requirements for the various cultural practices in all the areas visited. Cost of man-day at Likpe, Lolobi -Kumasi, Akpafu-Odomi and Fodomie-Helu is ₵15,000.00, ₵20,000.00, ₵15-20,000.00 and ₵15-20,000.00 respectively.

Table 2: Labour Requirements

Activity	Number of Man-days
Land Preparation	10
Planting	6
Weed Control	10
Fertilizer Application	5
Harvesting	10
Threshing, Winnowing and Bagging	8

Scaring of birds is an important operation in rice farming. This demanded the presence of someone on the farm throughout the booting stage of the plant when it was most vulnerable to bird attack. Because of the sustained period of time required to do this, family labour was used. Hiring labour for this activity was too expensive.

3.2.5 Costing

Table 3: Depreciation of Fixed Cost (Using Straight line Method)

Item	Average Unit Cost (Cedis)	Ave. Number /Farmer	Total Cost (Cedis)	Useful Life	Depreciation per year (Cedis)
Cutlass	32000	1	32000	1	32000
Sickle	14000	2	28000	5	5600
Polysack	6000	17	102000	2	51000
Tarpaulin	27000	3	81000	2	40500
Average	-	-	-	-	129000

3.2.6. Crop Budget contributions of various cost items in total

Table 4 reveals costing of rice production in the study areas. Average income per acre is estimated at approx ₦3,900,000. Total Cost of production including depreciation is estimated approx. ₦2,100,000 and gross margin of ₦1,800,000. On the average, farmers in Akpafu Odomi are expected to make more profit due to high yields, relatively high selling price and less production cost.

Table 4: Costing of Rice Production in Hohoe District (Per Acre)

	Pooled	Likpe Bakwa	Lolobi Kumasi	Akpafu Odomi	Fodome Helu
Income	3,918,750.0	3,840,000.0	4,140,000.0	4,320,000.0	3,360,000.0
No. of 83 Kg paddy/acre	16.5	16.0	18.0	18.0	14.0
Selling price/ bag	237,500	240,000	230,000	240,000	240,000
Total Production Cost	2,082,900	1,722,500	2,798,400	1,703,950	2,106,750
Depreciation @6%	117,900	97,500	158,400	96,450	119,250
Variable Cost/acre	1,965,000	1,625,000	2,640,000	1,607,500	1,987,500
Land(Free/hired)	235,000	-	460,000	-	480,000
Land preparation	175,000	150,000	200,000	175,000	175,000
No. of mandays	10	10	10	10	10
Cost/manday	17,500	15,000	20,000	17,500	17,500
Fertilizer and Agro	400,000	400,000	500,000	400,000	300,000
Fertilizer	137,500	200,000	150,000	200,000	-
Agrochemical	262,500	200,000	350,000	200,000	300,000
Seed	112,500	150,000	100,000	100,000	100,000
Quantity (buckets)	2.3	3	2	2	2
Unit cost	50,000	50,000	50,000	50,000	50,000
Irrigation	-	-	-	-	-
Labour	682,500	585,000	780,000	682,500	682,500
Planting	105,000	90,000	120,000	105,000	105,000
Weeding	175,000	150,000	200,000	175,000	175,000
Fertilizer application	87,500	75,000	100,000	87,500	87,500
Harvesting	175,000	150,000	200,000	175,000	175,000
Threshing, winnowing & bagging	140,000	120,000	160,000	140,000	140,000
Other Cost	360,000	340,000	600,000	250,000	250,000
Cost of Credit	252,500	250,000	460,000	150,000	150,000
Transportation	107,500	90,000	140,000	100,000	100,000
Gross margin/Acre	1,835,850	2,117,500	1,341,600	2,616,050	1,253,250
Benefit: Cost Ratio	1.9	2.2	1.5	2.5	1.6

NB. Family labour for scaring of birds not valued. Land preparation was assumed to be done manually in all the areas surveyed and family land was not valued.

Table 5: Percentage contributions of various cost items to total

Item	Cost (Cedis)	Contribution to Total Production Cost
Land (Rent)	235,000	11%
Land Preparation	175,000	8%
Fertilizer And Agrochemicals	400,000	19%
Seed	112,500	5%
Labour	682,500	33%
Other Cost (Credit and Transportation)	360,000	17%
Depreciation	117,900	6%
Total	2,100,000	100%

3.2.6 Credit

Formal credit facilities were close to non-existent for majority of farmers if not all. Farmers in all the areas rely on informal sources of credit acquisition such as from friends and/or relatives. Interest rates could be more than 50% depending on the source.

3.2.8 Constraints

Likpe- Bakwa

- Lack of financing leading to late cropping
- Unavailability of labour
- High labour Cost

Lolobi- Kumasi

- Erratic Rainfall resulting in low yields
- Unavailability of tractor services
- Lack of credit facilities
- Difficulty in removing stumps and levelling land for cultivation
- Inadequate tarpaulins for threshing
- Some varieties (e.g. perfume) are prone to rodent attack
- Inadequate numbers of wholesale buyers
- Poor prices

Akpafu- Odomi

- Unavailability of credit
- Unavailability of tractor services
- High cost of agrochemicals
- Pest Infestation- Rodent attacks on fields
- Lack of harvesting equipment

Fodome-Helu

- Difficulty in getting arable lands
- Inadequate tractor services
- High cost of labour
- Unavailability of credit and sometimes untimely when available from money lenders
- Pest infestation (e.g. Birds, rodents)
- Marketing difficulties

Conclusion

In conclusion the study revealed that rice production in the Hohoe District is profitable. Farmers make approximately ₵1.800,000 as gross margin on an acre of rice farm. The average production cost is about ₵2.100,000. Labour cost constitutes about 33% of the total production cost. Farmers do not have access to formal credit facility and had to resort to informal sources at high interest rate. Tractor service is virtually unavailable. Pest infestation, land tenure and difficulty in marketing are some of the constraints to rice production in the district under consideration.

4.0 IMPLEMENTATION PHASE

A provisional timetable for land preparation and major farm operations was drawn as follows;

Operation	Time	Responsibility
Land Preparation	15-05-05	Farmers/MoFA
	30-05-05	
	1-06-05	
	30-06-05	
Seeding	01-07-05	✓
	30-07-05	
Fertilizer Application (NPK)	03-08-05	✓
	30-08-05	
Weedicide Application	30-08-05	✓
	05-09-05	
Fertilizer Application (S/Ammonia)	15-09-05	✓
	30-09-05	
Hand Weeding Scaring	01-10-05	✓
Harvesting	01-11-05	✓
	30-12-05	

Table 6: Number of Farmers and Planned Acreage of Cultivation

Group	Members		Acres planned	Acres cultivated	Expected yield (83kg bags)
	Before	Now			
Akpafu Odomi (Mixed Farmers Co-Operative)	25	25	25	18	297
Likpe Bakwa (Gugudome Rice Group)	20	20	10	10	165
Lolobi Rice Farmers Ass.	18	18	18	18	297
Fodome-Helu (Kukudevi)	12	12	12	12	198
*(Fosha)	24	9	24	9	149
Total	99	84	89	67	1106

Table 6 shows the number of members in each community/group and the planned acreage to be put under cultivation. * The number of farmers at Fosha dropped significantly due to the fact that most of them had outstanding credit repayments to make to MoFA. Their inability to do so automatically disqualified them from taking part in this programme. Very few of them were able to honour their repayment obligation. However, there was the Kukudevi, a women's group which was originally selected to participate. They had paid all previous credits taken from MOFA and were therefore invited to make up for the numbers lost. All the participating farmers from the other groups had no indebtedness from previous years as this was a prerequisite for participation. In general the total number of farmers decreased from 99 to 84 and as a result, the projected acreage of cultivation also decreased from 89ac to 67ac (Table 6). This in combination with the poor cropping season will certainly result in a lowered quantity to be harvested. It was however not possible to predict the harvest as the severity of the drought varied from community to community.

4.1 Credit Arrangement for Farmers

One of the main constraints identified during the initial phase of this project is the lack of formal credit facility for the rice farmers. As a result farmers normally had to resort to informal sources at very high interest rate. The Weto Rural Bank at Kpeve was approached to arrange a credit facility of one million cedis per farmer to enable the farmers finance their operations.

The bank had agreed in principle to grant a loan facility to the groups for the season. A Loan package of ₦1,000,000 for each farmer was negotiated by GRIB on behalf of the farmers for the project at an interest rate of 34%. The amount is slated for the following:

- | | | |
|-----------------------------|---|----------|
| 1. Purchase of seed | = | ₦100,000 |
| 2. Land preparation | = | ₦300,000 |
| 3. Agro-chemicals | = | ₦400,000 |
| 4. Harvesting and materials | = | ₦100,000 |
| 5. Other expenses | = | ₦100,000 |

As part of the agreement, the loan was to be released in phases according to the time scheduled for the above operations. Ten mini bags of seed rice had been secured and awaiting payment for distribution to Farmers. Various meetings were held with seed growers for release of more seeds for the project.

Given the amount of loan the farmers were to receive and their commitment; two approaches were employed in order to arrive at a reliable operation cost: -

i. Minimal farmer participation in operations;

Here most of the work was to depend on hired labour for the following operations.

- a) Land tillage.
- b) Crop husbandry (Weeding undergrowth).
- c) Harvesting.
- d) Threshing and winnowing

While farmers only supervised the operations and undertook light duties such as fertilizer application, weedicide application, and transporting the produce home. Production cost was pegged at ₱2,300,000.00 per acre, notwithstanding the cost of inputs.

ii. Maximal Farmer Participation in Operations.

The second approach put the production cost at ₱1,200,000.00. Here farmers were expected to undertake all the operations except land tillage and weedicide application.

However, just when all arrangements had been completed the bank pulled out. FRI and MoFA had to make an ad hoc arrangement to save the situation by providing very essential inputs such as seeds and agro-chemicals on credit to the farmers while farmers did land preparation at their own cost. As a precondition to qualify for the credit, FRI and MoFA ensured that farmers who had taken credit in previous years from MOFA settled all their indebtedness.

The repayment period was fixed after harvest when the Broker comes in to purchase paddy. The repayment modality agreed on was in cash. (For details of the supplies and all costs for the individual farmers refer to appendix 4)

5.0 TRAINING

5.1 *Farmers' Training on Production of Quality Paddy*

Two training workshops were organized for the farmers from June 20th to 23rd, 2005 at Lolobi-Kumasi, Fodome-Helu, Likpe-Bakwa Akpafu–Odomi communities. In all locations the programme started with a round table introduction of participants followed by the declaration of the purpose of the meeting. The workshop was interactive to enable all farmers to contribute by answering questions and sharing their experiences as rice farmers.



Fig1: A section of participants during the training

PART I

A. What Is Good Quality Rice?

The first part of the training looked at what constitutes good quality rice. The main objective of this session was to let the farmers know and appreciate the factors that determine rice quality and who is responsible for producing good quality rice. The factors were categorized into two; intrinsic and induced. Intrinsic factors refer to those attributed to the grain itself i.e. genetically controlled while induced factors are introduced by the way the grain is cultivated, handled and processed. This means that farmers can do virtually nothing to influence intrinsic factors but to a large extent they can exercise control over a lot more induced factors. Agro-chemical application, harvesting practices,

storage, milling, transport climate and marketing can all have an effect on quality. In a practical session the farmers were asked to list what factors which they thought affected quality of rice and whether such factors are intrinsic or induced. Some of the factors considered included the following;

Intrinsic factors

- Yield
- Density
- Size
- Composition
- Colour
- Aroma
- Dormancy

Induced factors

- Yield
- Foreign matter
- Mixed varieties
- Maturity
- Infestation/infection
- Cracked grain
- Sprouted grain
- Milling degree
- Physical damage
- Age

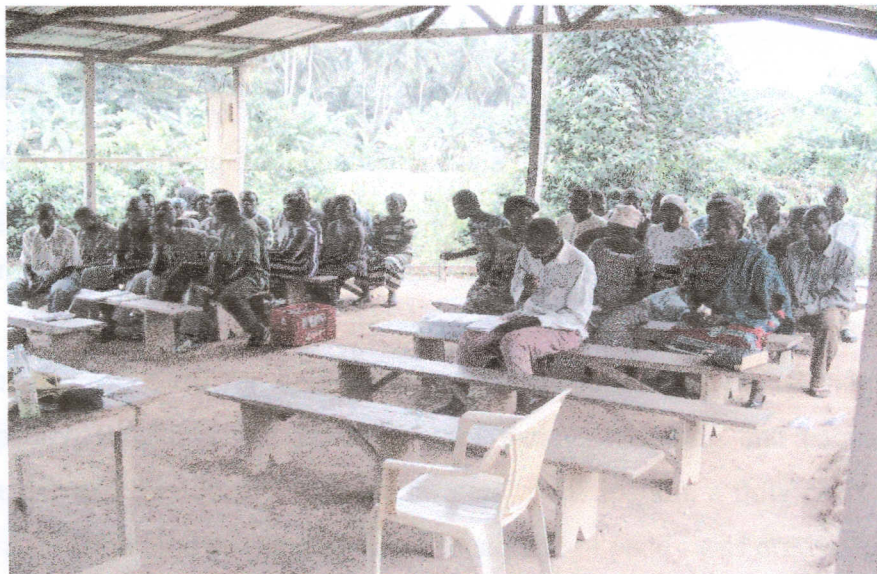


Fig2: A scene of participants during a lecture

B. Who Is Responsible for Rice Quality?

With the participation of the farmers all the stakeholders in rice production chain were identified and listed. Thereafter all the major linkages amongst them were also established. This was to enable participants to appreciate the complexity involved in the production of quality rice. It was appreciated by all that, to ensure quality, it was not only farmers or processors but rather every stakeholder playing his role. In other words improvement of rice quality is a team work. Some of the stakeholders discussed included the following;

Breeders

- Farmers
- Traders
- Millers
- Market traders
- Consumers.

Others who were recognized as equally important include Extension workers, Policy makers, Agronomists, Economists, Engineers and Credit agencies. Another practical session was held for farmers to revisit the quality factors and to find out how members of the production team can have an impact on each factor.

PART II

C. The Role of Farmers

Having understood that ensuring high quality rice is a team effort and for that matter each stakeholder ought to play his role creditably, the training narrowed down on the role farmers as a group can play. The farmers were made aware that producing safe, good quality rice is a moral responsibility. Areas discussed centred on land preparation, planting, weeds control, fertilizer application and water management. Besides these, harvesting of paddy, threshing and winnowing of paddy, weighing and packaging of paddy rice were discussed in detail. With the farmers' participation, a flow chart of what happens on the field from land preparation stage to storage of paddy was drawn. Each step was discussed and the critical areas where were quality implications were imminent were emphasized and what could be done to avert them. These generally included principles of good agricultural practices, such as correct use of pesticides, herbicides and fertilizers (agrochemicals). With regards to agro-chemicals, the right type/brand, when and how to

apply it in the right quantities to achieve maximum results was really emphasized. In addition to this, proper land preparation, ensure that each field has a uniform stand of crop (to facilitate harvesting), timely draining of fields prior to harvesting and timely harvesting. Farmers are to ensure that processing is carried out safely and effectively. In a bid to prevent stones and other inert materials, farmers were asked to do threshing on tarpaulins and never to allow harvested paddy to touch the ground. They were also encouraged not to over-dry paddy (if drying after harvesting is required) since this affects milling quality. Besides these farmers are to protect stored paddy from insects and rodents.

D. How to Assess Good Quality Paddy

Farmers were taken through a practical session to assess paddy quality. The quality attributes looked at included broken grain, organic matter such as straw and weed seeds, and inorganic matter such as stones. Others are fungal damage infestation, type admixtures (mixed varieties) immature grains and discoloured grains. Practices in the field such as effective winnowing could to a large extent minimize the percentage of organic matter. Fungal damage is likely to occur if harvested panicles are heaped and left in the field for a considerable length of time before threshing. In appropriate storage can also cause this quality defect. It was noticed that the common practice of some farmers saving seed contributes to the problem of mixed varieties. However mixing of varieties can also occur during shattering or in situations where threshing and drying floors are ineffectively cleaned between batches. The presence of inorganic matter particularly stones which is seen to be a major quality defect by consumers can be minimized when threshing is done on tarpaulins. Farmers were therefore encouraged to be mindful of all the stages where these quality defects can be introduced.

E. Control of Rodents

A representative of the "Determination" group of farmers (Hohoe District) gave a presentation on how farmers can manage rodents. It mainly bordered on effective fencing of the fields and setting of traps. Another way out is the use of chemicals but this was found to be very risky because if any of the affected rodents is used as game by any individual the result may be fatal.



Fig3: A scene of participants from Fodome-Helu during a lecture

F. What Farmers Can Do

In summary what farmers can do to produce good quality paddy should include the following:

- ❖ Grow suitable varieties
- ❖ Use good quality seed
- ❖ Prevent cross contamination in the field by harvesting at the correct time
- ❖ Use a concrete pad, tarpaulin or polypropylene sack for heaping /threshing/winnowing and drying
- ❖ Clean the paddy thoroughly (Make sure winnowing is effective)
- ❖ Ensure that paddy quality is maintained during storage

The two-day workshop was successful and comprehensive. At the end of the session the farmers appreciated the fact that in order to arrive at good quality milled rice, farmers have a big role to play.

5.2 Training of Millers in Production of Good Quality Rice

In August, 2005 one professional miller (Kakpov) and three of his milling assistants as well as three milling assistants each from communal mills at Akpafu-Odomi and Fodome-Helu were trained in rice milling. The other assistants from the other communities were trained because the farmer-organizations in the respective

locations benefited from the AgSSIP project which supplied them with rice mills. The trainees were taken through simple operation of the rubber role type of rice mills. The required feeding rate, dehusking and polishing were critical areas emphasized. Simple adjustments of feeding and air flows to give optimum performance were all emphasized. The millers were encouraged to give required and simple preventive maintenance procedures very serious attention. The purpose and frequency of lubrication at various points of the rice mill was also elucidated. Safety precautions for both operator and machine were explained. The hygienic condition of the mill house, regular cleaning of the machines and surroundings was and area given consideration. The trainees were also given the basic principles of record keeping of all their important activities.

5.3 Training on Basic Record Keeping For Millers

The training was organized for millers from 8th to 10th February, 2006. Before the main training on basic record keeping participants were taken through what a business or enterprise is. The various scales of a business and the essential skills needed to operate a business were looked at. The three major keys to ensuring business success i.e communicating skills, technical skills and organizational skills were emphasized. While communication is used to inform, convince, persuade and develop interpersonal relationship contact it is also needed as a tool to get workers to understand and implement business ideas properly. Since poor management has been often sited as the commonest cause of a large percentage of business failure, the business function of management comprising of planning, organizing, leading and monitoring was given special consideration. Others areas touched on included reasons why small businesses fail. On the main theme of records keeping the various topics treated were;

- What records keeping is
- The importance of record keeping
- Why people in business refuse to keep records
- Benefits of keeping a record system
- Type of records

Record keeping is basically writing down activities of a business as they occur. The two main ones are monetary transactions/financial records and administrative /non-financial records. Financial records ensure that the business transactions can be referred to with ease

and in the absence of the business owner anyone taking over will be able to know what is happening in the business.

Lack of skill or expertise to record transactions, tax avoidance/ shady deals and keeping of business transactions secret so others do not imitate are some reasons why people in business fail to keep records. However in spite of all these the benefits are enormous. It allows business owners to monitor performance regularly and also enhances effective planning and good control. The millers were made to appreciate the benefits in spite of the odds. They were introduced to basic records on procurement, production, assets, debtors, creditors and stocks. (Refer to appendix 2 for checklist)

6.0 REHABILITATION OF KAKPOV MILL

The rehabilitation of this mill involved the provision of adequate space for drying of paddy as well the provision of a moisture meter to the miller to monitor the moisture content of the paddy prior to milling. Three days were used for the excavation of the total surface area to a depth of 10 centimetres. A profile of wooden board put in place to hold the concrete needed to fill the excavated volume to create a foundation for the construction of a patio for drying paddy. To obtain a well seasoned concrete, the floor was watered over a period of time. The moisture meter was also procured and is being tested before the miller was instructed in its use. The total investment in the rehabilitation of the Kakpov mill was about ₦8,000,000.

7.0 MONITORING OF MILLING OPERATIONS

After training the selected millers in the production of good quality rice and basic record keeping, it was necessary as stipulated in the terms of reference to monitor the millers to evaluate their application of the knowledge gained in improving their milling operations. Monitoring could not be done at Akpafu and Fodome because the mills in these two locations have been idle over the past few months. As a result of the crop failure there is virtually no paddy to mill. However a follow up to Kapkov mill revealed that operations were going on well and records were being kept as instructed. Access to paddy by Kakpov mill may be due to the fact that Hohoe is in a more central position and paddy from a variety of sources may have been coming in.

8.0 WEIGHING SCALES

On February 8, 2006 one weighing scale each was presented to the Akpafu Odomi Mixed Farming and Marketing Cooperative, Kakpor Millers and Fodome Self Help Association. The scales were from GRIB and the presentations were done by the Director of the Hohoe district office of MoFA. The chairman of Fodome Self Help Association., Mr. Fiakoku Emmanuel signed and received the scale on behalf of the Association while Mr. Kwame Kakpor, the manager of Kakpor mills signed and received the scale. The secretary to Akpafu Odomi Mixed Farming and Marketing Cooperative, Mr. Bibby Asaase signed and received the scale. The presentations were witnessed by the Director of the Hohoe district office of MoFA.

9.0 FIELD VISITS AND MONITORING BY MOFA REPRESENTATIVE

The major operations that needed supervision by the MoFA Representative include land preparation, seeding, fertilizer and weedicide application and harvesting. Regular visits were made to the farmer groups for interaction and also supervise the operation at hand. Seed and agro chemicals were also supplied before and during the farm operations.

The weather in general was not been very favourable. Though there were sporadic heavy falls, long periods of drought in between resulted in poor development of the crop in all the communities. (Refer to appendix 1 for rainfall figures)

In May 2005, activities on the field included spraying of weedicides which started in all the valleys with the onset of heavy rain. All the farmer groups were involved and this activity was to continue until early June 2005. 130 kg of seed rice (100 buckets) had been purchased at a cost of five million (¢5,000,000) cedis for distribution to farmers. There were three heavy rains in the first two weeks of July 2005. This increased field activities until the middle of the month when soil moisture content went down to the extent that serious land preparation and other field activities were suspended. Fields seeded in July had to be re-seeded due to damage by birds and scotching of the seedlings as a result of excessive sunshine. The weather was generally dry in August and this led to the suspension of farm activities in the field.

Akpafu Odomi

By July, 18 acres had so far been seeded and further ploughing and seeding was to be done when it rained. Six visits were made to the valley in August. Fertilizer had not been applied to the well seeded 18 acres because of the drought. The drought on the farm located off the Kpando Gbefi main road was so severe on the germination that the whole plot had to be harrowed and reseeded from 26th August to 6th September, 2005. It was noticed in October that the farm had been adulterated with *sikamo*. This was traced to the supplier of the seed during the reseeding period. Farmers were therefore advised to manually rogue out the *sikamo* before the booting stage. By the end of November the farm located on the Kpando-Gbefi main was virtually deserted due to the drought. However, the field at Odomi was doing well and most farmers were getting ready for harvesting.

Likpe Bakua

About three quarters of the seeded plot at Likpe Bakua was in a very good state in July. The last quarter of the farm was still under preparation stage and was to be seeded when the soil moisture improved. In August there were three visits to some selected farms at Likpe where in spite of the drought the plants looked a bit healthier and showed no serious stress. It was decided to apply weedicide and basal fertilizer. Four visits were made to various farms in September. Despite the six heavy rains recorded that month, the weed problem on the farms persisted because there was not enough water on the field to suppress weed growth and development. The crops looked yellowish green due to non-application of NPK 15-15-15 fertilizer. Four visits were made to the various farms in October. Most of the farms were entering the flowering stage. Sulphate of Ammonia had been applied and farmers were advised to remove weeds. At Likpe Bakua most of the crops were severely hit by the drought and those crops were in the critical stage of milking. This phenomenon affected the crops adversely. Farms in Likpe Bakua were harvested in December. But yields were far below expectation because of poor grain filling due to drought during the milking stage.

Lolobi

Individual plots at Lolobi were still under preparation by July. As of then about 70% seeding had been done. The visits to the valley at Wudome in August revealed an unpleasant situation because the plants were under so much stress. However a downpour in late August returned life to the field. Farmers who deserted the fields returned and were working with all seriousness. The dry period in August had severe effect on the crop because it was obvious the crops needed time to fully recover. Regardless of the heavy rains in September, the fields were not flooded enough to suppress weed growth and development. In October most of the crops in the second valley were flowering and scaring of birds had started. However there was a problem with rodent attack. By December much had not been harvested since most farms suffered from the severe drought. With the few times of downpour, farmers were hoping to harvest ratoon crop in January 2006.

Fodome Self Help Association

The plots at Fodome had been well prepared and seeded. But because of the poor moisture content of the fields, farmers had to employ the services of labourers to cover the seed, which was broadcast to avoid being picked by birds. Three visits were made to the Fosha valley in August. It was noticed that there was severe stress. Poor germination was identified and farmers were advised to keep birds off the fields. The situation was however better in September due to some rainfall. Farmers were about to apply weedicides and fertilizers. By November, crops around the valleys experienced severe drought which resulted in leaf-curl due to the drought. Some of the plants also showed various forms of disease incidence, e. g. blast and discolouration. Apart from two farmers who abandoned their farms, the rest had harvested in December and were awaiting more rains to harvest ratoon crop.

Fodome Kukudevi Women's Rice Group:

About 70% of the plots had been well prepared by July. Some farmers had seeded and were awaiting the rains. Because of the poor moisture content of the fields, farmers had to employ the services of labourers to cover the seed, which was broadcast to avoid bird's

damage. Three visits were made to the Kukudevi group in August. The situation was not different from what was observed at Fosha valley. Severe moisture stress was observed and farmers were advised to keep birds off the field. At Wudome the situation was bad but with the rain in late August life returned to the field. At Kukudevi most of the farms were in the flowering stage by October. The Farmers were advised to do hand weeding on farms which were not in the booting stage. Weeding round the farms was emphasized to prevent rodent attacks. As of December, most farmers at Kukudevi had already completed the harvesting and were drying the produce before processing and bagging. (Refer to appendix 3 for statistics on harvest)

10.0 SALE OF PADDY AND LOAN REPAYMENT

10.1 POST PRODUCTION ANALYSIS

The initial arrangement of this project was that, a rice broker (Ralph Mends-Oduro of House of Remma) would negotiate with the farmers and agree on a price at which all the paddy produced would be lifted. This meant that the farmers would have ready market for their produce at a competitive price to enable them repay their loans on time. The paddy would then be milled by the trained millers and bagged for distribution.

However, this could not work, given the very low production figures recorded as a result of the unfavourable weather in all the communities. It was therefore uneconomical for the House of Remma to move to the Hohoe area only to purchase and mill such small quantities. Consequently, a local rice marketer was contacted and she expressed interest in buying the produce provided the farmers got the paddy milled first. She set this condition because she suspected that the milling yield would be low due to the poor rainfall recorded during the growing season. This arrangement also had limited success as most of the farmers wanted to keep their harvest to use as seed in the coming season or for food security should the season fail again. For this same reason that there is cause to believe that farmers may not have declared the real quantities harvested. MOFA and FRI viewed the situation of the farmers with some sympathy.

As a result both MoFA and the FRI have taken an official stand to defer the payment of credit by the farmers to the next harvest. The farmers have been warned that they will be subject to legal action should they fail to honour their obligations after the next harvest.

11.0 ACTUAL COST OF PERFUME RICE PRODUCTION

The actual cost for 2005 production season could not be established. It would be recalled that the much needed credit by farmers to finance their operations could not materialise. Notwithstanding the FRI-MOFA intervention by way of input supply on credit, farmers had to finance their land preparation. In addition, the bad weather conditions necessitated some operations to be repeated in some communities. So bad was the harvest that data on transportation, storage, sale of paddy, milling and marketing was scanty. These unfortunate circumstances defeated the whole purpose of getting reliable data from farmers to accurately determine the realistic crop budget for the perfume rice production.

12.0 POST PRODUCTION ANALYSIS

The post production analysis of the project could not be done due to the almost total crop failure. Under the circumstance very credible data to be used for the analysis will be difficult to come by.

CONCLUSIONS AND RECOMMENDATIONS

The two major set backs the project suffered were the failure of the Weto Rural bank to provide credit to the farmers and the unfavourable weather condition. As it has been reported above, the Weto went back on its earlier promise to provide credit farmers and this negatively affected the morale of the farmers. This could have derailed the whole project if the FRI and MOFA had not provided some support. It is recommended that in future, the necessarily logistical support for farmers and processors be secured before they are made to commit to the project.

Although the Hohoe area usually gets good rainfall, the total rainfall in 2005 was the lowest for at least 5 years (Appendix 1) and this badly affected the harvest. It is recommended that the farmers involved in any such future project be made to make arrangements for supplementary irrigation as part of the package should the need arise.

The calibre of supervision from MOFA was often times inadequate and it is suggested the entire hierarchy of MOFA in the District be directly responsible for supervision in any such future project in the area.

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Appendix 1

Rainfall Data for Hohoe District of the Volta Region of Ghana

	2005		2004		2003		2002		2001	
	Rainfall figure	No. of wet days	Rainfall figure	No. of wet days	Rainfall figure	No. of wet days	Rainfall figure	No. of wet days	Rainfall figure	No. of wet days
January	1.5	1	15.5	1	9.3	2	9.1	1		0
February	24.4	2	4.5	1	92.9	5	47.5	5		0
March	87.4	11	152.8	7	53.3	6	99.9	8		8
April	159.5	10	194.6	9	272.5	12	222.6	12		9
May	99.6	11	116.7	9	79.1	4	170.4	10		8
June	126.4	12	126.1	6	189.8	15	178	8		8
July	61.1	6	118.7	11	102.8	9	173.1	15		5
August	150.1	10	132.3	11	168.6	8	191.6	12		5
September	202.6	15	138	12	206.5	16	158.8	13		12
October	126.2	14	177.4	13	168.3	14	171.7	12		4
November	67	7	131.5	13	40.6	2	121	2		3
December	119.1	5	85.8	2	40.5	2	18.3	3		0
Total	1224.9	104	1394.5	95	1424.3	95	1557	101		

June – Land preparation

July – Land preparation / Planting

August – Planting

September-October - Critical time

November – Very critical period

December -- Harvesting

Appendix 2

Checklist for Business Development Assistance Programme- Records Keeping

The primary objective is to train millers on records keeping to be able to generate data and information required for profitability analysis. Specific information required includes the following:

Fixed Cost (Information can be obtained from owners)

- Housing or rent paid on premises
- Equipment and machinery (Cost of machinery and useful life)
- Office Equipment and furniture

Operational Cost (Can be recorded on weekly/monthly basis)

- Fuel
- Water
- Electricity
- Packaging material

Plant capacity and utilisation (Can be recorded on daily/weekly basis)

- Capacities and utilisation levels
- Volumes of products milled /days/weeks and milling charges
- Number of production days/weeks/month/year
- Performance and efficiency of mills (weight of raw material and weight of milled product)
- Weights of by-products
- Value of by-product

Indirect operational cost (Can be recorded on weekly/monthly basis)

- Salaries
- Depreciation, Repairs and Maintenance
- Insurance and Taxes
- Other over head charges like stationery, communication, postage etc, etc..

Date: it is the date of the invoice or receipt

Description: description of exact transaction

1. Milling and Incomes Book *eg. one could pay an electricity bill on the 10th of February which is for the month of December. It is important to have this information*

CUSTOMER	VARIETY	PADDY WEIGHT	MILLED RICE WT	CHARGES

Customer: name of customer and where the rice comes from.

Variety: the name of the rice variety if known

Paddy weight: paddy weight before milling

Milled rice weight: weight of milled rice

Charges: amount charged to the customer

This allows for follow up to: Milling recovery ratio, Revenues, Pick of activity

2. Operational Cost Book

DATE	DESCRIPTION	PERIOD	AMOUNT

In this book, the following expenditures can be recorded:

- Fuel
- Water/electricity
- packaging material
- salaries
- maintenance of the mill
- spare parts for equipment
- milling house repairs
- milling house rent
- Insurance and taxes
- stationeries and other

Date: it is the date of the invoice or receipt

Description: description of exact transaction

Period: exact period the transaction covers eg. one could pay an electricity bill on the 10th of February which is for the month of December. It is important to have this information for analytic accounting.

Amount: amount of the invoice

- This book records milling cost and the profitability of the milling activity.

APPENDIX 3

DATA ON HARVEST AND FOLLOW UP COSTS FOR FBO'S

Name of Group: Odomi Mixed Coop Rice Farmers Association

Membership:

Name of Farmer	Acre cultivated (acres)	Total harvest (bags)	Yield/ha	Transport cost(¢)	Storage	
1 Aldophine Ntim	1	1		2,000		
2 Aduo Lydia	1	1		2,000		
3 Asem Foster	1	1		2,000		
4 Dzifa Ama	1	1		2,000		
5 Tetteh Raity	1	1		2,000		
6 Asamani Grace	1	2		4,000		
7 Tetteh Aurellia	1	1		2,000		
8 Alice Ablekpe	1	2		4,000		
9 Aduo Cynthia	1	2		4,000		

10	Oveh Johnson	1	1.5		3,000			
11	Asamani Margaret	1	1		2,000			
12	Obro Charles	1	1		2,000			
13	Elias Ankrah	1	2		4,000			
14	Abuitatey Edna	1	2		4,000			
15	Group Farm	18	40		200,000			
2	Francis Osei	1	1					
3	Isaac Owusu	1	1					
4	Barbar Kaufman	1	1					
5	Yvonne Krou	1	1					
6	Albert Adje	1	1					
7	Margy Vatska	1	1					
8	Agbe Kofi	1	1					
9	Marg Vatska	1	1					
10	Agbe Kofi	1	1					

DATA ON HARVEST AND FOLLOW UP COSTS FOR FBO'S

Name of Group: **Bakwa Rice Farmers Association**

Membership:

	Name of Farmer	Acre cultivated (acres)	Total harvest (buckets)	Yield/ha	Transport cost(¢)	Storage			
1	Victoria Crah	1	1		-				
2	Eugenia Osei	1	1		-				
3	Enocencia Norgbe	1	1		-				
4	Bethar Kugblenu	1	1		-				
5	Veronica Konu	1	1		-				
6	Albert Adjei	1	1		-				
7	Happy Videka	1	1		-				
8	Agbe Kofi	1	1		-				
9	Mary Videka	1	1		-				
10	Agnes Konu	1	1		-				

11	Salome Norgbe	1	1	1	-			
12	Cletus Kaka	1	1	1	-			
13	Ama Adjei	1	1	1	-			
14	Joseph Mensah	1	1	1	-			
15	Emmanuel Donkor	1	1	1	-			
16	Charles Nyalodome	1	1	1	-			
17	John Etsi	1	1	1	-			
18	Daniel Norgbe	1	1	1	-			
19	Group Farm	2	3		-			
4	Emmanuel Agyemang	3	4					
5	Eleazer Akrom	1	0.5					
6	Paul Oshy	1	0.5					
7	Francis Osei	1						
8	Oliha Adjei	1	0.5					
9	Emmanuel Ogyi	1	2					
10	Mary Oshy	2	2					

DATA ON HARVEST AND FOLLOW UP COSTS FOR FBO'S

Name of Group: Buabra Elle Rice Farmers (Lolobi Kumasi)

Membership:

	Name of Farmer	Acre cultivated (acres)	Total harvest (bags)	Yield/ha	Transport cost(¢)	Storage			
1	Faustine Ofori	3	5		10,000				
2	Peter Kalayi	1	1.5		4,000				
3	Joseph Dankwa	1	2						
4	Epiphannus Amuzu	3	6						
5	Ebenezer Akoto	1	0.5						
6	Paul Ogbey	1	0.5						
7	Francis Owusu	1	-						
8	Olivia Adabra	1	0.5						
9	Emmanuel Onyitey	1	2						
10	Mary Onyitey	2	2						

11	Gladys Agbeko	-	-						
12	Veronica Klu	-	-						
13	Raphael Kuvo	-	-						
14	Febian Kafetey	-	-						
15	Epfania Quarshie	-	-						
16	Charles Quarshie	-	-						
17	Malwine Akoto	-	-						
18	Florence Ogbe	1	2			4,000			

1 bag = 85kg

DATA ON HARVEST AND FOLLOW UP COSTS FOR FROGS

DATA ON HARVEST AND FOLLOW UP COSTS FOR FBO'S

Name of Group: Fosha Rice Farmers Association

Membership:

	Name of Farmer	Acre cultivated (acres)	Total harvest (bags)	Yield/ha	Transport cost(₦)	Storage			
1	Leonard Gbe	1	3		6,000				
2	Philo Klu	1	1		2,000				
3	Doris Kolege	1	2		4,000				
4	Febian Tenu	1	1		2,000				
5	John Ateegah	1	-		-				
6	Emmanuel Fiakoku	1	1		2,000				
7	Mary Nukunu	1	-		-				
8	Isabella Kodzotse	1	3		6,000				
9	Malewine Kwamua	1	2		4,000				
10	Johnson Klu	1	0.7		2,000				

1 bag = 85kg

DATA ON HARVEST AND FOLLOW UP COSTS FOR FBO'S

**Name of Group: Kukudevi Rice Farmers (Fodome)
Membership:**

Name of Farmer	Acre cultivated (acres)	Total harvest (bags)	Yield/ha	Transport cost(₹)	Storage	
1 Eunice Agala Gbe	1	3		6,000		
2 Agnes Fiakoku	1	3		6,000		
3 Agnes Ahorsu	1	1		2,000		
4 Auralia Gbe	1	4		8,000		
5 Helen Tenu	1	-		-		
6 Victoria Tottoh	1	1		2,000		
7 Emmanuel Agbley	1	3		6,000		
8 Victoria Amuyao	1	3		6,000		
9 Petua Agbeme	1	2		4,000		
10 Martha Akatse	1	1		2,000		
11 Happy Klu	1	3		6,000		
12 Rose Parku	1	3		6,000		

bag = 85kg

Name of Group / Farmer Name	seeds received on credit	Round up		NPK	NH3	Herbicide		Total(€)					
		Quantity	Value (€)			Quantity	value(€)		St	Gall	value(€)		
13 Elias Ankrath		2	134,000	3	180,000	1	195,000		509,000				
14 Abutitaley Edna		2	134,000	3	180,000	1	195,000		314,000				
15 Group Farm		40	2,680,000	390	2,160,000	19	3,705,000	21	3,192,000	10	10	3,000,000	14,737,000

DATA ON CREDIT DETAILS AND MECHANISM FOR REIMBURSEMENT

Name of Group: Bakwa Rice Farmers Association

Membership:

	Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide			Total(¢)
		Type	Quantity	Value(¢)	Quantity	value(¢)	Quantity	value(¢)	St	Gall	value(¢)			
1	Victoria Crah		1	50,000	2	120,000	1	195,000	1	152,000	1	1	200,000	717,000
2	Eugenia Osei		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
3	Enocencia Norgbe		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
4	Bethar Kugblenu		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
5	Veronica Konu		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
6	Albert Adjei		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
7	Happy Vidaka		1	50,000	3	180,000			1	152,000	0.5	0.5	150,000	532,000
8	Agbe Kofi		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
9	Mry Vidaka		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000
10	Agnes Konu		1	50,000	1	60,000			1	152,000	0.5	0.5	150,000	412,000
11	Salome Norgbe		1	50,000	1	60,000			1	152,000	0.5	0.5	150,000	412,000
12	Cletus Kaka		1	50,000	2	120,000			1	152,000	0.5	0.5	150,000	472,000

Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide			Total(€)
	Type	Quantity	Value (€)	Quantity	value(€)	Quantity	value(€)	Quantity	value(€)	St	Gall	value(€)	
13 Ama Adjei		1	50,000	1	60,000	1	152,000	0.5	0.5	150,000		412,000	
14 Joseph Mensah		1	50,000	1	60,000	1	152,000	0.5	0.5	150,000		412,000	
15 Emmanuel Donkor		1	50,000	1	60,000	1	152,000	0.5	0.5	150,000		412,000	
16 Charles Nyalodome		1	50,000	2	120,000	1	152,000	0.5	0.5	150,000		472,000	
17 John Etsi		1	50,000	1	60,000	1	152,000					262,000	
18 Daniel Norgbe		1	50,000	3	180,000	1	152,000	0.5	0.5	150,000		532,000	
19 Group Farm		4	200,000	2	120,000	4	608,000	2	2	600,000		1,528,000	

DATA ON CREDIT DETAILS AND MECHANISM FOR REIMBURSEMENT

Name of Group: Buabra Elle Rice Farmers (Lolobi Kumasi)

Membership: 18

	Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide			Total(¢)
		Type	Quantity	Value(¢)	Quantity	value(¢)	Quantity	value(¢)	Quantity	value(¢)	St	Gall	value(¢)	
1	Faustine Ofori		4	200,000	4	240,000	2	390,000	2	304,000	2	2	600,000	1,734,000
2	Peter Kalayi		2	100,000	4	240,000								340,000
3	Joseph Dankwa		4	200,000	4	240,000								440,000
4	Epiphannus Amuzu		4	200,000	4	240,000	1	195,000	1	152,000	1	1	300,000	1,087,000
5	Ebenezer Akoto		2	100,000	4	240,000								340,000
6	Paul Ogbey		2	100,000	4	240,000	1	195,000	1	152,000	1	1	300,000	987,000
7	Francis Ovwusu		-		4	240,000								240,000
8	Olivia Adabra		2	100,000	4	240,000	1	195,000	1	152,000	1	1	300,000	987,000
9	Emmanuel Onyitey		-		4	240,000								240,000
10	Mary Onyitey		2	100,000	4	240,000	1	195,000	1	152,000	2	2	600,000	1,287,000
11	Gladys Agbeko		2	100,000	4	240,000								340,000
12	Veronica Klu		2	100,000	4	240,000								340,000

Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide		Total(€)	
	Type	Quantity	Value (€)	Quantity	value(€)	Quantity	value(€)	Quantity	value(€)	St	Gall		value(€)
13 Raphael Kurvo		2	100,000	4	240,000	1	195,000	1	152,000	1	1	300,000	987,000
14 Febian Kafetey		2	100,000	4	240,000								340,000
15 Epifania Quarshie		2	100,000	4	240,000								340,000
16 Charles Quarshie		-	-	4	240,000								240,000
17 Malwine Akoto		2	100,000	4	240,000								340,000
18 Florence Ogbey		2	100,000	4	240,000	1	195,000	1	152,000	1	1	300,000	987,000

DATA ON CREDIT DETAILS AND MECHANISM FOR REIMBURSEMENT

Name of Group: Fosha Rice Farmers Association

Membership: 10

Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide		Total(€)	
	Type	Quantity	Value(€)	Quantity	value(€)	Quantity	value(€)	Quantity	value(€)	St	Gall		value(€)
1 Leonard Gbe		2.4	139,200	4	240,000	2	390,000	1	152,000	1	1	300,000	1,221,200
2 Philo Klu		2.4	139,200	4	240,000	-		1	152,000	1	1	300,000	831,200
3 Doris Kolege		2.4	139,200	4	240,000	-		1	152,000	1	1	300,000	831,200
4 Febian Tenu		2.4	139,200	4	240,000	-		-		-	-	300,000	379,200
5 John Ateegah		2.4	139,200	4	240,000	-		-		1	1	300,000	679,200
6 Emmanuel Fiakoku		2.4	139,200	4	240,000	2	390,000	1	152,000	1	1	300,000	1,221,200
7 Mary Nukunu		2.4	139,200	4	240,000	1	195,000	1	152,000	1	1	300,000	1,026,200
8 Isabella Kodrotse		2.4	139,200	4	240,000	2	390,000	1	152,000	1	1	300,000	1,221,200
9 Malewine Kwamua		2.4	139,200	4	240,000	-		1	152,000	1	1	300,000	831,200
10 Johnson Klu		2.4	139,200	4	240,000	-		1	152,000	1	1	300,000	831,200

DATA ON CREDIT DETAILS AND MECHANISM FOR REIMBURSEMENT

Name of Group: Kukudevi Rice Farmers (Fodome)

Membership:

Name of farmer	seeds received on credit			Round up		NPK		NH3		Herbicide			Total(€)
	Type	Quantity	Value(€)	Quantity	value(€)	Quantity	value(€)	Quantity	value(€)	St	Gall	value(€)	
1 Eunice Gbe		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
2 Helen Tenu		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
3 Victoria Amuyao		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
4 Auralia Gbe		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
5 Agnes Ahorou		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
6 Emmanuel Agbley		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
7 Victoria Tortoh		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
8 Agnes Fiakoku		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
9 Martha Akarise		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
10 Penta Agbeme		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
11 Happy Klu		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000
12 Rose Parku		2	116,000	4	240,000	2	390,000	1	152,000	1	1	300,000	1,198,000