WeRATE Innovation Platform: Strategy, Findings and Member Information

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Correct citation: Woomer,P.L and Mulei, W. 2016. *WeRATE Innovation Platform: Strategy, Findings and Member Information*. IITA-Kenya, Nairobi and WeRATE R4D Platform, Mbale, Kenya. 56 pages.

Front cover photographs: Identifying the best soybean variety (upper left) and seed inoculation procedure (upper right), member visit to a fertilizer blending facility (lower left) and displaying cottage industry food products.

WeRATE Innovation Platform: Strategy, Findings and Member Information

Paul L. Woomer and Welissa Mulei

IITA-Kenya and Western Region Agricultural Technology Evaluation

June 2016

This booklet describes west Kenya's WeRATE Platform. WeRATE is a leading mechanism for farmer training and the evaluation, promotion and dissemination of agricultural technologies in Kenya. It works through three projects developed by the International Institute for Tropical Agriculture; the N2Africa Project, the Humidtropics Program and the IFAD Root Crops Project. WeRATE is an open-membership umbrella organization that hosts the semi-annual Agricultural Technology Clearinghouse and works at the grassroots level through its Master Farmer Network. This booklet introduces the Innovation Platform as a whole, its individual subscribing members and the results of its on-farm technology tests during 2015.

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WeRATE Officers and Members at the 2014 planning meeting in Maseno

The Western Regional Agricultural Technology Evaluation

Background. The Western Regional Agricultural Technology Evaluation (WeRATE) is a democratic, open-membership and transparent organization meant to advance rural transformation in west Kenya. It operates from Migori in the south to Bungoma in the north, and coordinates operations from a strategically located Headquarters in Mbale, Vihiga County. It was founded in 2012 by the farming community of West Kenya, local farm organizations, rural development organizations and agricultural value chain participants with the aim of realizing greater opportunities and innovative actions leading to rural transformation. It consists of 26 dues-paying farmer groups and other stakeholders and actively sponsors women and youth chapters. It operates in three target agro- ecological zones: the Lake Victoria Basin, the Lower Midlands and the Upper Midlands.

Mission. To facilitate adoption of sustainable agriculture technologies through research, enhance linkage, income generation and social wellbeing of smallholder farmers in Western Kenya.

Activities. WeRATE is organized into a number of organs namely: the Fundraising and resource mobilization committee, Research and development committee, and Finance and administration committee.

Tasks: Setting strategic direction policy and standards organization, assessing and supporting the executive secretary. The WeRATE Board serves as custodians of its accountability, planning, results, financial resources and working relations with government, private sector and civil society.

WeRATE Departments

Finance and administration. Aims to facilitate and create an enabling environment in which all the programs and projects flourish. One of its core functions involves enhancing teamwork, through strengthening internal structures to ensure accountability of funds and enhance work programs and staff welfare.

The WeRATE award-winning team at the 2015 ASK Kakamega Show

The Program Development Unit. Aims to develop and strengthen the establishment of various projects that shall enhance institutional growth of WeRATE, and also enhance networking, members outreach and support and enhance information exchange.

Research for Development. Aims to develop and refine technologies that shall enhance Agricultural productivity while restoring the natural resource base of the farmers. The department shall enhance linkage with various research agencies and centres to facilitate the acquisition of knowledge, test technologies and enhance development into legacy products.

Strategic Planning. A strategy is developed to respond to various aspects that will enhance farmer development in the following core facilitating agricultural innovation for development which allows farmers to maximize opportunities for higher economic return. Bridging the gap between research institutions and farmers in which through linkages and synergies are harnessed and proven research technologies are demonstrated for solving farmer problems.

Agribusiness and market value chain is important in enabling farmers realize the profits. This initiative shall aim to harness various value chains of crops and livestock systems so as to maximize and sustain livelihood needs. Farmers knowledge and organization is important so as to achieve meaningful development, learning is expected to be key in enhancing capacity and enabling farmers to run their organizations with the required skill sets. It's of our hope that the strategic plan shall address the above areas in a holistic manner.

Scope and Situation Analysis of WeRATE. The strategic plan is built on external and internal outlook so as to enable the organization realize and strengthen interventions that are farmer driven. The situation analysis for West Kenya provides a strategic position for WeRATE and the following are the factors identified:

- Food insecurity where a number of households cannot get three meal a day
- Environmental degradation; infertile soils, high erosion and loss of biodiversity in specialized eco systems
- Lack of organizational and defined markets of both livestock and crop produce
- Climatic changes which result into a situation analysis report by Prof GD Odhiambo and Auma of MoA.

SWOT Analysis

During the development of this strategic plan, strength, weakness, opportunities and threat tool was used to analyze the existence and performance of WeRATE

Strengths

- Membership in diverse agro ecological zones
- Good linkage with agricultural linkage institutions
- Good partnership with existing agricultural players
- Diverse skills and professionals in the platform
- Willingness of farmers to learn
- Practical learning.

Weaknesses

- Low resource base ; funding
- Over expectation of members for support
- Underdeveloped programs to respond to farmer needs
- Fragile farmer groups.

Opportunities

Various opportunities do exist within which WeRATE operate and this include;

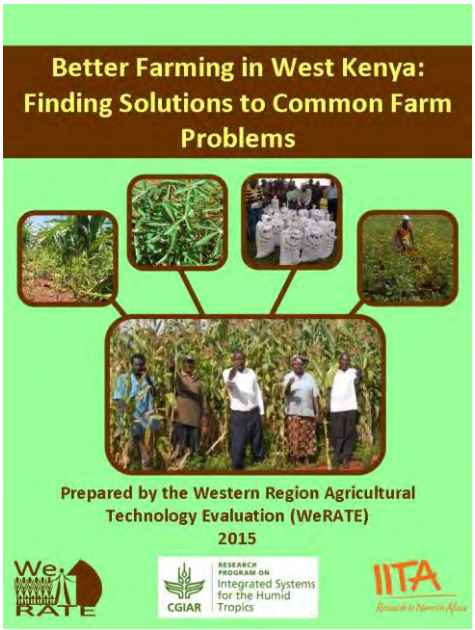
- Diverse skills among its members who would build a front
- Continuous climatic changes that require various technologies to mitigate
- Government policies that enhance partnerships and open participation
- Willingness of research organizations to work with farmers
- Private public partnerships exist that can support farming i.e. agro input and bunking services.

Threats

- Short term project contracts
- Over expectation of member organizations for support
- Change of focus in partnership.

Useful information from WeRATE

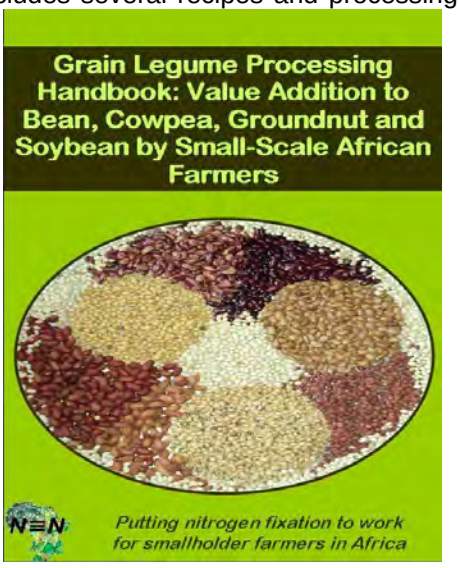
Chapter 6 Humidtropics innovation platform case study: WeRATE operations in West Kenya by P.L. Woomer, W. Mulei, W. and C. Kaleha. 2016. Pages 98-116, in *Innovation Platforms for Agricultural Development; Evaluating the mature innovation platforms landscape*. Routledge, UK. This paper describes the formation and operations of WeRATE to the international community.



Better Farming in West Kenya: Finding Solutions to Common Farm Problems by P.L. Woomer and W. Mulei. 2015. IITA-Kenya, Nairobi and WeRATE R4D Platform, Mbale, Kenya. 28 pages. This booklet describes WeRATE breakthroughs in BNF technologies, striga management and cassava production. Also available in Kiswahili as *Kilimo bora maghabiri mwa Kenya: Kutafuta suluhisho za matatizo ya kawaida kwa mkulima*.

N2Africa: Final Report of the First Phase 2009-2013 by P.L. Woomer, J. Huising and K.E. Giller. 2014. N2Africa Project.138 pp. This report includes information on N2Africa activities in Kenya over several years including outreach efforts by WeRATE.

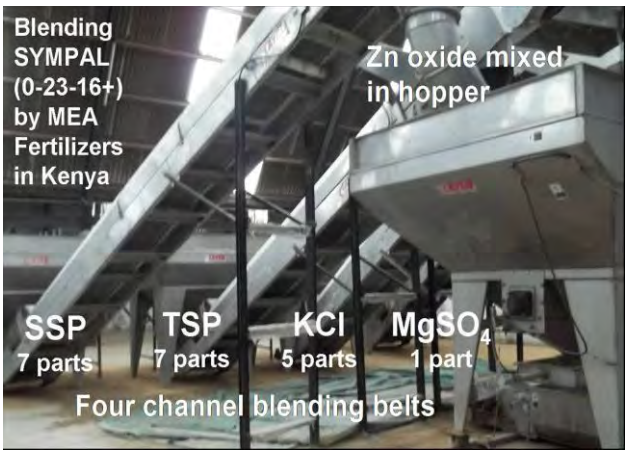
Grain Legume Processing Handbook: Value Addition to Bean, Cowpea, Groundnut and Soybean by Small-Scale African Farmers by W. Mulei and P.L. Woomer. 2011. Tropical Soil Biology and Fertility Institute of the International Centre for Tropical Agriculture. Nairobi. 42 pp. This booklet describes the nutritive benefits and post-harvest handling of grain legumes, and includes several recipes and processing approaches for these legumes. Also available in Kiswahili as *Mwongozo wa Mafunzo ya Usindikaji wa Nafaka za Jamii Kunde: Ongezeko la Thamani kwa Maharagwe, Kunde, Karanga na Soya kwa Wakulima Wadogo Barani Afrika.*



Biological Nitrogen Fixation and Grain Legume Enterprise: Guidelines for N2Africa Master Farmers by P.L. Woomer. 2010. Tropical Soil Biology and Fertility Institute of the International Centre for Tropical Agriculture. Nairobi. 17 pp. This booklet was used in the training of N2Africa Master Farmers and for use in grassroots outreach. Also available in Kiswahili as *Uambishaji Nitrojeni na Biashara ya Mazao ya Mikunde: Maelezo kwa Wakulima Wakuu Wa* as translated by M.K. Chamwada.

BNF technology field tests: Adjusting fertilizer rates

A major effort is underway in Kenya to increase soybean (*Glycine max*) production. WeRATE's collaboration with the N2Africa Project in its West Kenya Action Site during 2015 focused upon the use of Sympal fertilizer in conjunction with legume inoculation. In the past, we examined different varieties of soybean and climbing bean, and their response to applied legume inoculants but without a firm recommendation for Sympal addition. In 2015, our technology tests evaluated the rate of applied Sympal fertilizer and compared it to starter nitrogen application in a six management trial. These managements include no fertilizer, Sympal applied at 62, 125, and 250 per ha and a new fertilizer blend similar to Sympal but containing 10% nitrogen using soybean cv Squire. All managements receive BIOFIX legume inoculant. These tests were conducted within the larger WeRATE field campaign in conjunction with the CGIAR Humidtropics Program and the Agricultural Technology Clearinghouse. WeRATE cooperators installed these trials on a voluntary basis. The project provided seeds (5 kg cv Squire), fertilizer (5 kg Sympal in 0.5, 1 and 2 kg bags; and 1 kg 10-23-23), inoculant (50 g BIOFIX for soybean) and this field protocol. Once installed, cooperators submitted a series of Report Forms registering their diagnostic test, assessing nodulation and reporting soybean yield.



Sympal is blended and bagged at the MEA Fertilizer Ltd. factory in Nakuru, Kenya.

All managements were inoculated with BIOFIX containing *Bradyrhizobium japonicum* USDA 110 at >1.6 x 10^6 rhizobia per seed. Participants submitted data report forms on root nodulation and yield that were compiled onto a spreadsheet, inspected and analyzed. Soybean performed similarly during both growing seasons. Nodulation ranged between 11 and 27 plant^{-1} for non-fertilized and maximum fertilization, respectively. Yield increased from 1227 (unfertilized) to 1912 kg ha^{-1} under the most productive managements (Sympal with starter N) and net return increased from $437 (unfertilized) to $686 ha^{-1} (Sympal at 125 kg ha^{-1}). Nodule number, crown nodulation and nodule effectiveness responded to the first dose of Sympal but plateau beyond 125 kg ha^{-1}. Starter N in conjunction with Sympal slightly increased yield, but there was no economic benefit from this addition. These findings support a much larger farmer training and commodity development effort. During 2015, WeRATE trained 12,560 farmers belonging to 26 farmer groups in BNF technologies. Following the long-rains, members of these farmer groups then bulked and collectively marketed 328 tons of soybeans worth $220,000. Appreciation of Sympal extends well beyond our network as over 128 tons of this product were blended and marketed by MEA Fertilizers Ltd. over the past few years**.** Assistance to Kenyan soybean producers continues through a recently formed national task force that adopted production guidelines developed by the N2Africa Project.

Soybean nodulation, grain yield and net return in response to blended mineral fertilizers Sympal (0-23-16 +Ca,S,Mg,Zn) and P Mabau (10-23-23) in west Kenya.

Management	Rate	Nodulation		Grain yield		Net Return[1]	
		LR	SR	LR	SR	LR	SR
	kg/ha	no/plant		kg/ha		$/ha	
No fertilizer	0	11	12	1252	1227	450	437
Sympal	63	16	18	1541	1570	552	567
Sympal	125	22	27	1892	1872	686	676
P Mabau (+N)	125	23	23	1912	1863	678	653
Sympal	187	22	25	1875	1878	680	682
Sympal	250	26	27	1763	1854	575	624
± 2 x SEM		± 4	± 5	± 574	± 344	± 78	± 76

[1] Note that US $1 ≈ KES 100

Sympal is a fertilizer blend developed in collaboration with WeRATE and now commercially produced and distributed by MEA. It contains no mineral nitrogen but offers a balanced supply of phosphorus, potassium, calcium, magnesium, sulfur and zinc. This fertilization strategy optimizes BNF by assuring that mineral nutrient supply remains non-limiting. Selling Sympal presents no challenge, especially for use on inoculated soybean because the plants become dark "blue" and yield increase by about 700 kg per ha compared to other management. Appreciation of Sympal extends well beyond our network as over 128 tons of this product were blended and marketed by MEA over the past few years. It is available in 2, 10 and 50 kg plastic lined woven polythene bags. Sympal is very effective when applied to inoculated pea as well, but less so with bean. As a result, MEA formulated and markets a sister product "P Mabau" that combines Sympal with 10% mineral nitrogen.

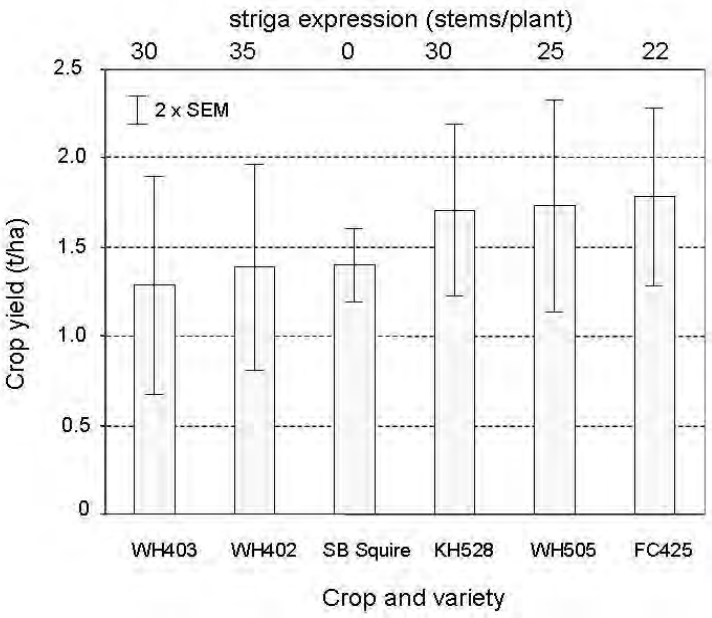
Characteristic "blue" soybeans resulting of WeRATE management practice.

Farmers in west Kenya now enjoy ready access to commercialized BNF technologies, in large part due to the efforts of N2Africa and its strategic partnership with both the private sector and the WeRATE network of farmer associations. Demand-driven technology supply is not being overlooked. Basically, adoption levels of production inputs are determined by the production levels and marketing of commodities they accommodate. Currently soybean production and marketing is monitored through the activities of WeRATE members by a seasonal survey. Over the past year, these members have bulked and marketed over 478 tons of produce through their collection centers with prices ranging between $0.38 and $0.75 per kg. These data do not include the production and sales by individual group members and other farmers away from these collection centers, but certainly indicate that soybean production and marketing is becoming a viable concern.

The Cruel Intersection of Striga and MLNV: Humidtropics Field Campaign

Humidtropics Action Research during 2015 examined the cruel intersection of invading Maize Lethal Necrosis Virus into maize croplands with pre-existing infestation of striga. Maize-based cropping systems are predominant throughout west Kenya but maize as a crop is facing some serious challenges, particularly the invasion of the parasitic weed striga and the outbreak of the Maize Lethal Necrosis Virus (MLNV) syndrome. Striga occurs throughout the area and its control has emerged as a high priority among rural development specialists. MLNV is a more recent threat from the adjacent Rift Valley that is invading many areas where WeRATE operates. Some maize lines offer partial tolerance to this disorder, but again affected households and local extension are unaware of them and the tolerance of these varieties to striga is not well known. During both the long and short rains of 2015, technology packages were deployed to WeRATE members that offered a diagnostic approach toward the management of striga and MLNV through the comparison of maize varietal performance and alternative crops.

Maize yields ranged between 1.3 and 1.8 tons per ha, with the striga susceptible varieties WH 402 and 403 performing worst, and the Imazypyr Resistant (IR) variety FreshCo 425 IR yielding most. The non-host crop soybean provided 1.4 t of soybean per ha. FreshCo 425 IR maize contained the fewest striga stems among maize. Farmers ranked soybean, FRC 425 IR and WH 505 as the preferred managements. WH 505 appears most tolerant of MLNV, with FRC 425 IR and KH 528 IR demonstrating partial tolerance. Soybean is of course immune to both disorders. The following conclusions are reached:



1. The Susceptible variety WH 403 continues to perform poorly in areas with striga and/or MLNV. This variety should continue to serve as a control in future maize technology field tests.
2. The two IR maize varieties, FRC 425 and KH528 performed similar with the former having slightly greater yield. These sites were well selected in terms of striga infestation with large numbers of emergent parasitic stems (22 to 35 per maize plant). Striga expression was reduced by 38% by the best IR technology, and many of these stems emerged late in the crop cycle.

Crop yield, striga expression, farmer preference and MLNV severity from the 2015-2016 short rains "Cruel Intersection" Humidtropics field campaign in west Kenya.

Crop (maize unless Indicated)	Grain yield t ha^{-1}	Striga expression stems plant^{-1}	Farmer rank scale 1-6	MLNV severity scale 0-1
WH 403	1.29 ± 0.62	30 ± 15	1.6 ± 0.2	0.33 ± 0.18
WH 402	1.39 ± 0.58	35 ± 22	2.6 ± 0.7	0.33 ± 0.18
Soybean Squire	1.40 ± 0.19	non-host	4.7 ± 0.5	non-host
KH 528 IR	1.71 ± 0.50	30 ± 17	3.4 ± 1.0	0.14 ± 0.07
WH 505	1.73 ± 0.59	25 ± 12	3.8 ± 0.6	0.05 ± 0.05
FRC 425 IR	1.78 ± 0.48	22 ± 12	4.0 ± 1.0	0.14 ± 0.10

3. The "evasive hybrids (WH402 and 505) were heavily parasitized by striga, and like past seasons the rapid growth of WH505 allowed for reasonable yields in striga's presence.
4. The "Cruel Intersection", where both striga and MLNV occur, is still in formation as 3 of the 8 sites reported no MLNV (Busia and Siaya Counties). The indexing method for MLNV is not particularly strong as it may be confused with the "witching" symptom of striga.
5. Only 53% of WeRATE subscribers submitted all of the expected report forms.

Striga management in west Kenya, Uncontrolled striga results in leaf bronzing and stunted maize (1). Use of treated Imazapyr Resistant maize greatly reduces this damage but does not offer complete control (2). WeRATE has developed integrated striga management strategies that eliminate striga over time (3, striga in foreground, striga elimination in background, soybean in between).

The WeRATE Agricultural Technology Clearinghouse

WeRATE is essentially a platform for testing new, proven agricultural technologies and input products. It operates in seven counties in west Kenya (Bungoma, Vihiga, Busia, Kakamega, Kisumu, Migori and Siaya). The Clearinghouse approach results from WeRATE assuming responsibility for field campaigns from several projects during 2015. These field campaigns include those of N2Africa Phase II, Humidtropics West Kenya Action Site and IFAD Cassava Project. Through the Clearinghouse, members are introduced to the technologies and protocols elaborated before being distributed to respective members.

The 2015 Long Rains Clearinghouse. A three-day Agricultural Technology Clearinghouse was conducted from 18 to 20 February 2015 at the Maseno Hotel to enable WeRATE members and partners to discuss options for the upcoming Long Rains. It was attended by 40 participants drawn from 23 dues-paying WeRATE members, representatives of farm input supply companies, scientists and county Agriculture Officers, CGIAR Humidtropics partners and other selected resource persons. In all, WeRATE established 50 on-farm technology tests during the Long Rains. During the Clearinghouse field protocols for technologies tests were discussed and finalized, some overdue data were collected, financial aspects were discussed at length, and a semi-annual WeRATE Business Meeting conducted. The meeting was briefly disrupted when a well known soybean buyer in west Kenya and three policemen arrested a member of WeRATE for allegedly failing to repay a loan. At least the buyers know where to find us and there is always lots of excitement at the WeRATE Clearinghouse!

WeRATE members package and label their own input field technology tests at the Clearinghouse.

The 2015-2016 Short Rains Clearinghouse. WeRATE held a second Clearinghouse in 2015 from 26 to 28 August. The event was held at ARDAP in Busia County and was attended by 45 participants drawn from 26 dues-paying WeRATE members, representatives of farm input supply companies, scientists and Agriculture officers from county government, and other selected resource persons. Again the Clearinghouse was intended to organize WeRATE field campaigns including those of N2Africa, Humidtropics and IFAD Cassava Projects; allowing WeRATE to establish 41 on-farm technology tests (26 N2Africa and 15 Humidtropics). The platform also continued its cassava bulking at 18 sites.

Outcomes. These Clearinghouse meetings resulted in several outcomes. WeRATE membership grew from 23 dues paying members to 27 (see below). The NGO Board of Kenya permitted WeRATE to operate a US dollar bank account and a KRA Pin Number was awarded, and new operations under these changes were decided. WeRATE members established and expanded bulking sites for new varieties of cassava. Increased opportunities for expanding farmer field days during 2015 and additional grassroots training were offered. A marketing committee was established. MEA Ltd sent representatives to explain its new products for future testing by members. Fresco Seed and Kenya Seed Co. introduced and distributed their new IR Maize lines. Numerous internal issues were raised in the Business Meeting, including means to better communicate with members and involve them in key decision making.

WeRATE members attending the Long Rains 2015 Clearinghouse, their organizations and email addresses.

Name	First Name	Organization	Email
Adipo	Rachel	UCRC	raychellej2001@yahoo.com
Akeyo	Dorcas	BUSCO	akeyodorcas24@gmail.com
Amboga	Josephat	AVENE	avenecomdev@yahoo.com
Babali	Jane	OWD	Owdf20107@hotmail.com
Etemesi	Brian	KENAFF	etemesibrian@yahoo.com
John	Chibole	BUFSSAN	chibolejohn@yahoo.com
John	Otieno	KENAFF	Johnago20@gmail.com
Kaleha	Celister	RPK	kalehah@gmail.com
Kasamani	Stephen	MUDIFESOF	stevekasamani@gmail.com
Kimani	Moses	KENAFF	etemesibrian@yahoo.com
Kisimba	Paul	HECOP	pkisimbah@yahoo.com
Kwoba	John	OWD	Owdf20107@hotmail.com
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Morgan	Dick	MFAGRO	mfagrofarmers@gmail.com
Nyangaria	Waikenya	KUFGRO	wnyangaria@gmail.com
Odwaro	Caroline	Muungano DG	muunganodg@yahoo.com
Ogutu	Pamela	Hagonglo	magagaalex@yahoo.com
Okello	Dismas	SCODP	scodp2012@gmail.com
Okumu	Chrispinus	MDG	muunganodg@gmail.com
Omaseti	Peter	AFSHG	angiraifarmers@gmail.com\
Omondi	Boniface	ARDAP	bonomondi2007@yahoo.co
Ongoma	Josephine	KHG	joseongoma@yahoo.com
Onyango	John	KESOFA	kesofasoya@yahoo.com
Osendi	Richard	Ebusakami	osendirich@gmail.com
Otanga	George	Teso Farmers	otangag@yahoo.co.uk
Wabomba	Paul	SCC-VI	paul.wabomba@yahoo.com
Wamalwa	Bonface	BUSSFFO	bussffo@yahoo.com

Note that in some cases other representatives attended the Short Rains Clearinghouse event

WeRATE Cooperator Profiles and Findings

Appropriate Rural Development Agriculture Program (ARDAP)

Location: Bar Ober, Butula, Busia
Mobile: 0721 612094
Contact: Bonface Omondi
Email: bonomondi2007@yahoo.com

Background. ARDAP is an NGO that started off as a self-help group working under the Anglican Church of Kenya. It is based in Butula Sub-county and is passionate about community development using agriculture as a tool. ARDAP now works with the whole society in the key areas of rural development, sustainable agriculture and food security, as well as access to clean water. It has joined various Busia County coalitions and regional networks. The main approach over the years has been through demonstrations and trainings both at individual and institutional levels. It operates in all five constituencies in Busia County and has 26 staff members and volunteers who have undergone formal training in various fields.

Vision. A vibrant rural economy driven by sustainable agriculture

Mission. To create and facilitate the development of value-added agricultural businesses

Objectives

- Prepare Trainers of Trainers to serve with competence in their communities in the battle to alleviate poverty through appropriate agricultural practices
- Equip farmers with agricultural extension service in positions of leadership and activity to ensure local communities receive appropriate technologies
- Develop and transmit knowledge and skills through research and training at university level
- Further preserve, develop, produce, process, transmit and disseminate knowledge, and thereby stimulate and spur economic growth through smart agriculture

Activities

- Research in sustainable agriculture, food security, seed bulking and storage
- Advocacy for appropriate agricultural policy and practice
- Training of farmers and other stakeholders, and empower women and youth
- Partner with schools to promote environment conservation and management, sanitation, hygiene, and clean and safe water
- Consult in food security, natural resources management, strategic planning, climate change and variability, and renewable energy, among other areas.

Data summary for 2015

ARDAP: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	-- Long Rains 2015 --	
WH 403	588	2
FRC 425 IR	4522	1
WH 402	5764	1
WH 505	4851	1
SC Simba	7861	0
HB 528 IR	na	na
SC Sila (sorghum) SC Squire (soybean)	354 821	0

no MLNV

ARDAP: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant
	------- Long Rains 2015 -------	
none	601	8
62	622	8
125	713	8
187	610	14
250	541	15
125+N	665	16

Dwarf white sorghum-soybean intercrop developed in Busia with ARDAP.

AVENE

Location: Sabatia, Vihiga
Mobile: 0726 532098
Contact: Josephat Ambuga
Email: avenecomdev@yahoo.com

Background. A local CBO registered in 2008. It's the initiative of the community itself towards identifying their own problems (food security, entrepreneurship and marketing) and looking for possible solutions from within and without. It is run by a BOD with 42 groups within Vihiga and Kakamega Counties having 7 experienced field staff trained as master farmers in the N2Africa project and a clientele base of over 2,000 farmers in different projects.

Vision. To empower the community to realize their potential in utilization of locally available resources and innovations towards better and sustainable live hood.

Mission. To facilitate integrated approach through trainings, research and collaboration on viable agricultural projects, marketing and entrepreneurship among the rural communities of Western Kenya

Objectives

- To facilitate linkage and networking with other development partners for resource sharing and utilization.
- To promote vocational training and technology development among social groups in Western Kenya.
- To enhance adaptive participatory research by linking the gap between farmers and researchers.
- To foster community participation towards sustainable food production and nutrition among orphans and vulnerable members of the community.

Projects

- *2008*. Striga Eradication programme under AATF among 150 farmers of Sabatia sub county.
- *2009-2010*. Soil fertility and vigor enhancement project under Kenya Agricultural & Livestock Organization project funded by CRSP.
- *2010-date*. BNF and legume enterprise project under N2 Africa project.
- *2010-date.* Multipurpose legumes project under KALRO and funded by McKnight foundation.
- *2010 –date.* Community economic empowerment though training on income generating agricultural activities in Sabatia Sub-County funded by Students for international Development (SID) Canada and collaborating with Kenyan Harvest Organization -Vihiga.
- *2014-to date.* Member of WeRATE Platform participating in N2 Africa and Humidtropics projects.
- *2015*- Farmer research network (FRN) member working on storage pests in 5 counties of Western Kenya- Funded by the McKnight foundation.

Other Partners and Collaborators

- MoA, the County government- in all projects
- KALRO and the McKnight funded legume project
- Cornell University USA, UoN and Egerton University in the McKnight funded legumes project.
- Kenyan Harvest - Community economic empowerment -SID.

AVENE: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	-- Short Rains 2015/16 --	
WH 403	220	1
FRC 425 IR	3080	.5
WH 402	250	2
WH 505	1980	2
SC Simba	Na	na
HB 528 IR	880	1
SC Sila (sorghum) SC Squire (soybean)	740 876	1

Severe MLNV

Sabatia is one of the areas first invaded by MLNV and AVENE leads in fighting this disease.

BUFFSAN

Location: Busia
Mobile: 0725 308916
Contact: John Chibole
Email: chibolejohn@yahoo.com

Background. A farmers' association formed in 2000 and legally registered in 2001. It was formed to the FAO project of farmers' field school for better operation and co-ordination. It operates in the whole of Butula Sub-County, and has 45 groups with 1600 members; 900 female and 700 male.

Vision. Empowering farmers with new technologies in farming and general agriculture

Mission. Empowering the farming community on food security

Objectives

- Promote unity, cooperation and dialogue among its group members
- Encourage effective networking and collaboration with other stakeholders
- Encourage collaboration between the farming committee and the processing sector.

Achievements

- Managed to bring together farmer groups for the last 15 years
- Participated in the STEP/FIST project
- Participants in phase one of the N2 Africa project
- Among the founders of WeRATE

Striga is widespread in Busia (left) and BUSSAN assists farmers in combating this parasitic weed (right).

BUFFSAN: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----		--- Short Rains 2015/16 ----	
WH 403	1865	13	1848	14
FRC 425 IR	2042	11	1936	10
WH 402	1998	12	1870	11
WH 505	1990	12	2112	11
SC Simba	2002	13	na	na
HB 528 IR	na	na	2012	13
SC Sila (sorghum) SC Squire (soybean)	278 355	13	na 740	na

no MLNV

BUFFSAN: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant
	---- Long Rains 2015 ----	
none	617	12
62	667	24
125	741	24
187	617	24
250	667	28
125+N	864	33

Butere Soya Farmers Cooperative Society (BUSCO)

Location: Kakamega
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Contact: Dorcas Akeyo
Email: akeyodorcas24@gmail.com

Background. A cooperative society formed in 2007 with 30 members representing 10 farmer groups, and legally registered in 2010. Its operations are in Kakamega County and its a member of the WeRATE Platform thus conducts activities of the N2 Africa and Humidtropics projects.

Goals. To assist small scale farmers to increase production of cereals and grains to boost both food and income at household level while enhancing soil health and initiating soya beans value addition and processing enterprise.

Vision. Through planting soya, group will change livelihoods to the community members and empower farmers with a strong voice

Mission. To empower farming communities, to access markets, improve nutrition and enhance soil fertility while assuring our services reach out to unique industries, spread technology and improve living standards of members and eradication of poverty.

Objectives

- Provide constant source of income for the community
- Provide employment opportunities to the community
- Increase food security and value addition
- Improve soil fertility through BNF
- Improve health status and nutrition

Activities

- Carrying out legume, inoculants and associated BNF enhancing technologies to farmers in Nyanza and Westerrn region.
- Soybean value addition processing enterprise

Membership

Membership is by registration upon payment of a fee of Ksh 500.Members are entitled to shares bought at Ksh 100 per share. Members carry out a merry-go-round paying Ksh 400 pm and 2 members given a portion of the sum to buy inputs.

BUSCO: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----	
WH 403	355	6
FRC 425 IR	2771	4
WH 402	266	7
WH 505	144	3
SC Simba	133	4
HB 528 IR	na	na
SC Sila (sorghum) SC Squire (soybean)	148	6

BUSCO: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	247	10	1481	31
62	195	15	1697	33
125	123	38	2591	33
187	370	24	1851	34
250	154	26	1604	33
125+N	148	16	1480	29

BUSOFA

Location: Bungoma
Mobile: 0721 174331
Contact: Jotham Mandila
Email: jothammandila@yahoo.com

Background. A CBO started in 2008 with 12 members. The main aim was to plant soya beans as a cash crop, improve soil fertility, and sensitize community of the profits of soya beans. Currently, the group has 115 members with projections to expand.

Vision. Change community from planting sugarcane and plant soya bean as their cash crop.

Mission. To develop soya bean chain within Bungoma County and the Western region

Objectives

- To improve the living condition and enhance the quality of life of members by increasing production and productivity of soya beans.
- To find a collective solution to challenges facing soya beans farmers.
- To promote understanding and appoint relation between all persons interested in serving production.

Bungoma Small Scale Farmers (BUSSFFO)

Location: Bungoma
Contact: Bonface Wamalwa
Mobile: 0725 474061
Email: bussffo@yahoo.com

Background. A CBO and a farmer umbrella network organization with a long history of interactive, holistic and collaborative efforts towards development with Universities, Research Institutes and local NGOs in the field of accessing appropriate agricultural technologies and agricultural information to the farmers in Bungoma County. It was formed in 2004 and consists of 24 self help groups operating in all the six constituencies of Bungoma County.

Vision. To be a leading farmer association that promotes appropriate agricultural practices and support programs for sustainability.

Mission. To ensure local farmers are food & income secure through capacity building and service provision in environmental conservation, and agri-business development.

Objectives

- Provide sufficient, effective resources for accomplishment of our goals
- Improve agricultural production of small holder farmers in Bungoma County through provision of farm inputs
- Capacity build small holder farmers in agricultural technologies and their social wellbeing
- Improving soil productivity by use of sustainable agriculture technologies within rural communities
- Promote food value addition for improved nutrition and income generation.

Programs

- Finance and support services
- Capacity building and Advocacy
- Farm input access supply
- Value addition and Marketing
- Environmental Conservation & Sustainable Agriculture

Achievements

- Improved members incomes and food security
- Striga reduction and hence improved production
- Members developed individual enterprises and knowledge on greenhouse management.

Partners

MoA
Sacred Africa
Western Seed
AT-Uganda
Equity Bank
MEA Ltd.
KACE
UAP Insurance
Kenya National Library services
Chepkoilel University- Eldoret
Moi University
DERO
PELUM
Heifer International
ASAREC
ARDAP
Masinde Muliro University

BUSSFFO: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----	
WH 403	422	2
FRC 425 IR	1643	3
WH 402	2264	5
WH 505	453	3
SC Simba	3052	4
HB 528 IR	na	na
SC Sila (sorghum)	518	3
SC Squire (soybean)	1110	na

no MLNV

BUSSFFO: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1554	10	1425	31
62	2055	14	1861	28
125	1797	17	2102	40
187	2283	26	2227	38
250	2194	16	1912	29
125+N	2284	28	2287	33

Ebusakami Farmers Cooperative Society Limited (EFACOS)

Location: Vihiga
Mobile: 0729 563455
Contact: Richard Osendi
Email: osendirich@gmail.com

Background. A co-operative started in June 2013 with a membership of 26 drawn mainly from graduates of the Farmers Field School of the Anglican Church Project. Two farmer groups came together to lead other farmers. Registered in 2014 and became a stakeholder at the County level in Vihiga. There are 41 women and 23 men, youths are drawn from 3 primary schools, 2 secondary schools, and a school for the deaf from within Luanda and Emuhaya Sub-counties.

Operations. The interim office consists of chairperson and vice, secretary, treasurer, 5 committee members, supervisory committee, and officers in charge of education, marketing, and monitoring. Through the cooperative's development partner, Vibrant Village, members underwent training by the cooperative university. Officials undergo regular training under the same. We have an annual budget divided into 4 quarters with finances drawn from membership fee, shares issue, sale of produce, partner elevation like Vibrant Village, WeRATE and the County.

Activities

- BNF technologies
- Value addition
- Vegetable farming
- Soybean production and marketing

Projects

- Better beans project
- N2 Africa
- Oasis Garden
- Humidtropics

Partners

- Vibrant Village
- University of Nairobi
- Millenium Villages
- World Vegetable Centre
- Mea Ltd
- Western Seed Co.
- World Neighbors
- Lake Basin Development Authority
- County govt
- Kenya Seed Co.
- ARVDEC

Achievements

Since joining WeRATE we produced and sold 1 and half tons of soybean and grown to over 3 tons in 2015 Long rains from 67 farmers.

EFACOS: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules Per plant
	---- Short Rains 2015/16 ----	
none	2345	8
62	2591	11
125	3270	15
187	2974	36
250	3196	21
125+N	3369	29

HAGONGLO

Location: Siaya
Mobile: 0714 712395
Contact: Pamela Ogutu
Email: magagaalex@yahoo.com

Background. A community farmers' self help group whose areas of operations are in Siaya County; 4 sub-counties, and Kisumu County. This amounts to a total number of 31 groups ranging between 25 and 30 members per group. The total members are 1,318 and these have assisted in reaching a very large number of beneficiaries within their villages. It conducts various activities in health, agriculture, general information, orientation, nutrition, and generative livelihood through on-farm research, extension officers, NGOs, private sectors and CBOs.

Motto. Think, work and grow satisfactorily.

Mission. There is in nature, no reason for poverty.

Vision. Have sustainable health agriculture and other development systems with accountability towards the community.

Objectives

- Have a sustainable health, agriculture and other development systems with accountability towards the community with the aim of empowering, participation and promoting community sustainable partnerships.
- Demand driven extension sharing of experience among project members, researchers and extensions.
- All the programs and technologies to be evolved in participatory manner.
- The techniques and approaches to be used on agro-ecological zones.
- Strengthening health system by building the capacity of the local community to govern community pharmacies managed by Community Health Workers
- To promote and improve the situation of community development groups, women and youth groups in the area.
- To promote gender integration into extension.
- Increase awareness, sense of responsibility and activate communities and families to self-help.

Activities

- Rehabilitating the community members and training them for improving and supporting their initiative developments and enhance their capacity to identify, prioritize and seek possible solutions to community problems.
- Determine available community resources, way forward for food production and their efficiency to utilization and explore avenues to achieve optimum productivity without adverse effects on the environment.
- Improve general livelihood of the community and develop alternative approaches for health, agriculture and other development sectors improvement.
- Promote community health workers department in managing and strengthening projects of Ministry of Health.

- Identifying pressing problems in the community and solutions.
- Promote community sustainable partnerships for trainings.

Achievements

- Worked with community members to design simple on-farm research trial protocols to determine the appropriate farming technologies.
- Worked with community members to design and develop extension materials, develop new technologies and extension methods and implement them.
- Planning of the project focusing on policy making, marketing, establishing sales, production and financial and budgeting management.
- Developed infrastructure eased accessibility and availability of inputs.
- In partnership with Great Lakes University, some members have graduated with certificates on community health.
- New techniques which has greatly improved their production/yields and sustained their household economy.
- Improved health and lives of the community.
- Participation of members in community development activities.

Hagonglo: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Short Rains 2015/16 ----	
WH 403	4643	18
FRC 425 IR	4449	6
WH 402	4610	20
WH 505	4696	21
SC Simba	na	na
HB 528 IR	4016	18
SC Sila (sorghum) SC Squire (soybean)	na 1636	na

Heritage Conservation and Promotion Organization (HECOP)

Location: Kisumu
Mobile: 0714 921895
Contact: Paul Kisimba
Email: pkisimbah@yahoo.com

Background. An NGO founded and legally registered in 2007. It works directly with small holder farmers, especially vulnerable members of the community (PLWHAs and OVCs) by offering them support in Home Based Care and agricultural extension. It operates in the following districts: Kisumu, Siaya, Kisii, Nakuru, Nyamira, Nyando, Vihiga, Gucha, Kakamega, Migori, and Bondo.

Vision. Improved environmental and human health conditions among local communities in the Lake Victoria Basin

HECOP: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----	
WH 403	1110	1
FRC 425 IR	1199	1
WH 402	1154	1
WH 505	1243	2
SC Simba	1240	4
HB 528 IR	na	na
SC Sila (sorghum)	na	na
SC Squire (soybean)	1480	

no MLNV

Mission. To sustainably manage natural resource assets along the Lake Victoria Basin to improve the livelihood of local communities

Goal. To improve community livelihoods through sustainable natural resource management

Activities

- Agricultural technology (IR Maize)
- Mainstreaming HIV/AIDs
- Tree planting
- Bee keeping

Partners

- Maseno University
- NATHEPA
- Neem Foundation
- KARI
- Family Health International
- Civil Society Organizations

HECOP: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1975	28	625	4
62	2676	29	816	12
125	2778	34	884	13
187	2818	36	971	21
250	2880	41	1011	41
125+N	2884	31	1137	30

Kagan Farmers Self Help Group (KAGAN)

Location: Homabay
Contact: Kennedy Okumu
Mobile: 0723 223708
Email: ken.oure@gmail.com

Background. The was started in April, 2010 with the aim of empowering small scale famers by adopting modern methods of farming techniques as a sure way improving their living standards. It was registered on the same date with the ministry of gender, children and social development with 20 members consisting of 13 females and 7 males. Its operations are in Homabay County.

Mission. To empower micro farmers raise their socio-economic status thus eradicating poverty and poor living conditions

Objectives

- To promote modern farming techniques by collaborating with agriculture organizations
- To transform farmers into self reliance
- To rehabilitate environment through tree nurseries and tree planting
- To advocate awareness towards HIV/AIDS thus promoting a healthy working society
- To raise funds and disburse them for farming activities/ projects.

Activities

- Involve farming activities in Maize and other farm crops.
- Engage in horticultural farming.
- Poultry farming.
- Raise funds to boost group activities.
- Engage in tree nurseries and tree planting to rehabilitate the degraded environment.
- Establish a business of plastic chairs, tents and public address system and outside catering.

Membership. Open to adults of all gender aged eighteen years and above who are trusted dedicated and are involved in farming. Pay registration fees of Kshs 150 and shares contribution of at least Kshs 100 monthly. Membership is not transferable just as registration fee once paid is not refundable.

Management. Officials comprise of the chairman, secretary, treasurer and two members.

Achievements

- Kagan farmers collaborated with AATF in commercialization of IR maize to fight striga.
- Established 200 IR demo plots.
- Organized 20 field days for awareness creation of new varieties of maize for striga control.
- Received demo Kits for KSTP 94 maize, beans, soya beans and sorghum from MoA.
- Most of our field days are aired through the media like KTN, NTV, CITIZEN and standard newspapers.

KENYA NATIONAL FARMERS FEDERATION (KENAFF Busia)

Location: Busia
Contact: Brian Etemesi
Mobile: 0720 057546
Email: etemesibrian@yahoo.com

Background. A non political democratic umbrella body of all the Kenyan farmers that was started back in 1945 to represent the issues of large scale farmers in Kenya though through the years it has undergone institutional transformation from a union to a federation whose key role is to voice the legitimate interests of the Kenyan farmers with a view to enhance their incomes, welfare and status. It in operates in 7 sub-counties in Busia county where all of its members are based. It has its main offices at the CDA office in Busia town. The foundation of the federation is farmers' empowerment, collective action, representation and gender balance.

Vision. Empower Kenyan farmers with a strong voice.

Mission. To empower members to make informed choices for improved sustainable likelihoods

Objectives

- To promote unity, cooperation and dialogue among its members and between its members and actors in the agricultural sector.
- To ensure timely intervention in the resolution of issues affecting the agricultural sector.
- To ensure representation of the farming community and expression of its views to a he government and the public.
- To o encourage effective networking and collaboration with national and international associations.
- To conduct and facilitate appropriate research into problems affecting agricultural production.

Core values

- Responsiveness
- Accountability
- Professionalism
- Integrity
- Efficiency
- Relevance

Staffing

The federation through its structure in Busia County has got a county coordinator, a university intern, and seven farmer officials.

Projects

- Governors roundtable in collaboration with the business advocacy fund
- Biogas with SVN /HIVOS
- Soya beans with WeRATE
- Formation of producer business groups with Agrittera
- Agribusiness training with Kenya Agriculture Productivity and agribusiness projects.

KENYA NATIONAL FARMERS FEDERATION (KENAFF Kisumu)

Location: Kisumu
Mobile: 0720 483349
Contact: Kevin Yongo
Email: yongo.kevin@yahoo.com

Background. A non-political, non-profit making and democratic member based farmers' organization based in Kenya. And formed in 1946 as Kenya National Farmers Union (KNFU) It then changed its orientation to small scale farmers and later on changed its name to KENFAP in 2003 and later on became a federation in 2013 KENAFF. It has a county coordinator in all Nyanza and Western region counties, and a vibrant membership and leadership structures in 44 Counties.

Aim. To articulate issues affecting farmers through focused lobby and advocacy, targeted capacity building and promoting sector stakeholders' cohesiveness in dispensing and progressive uptake of agricultural innovations or enhanced socio economic status of farmers.

Vision. A vibrant agricultural sector sustaining improved livelihoods.

Mission. To progressively influence change in the agricultural sector environments, and promote agri-business through targeted interventions

KENAFF KSM: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	--- Short Rains 2015/16 ----	
WH 403	1760	5
FRC 425 IR	1540	5
WH 402	1320	5
WH 505	0	5
SC Simba	0	na
HB 528 IR	0	5
SC Sila (sorghum)	na	na
SC Squire (soybean)	1850	

Severe MLNV

KENAFF KSM: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1451	10	617	29
62	2083	21	1142	38
125	2775	26	1234	33
187	2448	36	1238	36
250	2777	28	1851	38
125+N	2778	31	1850	35

KENYA SOYA BEANS FARMERS' ASSOCIATION (KESOFA)

Location: Migori
Mobile: 0724 664310
Contact: John Onyango
Email: kesofasoya@yahoo.com

Background. A non-profit, non-political organization with an aim of promoting Soya beans production in Kenya. It was founded in 2007 and legally registered with a mandate of lobbying and advocating the strengthening of National Soya beans and its products to farmers. The basis of KESOFA now relies on increased production of soya beans for commercialization purposes. As an asssociation, it will be working moderlities of being resource reliable and will restructure to widen its base. Members are spread across Districts in Western, Nyanza and central and part of Rift Valley Provinces. A total of 6400 members were recruited with 3800 being females.

Vision. To have soya beans as one of the key food/cash crop supply in Kenya.

Mission. To come up with income generating project to uplift socio-economic standards of its members and farmers countrywide.

Objectives

- To promote soya beans value chain within the country
- To sensitize farmers on importance of soya beans and its products economically, environmentally and nutritionally
- To undertake the transfer of technology for increased yield & productivity.
- To facilitate the availability of good quality seed through seed multiplication program.

Activities

2007. Farmers recruitment and branch elections, Training and seed distribution
2008. Soya Seed bulking and promotion, Agricultural shows
2009. Conservation agriculture, Soya marketing
2010. Community seed bulking, BNF, Soya beans commercialization

Programs and Projects

- TL II Program
- Humidtropics program
- Soya beans commercialization program

CNFA Volunteer Program
IFAD Cassava Project
N2A Project

Partners

- Kenya Agricultural Productivity Program
- TSBF- CIAT
- Citizen Network For Foreign Affairs
- Lake Basin Development Authority

MoA
KENFAP
AGRA
ARDAP

KESOFA: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----	
WH 403	441	3
FRC 425 IR	1332	1
WH 402	1865	2
WH 505	2664	1
SC Simba	3330	1
HB 528 IR	na	na
SC Sila (sorghum)	2257	1
SC Squire (soybean)	1517	na

KESOFA: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	2160	11	1157	9
62	2531	21	1234	14
125	2593	12	1308	33
187	2840	14	1543	14
250	1543	16	1481	17
125+N	2590	22	1419	13

KLEEN HOMES and GARDENS (KHG)

Location: Vihiga
Mobile: 0725 552079
Contact: Justin Omulando
Email: omulandojustin@gmail.com

Background. KHG is a CBO legally registered and consists of 15 members; 8 male, 7 female out of which 4 are youth. Its sector of intervention is agriculture and livestock development. It operates in 7 areas in Kakamega County and 8 areas in Vihiga County, and has a total number of beneficiaries of over 3,000 households.

Vision. A leader in sustainable rural development

Mission. To create wealth amongst rural farmer households by commercializing small scale farming

Main Objective. To establish sustainable agricultural value chains

Specific Objectives:

- Identify economically viable agricultural value chains
- Form common interest groups
- Capacity build the common interest groups on all aspects of the value chain
- Create public awareness of the products of the value chains
- Market the products of the value chains

Achievements

- Identified and defined three key value chains namely, the soybean value chain, the calliandria value chain and the fodder/foriages value chain. The value chains include poultry, dairy cows and honey bee production.
- Formed a total of twenty five common interest groups.
- Trained all of them in the soybean value chain and five of them in the callindra and fodder value chains, and further trained more than 1500 farmers in the soybean value chain.
- Developed and made public nine soybean products, and three calliandria products.
- Formed and registered Annapolis Wonder Enterprises as the trading arm of the CBO.

KHG: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	2469	12	1064	12
62	3025	24	1821	14
125	3704	38	2154	38
187	3148	29	2241	34
250	3704	40	2289	34
125+N	4259	36	2153	19

Kuria Farmers Group (KUFGRO)

Location: Migori
Mobile: 0721 320496
Contact: David Nyang'aria
Email: wnyangaria@gmail.com

Background. A self help group which comprises of small scale farmers at Kurutiange-Kuria West sub-county whose aim is to find an alternative crop to sustain their economic stability and reduce environmental challenges. It serves as a farmers' association, formed in 2013 and registered in 2014. These farmers are scattered all over Kuria region started soya beans farming with technical advice from WeRATE with the support from N2 Africa Project of IITA. Active registered members are 75; 30 women, 25 men, and 15 youth while there are over 500 indirect beneficiaries.

Vision. To enable farmers engage in legume crops farming to improve their economy and reverse their soil fertility affected by tobacco production and other poor farming practices.

Objectives

- Bring together like minded small scale farmers engage in legume crops farming for sustainable development.
- Promote legume crops production and value addition among the member farmers to gradually discard poor farming practices.
- Protect the rights of local farmers and market access for their products.
- To forge a head for a strategy to attract investors/stakeholders to assist group members engage in modern farming practices and set-up an agricultural research centre locally.

Achievements

- A large local population been attracted to be part of legumes farming especially soya beans.
- Tobacco farming reduced as farmers venture into short season crops farming through our mobilization efforts.
- Support by the Migori county government as soya beans farming has become a county project, and hybrid banana planting.
- Increased adoption of IR 425striga resistant.

KUFAGRO: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	--- Short Rains 2015/16 ----	
WH 403	660	6
FRC 425 IR	880	1
WH 402	1100	3
WH 505	1078	4
SC Simba	Na	Na
HB 528 IR	1144	5
SC Sila (sorghum)	Na	na
SC Squire (soybean)	1518	

Mwangaza Farmers Group (MFAGRO)

Location: Vihiga
Mobile: 0724 518753
Contact: Dick Morgan
Email: mfagrofarmers@gmail.com

Background. A CBO formed in 2004 whose work is in 4 sub counties of Vihiga County; Sabatia, Vihiga, Hamisi and Emuhaya. It extended its services to Ikolomani sub county of Kakamega County in 2015.The CBO's head office which comprises of farmers library, board room , soy cottage industry, and one stop shop is physically located at Itando village- Chavakali division. It works with whole society in the key area of: BNF technologies, farm inputs access, collective marketing, natural resource management, sustainable agriculture and support service provision to its members. It is an umbrella of 18 farmers' groups with a total of 1200 farmers; 439 male, 570 female and 199 youth.

Vision. To be a leading F.A organization in promoting of farm enterprises development, ecological conservation and food security for better livelihood in Vihiga County by 2017.

Mission. To offer quality and affordable development services to small scale farmers and to promote sustainable agriculture technologies in Vihiga County

Objectives

- To improve agricultural production of small scale farmers in Vihiga county through provision of farm inputs
- To improve soil productivity by use of sustainable agriculture technologies within rural communities
- To promote food value addition for improved nutrition and income generation
- To capacity building and economically empower members by providing trainings, easy and affordable loans for investments

Activities

- Farm inputs access, BNF technologies, Striga eradication
- Empowerment of women enterprise in value addition and marketing products
- Famer empowerment in soil fertility, nutrition and income generation
- Extension services provision to its members- Master farmers
- Collective marketing of produce, Capacity building and advocacy
- Support service programmes in the form of revolving fund.

MFAGRO: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----		--- Short Rains 2015/16 ----	
WH 403	2220	22	0	49
FRC 425 IR	1376	9	528	26
WH 402	6660	10	0	41
WH 505	4618	9	1188	44
SC Simba	4928	4	na	na
HB 528 IR	na	na	1056	42
SC Sila (sorghum)	533	1	na	na
SC Squire (soybean)	1184	na	1518	

Moderate MLNV

MFAGRO is well known throughout Vihiga County for its exciting and well attended farmer field days.

MFAGRO: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1914	4	1789	6
62	2407	8	2098	8
125	2716	9	2345	10
187	3272	16	2591	14
250	3951	31	3517	40
125+N	3457	21	3147	34

Mumias District Federation of Soya Bean Farmers (MUDIFESOF Project)

Location: Kakamega
Mobile: 0713 526793
Contact Stephen Kasamani
Email: stevekasamani@gmail.com

Background. An agricultural based group formed in 2008 and legally registered. Its offices are loacated in Ekero market-Mumias Town, with the areas of operation being Old Mumias district-Mumias and Matungu district, part of Kakamega south and Bungoma districts. Works with over 1000 farmers in the region.

Vision. To be a leading farmers organization in soybean production, processing and marketing in Western Kenya and also soil health enhancement and environmental conservation.

Mission. Working together with small holder farmers and farmer groups in linking the protein and nitrogen needs of poor farmers to: (a) Advanced renewable soil fertility management, (b) Generate income, and (c) Promote adaption of profitable farm accompanying technologies and value adding enterprises.

Motto. Integrated farming and technology dissemination for wealth and health of both soil and humans

Objectives

- To promote soybean and other legumes farming in accordance with current technological advancement to boost production of crops in Mumias, Matungu and neighboring districts.
- To arrange for co-operative processing, grading, transporting and such operations as may be necessary for the most profitable disposal of the produce of members.
- To contribute funds collectively for the members of the organization to hasten development in areas of their priority only.
- To create employment.
- To promote co-operation between members and the community.
- Assist members to acquire loans for self development.

Membership. The group has both individual and corporate membership; individual members registered are 60 while corporate members are 10.

Partners

- IFAD cassava projects
- N2 Africa
- Humidtropics
- KARI
- MEA Ltd.
- CIAT

MUDIFESOF: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----	
WH 403	3396	3
FRC 425 IR	2886	1
WH 402	5328	2
WH 505	3552	2
SC Simba	5772	2
HB 528 IR	Na	Na
SC Sila (sorghum)	264	2
SC Squire (soybean)	611	na

no MLNV

MUDIFESOF: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1127	12	1003	21
62	754	12	1589	14
125	1294	13	1069	24
187	2149	21	1268	17
250	1248	16	555	14
125+N	1167	9	487	12

The Mudifesof farm inputs shop near Mumias: SOSSI distributor's visit (above) and BIOFIX branding (right)

MUUNGANO DEVELOPENT GATEWAYS

Location: Kakamega
Mobile: 0703 839238

Contact Chrispine Okumu
Email: muunganodg@gmail.com

Background. A local non-profit organization working towards achieving sustainable development. It operates in Siaya and Busia County and it's focused on promoting food security, environmental conservation and education and ICT. Has 900 current members under soy farming; 300 youth, 200 men, 400 women.

Mission. To improve livelihood through sustainable development

Vision. To make an environment where men and women live in a free society

Objectives

- Food security
- ICT and development
- Environmental conservation
- Human rights, and Education.

Achievements

Muungano has increased its membership since the year 2010 from 100 to 600. All have benefited from improved farming, the revolving fund and BNF Technologies of N2 Africa and Humidtropics projects.

Muungano: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant
	---- Long Rains 2015 ----	
none	1512	5
62	1994	13
125	2587	24
187	2340	26
250	2254	45
125+N	2573	22

One World Development Foundation (OWDF)

Location: Busia
Mobile: 0721 619006
Contact: John Kwoba
Email: owdf20107@hotmail.com

Background. A non-sectarian and non-political NGO which operates in Busia and Bungoma Counties; Matayos, Teso South, Teso North, and Bungoma West Sub-Counties. It has 3000 member farmers, 1950 of whom are women. It is a member of the WeRATE Platform and thus involved in the N2 Africa and Humidtropics projects.

Vision. To have life at its fullest

Mission. To facilitate processes that eradicate poverty, ensure social justice and equality within us at the household level

Objectives

- To research and develop environmentally sound sustainable agriculture
- To manufacture and facilitate small farm machines and animal drawn implements and provide services
- To promote micro credit enterprises
- To support disadvantaged children, widows and youth get education and livelihood
- Encourage exchange of different partners in Kenya and outside.

Activities

- Scaling up the production of soya bean, groundnuts, and bush beans
- Conducting technology tests in collaboration with research institutes.
- Increase efforts towards education on value chain activities.

One World DF: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	530	33	1037	9
62	602	36	1543	13
125	594	9	2160	31
187	564	11	3085	24
250	582	9	2166	31
125+N	319	7	1851	11

Rural Outreach Program– Africa (ROP)

Location: Vihiga
Mobile: 0720 109213

Contact: Doris Anjawa
Email: drsanjawa@gmail.com

Background. A non-profit organization founded and registered in 1992 to operate in Kakamega, Vihiga, Bungoma and Busia Counties. It undertakes development activities aimed at improving the livelihoods of the rural poor in western Kenya whom over 55% live below the poverty line and many are small holder farmers. Its main focus is women and youths though men are integrated in the programs.

Operations

We endeavor to reach out as many farmers and farmer organizations as possible, and our entry point in the communities is through linkages with the existing registered farmer groups and schools, which have similar or complementary ideologies. ROP is working in the 12 sub counties of Vihiga, Kakamega and Bungoma Counties; each has an officer in-charge who foresees the daily activities of the farmers through other extension staff and documents reports weekly and monthly reports to the field coordinator.

Programs

- **Agriculture:** The project aims at ensuring that the communities obtain a comprehensive food basket comprising various high yielding crops and livestock, and a well preserved environment.
- **Water Efficient Maize for Africa:** Promotion of drought tolerant and early maturing maize seed in Western Kenya
- **BNF Technology:** Enhancing soil fertility through leguminous crops especially soya and climbing beans
- **Striga Control Technologies:** To control striga infested farms by use of IR Treated maize seed and by intercropping with legumes especially soybeans and practicing crop rotation.
- **Health/ Nutrition:** The goal is to achieve sustainable improvement in health status among vulnerable groups especially the geographically remote, women, the old and the children across the counties. ROP promotes nutrition through production and consumption of Soya value added products.

- **Gender and Youths:** ROP is striving to increase the level of women's access to and control of economic resources. We seek to achieve this through research and advocacy as well as encouraging increase access to credit, land and Agricultural extension services. We have to creatively and innovatively come up with practices that can lure young people into commercial farming.

Integrated Soil Fertility Management (ISFM). The program was implemented since 2010-2014 in Vihiga and Kakamega counties where a total of 34678 farmers were reached. Funded by AGRA and done in partnership with Farmer Organizations , M.O.A extension, research and training institutions, particularly KARLO – Kakamega and Bukura Agricultural Training Centre and with Agro dealers. The intervention of the program was along the research – extension development (Market Value Chain) with ultimate objective to increasing farmers' productivity and their households incomes and enhances family food security and nutrition among residents of the communities across the Counties.

Livestock Development. The organization has trained and skilled staff doing capacity development on dairy production and management as well as training on silage, hay and other dairy feeds making and formulation. R.O.P is also implementing as sheep/goat project ('small animals' project) whose long term objective is to improve food security and nutrition status of the beneficiaries and their dependents through milk consumption and per capital income. So far over 200 local goats and sheep have been distributed to groups across the counties and the beneficiaries are being linked to registered A.I services providers to register and start crossbreeding. ROP has also offered training to farmers in Eldoret and issued them with pure grade cows in Lurambi and Butere.

ROP: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules Per plant
	---- Short Rains 2015/16 ----	
none	972	8
62	1667	16
125	1823	33
187	1169	33
250	1167	34
125+N	1200	34

Resource Projects Kenya (RPK)

Location: Vihiga
Mobile: 0721 232835

Contact: Celister Kaleha
Email: kalehah@gmail.com

Resource Projects Kenya (RPK) is a national NGO, which exists to promote sustainable utilization of the resource base. Nationally, RPK has three main programmes in Samburu, Western (Kakamega and Vihiga) and Meru.

RESOURCE PROJECTS-KENYA
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RPK from the very beginning took a proactive approach and sought to develop cordial relations with the Government. RPK was initially housed at the District Forest Office in Samburu district and so worked quickly to establish a relationship with the GOK officials based there. RPK then liaised with the Arid Lands Programme under the Office of the President, the District Livestock Promotion Office (DLPO), District Environment Office, and District Water Office.

Its move to west Kenya was very strategic. It became a leader in conflict resolution over land and tree rights, and assisted in the reforestation of degrading hillsides and mountains. It was early to recognize the devastating effect of striga and the need for improved maize-legume intercropping systems. During the 2008 post-election violence in Kenya, it escorted vehicles containing farm inputs so that developmental research efforts would not be lost during the following long rains growing season.

Today RPK operates in a coordinative fashion. It hosts WeRATE at its offices at Chanbers House in Mbale, Vihiga. It organizes project technology tests through a wide range of local Community Based Organizations. It processes applications for the establishment of One-Stop Shops for N2Africa and Striga Elimination Plans for Humidtropics.

RPK: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules Per plant
	---- Short Rains 2015/16 ----	
none	1364	3
62	1855	26
125	2102	22
187	2233	17
250	1851	14
125+N	2225	13

Sustainable Community Oriented Development Program (SCODP)

Location: Siaya
Contact: Dismas Okello
Mobile: 0722 389404
Email: scodp2012@gmail.com

Background. Initiated in January 1990, it became a registered Self Help Development Group in 1991 then under NGO Board in 1993. Its program serves youth, women, and church groups. It also works closely with existing NGOs, CBOs and needy individual farmers and school youth. It serves Western and Nyanza needs with a weak liaison with Soya bean farmers in Eastern Uganda. 10,000 farmers directly reached through CBOs and the group's reach and 13,000 farmers indirectly.

Aim. To improve food security among the small scale famers per household reached by the programme services targeting female headed families .To produce enough to eat and market the surplus for income generation to meet other domestic needs as to reduce poverty and eliminate hunger.

Vision. To have healthy protected family households that have enough to eat and economically sustaining with better education background.

Mission. To empower community famers to produce and sustain their food security, be able to market the product and meet their required family domestic needs.

Activities

- Involved in farming groups' education exchange program
- Sensitizing and promoting the use of farm inputs
- Initiating 40 community farm inputs stores (agrovets) in entire Western and Nyanza regions which later were offloaded to community ownership
- Involved in soya beans and cassava production in collaboration with WeRATE , will soon be working with Bean Enterprises and structured Trade in East Africa Community (BEST-EAC)
- Using the value addition Soya bean Milling machine provided to farmers by World Bank through KAPAP.
- Bought a 7 acres piece of land proposed for Community Agricultural Training Center of Excellence, to train community on Farming as Business.

Membership. Groups willing to become SCODP members must register at a fee of 150/= subject for renewal annually.

Collaboration

- NARO Uganda
- ICRISAT
- N2 Africa project
- MoA through KAPAP & Extension Services.

KALRO Kenya
DYNAPHARM-for health care
IFAD Cassava

SCODP: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----		--- Short Rains 2015/16 ----	
WH 403	266	15	660	9
FRC 425 IR	1066	10	1144	7
WH 402	1199	14	528	8
WH 505	2730	23	880	7
SC Simba	2639	32	na	na
HB 528 IR	na	na	1320	11
SC Sila (sorghum)	2281	1	na	na
SC Squire (soybean)	518	na	1100	

no MLNV

SCODP: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules Per plant
	---- Short Rains 2015/16 ----	
none	740	8
62	1111	8
125	1172	12
187	1234	14
250	1604	12
125+N	1851	10

Ugunja Community Resource Centre (UCRC)

Location: Siaya
Mobile: 0715 277455
Contact: Rachel Adipo
Email: raychellej2001@yahoo.com

Background. An NGO registered in 2004 with its headquarters in Ugunja District-Siaya County. Founded in 1988 and registered as a CBO in 1997 to address the information gaps and challenges that perpetuated the vicious cycle of poverty among the rural households in Siaya County and the entire Western Kenya Region. Currently acts as an umbrella organization for more than 60 local community based/ common interest groups with the main focus being women, children, youths, farmers and people with disabilities. It has 16 full time staff and over 300 community resource persons from Siaya County.

Vision. An empowered community managing their resources sustainably and ensuring equity in creation and distribution of wealth

Mission. To facilitate sustainable community development through innovation, capacity building, networking, information sharing, knowledge creation and exchange

Objectives

- To improve the well-being of target communities through innovative and sustainable management of natural resources
- To improve the institutional capacity of member CBOs in management and implementation of poverty reduction initiatives
- To increase learning, knowledge generation and dissemination among the development actors through action research, advocacy, publications and dissemination
- To foster strategic partnerships and networks for resource mobilization, information sharing and creation of synergies.

Programs

- The livelihood Support program- with help from the SEED Sacco
- The Advocacy and Networking

Projects

- Governance & Peace Building
- Youth & Community safety
- Community Learning Resource Centers
- Women & Development and Disability.

Partners

ASARECA
MoA
UBS foundation
KARI
Save the brains (Canada)
Commonwealth of Learning (COL)
Tear Fund (Australia)
Common Hope for Health (USA)

United Generation Integrated Community Based Organization (UNGEINT)

Location: Siaya
Mobile: 0736 984250
Contact: Paul Wabomba
Email: paul.wabomba@yahoo.com

Background. A CBO with the main objective of promoting soya beans production and soil fertility improvement and income generation among members. It operates in Bungoma County and consists of 15 farmer groups totaling to 296 members; 165 females, 111 males and 20 youth. It is a member of the WeRATE platform where it undertakes activities in legume cassava integration, striga elimination and putting nitrogen to work for small scale farmers. Community mobilization and Capacity building of beneficiaries is the main role of the CBO.

Mission. To contribute towards uniting community members for empowerment and improvement of their living standards through capacity building and resource mobilization by involving members in all stages of development.

Vision. A United and Economically Empowered Society

Objectives

- Creation of self-employment opportunities through initiating income-generating activities among members.
- Promotion of environmentally friendly methods of farming among member groups and the entire community.
- To link member groups to strategic partners for capacity building and support in relevant areas for community development.
- To promote resource mobilization among member groups and UNGEINT levels to enable members have access to long-term development loans.
- Sensitizing and recruitment of member groups which are like-minded and conducting groups' needs assessment for action.
- To promote issues relating to environmental conservation among members and the entire community, gender and HIV/AIDS.
- To promote need based investment for the future starting from the family level.
- To promote participation of all members in UNGEINT activities.

Partnership

MoA, Livestock and Fisheries
Agricultural Sector Development Support Programme (ASDSP)
KARLO

Achievements

- Successfully established 8 acres of cassava in different bulking sites and 50 acres of soybeans within the community.
- An aggregation center for soybeans produced by members and other farmers within the community to has been established as well as payment modalities.
- The CBO has managed to construct 10 poultry Units, yet to be stocked.
- A commercial tree nursery dealing with environmental conservation.

SCC-VI/UNGEINT: Summary of Humidtropics Technology Tests in 2015

Maize (or other) variety	Grain yield kg/ha	Striga stems/host	Grain yield kg/ha	Striga stems/host
	---- Long Rains 2015 ----		--- Short Rains 2015/16 ----	
WH 403	253	19	502	severe
FRC 425 IR	1299	15	644	severe
WH 402	245	18	299	severe
WH 505	0	18	284	severe
SC Simba	190	22	na	na
HB 528 IR	na	na	766	severe
SC Sila (sorghum)	189	6	na	na
SC Squire (soybean)	159	na	999	

SCC/UNGEINT: Summary of N2Africa Technology Tests in 2015

Sympal fertilizer	Soybean yield kg/ha	Root nodules per plant	Soybean yield kg/ha	Root nodules Per plant
	---- Long Rains 2015 ----		---- Short Rains 2015/16 ----	
none	1001	12	975	7
62	1638	12	1536	11
125	2280	50	1993	21
187	2285	31	1667	4
250	1731	33	1758	9
125+N	2250	21	1635	6

Summary of the technologies under evaluation in West Kenya

During the 2014-2015 Short rains growing season

Technology test	Technology	Product and comments
N2Africa Best Practice (25 sites)	Legume inoculation	BIOFIX inoculant on soybean SC Squire
	Blended fertilizer	Sympal fertilizer on Squire
Humidtropics Action Research (25 sites)	Striga elimination	FSC 425C IR maize
	Striga evasion	Maize cvs WH 507 and SC Simba
	MLNV tolerance	Maize cvs WH 402, KH 500-33, others
NIFA Better Beans (18 sites)	Legume inoculation	BIOFIX on cvs New Rosecoco and Tamu (climbing)
	Blended fertilizer	Sympal on two bean varieties
	Black carbon addition	Locally produced biochar as soil amendment
	Compost	Locally produced compost as soil amendment
	Pelleted liming	Dolomax, a new product from MEA Fertilizers
IFAD-Cassava (18 sites)	Cassava variety	Current (1), improved (1) and experimental varieties (4)
	Cassava fertilization	Triple 17, supplemental K and topdressed N
	Cassava row arrangement	Adjustments allow for legume intercrops (bean, groundnut)

During the 2015 Long rains growing season

Technology test	Technology	Product and comments
N2Africa Best Practice (25 sites) (2 farmer self sponsored)	Legume inoculation	BIOFIX inoculant on soybean SC Squire
	Blended fertilizer	Sympal fertilizer on Squire New fertilizer blend containing 10% nitrogen (10:23:23)
Humidtropics Action Research (18 sites) (15 supported, 3 self sponsored)	Striga elimination	FSC 425C IR maize
	Striga evasion	Maize cvs WH 505 and SC Simba
	MLNV tolerance	Maize cvs WH 402
	Susceptible	Maize cvs WH 403
Better Beans (5 sites, self sponsoring)	Legume inoculation	BIOFIX on cvs KAT X 56-FRESCO
	Blended fertilizer	Sympal fertilizer on KAT X 56 New fertilizer blend containing 10% nitrogen (10:23:23)

The Western Region Agricultural Technology Evaluation (WeRATE, Kenya) is an innovation platform for testing pilot agricultural technologies and new input products within IITA's Research for Development and Partnership for Delivery Programs. It is built upon a common understanding that isolated farmer groups and local NGOs cannot satisfy the expectations of their clients unless they work together to exchange ideas and opportunities. WeRATE advances proven technologies and new research products to their intended beneficiaries, Kenya's small-scale farmers! This booklet introduces WeRATE, its key impacts and member contributions. For more information visit WeRATE facebook page or email werateplatform@gmail.com.