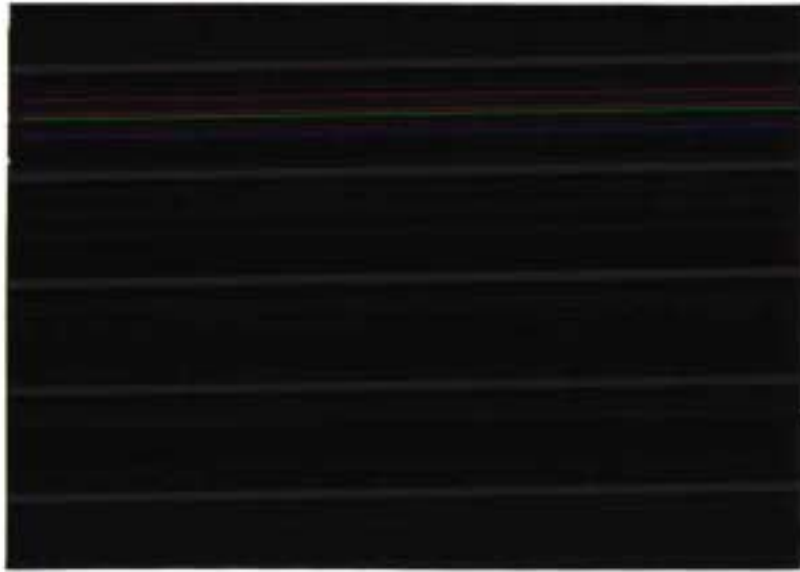


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**Visit to Brong Ahafo, Ghana
to review Phase I and Initiate
Phase II of the Integrated Food
Crop Systems Project**

4-10 June 1995

A0410

J Orchard and H Warburton

Distribution:
Dr N Poulter
Mr Schippers
Mrs Malins
Dr Critchely
Ms Proctor, ODA
Prof Thompson, Silsoe College
Mr Suglo, IFCSP, Ghana
Prof Norman, CSIR, Ghana
Dr Osei-Frimpong, MoFA, Ghana
Dr Gaiger, Wenchi Project, Ghana
Ms Gallat, CPH Co-ordinator , Ghana
IFCS project team, Ghana

Natural Resources Institute
Chatham Maritime
United Kingdom

From: J Orchard
Date: 4 September, 1995

Dr N Poulter

IFCSP, BRONG AHAFO: AMENDED VISIT REPORT

1. Please find with this minute an amended visit report which includes the distribution list.
2. The report has been sent to the project team in Ghana for distribution to all recipients in Ghana except for Ms Gallat which will be sent from here.



J Orchard
Ext: 3741

Abbreviations

BA	Brong Ahafo
BHC	British High Commission
CRI	Crop Research Institute
CSIR	Council of Scientific and Industrial Research
CSD	Crop Services Department
FRI	Food Research Institute
IFCSP	Integrated Food Crop Systems Project
IIBC	International Institute for Biological Control
IPM	Integrated Pest Management
NARP	National Agricultural Research Programme
NRD	Natural Resources Division
ODA	Overseas Development Administration
PPMED	Planning, Policy, Monitoring and Evaluation Department
PPRSD	Plant Protection and Regulatory Services Department
UST	University of Science and Technology
WIAD	Women in Agriculture Department

Summary

A mission was undertaken to review the outputs produced during the first year of the Integrated Food Crop Systems Project and determine the project activities for the second year. Researchable opportunities associated with each constraint were identified and brought together into separate project areas that covered similar themes. Through a participatory meeting with Ministry of Agriculture front line staff, the projects were prioritised in the following order of importance;

- i) Integrated pest management
- ii) Post-harvest handling, storage and transport
- iii) Varietal trials for tomato, pepper and garden egg
- iv) Processing technologies development
- v) Seed sources and selection
- vi) Market studies
- vii) Diversification into other crops

A programme associated with the above projects was drawn up with the in-country project team, scheduling the timing of research activities and consultancy visits.

Background

1. The Integrated Food Crop Systems Project (IFCSP) was initiated in 1994 to develop and validate sustainable strategies to increase income for smallholders of horticultural-based farming systems in Brong Ahafo. The project was based on a multidisciplinary approach and was funded from the Natural Resources Research Department Adaptive Research Initiative .
2. The IFCSP was formulated as a two-phase project following a Rapid Rural Appraisal of the Brong Ahafo Region and consultation with Ghanaian researchers. The project is centred around Sunyani. As part of Phase I, there followed inputs from subject specialists from NRI and Ghana to identify constraints and research opportunities and to begin the development of improved strategies for horticultural-based systems. The activities were co-ordinated through the Council of Scientific and Industrial Research (CSIR) National Agricultural Research Programme (NARP) by two Ghanaian counterpart project staff based in Sunyani; Mr E K J Suglo (project leader) and Mr S Awiti-Kuffour (project assistant). Mr F Lyon (Associate Professional Officer) joined the team in March 1995. The outputs and recommendations from Phase I have been summarised by Westby (1995).
3. Research activities were designed to continue into a second phase after March 1995 in order to gather data over all seasons and to be able to develop and validate improved strategies with smallholders. Phase II activities and outputs have been aligned under ODA's new NRD research strategy, with funding from both the Crop Post-Harvest Programme and Crop Protection Programme.

Visit Objectives

4. This visit to the IFCSP, Brong Ahafo was undertaken by J Orchard (Crop Utilisation Department) and H Warburton (Production Systems Economics Group) in order to:-
 - review the outputs from Phase I (running from August 1994 to March 1995);
 - finalise research projects and programme of activities for Phase II (April 1995 to March 1996);
 - review the administrative procedures of the in-country project team.

The mission itinerary is presented in Appendix 1.

Review of Phase I

5. The review of Phase I assessed the outputs from the various activities. A list was drawn up of the major project stakeholders and the constraints facing each group based on the findings from studies undertaken (Appendix 2a). A full description of the stakeholders and their constraints can be found in the various reports listed by Westby (1995).

Phase II projects

6. The researchable opportunities associated with each constraint were assessed (Appendix 2b) and brought together into seven separate project areas.

7. A meeting was held with twelve front line staff from the Ministry of Agriculture to discuss the IFCS, presenting the range of stakeholders, their constraints and the associated research opportunities. The participants to the meeting were asked to assess each project area using the following scoring system:

- 2 = very important
- 1 = important
- 0 = not important
- 1 = should not be done

8. Based on the total scores (shown in parenthesis) the projects are presented below, in order of priority, with an outline of activities, leader and potential collaborators:

i) Integrated Pest Management (Score 22)

Phase II Integrated Pest Management (IPM) project activities have to be confirmed with the Crop Protection Programme but the principal areas would be:

- a) to develop integrated methods for the control of priority pests, including nematodes and whitefly, with particular emphasis on promoting the appropriate usage of pesticides;
- b) participatory development of methodologies for the dissemination of IPM technologies to researchers, extensionists and farmers including IPM manuals.

Target groups: Farmers, input suppliers, extensionists.

Collaborators: CRI, PPRSD, UST.

Leaders: BA - V. Suglo; NRI - B Critchley

ii) Post-harvest handling, storage and transport (Score 21)

This project would aim to increase the quality of vegetable produce, beginning with a quality audit of existing systems aimed at developing quality assurance techniques that have been verified through cost-benefit analysis. In particular, prolongation of shelf life, improved packaging and transport and the prevalence of pesticide residues will be addressed.

Target groups: farmers, traders, consumers, processors

Collaborators: UST, FRI, WIAD

Leaders: BA - S Awiti-Kuffour; NRI - J Burdon

iii) Processing development (Score 21)

Research requirements were identified to:

- a) improve pepper drying technology at the household level;
- b) evaluate tomato processing potential;
- c) assess opportunities for processing other commodities.

Target groups: farmers, consumers, processors

Collaborators: UST, FRI, WIAD

Leaders: BA - S Awiti-Kuffour; NRI - D Cox

iv) Varietal trials for tomato, pepper and garden egg (Score 19)

These trials are to be conducted through:

- a) off-farm replicated trials;
- b) on-farm participatory trials.

The varieties will be assessed in relation to:

- productivity
- pest resistance
- seasonality
- processing opportunities
- consumer acceptability.

Target groups: farmers, traders and consumers.

Collaborators: CRI, UST, CSD

Leaders:

- i) Off-farm: BA - V Suglo; NRI - R Schippers
- ii) On-farm: BA - F Lyon and S Awiti-Kuffour; NRI - R Schippers

v) Market studies (Score 18)

Research activities to focus on:

- a) costs of production and marketing (on-farm and marketing margins);
- b) market performance (seasonal and spatial price adjustments and commodity flows);
- c) market structure and conduct (marketing chains, farmer/trader and trader/trader interaction, information systems).

Target groups all types of farmers, traders and consumers

Collaborators: PPMED

Leaders: BA - F Lyon; NRI - H Warburton

vi) Seed sources and selection (Score 18)

Whilst the selection of vegetable varieties with improved characteristics is important, it is also necessary to develop ways in which the improved traits can be maintained over time so that the farmers can continue to benefit from them.

This will be initiated through:

- a) continued assessment of vegetable characteristics required by farmers, traders, processors and consumers;
- b) evaluation of farmers' methods of selecting plants and fruits for seed;
- c) determination of off-farm sources and the quality characteristics of the seed;
- d) development of systems for supply of improved-quality seed.

Target groups: all farmers, traders, input suppliers.

Collaborators: Seed Inspection Unit.

Leader: BA - F Lyon and V Suglo; NRI - R Schippers

vii) Diversification into other crops (Score 11)

Research opportunities were identified to determine the potential for income generation through the diversification into non-traditional crops. The project would begin with feasibility studies to determine the potential for cropping and marketing non-traditional/exotic crops, particularly with regard to reduction of gluts of traditional crops, reduced perishability, consumer accessibility and processing potential. As the relatively low score given to this project suggests that diversification is perceived to be less important in this part of Ghana at the moment, it was decided to postpone any activities in this area. However, diversification may have greater relevance nearer urban centres and this type of research will be considered for the peri-urban production system.

Target groups: farmers, traders, consumers.

Collaborators: FRI, UST, CRI, WIAD

9. Comments from the participants varied but there was a general consensus of the need to improve existing technologies before the introduction of new ones, and the need to integrate the various projects into a co-ordinated programme of research. It was felt that advantages of developing improved varieties would be prejudiced without addressing the existing poor post-harvest practices and the lack of good seed sources at the same time. With regard to pest management, misuse of pesticides was a major cause of concern and it was hoped that any research on pest management would include this aspect. It was also suggested that increased access to project reports would be helpful.

10. Following this meeting, a programme of activities and workplan for the period to September was drawn up and agreed. A preliminary schedule of visits to the project area was prepared (Appendix 3). Action points for each project area were identified (Appendix 4).

11. It was important to select and initiate project activities in target villages, and to involve farmers in participatory experiments. The villages will be selected based on the baseline and rural appraisal surveys, and after the project team have stayed in the villages in order to familiarise themselves with the village set-up and to identify potential farmers who would collaborate with the project. It is envisaged that certain villages may be sites for researcher-managed on-farm trials (Akrobi, Dwomo and Abesim) whereas a wider selection of villages would be involved in farmer-managed on-farm trials. Initial case studies would be undertaken in Dwomo and Susuanso.

12. After the review meetings separate briefing meetings were held with Mr A A Osei-Frimpong (Regional Director of Agriculture) in Sunyani and Professor J C Norman (CSIR Deputy Director) in Accra. Both Mr Osei-Frimpong and Prof Norman gave their full support to the research programme for Phase II. Mr M Wood (First Secretary, BHC) was unable to meet Dr Orchard because of pressure of work.

13. Ms Warburton visited Ms Dansson and Mr Bruce (PPMED, Accra) to discuss and initiate the collection of price and quantity data on vegetables traded through the major markets. It was agreed that PPMED would collate data for the project.

14. Administrative issues were discussed and resolved in relation to project finances, training, reporting procedures, peri-urban workshop, and project publicity sheet.

Action points

15. Completion of visit report and project memorandum, the latter to be completed after comments have been received from ODA advisers on the Phase I summary report (J Orchard and H Warburton).

16. Co-ordination of pest management project activities from the Crop Protection Programme with those of the Crop Post-Harvest Programme (Ms Warburton to discuss with A King, B Critchley and S Gowen, NRI and D Moore, IIBC).

17. Programme to be drawn up of short-term consultancy inputs to meet CPH project needs in the near future (J Orchard).

18. Finalise other project matters in relation to project finances, training, reporting, administration, and date of peri-urban workshop (J Orchard).

19. Training opportunities to be discussed, with the possibility for Mr S Awiti-Kuffour to attend the NRI post-harvest horticulture course in September (J Orchard to discuss with Dr N Poulter).

20. J Orchard to arrange for the Ghana project office to have four complete sets of project reports.
21. J Orchard to ensure that all drafts of reports, including this one, to be passed to the Ghana project office for comments prior to issuing.
22. Approval to be sought for expenditure on provision of a fax and photocopier for the Ghana project office, utility cost of electricity for the Ghana office, and personal allowances (J Orchard).
22. Publicity sheet to be drafted and sent to project office (J Orchard).
23. Dates and objectives of the Peri-urban workshop to be sent to Mr V Suglo (J Orchard).
24. Requirements for additional staff to collect field data to be assessed and costed (V Suglo).
25. Collaborators for research activities to be notified of Phase II schedule of activities (V Suglo).

References

Westby, A. (1995). Integrated Food Crop Systems Project: Enhancing Smallholder Livelihoods Through Adding Value to Agricultural Production in Brong Ahafo, Ghana. Phase I Report. April 1995.

Appendix 1. Itinerary and People contacted

- Sun 4 June Depart UK
- Mon 5 June Travel to Sunyani, Brong Ahafo
- Tue 6 June Meeting to discuss Phase I with:
Mr E K J Suglo (project leader)
Mr S Awiti-Kuffour (project assistant)
Mr F Lyon (Associate Professional Officer)
- Wed 7 June Meeting to discuss Phase II with :
- Mr E K J Suglo (project leader)
Mr S Awiti-Kuffour (project assistant)
Mr F Lyon (Associate Professional Officer)
Ms E Benful (CSD)
Mr L Krampa (AESD)
Mr R Mensah (AESD)
Mr H Abdular (AESD)
Mr N Ahadjie (DCS)
Mr D Kiponor (AESD)
Mr K Amargual (PPRSD)
Mr T Kobbi (AESD)
Mr R Owusu-Asare (AESD)
Mr R Amedior (AESD)
Mr K Biney (PPRSD)
Mr Haruma (PPRSD)
- Thu 8 June Meeting with Mr A A Osei-Frimpong (Regional Director of Agriculture), Sunyani , BA
- Fri 9 June Meeting with:
Professor J C Norman (CSIR Deputy Director)
Ms Dansson and Mr Bruce (PPMED, Accra)
- Depart for UK

Appendix 2a. Stakeholders and constraints in the vegetable farming systems of Brong Ahafo.

Stakeholders		Constraints	
1	Home consumption/local market farmers [Mixed cropping Low inputs]	1.1	Pests & diseases - misuse of chemicals in the region lack of resistance material seed borne diseases
		1.2	Lack of time
		1.3	Pepper processing in rainy season
		1.4	Land clearing
		1.5	Marketing - oversupply/ market easily saturated - inability to process
		1.6	Lack of credit
		1.7	Lack of information
2	Commercial/urban market farmers [Monocropping Use fertiliser and pesticide]	2.1	Pests & diseases - cost of chemicals - as above for 1.1
		2.2	Marketing - fluctuating prices
		2.3	Lack of information about chemicals
		2.4	Declining soil fertility
		2.5	Source of good seed
		2.6	Cost of labour
		2.7	Access to irrigation water
3	Rural-based traders & Urban-based traders	3.1	Fluctuating prices and restricted access to markets
		3.2	Lack of credit
		3.3	Cost and problems of transport
		3.4	Poor packing and handling and post-harvest practices
		3.5	Lack of storage facilities
4	Input suppliers	4.1	High cost of agrochemicals/seed
		4.2	Restricted access to importing agents
		4.3	Lack of information about chemicals
5	Vegetable processors	5.1	Pepper processing in rainy season
		5.2	Cost of packaging (tomato)
		5.3	Quality control of processed product
		5.4	Suitable processing varieties e.g. acidity of tomatoes
6	Urban and rural consumers	6.1	High prices
		6.2	Quality of fresh and processed vegetables
		6.3	Pesticide residues (perceived more in rural areas)
		6.4	Lack of taste in vegetable where chemicals used
		6.5	Lack of choice
7	Extensionists	7.1	Limited information available on all aspects of vegetable production
		7.2	Lack of staff, transport etc.
8	Subject specialist	8.1	Lack of adequate information on vegetables, and dissemination material
9	Institutional Research/Educational/Policy makers	9.1	Low priority given to vegetables
		9.2	Scattered and scanty information, lack of institutional support
10	NGOs	10.1	Lack of co-ordination linkages

Appendix 2b. Research opportunities for the vegetable farming systems in Brong Ahafo

RESEARCH OPPORTUNITIES		
1	Home consumption/local market farmers	1.1 Identify priority pests and develop integrated pest management strategies Develop methodologies for IPM dissemination Trials for alternative, more resistant varieties Seed quality assessment 1.2 Improve productivity - new varieties 1.3 Develop processing technologies, improved storage; varietal trials 1.4 - 1.5 Varietal trials and new crops; feasibility of processing; market studies 1.6 Research into access to credit
2	Commercial/urban market farmers	2.1 As for 1.1 - with emphasis on monocropping systems 2.2 Varietal trials to increase harvest season; alternative crops, market studies (demand/supply, competitiveness, farmer-trader linkages), feasibility of process, export promotion 2.3 See 2.1 2.4 Use of manure/fertilisers 2.5 Research into seed sources and quality; develop methods to improve seed sources and dissemination 2.6 Increase profitability of farming
3	Rural-based traders & Urban-based traders	3.1 Market studies (competitiveness, farmer-trader-trader linkages) 3.2 Research credit opportunities and forms of credits 3.3 Study market margins/costs 3.4 Evaluate and develop improved post-harvest practices 3.5 Cost benefit analysis of present and alternative practices
4	Input suppliers	4.1 & 4.2 Input market structure and conduct study 4.3 Develop IPM strategies and dissemination
5	Processors	5.1 Develop processing technologies 5.2 & 5.3 Feasibility studies for individual, small, and medium scale processing 5.4 Varietal trials - evaluate required characteristics such as taste requirements
6	Urban and rural consumers	6.1 & 6.2 Market studies 6.3 & 6.4 Varietal trials: research on residue levels and quality 6.5 Opportunities for alternative crops
7	Extensionists	7.1 All above and development of methodologies for dissemination and linkages between research and development
8	Subject specialists	8.1 As for 7

9 Institutional

9.1 Continue reviews of literature and dissemination of material

10 NGOs

10.1 As for 9

Appendix 3. Programme of Phase II activities

	June				July				Aug				Sept				Oct	
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
SEASON																		
MAJOR RAINS																		
MINOR RAINS																		
1. MARKETING:																		
a) Collation of price data and analysis																		
b) Farmer & trader selection and studies																		
2. VARIETAL TRIALS																		
a) On farm trials																		
i) village/farmers selection																		
ii) trials																		
b) Off-farm trials																		
i) establish collaborator links																		
ii) trials																		
3. SEED SELECTION/SOURCES																		
a) Position paper(s)																		
b) Assess farmers' selection procedures																		
c) Collect farmers' and traders' seed																		
4. PROCESSING																		
a) Selection of farmers/processors																		
b) Visit and evaluation																		
5. POST-HARVEST HANDLING																		
a) Visit and evaluation																		
6. IPM																		
a) Major season pest evaluation																		
b) Minor season pest evaluation																		
c) Nematode trials																		
d) Development of IPM methods/materials																		

Appendix 4. Team Role and Programme Activities

1. Market Studies

Project leader: BA - F Lyon; NRI - H Warburton

Action point: F Lyon to investigate obtaining an enumerator to collect data (possibly from PPMED), and determine costs, also the potential to employ a graduate from the National Service scheme. F Lyon and H Warburton to draw up a schedule of project activities, methodologies required, objectives and project framework and outputs.

H Warburton and F Lyon to consider the possibility of preparing an article for publication from Phase I activities on socio-economic studies.

2. Varietal trials

i) Off-farm: BA - V Suglo; NRI - R Schippers

ii) On-farm: BA - F Lyon and S Awiti-Kuffour; NRI - R Schippers

Action points: J Orchard and R Schippers to finalise project objectives, methodologies, outputs and framework, and to discuss with J Sherington experimental design and analysis of data. BA project team to select villages for researcher-managed and farmer-managed trials and find farmer-collaborators. R Schippers to obtain seed. V Suglo to co-ordinate collaborator involvement.

3. Seed selection/sources

Project leader: BA - F Lyon and V Suglo; NRI - R Schippers

Action: Preparation of guidelines and position paper on the technical aspects of plant and fruit selection for seed source, methodologies for seed multiplication and evaluation and problems of maintenance of varietal purity and genetic erosion (R Schippers).

4. Processing technologies developed

The evaluation study to be co-ordinated in Ghana by Mr S Awiti-Kuffour.

Action: J Orchard to put together a team to visit Ghana, possibly from Cranfield (Professor K Thompson) and NRI, in particular to evaluate pepper drying. The team should note that UST, Kumasi are examining tomato processing for small-scale farmers and the activities of GRATIS and Technoserve.

5. Integrated Pest Management

Action: H Warburton to discuss the project priorities and programme of activities with key staff involved with the Crop Protection Programme, ensuring that all activities are fully integrated with CPH programme. In particular, there is a need for a major rainy

season survey for pests and diseases. Mr V Suglo to contact Ghana consultants for availability in July/August.

6. Post-Harvest Handling Technologies

Project leaders: BA - S Awiti-Kuffour; NRI - J Burdon

Action: J Orchard to organise visit by J Burdon to assess post-harvest handling and quality problems from selected farmers through the marketing chain. J Burdon to assess the feasibility of the Ghana team taking routine measurements of quality over a period of time, such as softness, colour and total soluble solids.

7. Diversification

Action: J Orchard to provide the Ghana team with information on diversification for future reference. Also the potential for diversification in Peri-Urban Production System should be explored since urban consumers may provide a ready market for non-traditional produce.