N2Africa Project
Harvesting Nutrition Contest award
Washington DC

18/02/2015

Putting nitrogen fixation to work for smallholder farmers in Africa
Putting nitrogen fixation to work for smallholder farmers in Africa

N2Africa Project

- Funded by the Bill & Melinda Gates Foundation
- Led by Wageningen University; main partners IITA, ILRI, AGRA and many national partners
- Implemented in eleven countries – Ghana, Nigeria, Ethiopia, Tanzania, Uganda (as core countries) and DRC, Kenya, Malawi, Mozambique, Rwanda, Zimbabwe (as tier 1 countries)
- 1st phase of N2Africa implemented in 2009-2013, second phase- 2014-2019

N2Africa - www.N2Africa.org
Vision of Success

To build sustainable, long-term partnerships to enable African smallholder farmers to benefit from symbiotic N2-fixation by grain legumes through effective production technologies.

Focusing on:

- N2Africa is a large-scale research and value chain project
- Implemented in multiple countries to institutionalize and sustain a proven concept and demonstrated benefits
- Reaching more than 550,000 farmers through six grain legumes
- Increased productivity of smallholder farming to address the problems of food and nutrition insecurity
- Increased incomes of rural households
- Increased value-addition at household levels (with potential influence on nutritional status)
- Sustainable supply of legume agro-inputs, and access to output markets
- Diversified farming systems
**Project Design & Approach**

**N2Africa is a development to research project**
- Delivery and dissemination being core
- Monitoring & evaluation providing learning
- Research analyses and feedback

**Approach**
- Build partnerships with international/local organizations
- Disseminate technologies through the use of differentiated models
- Capacity building for implementing partners
- Input Demand Information and Supply
- Support improved access to markets and value addition
<table>
<thead>
<tr>
<th>Challenge</th>
<th>N2Africa will...</th>
<th>To achieve...</th>
<th>Leads to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor legume productivity</td>
<td>• Develop best-fit options for farmer testing</td>
<td>• Options for improved legume productivity and N fixation adapted and adopted</td>
<td>• Greater legume productivity and area under legumes</td>
</tr>
<tr>
<td>Poor diets and weak support to women and very poor farmers</td>
<td>• Develop legume-based food basket</td>
<td>• Diversified nutritious diets developed for the poor</td>
<td>• Diversified nutritious diets accessible to the poor</td>
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<td></td>
<td>• Develop pre and post-harvest technologies; <strong>value added products</strong> and enterprises for women</td>
<td>• Efficient pre and post-harvest technologies and value added products identified</td>
<td>• Women actively involved in legume based activities</td>
</tr>
<tr>
<td>Lack of effective legume input supply and output market chains</td>
<td>• Facilitate dissemination of technologies</td>
<td>• Farmers access improved legume technologies</td>
<td>• Improved linkage to local and international markets</td>
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<td></td>
<td>• Support establishment of agribusiness clusters around marketing and value addition</td>
<td>• Households involved in collecting marketing and value addition</td>
<td>• Farmers regularly using inputs within sustainable rotations</td>
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<tr>
<td>Limited national capacity in legume agronomy and rhizobiology D2R</td>
<td>• Provide training from technical to postgraduate level</td>
<td>• Independently functioning networks and partnerships in each country</td>
<td>• National teams leading all D2R activities</td>
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<td></td>
<td>• Support national networks for D2R</td>
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</table>

**Impact**

- Higher legume production and productivity
- Improved income and **nutrition** for smallholder farmers
- Sustainable use of natural resources
- Sufficient national capacity
- Sustainable input supply systems for legumes
Monitoring & Evaluation

The M&E Framework

- Emphasis on learning M&E
- Introduced new indicators
- Use of project M&E system
- Use of partner M&E system-where compatible
- Country specific outcome issues researched-case studies
Multi Sector linkages

N2Africa
(Agricultural sector)

Public sector
research/educational institutions

Technological research &
other food related research
(e.g. Grain quality in relation
to nutritional content)

For sustainable
input supply and
market access

Private sector such as
inputs companies,
processors of the
various legumes

Health sector

Integrating
nutritional activities
in the project for
potential contribution
to increased
nutritional status
Some yielding results

- Making the disseminated technologies (e.g. inoculants) available to smallholder farmers

  BIOFIX in small quantities needed by farmers

- Applying improved technologies by farmers (e.g. high plant population, increased yield)

- Creating access to markets for farmer organizations
Some yielding results

- Women groups trained in **Rwanda** on soybean process using local technologies

- Women groups started producing value added products (e.g. milk, tofu, and flour for porridge) as business

- A number of women also processing at household level for consumption

Nutrition workshops organized in Zimbabwe for value addition of grain legumes involving mostly women farmers

N2Africa women farmers showcased their grain legume products at Food Festival

soybean cake mixed with sliced vegetables and fried
Nutrition research within N2Africa

N2Africa is a perfect ‘landscape’ to unravel the potential pathways through which enhanced agricultural productivity may improve nutrition in different contexts and provide necessary information on how to strengthen this link within N2Africa and other projects.

- Two studies in Northern Ghana and Western Kenya
- Development of food-based recommendations for children 6 to 23 months old in Northern Ghana
Case studies - objectives

- To assess potential pathways linking improved agricultural productivity (by inputs of N2Africa) and nutrition

- To assess the association between improved productivity with
  - consumption of legumes
  - dietary diversity
  - nutritional status
Case studies - results

Via food availability

- Mostly indicated by
  - farmers who received training on preparation methods
  - farmers with positive attributes towards legumes
  - female farmers
  - farmers with low market accessibility
Case studies - results

Via income

- Complex and unclear
- Mostly indicated by male farmers and households with higher market accessibility
Case studies – conclusions so far

- In Ghana involvement in N2Africa is associated with higher legume consumption and dietary diversity (children 2-5 years), in Kenya no associations are found

- No association with nutritional status

- To link improved productivity with nutrition via increased food availability for home consumption:
  - Target female farmers
  - Provide training on preparation methods
  - Target households with low market accessibility
Food-based recommendations

- To describe the diets of young children in farming communities of Northern Ghana
- To describe the extent to which these could be modified to improve nutrient adequacy (development of Food-based recommendations)

Mathematical modelling using linear Programme: OptiFood (developed by WHO in collaboration with LSHTM/FANTA/Blue-Infinity)

- To link agriculture output with optimised diets

Partners: GAIN, Geneva; Noguchi Memorial Institute for Medical Research, Ghana; University for Development Studies, Ghana; and Wageningen University, the Netherlands
Food-based recommendations

Optifood, what it does:

Based on locally available foods and local food patterns (average serving size and frequency of consumption):

- Identify nutrient gaps, ‘problem nutrients’
- Identify best diets and foods that are good sources of nutrient gaps
- Modelling using these (local) foods to retrieve best food-base modifications:
  - changes to diet that could improve the adequacy of nutrients intake
  - describe extent to which local diets could be modified to improve nutrient adequacy
Next steps

• Link agricultural output with optimised diets
• Translate food-based recommendations for children 6 to 23 months to household level
• Identify gaps/opportunities for adaptations in the farming system that result in more optimised diets

• Test and implement results within N2Africa
THANK YOU
Realigning Agriculture to Improve Nutrition (RAIN) Project in Mumbwa District, Zambia

Presentation for Harvesting Nutrition – February 2015
Zambia – Central Province – Mumbwa District

- Growing/Stable
- Unequal
- Stubborn development indicators (stunting 40%, HIV 15%)
- Poor services
- SUN early riser
RAIN Objectives

To develop a sustainable model that integrates agriculture, nutrition and health interventions

To reduce chronic malnutrition in children <2 years and improve nutritional status of pregnant/ lactating women.

Promote realignment and integration of activities within key line ministries to effectively achieve sustainable nutrition outcomes

To use and share evidence to influence the local, national and international policy agenda to prevent stunting.
RAIN Project

- **4 year project**: 2011-2015
- **Partnership** between Concern, IFPRI, Government Ministries, Mumbwa Child Development Agency
- **Funded** by Irish Aid, Kerry Group, Bank of Ireland, Public Donations, NEEP/PATH
- **Working with ±5000 households** that have pregnant/lactating women and/or children under 2 yrs.
- Strong **agricultural** component but **nutrition** outcomes
- **Research design**
Pathways from agriculture to nutrition

Adapted from: Gillespie, Harris, and Kadiyala, 2012
The Agriculture-Nutrition Disconnect in India, What Do We Know

National economic growth

Health status

Diet

Non-food expenditure

Health care

Food access

Food expenditure

Food production & gathering

Agricultural income

Women’s empowerment

Agricultural Production

Processing & storage

National nutrition profile

Enabling environment

Natural resources

Food market environment

Household assets and livelihoods

Household

Nutrition and health knowledge

Individual

Agricultural Production

Processing & storage

Food production & gathering

Agricultural income

Women’s empowerment

Caring capacity & practices

Female energy expenditure

Non-food expenditure

Food expenditure

Diet

Health status

Child nutrition outcomes

Mother’s nutrition outcomes

Adapted from: Gillespie, Harris, and Kadiyala, 2012
The Agriculture-Nutrition Disconnect in India, What Do We Know
Importance of gender in the pathways from agriculture to nutrition

Women’s empowerment has a positive association with
• Minimum dietary diversity among children 6-23 months
• Likelihood of visiting health clinic in last 6 months
• Height for Age Z-scores (reduced stunting)
RAIN implementation model

- Women's groups
- Agriculture
  - Vegetables, fruits, small animals, water
- Monitoring, Learning & Evaluation
- Nutrition and Health
  - Behaviour Change Communication
- Coordination & Alignment
- HIV & AIDS Mainstreaming
- Gender Empowerment,
RAIN evaluation design

**Cross-sectional baseline survey (2011)**
- Mumbwa District: 6 wards
  - 4 intervention wards
    - Agriculture Only (13 Clusters, n=1000 HHs)
    - Agriculture + Health (13 Clusters, n=1000 HHs)
  - 2 comparison wards
    - Comparison (15 Clusters, n=1000 HHs)


**Cross-sectional impact evaluation survey (2015)**
- 13 Clusters (n=1000 HHs) Agriculture Only
- 13 Clusters (n=1000 HHs) Agriculture + Health
- 15 Clusters (n=1000 HHs) Comparison

Case study of inter-sectoral coordination and alignment (2011-2015)

MoH, MAL, MCDMCH

Synthesis and explanation of whether and how the RAIN intervention model had impact
Small Holder Model Farmers, Community Health Volunteers and Community Development Facilitators
District Nutrition Coordinating Committee (DNCC)

Ministries of
- Health
- Agriculture and Livestock
- Community Development, Mother and Child Health
- Education
- Lands
- Chiefs and Traditional Affairs
- Local Government and Housing (Water)

District Commissioner
Mumbwa District Council
NGOs, CBOs

Ward Nutrition Coordination Committees (WNCC)

Concern Worldwide (secretariat)

National level
Provincial level
District Development Coordinating Committee
Coordination and Alignment

- Shared vision – role of each Ministry in reducing malnutrition
- Importance of capacity building and facilitation
- Replication of structure within SUN
Results process evaluation 2014

Agriculture
- Increased production micronutrient foods
- Perceptions of food insecurity are lower in RAIN areas

Health
- Increased dietary diversity score
- IYCF practices indicators higher in RAIN interventions area

Gender
- Women more confident that they can grow crops and provide nutritious foods
- Increased decision making power of women
Where to next?

- WASH
- Markets Costing
- Government
- Adolescent Girls

- Replication of structure within SUN
- Shared vision – role of each Ministry in reducing malnutrition
- Importance of capacity building and facilitation
- Role of convening and facilitating by an entity outside key line ministries
Thank you!
Innovation Award

Shamba Shape Up
1 PROGRAM

2 LANGUAGES

3 COUNTRIES

4 YEARS

240,000 SMS SINCE 2012

9 MILLION VIEWERS PER WEEK

4 MILLION IMPROVE THEIR FARMING

5 SERIES
Kenya's First TV Makeover Show

SHAMBA SHAPE UP!
GROW FOOD, MAKE MORE MONEY, BUILD A BETTER LIFE

HOSTED BY:
TONNY NJUGUNA
NAOMI KAMAU

SEASON 2

STARTING ON
9TH & 10TH MARCH

CITIZEN TELEVISION
A Vision For You

Time:
Every Saturday@1:30pm (English)
Every Sunday@1:30pm (Kiswahili)
MS "ALL" plus your name and address to 30606
BRAND NEW
Shamba Shape Up TV series
starting
14th March 2015
Shamba Shape UP
TV Show
Website link to episode
Identify information needs

Widespread improvements in KAP

Design the programme

Find partners

Produce the programme

Broadcast and entertain

Build big audiences

Many people learn

Many people adopt
Why TV?

Figure 2.7 - Ownership of selected household assets in % by rural/urban

FinAccess, FSD, 2013
Sources of agri information - 2012 and 2014
Why reality TV?
Measuring impact

- KARF/TAMPS/UAMPS
- SMS traffic
- KAP (Knowledge Attitudes and Practices)
- External
• KARF/TAMPS/UAMPS
• SMS interaction – weekly
Did you learn something new from SSU?

No response 1%
No 12%
Yes 87%

Did you change any of your farming practices as a result of learning something new from SSU?

No response 1%
No 54%
Yes 45%
What practices did you change as a result of watching Shamba Shape Up?

- No response: 6%
- Water harvesting: 1%
- Terracing: 0.60%
- Spacing at planting: 7%
- Soil testing: 0.60%
- Crop rotation: 2%
- Planting other crops: 10%
- Pig rearing: 1%
- Use of chemicals while having safety gear: 6%
- Control of pests and diseases: 18%
- Selection of seed variety: 9%
- Intercropping maize and beans: 11%
- Storage of maize: 7%
- Improving soil fertility-use manure &: 22%
- Rearing dairy cattle: 17%
- Rearing chickens: 21%
What have your changes resulted in?

- More output/food for household: 50%
- More income/money for the household: 40%
- Better output for the household – e.g. bigger seeds, fruits etc: 10%
- Too early to tell: 20%
- No change in income/output: 10%
- Loss of income/reduced food: 10%
428,566 HOUSEHOLDS

- increased profits or
- improved household food situation

Dairy farmers who
- watched SSU and
- made specific changes to their milk production practices

benefited by a net value of:

US$24,139,863
Partners

DONORS

PRIVATE SECTOR

RESEARCH SECTOR

GOVERNMENT

DEVELOPMENT SECTOR
What’s next?
Radio

- Kenya
- Swahili
- Pilot
- USAID-funded

Radio Citizen

<table>
<thead>
<tr>
<th>City</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>Nairobi</td>
<td>106.7 FM</td>
</tr>
<tr>
<td>Nakuru</td>
<td>100.5 FM</td>
</tr>
<tr>
<td>Kisumu</td>
<td>97.6 FM</td>
</tr>
<tr>
<td>Mombasa</td>
<td>97.3 FM</td>
</tr>
<tr>
<td>Nyeri</td>
<td>104.3 FM</td>
</tr>
<tr>
<td>Meru</td>
<td>94.3 FM</td>
</tr>
<tr>
<td>Eldoret</td>
<td>90.4 FM</td>
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<tr>
<td>Garissa</td>
<td>95.7 FM</td>
</tr>
<tr>
<td>Kitui</td>
<td>89.9 FM</td>
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</table>
Young farmer competitions
Join us on the Shamba Shape Up Safari!

shambashapeup@mediae.org  @shambashapeup  Shamba Shape Up