Ghanaian farmers are using AICCRA-Ghana advisories to improve their climate-sensitive decision making| Ghana Outcome Impact Case Report (OICR for PDO 2)

Year: 2022

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Short outcome/impact statement: (level 1).

250,000 Ghanaian farmers including 100,000 women are using seasonal forecasts and pest advisories in Central, Bono East, Northern and Upper East & West regions in Ghana. Smart maize seed, Dual-purpose cowpea, Orange-fleshed sweet potato and Aeroponic Gendered Seed Yam were promoted through demonstration plots (31) and farmer field days (31) with follow-up request from the six regions (22 farming communities) to access the seeds and associated technologies for deployment on estimated 90 hectares. The gender-responsive Dual-purpose cowpea attracted interests of 459 women from women organizations in the Central region and Bono East Region. One thousand one hundred and thirteen (1113) participants were reached directly through the field days and 41% were women. The farmers expressed satisfaction and willingness to adopt these new technologies and incorporate them into their farms next year and beyond.

3. Outcome story for communications use: 400words

With the continuous increase in climate variabilities such as erratic rainfall, drought, increased temperatures, pests, and disease incidences in Ghana, smallholder farmers have become more vulnerable to climate shocks. Fewer climate adaptation strategies are being adopted to minimize risks associated with these climate change shocks. There is an urgent need to help smallholders manage these risks and reduce vulnerabilities so they can transition to sustainable food and nutrition security. Promoting and improving accessibility to validated climate information services, climate-smart agriculture technologies, and climate-smart One Health Innovations is a key priority of AICCRA-Ghana to improve the resilience of farming communities and particularly smallholder farmers.

AICCRA-Ghana undertook a prioritization of CIS, CSA and climate-smart One Health Innovations process which formed a major step towards the project implementation. The process was participatory involving farmers, scientists, extension officers, private sector operators, researchers, and development workers in the implementing regions. This process of CIS and CSA identification and prioritization informed the scaling-up processes through the establishment of demonstration plots, capacity strengthening of stakeholders, field days and media engagements. Over the past One and a half years, AICCRA Ghana has been

disseminating weather information such as seasonal forecasts, onset, and cessation of rainfall, dry spells, and pest advisories.

About 250,000 Ghanaian farmers including 100,000 women are accessing this information through ESOKO platform. Improved access to climate information services enhances farmer decision in undertaking farm operations and could translate to higher yields and income. 31 demonstration plots were established in six regions including Central (Cape Coast and Komenda, Edina Equafo, Abirem District), Bono East (Kintampo North, Kintampo South, and Techiman North Districts), Northern (Tolon Districts), Upper East (Kassena Nankana and Bongo Districts), Upper West (Jirapa and Lawra Districts) and 22 communities in four agroecological zones (Coastal savannah, Guinea savannah, Transition and Sudan savannah) using the prioritized CIS-CSA innovations. The value chains and technologies were maize (smart maize seed), cowpea (Dual purpose seed), sweet potato (Orange-fleshed), and yam (Aeroponics generated seed yam). 1113 farmers were directly reached through field days with 41% representing females. Farmers and extension officers as well as community leaders have written letters requesting for seeds of the value chains demonstrated as well as expansion of the project activities to other communities. This is an indication of the partner's high-level satisfaction of AICCRA Ghana intervention targeted at improving smallholder adaptation to climate risk. The use of AICCRA technologies resulted in an increased yield of approximately 42% compared to the local technologies which could translate to increased income.

CGIAR innovation(s) or findings that have resulted in this outcome or impact

This is a culmination of previous CGIAR programs on Climate change agriculture and food security (CCAFS) and the Yam Improvement for income and food security in West Africa (YIFSWA II), Stress Maize for Africa (STMA), Harvest Plus and Africa Yam projects. Under YIFSWA II functional and commercial seed yam systems were developed to enhance seed yam for smallholder farmers. Aeroponics Generated Seed yam systems were developed, piloted, and refined in several yam growing regions. The Aeroponics seed yam that AICCRA is promoting was generated through the YIFSWA II Project. Smart maize varieties that are tolerant to stresses such as drought, low nitrogen and striga infestation were developed and released for smallholder farmers between 2015 to 2020. The Stress Tolerant Maize Varieties released and commercialized is referred to as Smart maize seed, which AICCRA is promoting in Ghana. Released Under the Harvest plus project, biofortified sweet potato and maize varieties were developed and released for use by farmers in Ghana and the sub-region. The orange fleshed sweet potato being promoted by AICCRA were developed and commercialized under the Harvest Plus project. They are the results of the piloting, promoting, and disseminating of the proven climate-resilient maize (Denbea, Opeaburo, Abotem, Wang-dataa and Suhudoo) Dual-purpose cowpea (Padituya, Zamzam, Kirkhouse Benga and Nketewade) varieties and Orange-Fleshed

Sweet potato varieties in 2021. The CGIAR results enabled the piloting of stress tolerant maize varieties (smart maize seeds) with farmers in their own environment; Dual-purpose cowpea for improved household nutrition and income; and One Health Sweet potato weevil management and Yam anthropod management to increase the adoption of eco-friendly yam pests and disease management. The number of pilots for the value chains was Smart maize (13), yam (6), cowpea (8) and sweet potato (4).

7. Elaboration of outcome/impact statement (max. 400 words)

The evidence of climate variability and change is mostly seen in crop production systems across multiple geographies globally and Ghana is no exception. Before the intervention of AICCRA innovations to farming communities across its 5 intervention regions, most farmers used indigenous knowledge with few having limited access to CGIAR climate smart technologies. Uptake of climate smart technologies was very low which translates to poor livelihood of farmers. Couple to these challenges is the limited access to extension services and capacity of government extension officers on climate information is also scanty. AICCRA Ghana and its partners packaged the best-bet climate Smart Agriculture (CSA) innovations through short messages via ESOKO Ghana platforms. ESOKO Ghana is an Agri-Tech company that specializes in the dissemination of climate and weather advisories as well as crop-specific CSA advisories which are Gender and youth sensitive. Climate information services (CIS) has resulted in changes in how farmers make decisions regarding crop production. A few Examples of farmers activities which have been influenced by AICCRA CIS include the following;

1. Climate information on onset, cessation and dry spells of rainfall and associated CS practices; ESOKO disseminates this via multiple platforms (e.g IVR and text messages) to farmers to help them plan and take critical decisions such as planting time and crop management practices (e.g., fertilizer application) depending on the type of crop. This was accompanied by CSA advisories to improve the resilience of farming system. In 2022, ESOKO Sent seasonal forecast information to 256,981 Overachieving the annual target by 2%. This have all AICCRA value chains. From this, 32.7% were women, and 12% youth.
2. Advisories on Pest and disease control using One health Approach; crop-specific advisories on best-bet crop protection innovations with emphasis on limited use of agro-pesticides and promotion of Biocontrol practices. This helps in reducing chemical residues on crops when harvested for human consumption and ensure environmental health. A total 170, 276 representing 68% of annual target. This is for all the AICCRA value chains (maize, cowpea, yam, and sweetpotato). From this, 25% were women and youth.
3. Recommendation on use of improved crop varieties that are high yielding and climate resilient; Based on the projected annual precipitation in a particular area, ESOKO Ghana disseminates

recommended crop varieties with information on where to access seeds and other associated agro-inputs to help farmers improve productivity, which will translate to improved income and livelihood.

AICCRA farmers also benefited from community field demonstrations in the five operational regions of AICCRA. A total 31 demonstration plots were set up in 12 Districts, and 18 communities in four agroecology's (Coastal savannah, Transition, Guinea savannah, and Sudan savannah) of Ghana. The value chains piloted were maize (13 pilots), yam (6 pilots), cowpea (8 pilots), and sweet potato (4 pilots). These value chains were chosen because of their socio-economic importance in Ghana across 5 regions. These community farm demonstrations generated a lot of interest from these farmers as they saw first-hand the real impacts of AICCRA innovations in terms of resilience and productivity. For dual-purpose cowpea, the percent increase in AICCRA Technology compared to the Local Tech per hectare were Nyankpala (74%), Yizeigu (49%), Doggoh (55%), Bompari (52%), Dazuuri (42%), Offuman (35%) and Dompoase (15%) respectively. Also, for smart maize seed, the percent increase in AICCRA Technology compared to the Local Tech per hectare were; Nyankpala (64%), Yizeigu (57%), Doggoh (68%), Bompari (58%), Dazuuri (46%), Offuman (57%), Dompoase (57%), Dahyia (58%), Adomano (63%), Adiemmra (52%), Tampuli (63%) and Bongo (48%) respectively. The AICCRA Technology tested under sweetpotato increased yield by 97%, 33%, 87% and 25% in ompoase, Ayinase, Mempeasem and Dahia respectively compared to the Local/farmer practice. Similar results were observed under Yam technologies. These have resulted on pre-orders of improved planning materials and the local government authorities (District Municipal Assemblies) sending official letters to AICCRA Ghana to intensity and expand operations in their various jurisdictions across the 5 AICCRA intervention regions of Ghana.

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Appendix

See request for expansion of AICCRA demonstration plots here from District Municipal Assemblies

Related communications materials (News stories about AICCRA Ghana's field days)

1. Climate change resilient farming: 120 Farmers in KEEA get equipped: https://www.graphic.com.gh/entertainment/features/climate-change-resilient-farming-120-farmers-in-keea-get-equipped.html
2. AICCRA Project: Kintampo North farmers introduced to climate-smart farming methods: https://www.youtube.com/watch?v=yYcDbl-PyrY
3. Farmers schooled on the effects of climate change on food security: https://drive.google.com/file/d/1gEspo31TVwzOHGrqRugHlr35loBcy7UL/view?usp=sharing

Farmers in UER urged to adopt new technologies

4. https://www.ghanaiantimes.com.gh/farmers-in-uer-urged-to-adopt-new-technologies/
5. https://drive.google.com/file/d/1_8IaXRTpK0p0TI6rHafsIb0imAyGTGxm/view?usp=sharing

Short film on farmer field days organized by AICCRA Ghana:

6. Click on link to view video from Farmer Field Days

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Building on 50 years of CGIAR innovation, AICCRA works to scale climate-smart agriculture and climate information services that reach millions of smallholder farmers in Africa. For more information, visit us at https://aiccra.cgiar.org/

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