



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

GHANA FEED THE FUTURE AGRICULTURE POLICY SUPPORT PROJECT (APSP)

**PROGRESS REPORT ON DEVELOPING AN ENABLING
ENVIRONMENT FOR SEED INDUSTRY GROWTH FOR GHANA
(JANUARY-MARCH 2016)**

Contract No. 641-C-14-00001



USAID
FROM THE AMERICAN PEOPLE

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This report was produced for review by Chemonics International Inc. It was prepared by Iowa State University's consultants Joseph E. Cortes (PhD) and Francisco Miti (PhD). The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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A. INTRODUCTION

A1. Overview

Agriculture is an established economic sector in Ghana and produces a variety of crops in various climatic zones which range from dry savanna to wet forest and which run in east-west bands across Ghana. Various crops, including, maize, rice, sorghum, groundnuts, soybeans, cowpea, cotton, pepper, yam, cassava, sweet potato, cocoyam, cocoa, oil palms, kola nuts, and timber, form the base of agriculture in Ghana's economy.

In order to support the further growth of agriculture in Ghana, the five year Feed the Future Agricultural Policy Support Project (APSP) project is being implemented by Chemonics International under contract with USAID. Iowa State University (ISU) is a subcontractor to Chemonics International. The project aims to increase the capacity of the government of Ghana, the private sector, and Civil Society Organizations (CSOs) to implement evidence-based policy formation, implementation, research, and advocacy; and perform rigorous monitoring and evaluation of agricultural programs implemented under the Medium Term Agriculture Sector Investment Plan (METASIP) and other development frameworks devised by the government of Ghana.

A2. Terms of Reference

Iowa State University contracted the consultants and provided them with the following terms of reference as per the subcontract signed with Chemonics International for the implementation of the Ghana Feed the Future Agriculture Policy Support Project:

- a. Strengthen the variety release system in Ghana with the object to operationalize and build capacity for the implementation of the variety release system
 - Breed awareness on the use of the procedures manual and variety evaluation
 - Update and improve the procedure manual to cover variety evaluation, release, and registration
 - Conduct workshops
- b. Develop a seed quality assurance system for seed certification in Ghana
 - Write procedures manual for accreditation of seed inspectors, seed samplers, institutions, and seed testing laboratories
 - Conduct an unofficial audit to determine gaps, review the procedures manual, and update the procedures manual for seed certification
 - Hold workshops in Ghana
- c. Introduce licensing of varieties with the objective of increasing preparedness of NARIs and seed enterprises for licensing
 - Follow up on progress on writing and approval of institutional licensing policies and adaptation of contracts for royalties, seed acquisitions, and NARIs

- Encourage the signing of licensing agreements and basic seed contracts between NARIs and seed enterprises/seed producers
- Conduct workshops in Ghana
- d. Support the NSC Secretariat in becoming fully operational with a functioning Secretariat
 - Prepare draft policy proposal to increase market demand through a small-farmer input access program

B. METHODS

In order to address the contractual objectives, the consultants have so far carried out the following:

- a. Conducted a desk study of the following: Plants and Fertilizer Act, 2010 (Act 803); Draft Regulations to Act 803, and National Seed Policy
- b. Developed a draft manual on procedures for variety evaluation and release in Ghana prior to ISU's February-March 2016 visit to Ghana
- c. Developed a draft procedures manual for Seed Certification Accreditation prior to ISU's February-March 2016 visit to Ghana
- d. Held six workshops in which parts of the law, regulations, and procedures were discussed and made clear to participants. The workshops were: i) Four on Procedures for variety evaluation and release; ii) One on development of institutional variety licensing policies by NARIs to seed enterprises; and, iii) One on Accreditation of seed certification activities.

C. FINDINGS

This report covers four areas of analysis: The variety release system, the seed quality assurance system, licensing agreements, and support to the National Seed Council.

C1. The Variety Release System

Awareness creation on the variety release system in Ghana

The consultants developed a draft manual on procedures for variety evaluation and release in Ghana. This includes procedures for: i) Application for accreditation; ii) Initial/periodic audit; iii) training in variety testing; iv) DUS and VCU evaluation; v) variety release; vi) Handling of confidential business information, and; vii) appeals.

The APSP/ISU team held four workshops each at the following National Agriculture Research Institutions (NARIs):

- Crops Research Institute (CRI) in Kumasi (February 23, 2016)
- Savannah Agricultural Research Institute (SARI) in Tamale (March 3, 2016)
- University of Cape Coast in Cape Coast (February 24, 2016)
- University of Ghana in Accra (February 25, 2016)

The workshops discussed the draft manual of procedures for variety evaluation and release. The APSP/ISU team along with local scientists and other stakeholders agreed upon on the procedures and the manual contains their submissions collected during consultations in 2015. The exercise created awareness for breeders, agronomists, seed technologists, and other scientists on the use of the procedures manual and on evaluation of varieties. Individuals were encouraged to implement the variety release system.

In order to operationalize the variety release system in Ghana, procedures for variety evaluation and release need to be approved by the Technical and Variety Release Committee (TVRC) and the National Seed Council (NSC) as provided for in the Plants and Fertilizer Act 2010 (Act. 803).

Workshops of the Technical and Variety Release Committee
During the consultants' last visit to Ghana in August 2015, local stakeholders were engaged and they agreed on how variety evaluation and release would be conducted in Ghana in line with provisions contained in the Plants and Fertilizer Act, 2010 (Act 803). The stakeholders included plant breeders, seed technologists, seed traders, and policy makers. The consultants prepared a manual on the procedures agreed upon to guide the implementation of the variety release system. The manual was presented to the Technical and Variety Release Committee (TVRC) for consideration before being presented by the TVRC to the National Seed Council (NSC) for approval as per Act 803.

At the second workshop with the TVRC held in February 2016, participants went through the manual page by page and provided input. The consultants will incorporate the TVRC's inputs in a new version of the manual which will be submitted to APSP by April 15, 2016. It is envisaged that the new draft will be presented to the NSC when the consultants next visit Ghana.

When the consultants submit the new draft manual to APSP, ISU recommends that the project follow-up and facilitate the TVRC's review prior to presenting the procedures to the NSC for approval. ISU recommends that the TVRC meet to approve the procedures prior to the consultants' next visit in May/June 2016. This will set the stage for the NSC meeting in June and set the effective date for implementation of the manual, thus continuing the original plan of having the release system computerized.

At this last TVRC workshop, the Chairman—MoFA's Crop Services Director—was insistent that the manual be revised by other stakeholders before formal technical concurrence by this committee. A workshop participants list is included in Appendix 4.

C2. Seed Quality Assurance System

The consultants developed a draft manual on the seed quality assurance system for seed certification in Ghana. The manual is based on desk studies and consultations made in 2015. It provides details for: i) Application for accreditation by an entity (e.g., seed testing laboratory) and individuals (seed inspectors, seed samplers, and seed analysts); ii) Initial/periodic audit of applicants for accreditation; iii) training in seed quality assurance, and; iv) appeals.

A five day workshop (February 22-26, 2016) took place in Accra which included seed inspectors, seed samplers, and seed analysts of the Ghana Seed Inspectorate Division (GSID). The GSID examined the accreditation manual for seed certification in Ghana and participants provided input for further improvements. GSID suggestions were incorporated into the document during the workshop. The GSID participants also presented the activities they had conducted including registration, field inspection, sampling, seed testing, market control, and data management, which served as a basis for an unofficial audit and for the identification of gaps in such processes. In addition, the Director of the GSID provided a draft of the Seed Certification Manual, which is being finalized. The lead consultant offered to rearrange and contribute to the finalization of said manual, which was well received by the Director of

For the next consultants' visit, ISU recommends the following:

- **A restructuring of the seed certification manual and the development of procedures missing in the current seed certification manual**
- **Determine if these procedures need to be proposed/approved by TVRC and/or;**
- **By NSC to consider the approval of procedures for accreditation in seed certification activities during their same session for approval of the variety release procedures of May/June 2016**

GSID. A hardcopy of the manual was provided and a soft copy is to be forwarded shortly by the Director.

C3. Licensing of Varieties Through Agreements Between NARIs and Private Sector Seed Producers

During their previous August 2015 visit to Ghana, the consultants trained the NARIs (CRI, SARI, UCC, and UG) and seed enterprises in the formulation of their respective institutional licensing policies, variety licensing agreements, and basic seed production contracts for use in licensing of varieties by the institution. The APSP/ISU also recommended the NARIs secure approval of a draft variety licensing policy by their respective authorities.

During their February-March 2016 assignment, the consultants found that none of the NARIs had secured approval. Only one had developed a draft policy and three NARIs were yet to formulate institutional policies on licensing of varieties. The UCC and SARI have since developed the institutional policies and have submitted the same to authorities for approval. The draft institutional policy developed by CRI has neared completion. The University of Ghana has decided that the university's patent office will handle licensing of varieties and the Director of

To ensure progress on licensing of varieties, the consultants have requested APSP follow-up on obtaining the approvals of institutional licensing policies from NARIs. A discussion with APSP's COP led to the initial development of a concept paper on a "Pilot Program for the Promotion of Licensing Agreements." This activity is critical to increase momentum for licensing of varieties in Ghana and is highly recommended for implementation. Workshops to create awareness and fill procedural gaps on variety licensing may be held with NARIs and private seed sector meetings during the next consultants' visit in May 2016.

WACCI will lead the development of a policy to detail how licensing of varieties will be carried out.

A workshop on licensing of varieties was conducted on February 15-16, 2016, with the objective of addressing difficulties in writing institutional licensing policies. The consultants advanced awareness of licensing varieties and the need for an institutional policy during a visit to the respective NARIs during the week of February 23-25, 2016 and on March 3, 2016.

The consultants discussed with APSP ways to improve the enabling environment for private sector participation in the multiplication of pre-basic and basic seeds through licensing agreements signed with NARIs. In this case, NARIs will supply the breeder and/or basic seeds to interested private seed producers for multiplication and certification.

The consultants will work with APSP staff to prepare the modality arrangements for the Pilot Program and the consultants will follow-up on this activity during their next visit to Ghana. ISU recommends that the project discusses the proposal with stakeholders to ensure everyone is on the same page, particularly on the volume and price of basic seed of the selected varieties of the three Feed the Future priority crops to prepare the final proposal for USAID approval.

A proposal was made for the project to support the implementation of licensing agreements as a mechanism to both strengthen NARIs' research capacities and strengthen linkages with the private sector, while contributing to increasing the availability of good quality seeds for farmers. Under the proposal, APSP would contribute 50 percent of the cost for the implementation of the licensing agreements, while interested seed producers will contribute the other half. In principle the project accepted the proposal which includes an additional USD 100,000 in funding.

C4. Support to the National Seed Council to be operational with a functioning Secretariat

The NSC/TVRC Secretariat has a lean structure. To increase the performance of the Secretariat, key staff targeted for the same should be practically trained in handling this process, as well as, the implementation of the variety release, accreditation, licensing, and computerizing. The Secretariat will need hands-on training, together with representatives of the Seed Trade Association, GSID, and NARIs in all the above areas. A visit to Zambia for this purpose could be advantageous for building capacity in these areas.

D. PROGRESS AND RECOMMENDATIONS

At this stage in the process of supporting the Government of Ghana in the implementation of the Plants and Fertilizer Act 2010 (Act 803) and improving the enabling environment for facilitating access of smallholder farmers to improved seeds, the APSP/ISU team reports the following achievements and makes the following recommendations:

1. By mid-2015, ISU's lead consultant, Dr. Joseph Cortes finalized the review of Ghana's Seed Regulations based on the Plants and Fertilizer Act 2010 (Act 803).

2. Based on this review, APSP has supported the Ministry of Food and Agriculture (MoFA) with adjusting the Seeds Regulations to ECOWAS Protocols and the Ministry has submitted these regulations to Parliament for enactment. However, in following up, APSP has found that the corresponding Parliamentary Select committees in charge of examining the bill before presenting it for passage have not been able to meet. In order to facilitate the discussion of the Seeds Regulations at its revision stage, APSP has offered MoFA logistical support to enable the members of the Select Committees to meet, but as of now, the process has stalled. APSP should work with MoFA to make sure that the Parliamentary Select Committee undertakes revision of the regulations. It is critical that said regulations are passed by Parliament to give legal validity to the details not explained in the law and to allow for its full implementation.

3. A locally generated variety release system in Ghana has been developed with a draft of the procedures manual agreed upon by the country's scientists and other stakeholders. However, to operationalize the variety release system, the National Seed Council should approve the procedures for variety evaluation and release as provided for by the Plants and Fertilizer Act 2010 (Act 803). To improve further the variety release system the APSP/ISU team recommends:
 - a. Implementation of a training program for researchers in data collection with respect to DUS and VCU characteristics for specific crops.
 - b. Implementation of a hands-on training program in Zambia on the variety release system for technical staff at each NARI and TVRC.
 - c. Computerization of the variety evaluation and release system in Ghana.

4. Seed certification ensures control and inspection of seed of verifiable varieties. Personnel to carry out most of the activities are available and were trained in accreditation procedures for purposes of seed certification. To strengthen further implementation of activities for seed certification, the following are recommended:
 - a. Implementation of the accreditation system
 - b. Hands on training in Zambia on seed accreditation for selected GSID staff
 - c. Provide technical assistance to the GSID to restructure their administrative organization and procedures for seed certification, including the new accreditation program

5. Comments have been received on the first draft of the procedures manual on the variety release system. The project should follow-up with MoFA to request additional comments on the version discussed at the TVRC meeting of February 2016. Also, MoFA should provide the fee structure for the different crops for inclusion in the procedures manual. Once APSP conveys this information to the ISU consultants, the procedures manual will be finalized and will be submitted at the next TVRC meeting for approval.

6. The Secretariats of NSC/TVRC will play important roles in variety evaluation, release, and seed certification. The APSP/ISU team has trained targeted staff in the TVRC Secretariat on the theoretical components of activities in evaluating varieties and in seed certification. The secretariat still needs hands on support in the area of variety evaluation. A visit to Zambia for this purpose could be helpful.
7. The variety release and the accreditation manual need to be approved by the TVRC/NSC as soon as possible, hopefully in the next quarter of the present fiscal year. APSP will determine if the accreditation manual only requires NSC approval. The approval of these manuals is delaying program activities in this area of support and may need to be pushed to the fourth quarter of this fiscal year. It should be noted that the activities as indicated in 4. a, b, and c above, require that both of these manuals be approved by the corresponding authorities of Ghana, so the next stage of APSP's technical assistance is based on actual and enforceable regulations and procedures.
8. Varieties developed by a NARO need to reach the farmer and improve his/her crop production. The APSP/ISU team has trained NARIs in developing institutional licensing policies, licensing agreements, and basic seed production contracts. However, to ensure progress on licensing of varieties, APSP should follow-up on securing the approvals of the respective institutional licensing policies at all NARIs.
9. In order to further improve the enabling environment for private sector participation in the seed industry, it has been proposed that APSP partially support the implementation of licensing agreements for the production of pre basic and basic seeds. The project intends to issue a tender to receive grant applications for the implementation of a pilot program to promote the implementation of licensing contracts and to promote the utilization of newer and better varieties through licensing contracts. APSP will prepare a detailed proposal on modality arrangements for the pilot and will send it to the ISU consultants for suggestions before issuing the tender. ISU recommends that the project obtain the prices of basic seeds by variety and by research institution and of the amounts of basic seed as required by the private sector to ensure that the proposal is complete.

The ISU team intends to return to Ghana in May 23, 2016 to continue with planned activities in support of the USAID/Ghana Agricultural Policy Support Project.

ANNEXES

Annex 1: Participants at Workshops on Procedures for Variety, Evaluation, and Release of Licensing Varieties

1a: University of Ghana—Accra

No.	Name	Sex	Position	Email	Phone
1	Eric Danquah Prof.	M	Director, WACCI (Breeder)	[REDACTED]	[REDACTED]
2	Pangirayi Tongoona Prof.,	M	D/Director, WACCI (Breeder)	[REDACTED]	[REDACTED]
3	Kwadwo Ofori Prof.	M	Dean, School of Graduate studies	[REDACTED]	[REDACTED]
4	Essie Blay Prof.	F	Breeder	[REDACTED]	[REDACTED]
5	Beatrice Ifie PhD	F	Maize Breeder	[REDACTED]	[REDACTED]
6	Agyemang Danquah PhD	M	Lecturer	[REDACTED]	[REDACTED]
7	Daniel Dzidzienyo PhD	M	Coordinator, Research Programs	[REDACTED]	[REDACTED]
8	Vivian Oduro PhD	F	Snr research Scientist	[REDACTED]	[REDACTED]
9	George Nkansah Prof.	M	Professor	[REDACTED]	[REDACTED]
10	Lemuel Mintah PhD	M	Research Fellow	[REDACTED]	[REDACTED]
11	Ousseini Ardaly Abdou	M	PhD Student/Breeder	[REDACTED]	[REDACTED]
12	Juliana Mariama Vangahum (Mrs)	F	PhD Student/Breeder	[REDACTED]	[REDACTED]
13	Augusta Jebek Barka (Mrs)	F	PhD Student/Breeder	[REDACTED]	[REDACTED]
14	Luka Atok Opio Awata	M	Breeder	[REDACTED]	[REDACTED]
15	Wendm Ygzaw Gesesew	M	PhD Student/Breeder	[REDACTED]	[REDACTED]
16	Bassirou Sani Boubacar Gaoh	M	Breeder (Pearl Millet)	[REDACTED]	[REDACTED]
17	Nathan Aliel Kachiguma	M	Breeder	[REDACTED]	[REDACTED]
18	Bedasa Mekonnon Dosho	M	Breeder	[REDACTED]	[REDACTED]
19	Tighankouni Jnr. Gmakoba	M	PhD Student/Breeder	[REDACTED]	[REDACTED]
20	Adelaide Pingdewinde Ouedraogo (Mrs)	F	PhD Student/Breeder	[REDACTED]	[REDACTED]
21	Pearl Abu (Mrs)	F	PhD Student/Breeder	[REDACTED]	[REDACTED]
22	Michael Kwabena Osei	M	PhD Student/Breeder (Tomato)	[REDACTED]	[REDACTED]
23	Rosemary Kusi-Adjei (Mrs)	F	PhD Student/Breeder	[REDACTED]	[REDACTED]
24	Kwabena Bediako Asare	M	PhD Student/Breeder	[REDACTED]	[REDACTED]
25	Dans Kiamue Johnson	M	PhD Student/Breeder	[REDACTED]	[REDACTED]
26	Prince Emmanuel Norman	M	PhD Student/Breeder	[REDACTED]	[REDACTED]

1b: Crop Research Institute (CRI)—Kumasi

No.	Name	Sex	Position	Email	Phone
1	Stella A. Ennin PhD	F	Director	[REDACTED]	[REDACTED]
2	K. Obeng-Antwi PhD	M	Breeder	[REDACTED]	[REDACTED]
3	Kofi Dartey PhD	M	Rice Breeder	[REDACTED]	[REDACTED]
4	Emmanuel Otoo PhD	M	Deputy Director	[REDACTED]	[REDACTED]
5	Maxwell Asante PhD	M	Breeder	[REDACTED]	[REDACTED]
6	Stephen Amoah PhD	M	Breeder	[REDACTED]	[REDACTED]
7	Martin Tengan	M	Breeder	[REDACTED]	[REDACTED]
8	Priscilla Ribiero (Mrs)	F	Breeder	[REDACTED]	[REDACTED]
9	Allen Oppong PhD	M	Breeder	[REDACTED]	[REDACTED]
10	Hillary Mireku Bortey	M	Research Scientist	[REDACTED]	[REDACTED]
11	Alimatu Sadia Osuman	F	Research Scientist	[REDACTED]	[REDACTED]
12	Emmanuel Adjei Asamoah	M	Research Scientist	[REDACTED]	[REDACTED]
13	Ruth N.A. Prempeh	F	Breeder	[REDACTED]	[REDACTED]
14	Joseph Manu-Aduening PhD	M	Breeder	[REDACTED]	[REDACTED]
15	J.Y. Asibuo PhD	M	Breeder	[REDACTED]	[REDACTED]
16	Hans Adu-Dapaah		Breeder	[REDACTED]	[REDACTED]

1c: University of Cape Coast—Cape Coast

No.	Name	Sex	Position	Email	Phone
1	K.J. Taah PhD	M	Head of Department, Crop science	[REDACTED]	[REDACTED]
2	J.P. Tetteh Prof.	M	Scientist, Crop Science	[REDACTED]	[REDACTED]
3	P. Agu Asare PhD	M	Scientist, Crop Science	[REDACTED]	[REDACTED]
4	L.K.Galyuon Prof.	M	Molecular Scientist	[REDACTED]	[REDACTED]
5	P. Otwe PhD	M	Molecular Scientist	[REDACTED]	[REDACTED]
6	A. Tettey Asare PhD	M	Molecular Scientist	[REDACTED]	[REDACTED]
7	Grace C. van de Puije PhD	F	Scientist, Crop Science	[REDACTED]	[REDACTED]
8	Evis Asare Bediako Prof.	M	Scientist, Crop Science	[REDACTED]	[REDACTED]
9	Ivy Rose Akatapo	F	DRIC Officer	[REDACTED]	[REDACTED]
10	Ignituous Otoibu	M	Rep, Ag Director, DISCS	[REDACTED]	[REDACTED]

1d: Savannah Agricultural Research Institute (SARI)—Tamale

No.	Name	Sex	Position	Email	Phone
1	Peter Asungre Anabire	M	Breeder-millet	[REDACTED]	[REDACTED]
2	Alidu Haruna	M	Breeder-Maize	[REDACTED]	[REDACTED]
3	Kwabena Acheremu	M	Breeder-potato	[REDACTED]	[REDACTED]
4	Kenneth Opere-Obuobi	M	Breeder-sorghum	[REDACTED]	[REDACTED]
5	Gloria Boakyewaa Adu	F	Breeder-Maize	[REDACTED]	[REDACTED]
6	Emmanuel Chamba	M	Plant Breeder	[REDACTED]	[REDACTED]
7	Emmanuel Amponsah Adjei	M	Plant Breeder	[REDACTED]	[REDACTED]
8	Gloria Adazebra	F	Research Scientist	[REDACTED]	[REDACTED]
9	Francisca Addae-Frimpomaah	F	Research Scientist	[REDACTED]	[REDACTED]
10	Joseph Adjebeng-Danquah	M	Research Scientist	[REDACTED]	[REDACTED]
11	Iddi Musah	M	CTO	[REDACTED]	[REDACTED]
12	Daniel Akovuta	M	STA	[REDACTED]	[REDACTED]
13	Richard Y. Agyaie	M	Principal Technology Officer	[REDACTED]	[REDACTED]
14	Wilson Dogbe	M	Principal Research Scientist	[REDACTED]	[REDACTED]
15	Stephen K Natsugah	M	Director	[REDACTED]	[REDACTED]
16	Robert K. Owusu	M	Scientific Secretary	[REDACTED]	[REDACTED]

Annex 2: Participants at a Workshop on Licensing of Varieties

No.	Name	Sex	Position	Email	Phone
1	K.J. Taah PhD	M	Head of Department, Crop science, UCC	[REDACTED]	[REDACTED]
2	J.P. tetteh Prof.	M	Scientist, Crop Science, UCC	[REDACTED]	[REDACTED]
3	Aliu Mohammed	M	Secretary, SeedPAG	[REDACTED]	[REDACTED]
4	thomas W. Havor	M	General Secretary, SeedPAG	[REDACTED]	[REDACTED]
5	Joseph Bapule	M	Secretary, Seed Trade Association	[REDACTED]	[REDACTED]
6	Janet Gyimah-Kessie	F	Member, Seed Trade Association	[REDACTED]	[REDACTED]
7	Haruna alidu	M	Research Scientist, SARI	[REDACTED]	[REDACTED]
8	R.K. Owusu	M	Scientific Secretary, SARI	[REDACTED]	[REDACTED]
9	Cletus Achaab	M	Seed Advisor, IFDC	[REDACTED]	[REDACTED]

Annex 3: Participants at a Workshop on Accreditation for Seed Certification

No.	Name/Contact Person	Position	Email Address	Contact Number
1	Adi Okutu	Seed Analyst	[REDACTED]	[REDACTED]
2	Peter Nketsia	Seed Inspector	[REDACTED]	[REDACTED]
3	Nathan Biassey	Seed Inspector	[REDACTED]	[REDACTED]
4	Victor Ashigbie	Seed Inspector	[REDACTED]	[REDACTED]
5	Josephine Efua Fosuwah	Seed Inspector	[REDACTED]	[REDACTED]
6	Christopher Manu	Seed Inspector	[REDACTED]	[REDACTED]
7	Annie Zottorgloh	Seed Coordinator	[REDACTED]	[REDACTED]
8	Japhet Asante	Seed Inspector	[REDACTED]	[REDACTED]
9	Yahaya Alhassan	Seed Inspector	[REDACTED]	[REDACTED]
10	Linda Esther Quartey	Seed Analyst	[REDACTED]	[REDACTED]
11	Samuel Essandoh	Seed Inspector	[REDACTED]	[REDACTED]
12	Veronica Nipaah Foster	Laboratory Manager	[REDACTED]	[REDACTED]
13	Joseph Bussum Hackman	Sampler Analyst	[REDACTED]	[REDACTED]
14	Adek Azantillo	Seed Inspector	[REDACTED]	[REDACTED]
15	Denis Adjei	Seed Inspector	[REDACTED]	[REDACTED]
16	Ishmael Amenuveve Kpogo	Seed Analyst	[REDACTED]	[REDACTED]
17	Joseph Agayaba	Seed Inspector	[REDACTED]	[REDACTED]
18	Seidu Abukari	Seed Inspector	[REDACTED]	[REDACTED]
19	Eric Bentsil Quaye	Head	[REDACTED]	[REDACTED]

Annex 4: Participants at the TVRC Workshop on Variety Evaluation and Release

No.	Name	Sex	Position	Email	Phone
1	Solomon Gyan Ansah PhD	M	D/Director, DCS, MOFA	[REDACTED]	[REDACTED]
2	J.P. Tetteh Prof.	M	Scientist, Crop Science, UCC	[REDACTED]	[REDACTED]
3	Pangirayi Tongoona Prof.	M	D/Director, WACCI (Breeder)	[REDACTED]	[REDACTED]
4	Thomas W. Havor	M	General Secretary, SeedPAG	[REDACTED]	[REDACTED]
5	Lawrence Abonge-Misa PhD	M	Breeder	[REDACTED]	[REDACTED]
6	Emmanuel Asante Krobea	M	Director, Department of Crop Services	[REDACTED]	[REDACTED]
7	Eric UAYE	m	D/Director, PPRSD	[REDACTED]	[REDACTED]
8	Kenneth Danso Prof.	M	Director, BRARI	[REDACTED]	[REDACTED]
9	Charles Opoka	M	Regional Officer, GLDB – MOFA	[REDACTED]	[REDACTED]
10	Adjei Asamoah	M	Research Scientist, CSIR-CRI	[REDACTED]	[REDACTED]
11	Patrick Apullah	M	President, SeedPAG	[REDACTED]	[REDACTED]
12	Afia Nyamekyi (Mrs)	F	Ex Veep, GAIDA	[REDACTED]	[REDACTED]
13	George Prah	M	Assistant Director, DCS-MOFA	[REDACTED]	[REDACTED]
14	N.N. Denar PhD	M	Snr Research Scientist, SARI	[REDACTED]	[REDACTED]