PROCEEDINGS OF THE NAVY BEAN PROJECT
INCEPTION WORKSHOP

HELD ON NOVEMBER 3, 2009, AT AIRC-NARL, NAIROBI
REPORT OF THE NAVY BEAN INCEPTION WORKSHOP

NAVY BEAN PROJECT INCEPTION WORKSHOP, 03 November 2009, AIRC-KARI NARL

Opening Remarks:

Meeting opened with a word of prayer from Ms. Agnes Ndegwa at 9.30 am.

Prof. Nderitu welcomed participants to the workshop and requested them to introduce themselves. He underscored the importance of the workshop.

The National bean coordinator, Mr. Karanja, Karanja noted that there has been renewed interest in navy beans for canning hence what comes out of the meeting will be very important. The Bean Program in Kenya encompasses everyone working on any kind of beans, hence the network is expanding. KARI works within the product value chain hence everyone is involved. He thanked organizers for bringing the stakeholders within the canning navy bean value chain together.

The DAO, Kirinyaga South, Mr. Munene noted that although he had been in office for a few months he had noted that the district is big producer of beans including French beans which is the major horticultural crop. He promised to work together with the navy bean research team to promote the crop in the region.

Objectives of the workshop:

Dr. George Chemining’wa, the navy bean project coordinator, informed participants that they had a navy bean project sponsored by the National Council of Science and Technology which aimed to promote the productivity and competitiveness of canning navy bean, a crop that is not well established in Kenya. He introduced the project team that included Prof. J.H. Nderitu (Crop Protection), Prof. P.M. Kimani (Plant Breeder) and Prof. Karuri (Food Scientist).

The project coordinator highlighted the following as the objective of the workshop:

i. To conduct a situational analysis of navy bean production, processing and marketing in Kenya

   a. Current status, trends, stakeholders, research needs, constraints and opportunities, etc.

ii. Fine tuning operational modalities of the project

   a. What, how and when?
iii. Sensitization of stakeholders on the project
   a. Ensure participation, support and joint efforts

iv. To operationalize roles and responsibilities of stakeholders
   a. Who will do what and when?

v. To set grounds for sustainable linkages among stakeholders
   a. Stakeholders engage and network

vi. Identify strategic partners in the whole value chain
   a. Partnerships necessary to breed success

**Overview of bean improvement in Kenya**

This topic was presented by Prof. P.M. Kimani. The following are the highlights of the presentation:

- Most works on beans has been biased towards breeding
- Bean atlas showing bean production in Africa, with East, Central and south Africa having higher concentration with expansion to west Africa
- ASARECA has supported bean research (ECABREN) with other partners such as WECABREN, CIAT
- Major bean abiotic constraints include Drought, N deficiency, P deficiency and Al/Mn toxicity while
- Major biotic bean constraints include Angular leaf spot, Anthracnose, Bean stem maggot and Root rots
- Bean production area in Kenya was 800,000 ha in 2003, 1 million in 2006; navy bean is negligible; Bean yields in Kenya range -200-400 kg/ha in intercrop & 300-600 kg/ha in monocrop systems;
- Kenya imports beans from Tanzania and Uganda because local production cannot meet the high local consumption
- Major bean types; bush, snap, climbing and navy (small white beans for canning, in supermarkets there are many types imported)
- Potential solutions to constraints: cultural practices (not so practical for so many problems), chemicals (not affordable), biopesticides and botanicals, resistance breeding (most effective and efficient strategy)

**Milestones**

- Breeding at THIKA started in 1977; release of GLP varieties in 1984; snap beans and runner bean research on going
- Kakamega program started 1991 with outbreak of root rot. Bush lines tolerant to root rot and low soil fertility were developed and climbing beans introduced
Katumani program started in 1990s focused on drought tolerant and earliness; several varieties have been released

Embú program started in 1999 with some varieties in NPTs

Egerton University started in 2003 with focus on rift valley; material from UoN

Moi University started late 1990s, started with snap beans, dry bush beans and seed delivery system

UoN: focus on bush beans, climbing, snap and runner beans; from 1975. University assumed leadership in breeding from 2000

- Climbing lines offer solution to increasing productivity, can double or triple production- 3 varieties are already released
- Canning beans; increasing in popularity, people aware of nutritive value of beans; dietary diversification and affordability; consumed fresh or canned; main canned beans- dry beans, large dry beans, snap beans
- Constraints to canning beans: lack of suitable varieties, poor linkage between producers and processors, diseases and pests; hence there is more imports from Ethiopia, Tanzania and Uganda though Kenya has the highest number of processors; slow growth of processing industry; and farmer loss of income
- Canning bean breeding started in 1937 in EA in Arusha (by Arusha Ltd); provided status of bean production and trade in Ethiopia
- Future prospects: beans for different altitudes

**Discussions on Kimani’s presentations:**

- National coordinator, KARI: Clarify the biofortification versus GMO issues since there is some misunderstanding of these terms.
  
  - Kimani: There is a global understanding of the lack of micronutrients (‘hidden hunger’) in human foods. Iodine has been taken care of in terms of iodized salts but other micronutrients are still a major challenge. There are 3- approaches in dealing with micronutrients: fortification-adding micronutrients in foods (e.g., Jogoo maize meal with iron); second is supplementation particularly in hospitals; the other approach is biofortification in which nutrient contents of crops are improved through crop management technologies, breeding and even genetic engineering.

- Prof Nderitu: is CIAT making any GMOs?

  - Kimani: No. Many legumes, except soybeans, are not GMOs. The Problem has been due to difficulties in regeneration of legumes

- DAO: what are the current production and consumption trends?

  - Kimani: Farmers continue to use old dry bean varieties compared with the EA neighbours. Farmers are not adopting the new technologies. For example, even Rwanda is now moving to climbers compared with bush beans. There is no working together of Kenyan stakeholders. There has been no work and gathering on canning beans other than today’s meeting and the UON project
• Grace: what does the small holder farmers doing? What’s the soil fertility status?
  o Kimani: this is typical just like in Kenya though some areas are newly opened for agriculture. If farmers were to consider proper land management, agronomy and varieties, then we expect very high productivity. Researchers and farmers are also proactive in Ethiopia.
  o Nderitu: there is need to support private-public partnership in acquisition of technologies

**Group work:**

Groups were formed to discuss the following issues:

• Situational analysis
• SWOT analysis in production, processing and marketing
• Research gaps in production, processing and marketing
• Issues of technology dissemination

**Plenary Presentations**

**Group I**

**Situation analysis**

• Production of canned beans only in Subukia, Mwea and Kabazi and is constrained by pests (cutworms, pod-borers, aphids, mites (white and red), fertility, land size small, few varieties 8Mex 142 and kaboro)
• Processing is monopolized by 1 company, Kabazi; Trufoods depot for processed beans
• Marketing: prices low-KSH. 3 per fresh beans, KSH. 10 per navy beans; no farmers association
• Service providers: own saved seeds, farmer to farmer seeds

**SWOT analysis**

• Strengths: farmer willing to grow and have production knowhow; varieties are available; acceptance in the market
• Weakness; varieties prone to abiotic and biotic factors; low adoption rates of improved technologies; inadequate rainfall, poor grain fill; low production levels; monopoly in purchase from farmers
• Opportunities: Diversification of enterprise; networking with stakeholders; investment in processing; breeding varieties for resistance; use of niche markets (organic farming)
• Threats; prices of inputs/technologies could be a hindrance; climate change; break of resistance in varieties

**Research and dissemination Gaps/needs**
• Production: site specific technologies e.g. fertilizer; breeding for resistance (biotic and abiotic); awareness creation of available technologies; capacity building at all levels; seed dissemination issues; post harvest acceptability at all levels

• Processing: varieties used to have processing qualities and acceptability

• Different market products: value addition and diversification of end products e.g. soups, bites

• General comments

• This is a noble project. Borrowing from Ethiopia case study, stakeholders can get immense benefits

• Farmer: usually farmers are contracted to plant the canned beans but the prices are low as indicated.

• Also farmer groups are usually scattered after formation hence to common front on issues of beans;

• Farmers do not plant these beans for consumption and they rarely consume it.

• Karanja: probably the reasons of the price could be due to grain quality. This is because the processor may be provided with poor quality grains hence the processor gets quite little. This is a researchable area.

• Karuri: probably this is a bad business. The factory was working with Trufoods and the new management is not operating well.

Group 2

Situation analysis

• Production: current is low; statistics of production not available about navy beans; history available show some farmers grew but withdrew due to lack of market

• Processors: Njoro canners gets their material from Ethiopia; Thika canners and Pan African vegetables Naivasha canners withdrew

• Marketing: processed products sold in local market, military, institutions such as police, hotel etc (all 80%) and the rest for export service providers: extension not active on navy beans; research initiated; KEBS available on quality

SWOT Analysis

Production strengths: farmers available, climate, land and networks ok

Production weaknesses: inadequate awareness; uncoordinated approach; high costs of inputs

Production opportunities: available markets; changing eating habits; changing lifestyle

Production threats: global warming/climate change e.g. Nakuru north harvested nothing in the last long rains

Processing strengths: well established industries
Processing weaknesses: lack of free flow of information

Processing Opportunities: Market

Processing threat: political instability

Marketing strengths: infrastructure

Marketing weaknesses: breach of contract by either parties

Marketing Opportunities: diverse outlets; competition

Marketing threats: unharmonized standards e.g. globalGAP, kenyaGAP

Research and dissemination gaps/nees

Production: Poor linkages among industry players from production, processing, marketing

Processing: standards not known by different players

Marketing: inadequate information

General comments:

This is a good project, the stakeholders are involved from inception

Nderitu: Are there standards from KEBS and other areas: yes, but only baked bean products in general

Ms Mwangi: There were beans in the market in Wajir possibly from Ethiopia, probably the common beans are expensive. Nderitu noted that the navy beans are very good even when combined with rice and the wajir people may be preferring these more. Noted that navy beans have less/no flatulence compared with the dry common beans

Karanja: Areas such as Isiolo, Nanyuki and Marsabit prefer navy than these other varieties and they grow for home consumption. Probably this is an area for research to determine such uses and preferences

Group 3

Situation analysis

Production: beans are minimal on ground; limited research; low information dissemination from researchers to farmers; phenotypic attributes are a problem e.g. color, size; awareness of different uses of consumption and canning (farmers not aware), low yield per area

Processing: Kabazi, premier foods, Kenya orchards; high cost of processing; low material availability; low government incentives

Marketing: no forecasting of prices; A lot of price fluctuation; poor market linkages

Service providers; limited on the ground only a few extension officers and NGOS

SWOT analysis
• Production Strengths: infrastructure in place, skilled labor, adequate land; adequate production of technology; beans are good for canning; we have reasonably priced labor

• Production Weaknesses: poor linkages from researchers to farmers; monopoly in marketing; dependency on rain-fed agriculture; use of uncertified seeds

• Production Opportunities: existing demand; available technologies and skills

• Production threats: competitors; price fluctuations, middlemen, high production costs, pests/diseases, low soil fertility

• Processing Strengths: Technology is available, infrastructure and skilled labor

• Processing Weaknesses: scarcity of plans to set up factories

• Processing Opportunities: demand high for canned beans; services available; govt incentives for duty free; creation of employment

• Processing Threats: lack of enough materials; processors not sensitive on environmental impact assessments

• Marketing strengths: beans are good for canning hence easy to market

• Marketing Weaknesses: lack of linkages

• Marketing Opportunities: infrastructure available and internet connectivity

• Marketing Threats: lack of raw materials locally, processors not sensitive

Research and dissemination gaps/needs

• very limited research in production, processing and marketing

Comments

Grace: new recipe needed. Kimani- South Africa have a very good attractive recipe of beans for different clients

Karuri: the word canning should be taken in the perspective of Kenyans as it is seen as a very expensive thing.

Nderitu: can we leave out the word canning and promote the word navy beans since we can have several uses of this. We can have processed beans and may not be canned.

Kimani: it is ok but we may retain the word so that we do not lose other clients

Karuri; canning: usually many other beans lose characteristics e.g. color during processing compared to this bean. Even tastes and other properties are retained by navy beans compared with other beans

Project overview:

The project coordinator highlighted the following about the project

• Project supported by NCST for 1 year
• Rationale provided (challenges of production to marketing)

• Objectives: are 3: market survey, nutrient management, IPM

• Beneficiaries: farmers, traders, consumers, partnerships, GOK

• Main activities: stakeholder inception, market surveys, participatory testing and adapting NM, test and adapt IPM, disseminate findings, stakeholders review workshop

• Progress, stakeholder consultation, questionnaire preparation; collection of secondary information, identification of strategic partners; inception workshop

• Comments

  o Nderitu; NCST is mandated to distribute funds to Science and Technology institutions. Last 2 or more years the money was more to universities (through CHE), but now is to wider people/researchers. This project is within this and was given about 2 million which is quite little. Most of the research in the University is done by students and these will meet the stakeholders as they seek information

  o Kimani: there are several varieties available and a small nursery can be developed in different districts, both bush types and navy beans. This need to be done immediately since the situation has been started.

  o In addition, for post harvest, there is issue of recipe, and, assessment of new lines for canning quality. If these can be done by the project it could provide also tangible evidence by the end of the project.

  o Nderitu: this is a good idea and the varieties will be taken for Mwea and Nakuru and they can be assessed for such activities. In addition, the project will include some stakeholders to supervise students

  o Grace: it will be important to determine the acceptability in terms of color, sizes

  o George: the questionnaire takes care of all the different kind of stake holders

  o Kimani: it will be very important that the processors be engaged since we are talking of an industrial product and the industry need to be represented. We need to find ways of finding their challenges and hence we work towards solving

  o Karanja: we have brought in Breweries to start buying sorghum and even farmers have started planting without the contract. Processors will rarely come in a meeting since they do not know what will happen

  o Karuri: trust building is important. Hence is important to build partnerships and is important to achieve happiness for all in the value chain

  o Kimani: trust is important. In South Africa, there is a farmer association (beans) and this is the one which moves the industry, including funding research
Nderitu: there are number of farmer associations for different crops and are able to search for funding, markets, policy. This project should be an opener and look for linkages of many areas. The idea of bean association can be sold to stakeholders.

Karanja: this is a challenge and other associations have taken time to be formed. But this is a good challenge and we will find ways of impaling on farmers to form their associations. There is a strong team of bean network hence we can try

Kimani: commodity associations have been very key in championing issues of such crops

Nderitu: kimani is a EBS holder (given because of beans) and a regional lead in bean breeding. Can we agree he leads in sourcing for farmer association

Cheminingwa: if beans is not strong enough, then we can sell out pulse growers association

Plenary: karanja and kimani nominated to lead on the process of pushing for a farmer association

Karanja: when it comes to linkages and partnerships, we could suggest that they aid other stakeholders on how to write a winning proposal.

Kimani, we are planning to submit proposals to NCST and we can collaborate with partners within this stakeholder forum; so we may get in touch with you for such partnerships

- **Way forward**
  
  - We need to bring stakeholders together; strengthen linkages; engage processors more seriously
  
  - Activities; we would want everyone to play a role in the project implementation
  
  - Formation of Pulse growers association
  
  - Map navy bean growers in the country
  
  - Initiate nursery development soonest (2 trial set on farm and on station at Kirinyaga and Nakuru)

- **Dissemination of information especially to the media critical**

- **Cheminingwa:** We thank all for active participation and we hope we will retain the partnership that we have created.