

## GHANA BVRM recommendations

A total of 5 key recommendations to address deficiencies and/or opportunities in the BVRM area of Ghana's seed system have been developed by the assessment team and vetted with stakeholders. The recommendations are roughly, but not strictly, listed in order of importance or recommended sequencing.

**Recommendation # 1: Develop a business case and prioritize investments to ensure research programs are supported with suitable infrastructure (lab, greenhouse, seed store etc.) to carry out their research activities.**

### Description

Program effectiveness is severely constrained by make-shift seed storage units, non-functional lab equipment, and irrigation facilities as well as poor state of greenhouse where available. Well-designed, purpose-built facilities contribute to quality and efficiency of work. With proactive equipment maintenance schedules, and continuous back-up power supply most equipment could last a long time. There is an urgent need to develop greenhouse and field capacity to screen traits relevant to growers and consumers. In addition, an effective crop improvement program requires adequate seed store, labs, irrigation facilities, etc. These include short term cold storage big enough to at least maintain supplies of elite lines for 2-3 years.

**Recommendation # 2: Provide adequate budget to meet goals for variety development, release and maintenance of germplasm.**

### Description

Overdependence on donor funding to support agricultural research in Ghana is a challenge requiring immediate action by policymakers. Government support is minimal and mostly geared towards paying salaries. Operation expenses are covered through external funding. There is a need to balance proportion spent on salaries vs operation costs through better financial planning and tracking of costs. In 2003, in Maputo, Mozambique member states of African Union had agreed to allocate at least 10% of their national budgetary resources to agriculture and rural development. Recent reports indicate that the 10 percent target was not achieved in the majority of the countries.

It would be necessary to mobilize adequate budgetary support from government or other potential granting sources by showcasing successes and impacts from prior funding. The research programs need to engage with experts on designing a variety licensing and a robust monitoring systems for royalty payments, which could be ploughed back to support research programs.

Finally, it would be very helpful to take stock of the most expensive operations and determine if they could be mechanized or minimized? What is the current cost/row? per plot? What are the key data that need to be collected in preliminary trials? The idea is to question current practices and come up with alternative and less expensive ways of operating.

**Recommendation # 3: Design breeding program based on clear definitions of product profiles and target crop growing environments with a focus on delivering realized genetic gain to farmers.**

### Description

Breeding program includes activities, from trait integration through testing of advanced products in wide area trials, up to the release of products in the marketplace. The size and organization of the breeding program limits delivery of realized genetic gain. Thus, it is necessary to introduce an effective organization for breeding, variety release & maintenance through optimization of research activities with available resources. Changes required could be both managerial and technical. Developing a well-defined, prioritized and market survey-based product profiles will help guide the breeding program by defining market segments and priority constraints based on sufficient understanding of target markets and production systems. To support the product profile development, it is helpful to constitute a group of cross-functional, technical team members (breeding team) and engage social scientists, gender specialists, economists and others that will design the breeding plan to deliver products with prioritized target traits consistent with beneficiary requirements (growers, processors, consumers).

Upgrading breeding and other discipline staff capacity to utilize current "best practices" and fully understand program requirements will greatly improve ability to adjust methods and approaches. Along this line, there is a great opportunity to seek consultancy support through Excellence in Breeding (EiB-CIMMYT) to support breeding program modernization to deliver increased genetic gain. The CGIAR Excellence in Breeding Platform works across CGIAR and national programs and is hosted by the International Maize and Wheat Improvement Center (CIMMYT).

#### **Recommendation # 4: Implement an effective variety release process considering adequacy, timeliness and cost effectiveness**

##### **Description**

Organize formal channels (workshops, publication and online presence) where information can easily be accessed to provide research information/data to both public and private breeders and seed producers. Define variety promotion and advancement system through verified datasets using best competitive cultivars to provide meaningful comparisons in target environment and considering on-farm trial data as integral component for product release. Better evaluation of candidate varieties/hybrids in potential growing areas through accurate data collection, analysis and interpretation will assure that new releases represent a real improvement over previous ones. Average costs incurred by seed companies is deemed high and could be a deterrent. The release process needs to be assessed for adequacy, timeliness and cost effectiveness.

#### **Recommendation # 5: Invest in resourcing and establishing procedures for variety maintenance**

##### **Description**

Breeding teams support the seed sector by delivering better performing varieties with high quality seed. Recognition of proper variety maintenance is manifested through established guidelines and appropriately trained personnel for monitoring and maintaining of parental line stock quality to enable production of high quality seed in sufficient quantities. Variety maintenance should be of high priority. Operational procedures should be put in place and properly conducted to ensure genetic purity and high-quality seed so that output regularly meets purity and quality criteria. However, limited resources make it difficult for research stations to effectively maintain a comprehensive portfolio of germplasm to respond to farmers' needs