



Market Survey on Willingness to Adopt Resilient Seeds



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Study Coordinators

Aaron Sangmor Nyarkotey, Energy Advisor, SNV Netherlands Development Organisation (MGA Manager, GCIC Project)

Dramani Bukari, Energy Advisor, SNV Netherlands Development Organisation (Project Manager, GCIC Project)

Authors

Growth Mosaic Limited.

Ghana Climate Innovation Centre

GCIC offers financing and capacity building services that address challenges to starting and growing business in the green economy, including renewable energy, energy efficiency, waste management, climate smart agriculture and water management and purification. The Centre also incubates promising start-ups and seed capital funding to entrepreneurs. In addition, GCIC provides business advisory and market development services, access to product testing facilities and government engagement on policy.

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November 2019

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Background to the Research

One of the fundamental metrics of the Climate-smart agriculture sub sector is safeguarding food security, and critical to this, is the development, promotion and adoption of resilient seeds for crop production. Thus, as part of steps to provide relevant market-centered support to its incubatees and other stakeholders in the seed sector, GCIC via SNV commissioned Growth Mosaic to conduct research into the resilient seeds sector in Ghana.

In line with GCIC's thematic area of climate smart agriculture, we defined resilient seeds as seeds that can withstand the effects of climate changes such as drought and flooding (i.e. the more common effects of climate change in the West African geographical region).

Definition of Key Terms

Climate Resilient Seeds

Seeds that can withstand the effects of climate changes such as drought and flooding. Examples of resilient seeds in Ghana are CSIR-Omankwa, CSIR- Abontem and Wang-dataa.

Certified Seed

Certified seed refers to seeds obtained from the first or second multiplication of foundation seed. Certified seeds are produced under conditions that ensure maintenance of genetic purity and varietal identity. They must meet minimum standards for purity ascribed by law before they are certified by an appropriate regulatory agency.

Certified Seed vs. Resilient Seeds

Certified seeds are seeds that have passed through PPRSD's certification process and met the requirements to be deemed certified. They may or may not be climate resilient. Certified seeds are bred to exhibit several desirable factors such as higher yields, disease tolerance, drought tolerance, lodging tolerance etc. Certified seeds that exhibit climate resilient characteristics such as drought tolerance would, under the scope of this research, be deemed climate resilient.

Key Findings of the Study

- Both demand and supply of resilient seeds have been on the increase due to interventions such as programs by both government and donor agencies.
- Although helpful, programs such as Planting for Food and Jobs (PFJ) give a distorted view of running a sustainable private seed business since the PFJ absorbs the costs that private players would have transferred to farmers.
- Yield level of seeds is the most important factor that influences farmers to adopt resilient seeds.
- Key challenges in the sector are: inadequate infrastructure, inadequately resourced certification bodies resulting in delays in the process of certifying seeds, lack of demand forecasting techniques and market information, as well as seed producer challenges with cash flow due to delayed payment of subsidies on seeds supplied to users.
- Findings from foundation seed breeders, certified seed producers and input dealers show that there is more room for farmers to increase their usage and adoption of resilient seeds.

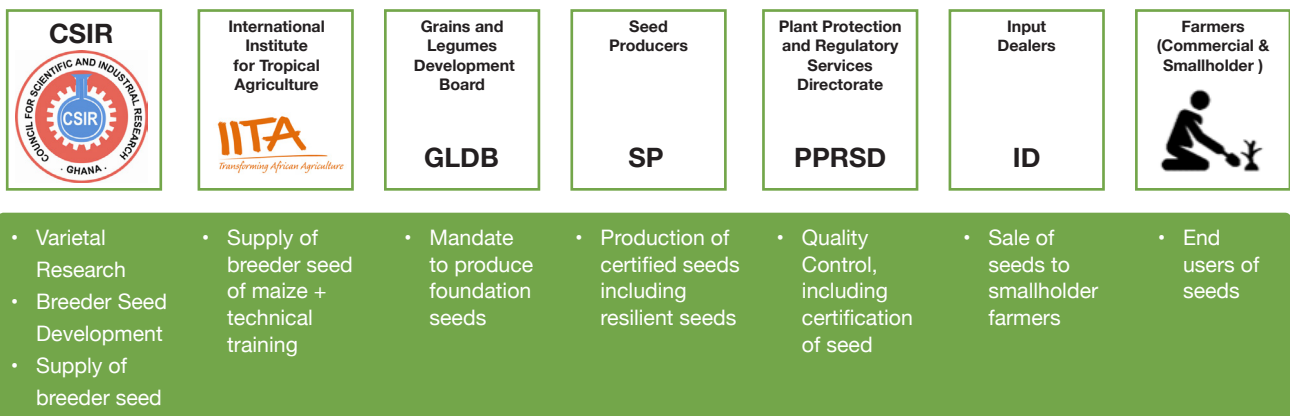
Overview of the Resilient Seeds Value Chain in Ghana

- Institutions and their roles in resilient seed production
- Stages involved in resilient seed production
- Challenges that hinder effective coordination and general output

Institutions and their Roles in the Seed Value Chain

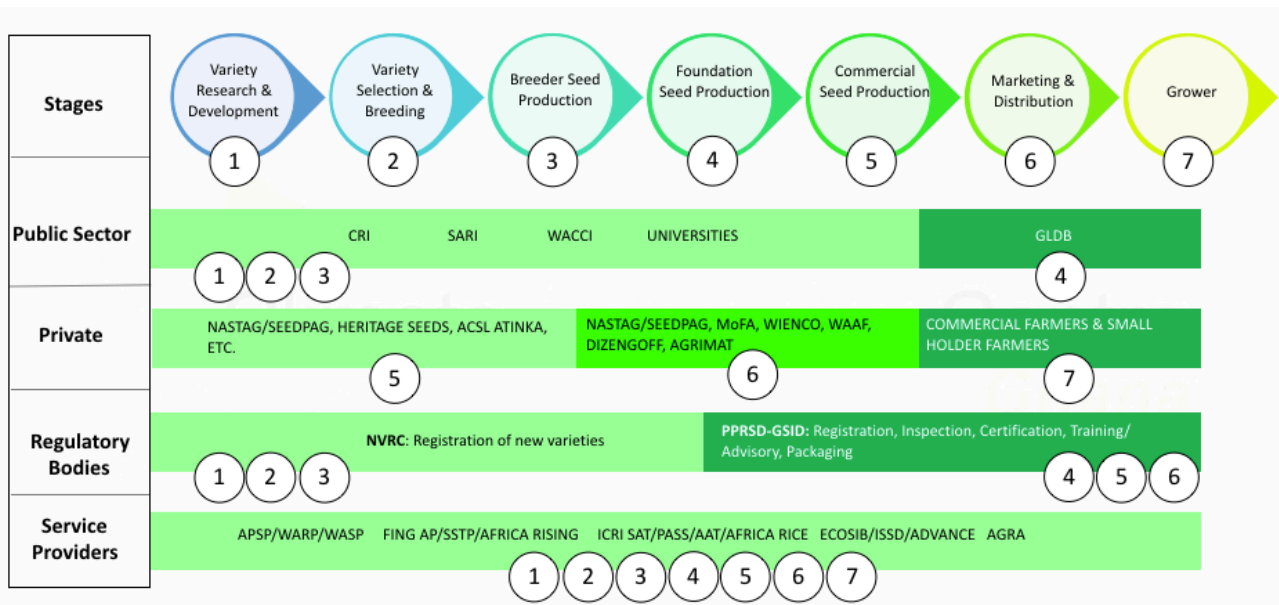
The map below shows the main institutions involved in the seed value chain and their roles in the resilient seed market.

INSTITUTION



The formal seed system in Ghana is headed by the Ministry of Food and Agriculture which hosts the National Seed Council and National Variety Release Committee.

Stages Involved in Resilient Seed Production



Challenges that Hinder Effective Coordination and General Output

1

Inadequate Infrastructure

such as irrigation facilities for the production of breeder seeds is causing lower yields than expected

2

Lack of Demand Forecasting Techniques

on specific varieties of seeds makes it difficult for breeders to forecast demand in order to plan production. This causes poor business linkages among seed growers and agro-input dealers.

3

Low Cash Flow

Seed producers have challenges with working capital due to delays by the government in the reimbursement of subsidies on seeds supplied to input dealers

4

Inadequately Resourced Certification Bodies

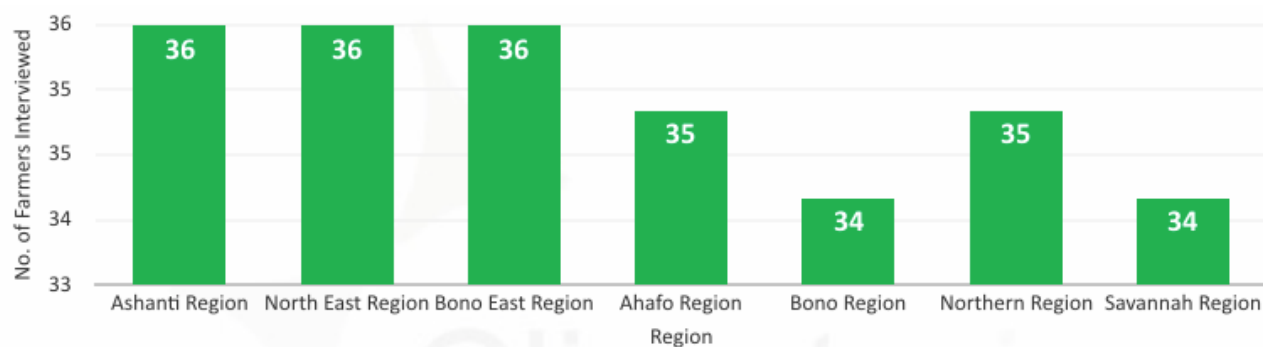
results in delays in the certification and release of seeds to end users

Assessment of Adoption Rate of Resilient Seeds in Selected Farming Zones

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Survey: Profile of Respondents - Smallholders

Number of Farmers Interviewed



Breakdown of No. of Farmers Cultivating Maize, Soybeans and Rice

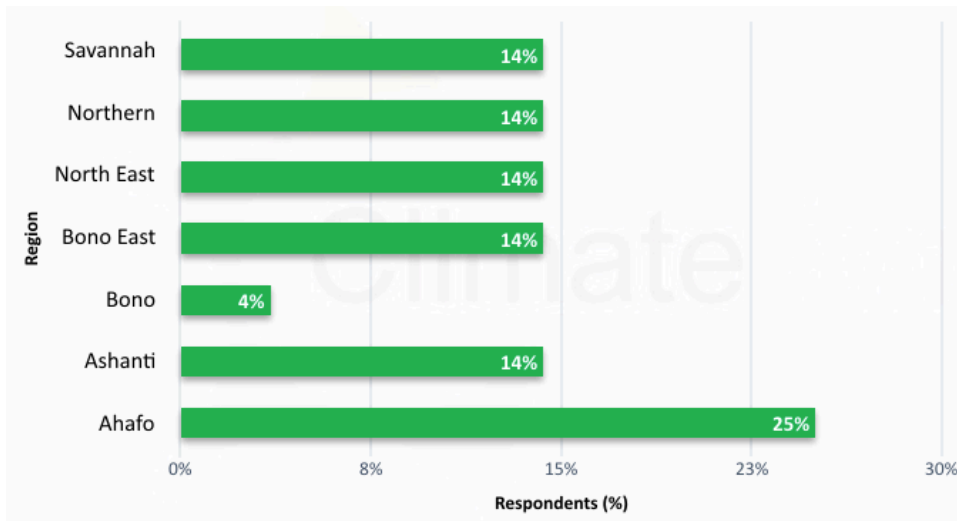
Crop	Number of Farmers
Rice	77
Maize	114
Soybean	22
Rice, Soybean	2
Rice, Maize	5
Maize, Soybean	4
Rice, Maize, Soybean	23
Total	247

A total of 247 smallholder farmers were interviewed across the 7 regions of Bono, Bono East, Ahafo, Savannah, North East, Northern and Ashanti Regions of Ghana.

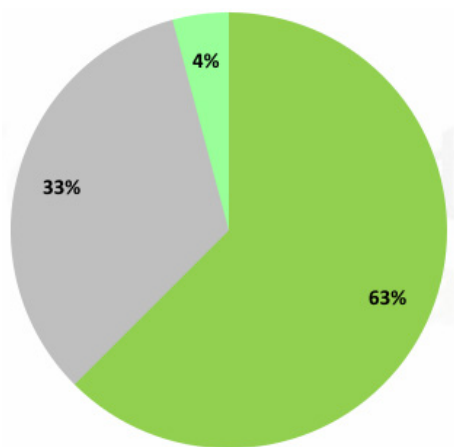
This survey had majority of respondents being decision-makers on their farms, thus have a large influence on the seeds used. The smallholders interviewed were a relatively experienced sample of the population. Of the smallholder farmers interviewed,

- 74% of them identified as family heads
- 22% and 4% identified as Spouse and Child respectively
- 71% of the respondents owned the farmland they farmed on
- 40% of the farmers have farmed for 6-10 years on the farmland
- Only 37 % of the farmers interviewed had no formal education

Survey: Profile of Respondents – Commercial Farmers and Aggregators



A total of 28 commercial farmers and aggregators were interviewed from seven (7) regions.



Years Of Farming

- 5 to 10 years
- 11 years to 20 years
- 21 years and above

Aggregators were found to typically influence outgrowers on new agricultural farming & Majority of outgrowers provide resilient seeds to their outgrowers.

Of the 46% who work with out growers, only 30% do not provide resilient seeds to them.

Interest & Level of Adoption of Resilient Seeds in Ghana

89%

farmers with an average of 2 hectares have heard of climate resilient seeds

87%

farmers have used resilient seeds before.

91%

Farmers are willing to recommend resilient seeds to their colleague farmers

44%

of farmers interviewed had adopted resilient seeds (i.e. had used resilient seeds > 6-10 farming seasons)

“High Yielding”

“Reduces Cost Of Irrigation”, “Disease & Pest Tolerant” are compliments farmers have given to resilient seeds

Parameters and their Rankings Contributing to Willingness to Adopt

Below are the parameters influencing willingness to adopt resilient seeds. This is shown in the order of most important to the farmers.

Yield

- Yield is a major factor influencing the choice of seeds that farmers purchase and use.
- Yield is the most influential factor contributing to willingness to adopt resilient seeds

Exposure

- Outgrowers are more willing to try resilient seeds when there are demonstration farms that show the above attributes.

Quality

- Farmers also consider the quality of seeds in their willingness to adopt.

Disease and Pest Resistance

- Farmers are more likely willing to use seeds if the main attributes are lodging, disease and pest resistance.

Assessment of Market Trends

- Current market trends, major influencers and their bearing on the market dynamics
- SWOT of market trends
- Recommendations to boost adoption

Current Market Trends, Major Influencers and their Bearing on the Market Dynamics

Production Trends

- There has been an increase in production of climate resilient seeds over the past decade.
- The most commonly promoted resilient seeds have been varieties of maize seeds, such as Opeaburoo.

Major Influencer of Production

- Implementation of Government Policies and Subsidies in Seeds Sector

Pricing Trends

- The Planting for Food and Jobs program has changed the market dynamics for the price of seeds sold to farmers, making seeds more affordable for farmers
- There have been delays by the government with the reimbursement of seeds sold by seed producers in the PFJ program

Major Influencers of Price

- The most significant influencer of price setting is the government.
- Government sets price along with other stakeholders such as NASPAG and SEEDPAG

Market Size

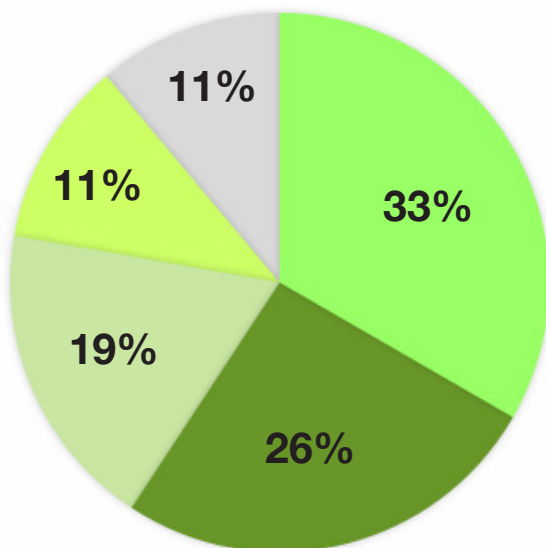
- Represents the market for Rice, Hybrid Maize, OPV Maize and Soybean as of 2015.

USD 57M

Demand Trends

- The main target market of seed producers are: Input dealers, Farmers, Smallholders and Commercial Farmers.
- 54% of input dealers interviewed mentioned that demand for resilient maize seeds has been very high.
- Sales from previous seasons are used to calculate estimated demand

Influencers of Seed Demand



- Government Policies
- Level of exposure to resilient seeds at conferences and demonstration sites
- Farm Size
- Availability of labour
- Level of education of Farmers

Distribution Trends

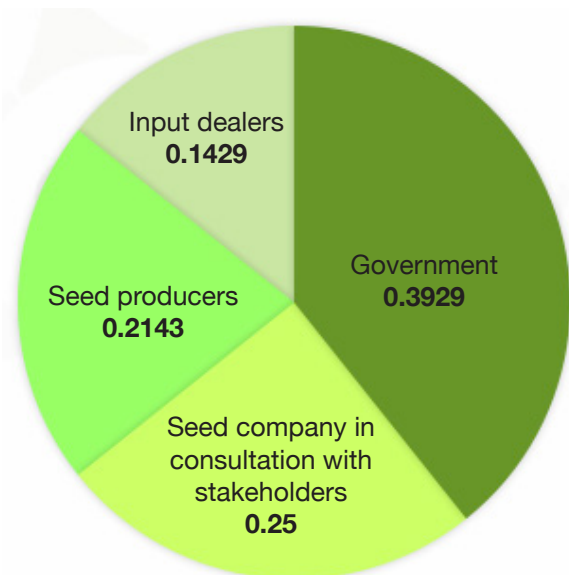
- Over the past 3-5 years, there has been a gradual improvement in seed distribution to various communities.
- Seed producers bear transport costs and use company vans to transport seeds to their buyers.

Input dealers play a role in promotion and adoption

- Partnerships with the Ministry of Food and Agriculture (MoFA)

Advertisements on Radio

- Educating and Encouraging Farmers Directly



Influencers of Seed Prices (%)

- Through Workshops or Demonstration Farms.
- Majority of These Activities Are Internally Funded by the Input dealers.

SWOT of Market Trends

STRENGTHS

- Strong collaboration where seed producers serve as suppliers to farmers in the PFJs program
- Government loans to seed producers plays a significant role in improving seed availability.
- The set up of demonstration sites by seed producers is increasing farmers' exposure.
- Development projects are providing interventions to that quality/potent seeds are produced.
- Input dealers can use their internally generated funds to market resilient seeds.

WEAKNESSES

- Insufficient production and distribution, inadequate support and the absence of a good structural framework for improved seed development.
- Lack of demand and forecasting systems
- Low level of certified seed uptake.
- Mismatch between varieties of breeder and foundational seeds produced and demand for these varieties leading to overproduction or underproduction of certain varieties.
- PFJ price subsidies are distorting market prices for private seed producers

STRENGTHS

- Seed producers can take advantage of the PFJ to sell their resilient seeds and grow their businesses.
- Seed producers can apply for loans from government under the PFJ program to purchase subsidized inputs such as tractors and planters which they can continue to use even after the program ends.
- They can also build their technical capacities by training their staff at the West Africa Centre for Crop Improvement (WACCI) or by attending capacity building workshops organized by donors or government.

THREATS

- Importers or larger foreign private seed producers too can enter the market with higher yielding seeds at cheaper prices and compete with local seed producers without being dependent on the PFJ program.

Recommendations to Boost Adoption

Be deliberate in Collaboration

Seed producers are likely to achieve more success through effective collaboration with other component actors seeking to get farmers to adopt new farming technologies. These may include fertilizer and irrigation system providers.

Be selective on seeds to produce

The current market is demanding hybrid maize seed (especially Opeaburoo) the most, thus seed producers should be selective to produce seeds that are in highest demand. Resilient seed producers stand to make more sales of maize compared to rice seeds as maize has had a higher adoption rate than rice.

Incentives will ensure quality

Government and donor agencies should continue to create more programs that incentivize private seed producers to produce seeds that are high quality given the costs of production and running business can be high. Incentives can include well-structured repayment for subsidized seeds, access to loan facilities to buy machines to mechanized production, irrigation facilities and access to working capital.

Take advantage of government and donor programs

Local seed producers can take advantage of government and donor programs to increase their production and supply of resilient seeds

Secure offtake agreements

Seed producers need to enter into contracts or MOUs with commercial farmers and aggregators detailing the volumes of seeds they should supply them with on an annual or periodic base. This would enable seed producers to forecast demand for seeds and produce accordingly.

Marketing and sensitization

Seed producers could also partner with input dealers to market the seeds they produce through radio advertisements, demonstration farms, distribution of free starter packs of resilient seeds for farmers to test et.

Creation of market linkages between value chain actors

Seed producers therefore need to join NASTAG to take advantage of market linkages as well as to form partnerships to market and distribute the seeds they produce.

Increased provision of agricultural extension services

Seed producers could partner with Agric extension officers to hold workshops and set up demonstration farms to train farmers in their target markets/ communities on the benefits of resilient seeds as well as agronomic best practices to farm them

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