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The 2nd African Organic Conference

Mainstreaming organic agriculture in the African development agenda
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Book of Abstracts

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Foreword

The overall objective of the 2nd African Organic Conference is to further promote mainstreaming of organic agriculture in African Government policies, in intergovernmental organizations as well as among development partners. The conference will provide evidence on the benefits of organic agriculture and its contributions to the challenges and needs in Africa. It will

- present successful organic agriculture related projects and case studies from all over Africa in organic production including biodiversity and seed production, livestock, climate mitigation, demonstrating impacts on food security;
- share experiences in marketing and trade of organic products, including how organic guarantee systems can be shaped to be supportive of both local, regional and external trade;
- highlight successful initiatives and case studies in public policy, research and sector development.

Based on this the conference will propose ways ahead for organic agriculture to reach its full potential and contribute substantially to the African agriculture and development agenda.

Organized by OPPAZ
in cooperation with the Ministry of Agriculture and Livestock of Zambia, UNCTAD and Grow Organic Africa

under the auspice of the African Union, the United Nations Food and Agriculture Organization and the International Federation of Organic Agriculture Movements

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This book of abstract contains the summary of the papers presented at this ground-breaking event. The papers were selected by a Review Committee consisting of:

Martha Kembo	Zambian SciTech Resource Foundation
Sebastian Scott	Conservation Farming Unit Zambia
Charles Ssekyewa	ISOFAR Uganda
Gerold Rahmann	vTI Germany
Judith Lungu	UNZA Zambia
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Lise Andreasen	ICROFS Denmark
Niels Halberg	ICROFS Denmark
Bo Van Elzakker	Agro Eco Louis Bolk The Netherlands
Gunnar Rundgren	Grolink AB Sweden

The abstract book was brought together, under time pressure and without opportunties for proof-reading or advanced editing, by Prof. Dr. Gerold Rahmann, Thünen-Institute of Organic Farming, Germany

Content

GRAIN YIELD AND YIELD ATTRIBUTES OF FOURTEEN SESAME (*SESAMUM INDICUM L.*) VARIETIES CULTIVATED UNDER ORGANIC SYSTEM

[1]OLOWE, V.I.O, [2]BELLO, O. R. AND AINA, T[2]

[1] Institute of Food Security, Environmental Resources and Agricultural Research (IFSERAR), University of Agriculture, Abeokuta (UNAAB), P.M.B. 2240, Abeokuta, owebaba@yahoo.com; +234 8033928111
[2] Department of Plant Physiology and Crop Production, UNAAB, +234 8033625424

Abstract

Selection of high yielding sesame varieties is very germane to the enhancement of sesame production in order to meet the constant demand for high quality sesame seeds in the world market. A preliminary field evaluation trial was conducted to determine the grain yield performance of fourteen sesame varieties (Check (E-8), recently released (NCRIBEN-02M, NCRIBEN – 03L and PBTil), available with farmers (ABBS, 530-6-1 and Domu) and recently acquired (Cameroon white, CIANO-16, Adakuavari, CIANO-27, Pachequena, Kwandere and Eva) during the late growing season of 2010 in a forest-savanna transition zone of Nigeria under organic system. All the fourteen test varieties produced grain yields that ranged between 548.8 to 1651.4 kg/ha. Variety 530-6-1 was the most outstanding out of the fourteen varieties for weight of capsules and seeds per plant, harvest index and grain yield. Pachequena, CIANO-27, CIANO-16 and Adakuavari also demonstrated high yield potential among the newly acquired varieties under organic system. Sesame grain yield was significantly ($p<0.05$) related to number of branches and capsules per plant, weight of capsules and seeds per plant and aboveground plant weight. Further investigations will be carried out on these varieties to ascertain their oil contents.

EFFECTIVENESS OF SOIL FERTILITY MANAGEMENT PRACTICE AMONG MAIZE FARMERS IN ORIIRE LOCAL GOVERNMENT AREA OF OYO STATE

AYOADE A.R

Ayonikea60@yahoo.com
Department of Agricultural Extension and Rural Development. LAUTECH

Abstract

This study was designed to determine the effectiveness soil fertility management practices among maize farmers in 0riire local government area of Oyo state. Data were obtained from one hundred and twenty respondents in the study area. The sampled respondents were purposively selected and a well structured interview schedule was used to collect information from the respondents. To achieve the main objective, the study identified and discussed the socio – economic characteristics of the maize farmers, identified the indices of soil fertility decline and also determined the benefits derived from the use of the management practices. Rank order correlation was used to determine the most effective practice used and the benefits derived from the introduced practices. Result of the findings revealed that majority of the respondents were in their active ages and married, also crop rotation and mixed cropping were found to be the most effective soil fertility practices used in the study area. Chi – square analysis shows that a significant relationship was found between age, sex, educational level, primary occupation, years of farming experience, farm size and the choice of soil fertility management practices.
The major findings from this research work revealed that there is little or no influence of extension services on soil fertility management practices in the study area and respondents were expecting so many gaps to be filled by extension agents in this aspect of farming. As a result of this, more extension agents should be recruited to the study area and also the extension agent should educate the people in areas of their need.

EFFECT OF ORGANIC MANURE, BIO-FERTILIZER AND YEAST ON THE GROWTH AND YIELD OF SOYBEAN GROWN ON NEMATODE INFESTED SOIL

T.I. OLABIYI[1], J.O. OGUNRINDE[2], J.J. ATUNGWU[3], M. RUOCCO[4], A. BELLO[1], S. LANZUISE[4], J.O. OLANIYI[2], W.B. AKANBI[2] AND J.O. OJO[1]

[1]Department of Crop and Environmental Protection, Ladoke Akintola Univeristy of Technology, P.M.B 4000, Ogbomoso, Nigeria (Correspondence author: t.olabiyi@yahoo.co.uk)
[2]Department of Crop Production and Soil Science, Ladoke Akintola Univeristy of Technology, P.M.B 4000, Ogbomoso, Nigeria
[3] Department of Crop Protection, University of Agriculture, P. M. B. 2240, Abeokuta, Nigeria
[4]Istituto per la Protezione delle Piante, CNR, Via Università 130, Portici (NA), 80055, Italy.

Abstract

Pot experiments were carried out during 2010 and 2011 planting seasons in order to assess the effect of application of organic manure, bio-fertilizer and yeast on the growth and yield of soybean (Glycine max L.), variety TGx 536-02D grown in nematode naturally infested soil. TGx 536-02D is a known nematode susceptible soybean variety. The treatments were control, bio-fertilizer (Trichoderma hazianum T22 isolate), cured poultry manure, palm wine yeast, bio- fertilizer + cured poultry manure, bio-fertilizer + yeast, cured poultry manure + yeast and bio-fertilizer + cured poultry manure + yeast. Control experiment did not receive poultry manure, yeast or bio-fertilizer. In each trial, there were 8 treatments replicated 5 times fitted into complete randomized design. The results indicated that application of bio-fertilizer, cured poultry manure, palm wine yeast, bio- fertilizer + cured poultry manure, bio-fertilizer + yeast, cured poultry manure + yeast and bio-fertilizer + cured poultry manure + yeast significantly ($p<0.05$) increased the growth and yield of soybean, and also significantly ($p<0.05$) reduced the soil population dynamic of nematode pests of soybeans. Control plants that were not treated with yeast, bio-fertilizer and organic manure had significantly ($p<0.05$) reduced the growth of soybean, lowered soybean yield and had increased soil nematode population. All Data collected on both trials were pooled together, analyzed using analysis of variance and significant differences among treatments were separated using Duncan's multiple range test (DMRT) at probability level of 5%.

Keywords: Soybean, organic manure, bio-fertilizer, yeast, cured poultry manure.

EFFECT OF NEEM COMPOST ON ROOT KNOT NEMATODE (MELOIDOGYNE INCOGNITA) PEST OF CELOSIA ARGENTEA.

OLABIYI, T. I.[1], ATUNGWU, J. J.[2], OYEDUNMADE, E.E.A[3]., IZUOGU, N. B.[3] AND ABOLUSORO, S.A[4]

[1] Department of Crop and Environmental Protection, Faculty of Agricultural Sciences, Ladoke Akintola University of Technology, P.M.B. 4000, Ogbomoso, Nigeria (Email: t.olabiyi@yahoo.co.uk)
[2] Department of Crop Protection, University of Agriculture, P. M. B. 2240, Abeokuta, Nigeria
[3] Department of Crop Protection, Faculty of Agriculture, University of Ilorin, P.M.B. 1515, Ilorin, Nigeria
[4] Department of Crop Production Technology, DAC/ABU Kabba, Kogi State, Nigeria

Abstract

The effects of neem compost on root knot nematode (Meloidogyne inconita) pest of Celosia argentea, cv. TLV 8, was studied during 2009 and 2010 planting seasons on the field. The trial was conducted at the Teaching and Research Farm of the Ladoke Akintola University of Technology, Ogbomoso. There were 4 treatments replicated 5 times fitted into randomized complete block design. Compost was applied at 1.0,

1.5 and 2.5 tonnes/ ha. Experimental plots where no compost was applied served as the control. The result obtained shows that Celosia argentea treated with neem compost significantly ($p<0.05$) reduced the final soil nematode population and root infections with resultant improvement on crop growth and yield. The result of the phytochemical screening of neem compost revealed the presence of flavonoids, sterols, glycosides, alkaloids and saponins.

INFLUENCE OF DIFFERENTLY COMPOSTED ORGANIC RESIDUES ON THE YIELD OF MAIZE AND ITS RESIDUAL EFFECTS ON THE FERTILITY OF AN ALFISOL IN IBADAN, NIGERIA.

[1]OLOWOAKE* A A, [2]T.I. OLABIYI AND [3]G O ADEOYE

[1]Department of Crop Production and Forest Resource Management Kwara State University, Ilorin, Nigeria.
[2]Department of Agronomy, Ladoke Akintola University, Ogbomosho, Nigeria.
[3] Department of Agronomy, University of Ibadan, Ibadan, Nigeria.
(*Corresponding author E-mail address: aolowoake@yahoo.com)

Abstract

The potentials of differently composted organic residues on the growth and yield of maize (Zea mays L) as well as its residual effects on the fertility were studied in a two season cropping experiment. Three different compost types; Poultry manure + Leaf litter (PmLl), Poultry manure + Leaf litter + Rice straw (PmLlRs) and Poultry manure + Leaf litter + Mucuna husk (PmLlMh) and the recommended NPK fertilizer (400 kg/ha) and non fertilized control plots as check were studied. Compost types had significant effects on plant height, stem girth and yield components of the test crop as well as soil chemical and physical properties of plot with the application of PmLlMh at 1.5 t/ha consistently outperforming others. Compost rate had significant effect ($p <0.01$) on the growth and yield of maize. In most cases, application of 1.5 t/ha PmLlMh produced the best results. The grain yield of 3.9 t / ha produced from 1.5 t/ha PmLlMh was significantly higher than 3.2 t/ha obtained from conventional NPK fertilizer respectively. Residual effect of grain yield values obtained from 1.5 t/ha PmLlMh was also significantly ($p< 0.05$) higher than that of NPK values. PmLlMh at 1.5 t/ha had a significant and additive effect on soil nutrients after harvesting of maize when compared with NPK in first and second cropping.
Poultry manure + Leaf litter + Mucuna husk at 1.5 t/ha could be used effectively in increasing soil fertility for maize production.

Keywords: Alfisol, Leaf litter, Mucuna husk, Rice straw.

ADAPTATION TO DRY SEASON LIVESTOCK FODDER SCARCITY THROUGH CANAVALIA BRASILIENSIS INTEGRATION IN THE CEREAL SYSTEMS IN THE MIOMBO WOODLAND ECOSYSTEM IN TANZANIA

[1]F. M.BAGARAMA*, [2]A.E.MAJULE, [3]A. J.MWILAWA

[1]Tumbi Agricultural Research Institute, P.O.Box 306, Tabora, Tanzania, E-mail bagaramaf@gmail.com
[2]Institute of Resource Assessment (IRA), University of Dar es Salaam, P.O. Box 35097, Dar es Salaam
[3]Livestock Research Centre (LRC) Department of Pastures and Forages,
P. O. Box 352, MABUKI, Mwanza, Tanzania

Abstract

Cattle nutrition in arid and semi-arid regions of sub-Sahara Africa including Tanzania is based to a large extent on natural pasture and crop residues.Utilization of these feed resources is often constrained by their

lownitrogen content,which limits microbial activity in the rumen.The experiment was conducted to evaluate the growth and biomass production of Brazilian jackbean(Canavalia brasiliensis) Mart ex Benth at Tumbi, Tabora.The dry season lasts between 5-7 months characterized by poor health and low productivity of cattle. This study was carried out to evaluate the performance of Brazilian jackbean (Canavalia brasiliensis) Mart ex Benth growth, biomass production and opportunities of increasing crop residues quality with C.brasiliensis in the dry season.C. brasiliensis was planted both as a monocrop and as an intercrop with maize during the middle of the cropping season. The experiment was layed out in Randomized complete Block Design with three replications.Treatments were(a)Maize monocropping(b) Maize-canavalia single hole planting(c) Maize-Canavalia 5 cm appart(d) Cannavalia monocropping. Results show that there was significant differences at($P<0.05$) in biomass production among treatments.C.brasiliensis was found to be drought tolerant producing between 35-50 tons/ha of green biomass enough to supplement maize,rice and low quality grass for feeding animals. Intergrating C.brasiliensis into cereal based farming system should be considered in a wide scale in semi-arid and semi-humid environments to adapt livestock production to climate change challenges.

Key words: Canavalia brasiliensis, dry season,fodder scarcity, Tanzania

ORGANIC FARMING AND FARMERS' ADAPTIVE AGRICULTURAL INNOVATIONS IN RESOURCE DEPLETED BANANA-COFFEE FARMING SYSTEM IN WESTERN TANZANIA

[1]F M. BAGARAMA*, [2]H J. MONGI AND [3]A.E.MAJULE

[1]Tumbi Agricultural Research Institute,P.O. Box 306,Tabora,Tanzania. E-mail: bagaramaf@gmail.com
[2]Assistant Lecturer, College of Informatics and Visual Education,P.O. Box 490,Dodoma,Tanzania. E-mail: hjmongi@yahoo.com
[3]Associate Professor; Institute of Resource Assessment (IRA), University of Dar es Salaam, P.O Box 35097, Dar es Salaam, E-mail: amajule@ira.udsm.ac.tz

Abstract

In farming systems characterized by high population pressure, land scarcity and land degradation farmers develop technologies for adapting to prevailing socio-economic constraints. This paper examines farmer adaptive technologies to cope with natural resources decline in the banana-coffee system. The objective was to study potential threats in the production system. The farming system is based on wealth status of farmers. Crop intercropping to enhance agro-diversity and introduction of Cavendish banana varieties are main features. Horticultural crops production particurally tomato(Lycopersicon esculentum) under banana increases the risk of nematodes population and demand intensive organic matter inputs. The productivity of farms is strongly influenced by farmers' access to organic matter and its application in fields.Farmers with adequate organic manure production have opportunities of crop production intensification through growing high nutrient demanding banana hybrids (FIHA17) which partially replace low yielding East African Highland(Musa genome group AAA-EA) and climbing halicort beans instead of low yielding bushy varieties.Zero grazing is constraint by lack of adequate fodder that all weeds on farm are used to feed zro grazed animals.Intensive use of land for both production of fodder and food crops is based on innovations and increase of organic matter on farm.Farmers' innovative innovations include, the fortification of processed coffee pulp with Minjingu Rock Phosphate(MRP) for high quality compost, use of local plants on-farm for soil fertility management and the intergration of Pennisetum purpureum in Eucalyptus woodlots to increase livestock fodder production.Growing of Organic Arabica Coffee have boosted farmers' incomes and stimulated intensive use of land and its management. The farming system's resilience depends on sustainable organic matter production and its use. Challenges and opportunities in the farming system are discussed.

Key words: Banana-coffee system, diversification, highlands, organic farming, Tanzania

GROWTH, YIELD AND NUTRIENT COMPOSITIONS OF GINGER (ZINGIBER OFFICINALE ROSCOE) AS AFFECTED BY ORGANIC FERTILIZERS APPLICATION IN OGBOMOSO, SOUTH WEST NIGERIA.

*OLANIYI JOEL OYEKUNLE AND AUDU KEHINDE TEMITOPE

Department of Agronomy, Faculty of Agricultural Sciences, Ladoke Akintola University of Technology, P.M.B 4000, Ogbomoso, Oyo State, Nigeria.
*Correspondence author: olaniyikunle2005@yahoo.com

Abstract

Experiment was conducted at the Teaching and Research Farm, Ladoke Akintola University of Technology, Ogbomoso to determine the growth, yield and nutrient composition of ginger as influenced by organic fertilizers application. The treatments consisted of four organic fertilizer types (sunshine organomineral, sunshine organic, Aleshinloye organomineral and Aleshinloye organic).applied at four rates (0, 60, 90, and 120 kg/ha) each and ginger as test crop. These were subjected to a factorial experiment fitted into a complete randomized block design with three replications. The data collected were number of leaves, plant height and rhizome weight of ginger. Also the shoot nutrient content and quality of ginger were assessed. The results showed that applications of organic fertilizers significantly influenced the number of leaves, rhizome yield and nutritional composition of ginger. Although the highest growth parameters, rhizome yield and nutritional composition of ginger were obtained at 120 kg/ha, the values recorded were comparable with the values obtained at 90 kg/ha, irrespective of organic fertilizer types. Aleshinloye organic gave the highest rhizome yield and nutritional composition while sunshine organomineral recorded the least values. Therefore aleshinloye organic fertilizer can be recommended for optimum growth, rhizome yield and nutrient composition of ginger and 90 kg/ha is adjudged as the best rate, irrespective of organic fertilizer types.

Key words: Zingiber officinale, organic fertilizer types, fertilizer rates, rhizome yield, rhizome quality

GROWTH, YIELD AND NUTRITIONAL COMPOSITION OF FLUTED PUMPKIN (TELFAIRIA OCCIDENTALIS) AS AFFECTED BY FERTILIZER TYPES IN OGBOMOSO, SOUTH WEST NIGERIA.

*OLANIYI JOEL OYEKUNLE, AKANBI WASIU B., OLABIYI T.I. AND OYERELE TITILAYO ABOSEDE

Department of Agronomy, Faculty of Agricultural Sciences, Ladoke Akintola University of Technology, P.M.B 4000, Ogbomoso, Oyo State, Nigeria.
*Correspondence author: olaniyikunle2005@yahoo.com

Abstract

Field experiment was conducted at the Teaching and Research Farm, Ladoke Akintola University of Technology, Ogbomoso in 2010 to determine the effect of fertilizer types on the growth, yield and nutritional composition of fluted pumpkin (Telfairia occidentalis). The treatments involved nine fertilizer types namely; Aleshinloye grade A, Aleshinloye grade B, Sunshine grade A, Sunshine grade B, Pace setter grade A, Pace setter grade B, Neem compost, Poultry manure and Tithonia compost. Fluted pumpkin served as the test crop. The organic fertilizer types were applied at two levels each (0 and 60 kg. N ha^{-1}). The treatments were assigned into a randomized complete block design with three replicates. Data were collected on growth parameters, nutritional composition and yield attributes of fluted pumpkin. The parameters assessed were significantly influenced ($P \leq 0.05$) by the applied fertilizer types. The highest vine length, number of leaves, nutritional composition, fresh shoot and seed yields were recorded at 60 kg. N ha^{-}

[1], irrespective of the fertilizer types. Although, the best performance of fluted pumpkin in terms of growth and fresh shoot yield were obtained from neem compost fertilizer type, this was comparable with results obtained with tithonia compost. The highest P (0.83%), K (0.82%), Mg (3.20%), Ca (0.48%), Fe (4.63%) and protein (4.60 mg/kg) contents of fluted pumpkin shoot were obtained from the plants under poultry manure treatment while plants receiving no fertilizer application recorded the least values for all nutritional attributes assessed. Neem compost (86.1 kg/ha) closely followed by tithonia compost (62.7 kg/ha) gave highest seed yield of fluted pumpkin as compared to other fertilizer types. Although, neem compost and poultry manure gave the best performance in terms of yield and nutritional composition respectively, there is no significant difference between the values obtained from these treatments and that recorded from tithonia compost. In conclusion, the growth, nutritional composition and yield of fluted pumpkin were improved by fertilizer types and tithonia compost is adjudged as the best fertilizer type for Ogbomoso, the Guinea Savanna zone of south west Nigeria.

Key words: Telfairia occidentalis, organic fertilizer, organomineral fertilizer, shoot yield, nutritional value

AGRONOMIC EFFICIENCY OF MAIZE (ZEA MAYS L) AS INFLUENCED BY COMPOST RATES IN IN THE RAINFOREST-SAVANNAH TRANSITIONAL ZONE OF SOUTHWEST NIGERIA

LAWAL O. I., ATAYESE, M. O., OYEKANMI A.A, SAKARIYAWO O.S, ADERIBIGBE S.G, ADEYEMI O.R.

Department of Plant Physiology and Crop Production, University of Agriculture P.M.B. 2240, Alabata Road Abeokuta. Ogun State. Nigeria
Corresponding author: lawalisiaq@gmail.com, lawaloi@unaab.edu.ng

Abstract

A study was conducted during the early and late-rain season of 2010 at the Teaching and Research farm of University of Agriculture, Abeokuta Ogun State, to evaluate the effect of compost on Agronomic efficiency of hybrid maize in the Nigerian Forest-Savannah Transitory Agro-ecological zone. The experiment was laid out in Randomised Completely Blocked Design with three replicates. Four maize varieties [(M1: 2004-TZE-Y-POP-DT-STR-C4, M2: 2004-TZE-W-POP-DT-STR-C4, M3: 2008-DTMA-Y-STR and M4:2008-DTMA-W-STR (main plot)] and three rates of compost [(0, 2.5 and 5.0 t/ha) (sub-plot)] . Growth and Agronomic efficiency of maize were investigated. Study indicated a significant variation in growth and yield parameters in response to varietal differences. Compost rate at 5.0 tons/ha elicited the highest significant response $p<0.05$ on plant height, number of leaves, leaf area, cob weight and grain yield as compared to other fertilizer treatment. Comparative evaluation among examined maize varieties indicated that M3 recorded significantly ($p<0.05$) taller plant height, greater number of leaves, higher Cob weight and grain yield as compared to other maize varieties, M2 had the least values for these parameters. M3-DTMA-Y-STR with compost at 5.0 t/ha displayed the highest and promising adaptive capability and productivity in this study. Agronomic efficiency followed the order 0 > 2.5 > 5.0 t/ha compost. Productivity evaluation followed the order M3> M4>M1>M2.

Key words: Agronomic efficiency, Compost rate, Forest-savannah transition

GROWTH AND YIELD RESPONSE OF SWEET POTATO (IPOMEA BATATAS L.) TO ORGANIC-BASED FERTILIZER IN ABEOKUTA SOUTH WESTERN NIGERIA

LAWAL,O. I[1*]. OLOWOOKERE, F.O.[2], AFUWAPE S. O[4]., ATAYESE M. O.[1] , FETUGA, G.O[3]., AZEEZ M. I.[1], AND SALAKO S.O.[1]

[1]Dept. of Plant Physiology and Crop Production, [2] Dept. of Soil Science and Land Management, [3]Dept. of Food Science Technology, Federal University of Agriculture, P.M.B. 2240, Alabata Road, Abeokuta, Nigeria. [4]Sweet potato Program, National Root Crop Research Institute, Umudike Abia state, Nigeria.
*Corresponding author: lawalisiaq@gmail.com, lawaloi@unaab.edu.ng, Tel: +2347033802750

Abstract

Dearth of information exist on the Organic Fertilizer response and requirements of sweet potatoes in South-western Nigeria especially its effects on growth and tuber yield. Field experiment was conducted at the University of Agriculture Abeokuta, Nigeria in the rain seasons of 2010 and 2011 to determine the optimum rate of composted poultry manure and NPK 15-15-15 on growth and tuber yield of sweet potato. Healthy vines (25cm length) of three cultivars of sweet potato cv. TIS 87/0087, Shaba and 86/0086 were planted at 0.5m distance on ridges spaced 0.75m apart. Four weeks after planting, composted poultry manure at 0, 2.5t/ha, 5.0t/ha, 7.5t/ha and 10t/ha and 200kg/ha NPK 15:15:15. The treatments were arranged as a split- plot in randomized complete block design with 4 replicates. Data on vine length (VL), number of leaves (NL), number of branches (NB), leaf area (LA), leaf area index (LAI) and weight of tubers (TW) were collected. Sweet potato (Sp) plants that received 7.5t/ha of compost produced significantly ($p<0.05$) longer vines (215.8, 286.1cm), larger leaf area (4564.6, 5456cm^2), more leaves (978.,1058.0), more branches (32.3, 45.0) and higher tuber weight (6.3,10.9 t/ha) for the two years respectively. These values are significantly($P<0.05$) higher than those obtained from Sp plants grown without fertizer (control) and those that received other fertilizer treatments. Cv.'Shaba' produced significantly longer vines with more branches than the other two cultivars, while cv 86/0086 produced significantly more leaves and tuber yield than the other two cultivars. Sweet potato TIS 87/0087 treated with 7.5t/ha PM had the highest tuber weight value of 10.9 t/ha, showing significant ($p< 0.05$) differences as compared to the yield values obtained in cultivars that received other fertilizer treatments except those grown with 5.0 t/ha. This was followed by cv. 'shaba' treated with 5.0 t/ha kg/ha NPK with tuber yield value of 9.6 t/ha. The least tuber yield value of 2.7t/ha was obtained in 'shaba' with no fertilizer treatment (control). Composted PM at 7.5 t/ha in combination with the three Sp cultivars was therefore recommended for adoption in this study. Other sweet potato cultivars need to be evaluated for performance under different rates of organic and inorganic soil amendments and agro-ecology.

Keywords: Growth, Yield, Quality, Poultry manure, Sweetpotato cultivars

EFFECT OF PLANT STRUCTURE ON COLONIZATION AND DAMAGE BY ACRAEA TERPSICHORE (LEPIDOPTERA: NYMPHALIDAE) ON CORCHORUS OLITORIUS

[1]ADEROLU, I.A; [2]OMOLOYE, A.A; [1]OKELANA, F.A; [1]OLUBAMIWA, O.O; OYEDOKUN, A.V; [1]ASOGWA, E.U; [1]MOKWUNYE, I.U

[1]Cocoa Research Institute of Nigeria (CRIN), P.M.B 5244, Ibadan, Nigeria
[2] University of Ibadan, Ibadan, Nigeria
*Correspondence: adeisma@yahoo.com; +234-8035862166

Abstract

The study investigated effects of plant structure on colonization and damage by Acraea terpsichore on Corchorus olitorius. Trials were carried out in the Crop Garden of the Department of Crop Protection and

Environmental Biology, University of Ibadan, Nigeria between July and September, 2005. Three varieties of C. olitorius were planted on 1.8 x 6m bed at 40 stands per variety. The experiment was laid out in a Randomized Completely Blocked Design (RCBD). Six weeks after planting, results showed that variety Eletieku with architectural characteristics of plant height (11cm) and 10 leaves / stand was the least damaged. An increase in the morphophysical characteristics of C. olitorius led to an increase in number of infesting larvae per plant. Variety Eletieku also contained a significantly ($p>0.05$) higher content of crude fire (37%), crude protein (38%), ash (38%), dry matter (39%) and fat (44%) than other varieties. The study revealed that variety Eletieku, a Nigerian variety of C. olitorius, is comparatively resistant to damage by A. terpsichore than Angbadu and Yaya respectively. It showed that it is the plant architecture that confers resistant and tolerance against field infestation of this vegetable by Acraea terpsichore.

Keywords: Acraea terpsichore, Corchorus olitorius,Yaya, Angbadu, and Eletieku

COMPARATIVE EVALUATION OF MODIFIED NEEM LEAF, WOOD ASH AND NEEM LEAF EXTRACTS FOR HYMENIA RECURVALIS CONTROL ON AMARANTHUS SPP. IN IBADAN SOUTHWEST NIGERIA

[1]ADEROLU, I.A; [2]OMOLOYE, A.A; [1]OKELANA, F.A; [1]OLUBAMIWA, O.O; [1]AKANBI, S.O; [1]ASOGWA, E.U; [3]OJO J.A.

[1]Cocoa Research Institute of Nigeria (CRIN), P.M.B 5244, Ibadan, Nigeria
[2] University of Ibadan, Ibadan, Nigeria
[3]Kwara State University, Nigeria
E-mail:adeisma@yahoo.com

Abstract

The experiment evaluate the effectiveness of neem leaf, wood ash extracts, modified neem leaf extract and Karate as pest control in amaranthus. The organic treatment extracts: neem leaf extract, wood ash extract and modified neem leaf extract were compared with Karate and control, replicated four times and arranged in randomized complete block design. The results showed that there were significant differences ($P < 0.05$) in the insect population, number of damaged leaves, and growth and yield parameters of amaranthus under different treatments compared to the control treatment. The modified neem leaf extract performed better in reduction of damaged leaves, insect population and yield of amaranthus than the sole application of neem leaf and wood ash. Modified neem leaf extract increased leaf area, plant height and stem diameter of amaranthus by 13%, 3% and 6% respectively compared to the neem leaf extract. Generally, modified neem leaf extract had the best values of amaranthus growth parameters followed by Karate, neem leaf and wood ash extracts respectively. Modified neem leaf extract decreased significantly insect population and number of damaged leaves by 42% and 70% respectively compared to neem leaf extract. When compared to modified neem extract, Karate decreased number of damaged leaves per sample plot by 58%. However, there was no significant difference between karate and modified neem extract for insect population. For yield parameters, modified neem leaf extract significantly increased amaranthus yield gains by 17%, 16% and 7% compared to neem leaf, wood ash extracts and karate treatments respectively. However, wood ash and neem leaf extracts did not affect amaranthus yield significantly. Therefore, modified neem leaf extract applied at 1200L/ha was most effective for the pest control.

Keywords: Organic treatment extracts, Karate, Control, Insect population, Yield parameters

LIFE CYCLE OF HYMENIA RECURVALIS (F.) [LEPIDOPTERA: PYRALIDAE] ON SUSCEPTIBLE AMARANTHUS SPECIES IN IBADAN SOUTH-WEST NIGERIA

ADEROLU, I.A. AND OMOOLOYE, A.A.

University of Ibadan, Ibadan, Nigeria
*Correspondence: adeisma@yahoo.com; +234-8035862166

Abstract

The life cycle stages of the spinach moth, Hymenia recurvalis (F.) [Lepidoptera: Pyralidae], was studied on susceptible host plant and the adult fed with 5% honey solution (in cotton swab) under ambient laboratory conditions of 27±3^{o}C and RH 75%.The results indicated that the developmental life history of Hymenia recurvalis consists of the egg, six-larval instars, one prepupa and pupa before adult. Females Oviposition commenced three days after mating. Eggs which are elliptical, iridescent white and flattened were laid on the adaxial surfaces of leaves near the mid-rib. The eggs measured 0.57±0.254 mm long, 0.40±0.0435 mm wide and 0.24±0.0418mm in height. Each female had oviposition period of 3days, fecundity rate of 224.90 eggs and more than 50% were laid in the first 2days. Eclosion occurs at 4.2 days after oviposition and mean duration of each stadium varied widely from 1st Instar (3.2days); 2nd Instar (2.3days); 3rd Instar (3.2days); 4th Instar (3.1days); 5th Instar (5.2days); 6th Instar (5.1days); Pre-pupa (2days) and Pupa (9.7days). The average growth ratio for larvae was 1.503. The total developmental period averaged 32.7 days. The sex ratio was 1:1.09 in favour of female. The average postoviposition was 3days and longevity of adult was 11.5 days for mated females and 15.3 days for mated males. The unmated adult supplied with honey solution recorded higher longevity, 22.2±0.797days and 14.1±0.533 for female and male respectively. Average adult wingspans were 19.95±0.0.196 mm for female and 18.18±0.115 mm for male.

Keywords: Oviposition, stadium, Sex ratio, Eclosion

EFFECTS OF DIFFERENT LEVELS OF ORGANO-MINERAL FERTILIZER ON BOOT STAGE DRY MATTER YIELD AND QUALITY OF PEARL MILLET (*Pennisetum glaucum (L) R. Br.*)

ADEMOLA, AJAYI AND GRACE, AJAYI

Department of Crop Production Technology, Federal College of Agriculture, Akure, Nigeria
E-mail: ajayiaj@yahoo.com

Abstract

An experiment was conducted at the Department of Crop Production Technology, Federal College of Agriculture, Akure to investigate the effects of different levels of organo-mineral fertilizer (OMF) on forage yield and quality of pearl millet. The experiment was arranged in randomized complete block design with three blocks and six treatments. Five levels of organo-mineral fertilizer at 0, 1, 2, 3, 4t/ha and 100kg/ha N.P.K. 15:15:15 were used. Pearl millet seeds were sown at the rate of 10kg/ha. The fertilizers were applied at three weeks after planting. At harvest, plant height was measured and forage yield and proportion of leaves in the cut herbage estimated. Proximate analysis was conducted to estimate the quality parameters such as crude protein (CP). There were significant differences in the plant height at harvest, fresh and dry forage yield. However, the proportion of leaves on fresh and dry basis was not significantly influenced by the fertilizer treatments. 100kg/ha N.P.K. 15:15:15 and 4t/ha OMF produced significantly higher fresh forage yield of 49.2 and 37.67t/ha, respectively. Dry forage yield of 6.12, 6.26 and 8.71t/ha obtained with 100kg/ha N.P.K. 15:15:15, 2 and 3t/ha OMF, respectively, were not significantly different. Quality parameters (CP, CF, EE, NFE and ash) showed significant increase with higher levels of OMF applied. The CP content of herbage, ranging from 8.56-13.32% was above the 7% minimum below which intake of tropical forages decline. The study shows that quality forage could be obtained from pearl millet

when fertilized with organo-mineral fertilizers. Higher levels may be utilized to improve both production and quality especially where quality of forages available is low,

Key words: crude protein, forage yield, proximate composition, herbage

BIO-INTENSITY AND AGRONOMIC INTERVENTION FOR AN EN-HANCED CROP PRODUCTIVITY AND MITIGATION FOR VICES CLIMATE CHANGE

*Tenable V. A. (Professor of Agronomy) Email: vtenebe@yahoo.co.uk
National Open University of Nigeria
P.M.B. 80067, Victoria Island, Lagos

**Petu – Ibikunle A. M. Email: kpetu@yahoo.com Phone Number: 07032693482
National Open University of Nigeria
14/16 Ahadu bello Way, Victorial Island Lagos.

*Corresponding author. **Presenter.

Abstract

This trial was conducted to investigate the options that could improve crop yield with minimum damage to the eco system. A split-plot design experiment was laid with 3 irrigation methods in the main plots. The sub-plots were assigned to 3 bio-fertilizer materials. Data were taken on nodulation, root length, pod yield and seed protein content of green pea. Data were subjected to ANOVA, and means that were significantly different were separated using LSD (≤0.05). The result showed that green pea nodulation was significantly (P≤ 0.05) increased to 29, root length to 22.5cm, pod weight was 16.68kg and seed protein content to 6.0% by the series of possible interactions between the subsistence irrigation methods and bio-fertilizer agents. It was observed that subsistence irrigation methods can conserve water and improve soil-root water relationship to compliment the roles of bio agents in supplying required nutrients. It was concluded that the contributions of agronomy practices to climate change can be minimized via appropriate policy control of irrigation water wastage and the burning of bio-degradable materials. It was recommended that micro organism's activity could be promoted and used in enhancing improved crop productivity and gravity controlled drip irrigation method adopted to facilitate water conservation.

Key words: Bio-fertilizer, Bio-intensity, Irrigation, Conservation and Climate change

LEGISLATIONS TO PROMOTE AND REGULATE ORGANIC AGRICULTURAL PRODUCTION IN SUDAN

Abstract

Interest in organic agriculture and its products has widely grown in the world, mainly because of the increasing environmental and health hazards associated with the intensive use of chemicals in agriculture. Sudan, in spite of its high potential of organic agricultural production along the banks of the Nile, rivers, and the seasonal streams, has not been able to export organic agricultural products. Inability to export organic agricultural products is mainly due to lack of legislations to promote and regulate organic agricultural production and hence, the absence of the authority to issue approval certificates for such exports. It is high time to issue such legislations to promote and regulate production and export of organic products from Sudan. The suggested legislations will be a good addition to the previously issued laws in the field of agriculture. The suggested legislations are to promote and regulate organic agricultural production in Sudan by reserving certain suitable areas where the use of chemicals is to be prohibited. The

legislations are to allow certain independent organization to issue certificates for export of organic products and set up a committee to execute the legislations. The proposed document is to be revised and approved by the relevant authorities.

ORGANIC SECTOR DEVELOPMENT IN TANZANIA PROGRESS AND CHALLENGES ON ORGANIC POLICY AND PROGRAMME

DR MWATIMA A. JUMA

Chair, Tanzania Organic Agriculture Movement
P.O Box 70089, Dar es Salaam - Tanzania
Email: mwatimajuma@yahoo.com or toam@kilimihai.org

Abstract

In order for a country to embrace organic development, there is a need to build an inclusive organic policy. Tanzania has taken a positive step in this direction by making sure that all agriculture related policies in the country have at minimum of an organic policy statements in their policies(ref Livestock Development Policy, National Agricultural Policy and National Export Strategy). The development of National Organic Agriculture Development Programme (NOADP), which gets together government and private sector stakeholders to discuss on the development of organic sector. Development of East African Organic Standards has been instrumental in pushing the organic agenda and several initiatives thereafter have been important tools in facilitating promotion of organic development.
The main challenges facing the growth of organic sector in Tanzania is largely on the farmer awareness of the principles and practices of organic production and the wrong conception of organic among farmers; Low consumer awareness in conscious choice on health food; lack of documented research national based evidence for organic principles/practices.
This paper will provide the background in the development of the sector; what has happened and what are the future plans for development

PLANTS USED IN ETHNO-VETERINARY PRACTICES IN VILLAGE SHEEP AND GOAT PRODUCTION IN ODEDA LOCAL GOVERNMENT AREA, OGUN STATE, NIGERIA

FASAE O.A.* AND OJELABI O.A.

Department of Animal Production and Health, University of Agriculture, P.M.B. 2240, Abeokuta, Nigeria.
*Email: animalexp@yahoo.co.uk

Abstract

Ethno-veterinary practices in south west Nigeria are underdeveloped in spite of it's extensively usage for primary health care treatment and maintaining ruminants' productivity among village ruminant producers. The present study investigated into the ethno-veterinary methods practiced by the owners of sheep and goats in Odeda local government area, Ogun state, Nigeria. A total of 77 respondents were selected from 6 communities and information concerning the ethno-veterinary practices for the treatment of common diseases and skin problems was collected through interviews and collated. 18 medicinal plant species were identified with their scientific names, vernacular names in Yoruba and ethno-veterinary uses. Frequency distribution, percentages and means were used to describe the data. Results showed that these traditional remedies are more preferred because they are locally available, quite effective and cheaper relative to modern veterinary animal health care practice. Different owners used these plants either for sole treatment (80%) of conditions investigated or as a complement (56.67%) to the orthodox veterinary drugs. Common

plants used for ruminant treatment include Afzelia bella, Dioscorea cayensis and Spondia mombin for parasitic infections; Azadiracta indica for fever and anorexia; Capsicum tabacum for cold; Ocimum gatissimum and Carica papaya for diarrhea and worms, respectively. It was therefore concluded that the need for the government to encourage research programs through grants, loans and subsidy to study clinical actions of the plant extracts, isolate and characterize the active principles will improve the existing indigenous knowledge systems.

PRESENTATION OF THE BASIC ELEMENTS OF SRI

Introduction to SRI

- Background on the discovery of SRI in 1984 by Henri de Laulanié, agricultural engineer: chance and scientific work.
- Basic principles concerning the plant: capacity of rice tillers (Katayama model), development of root system, etc.
- Basic principles concerning soil (organic fertilizer) and water control.
- Constraints for the adoption of SRI (pedagogical, climatic, economic, sociological) and a review of best practices.

Advantages of SRI with regards to climate change and the fight against tropical diseases

- Opportunities for adaptation to the consequences of climate change:
- Reduced consumption of seeds, rapid growth of plants → flexibility;
- Shortening of the rice cycle, regardless of seed variety →adaptation to new constraints during the rainy season.
- Reduction in methane gas emissions with the practice of SRI, as compared to traditional rice cultivation methods.
- Control and prevention of schistosomiasis through the periodic drying of rice fields and canals (eliminating the vector's habitat).

Integration of SRI in development strategies for national and global agriculture

- SRI and the size of rice fields: traditional rural areas and large farms.
- The need for exchanges between technical engineers and practicing farmers.
- Reconsidering and adapting the skills needed for support of SRI.
- Trade policy and food security strategies supported by international institutions and donors.

DEVELOPING A NATIONAL ORGANIC CERTIFICATION PROGRAMME: UGANDA'S EXPERIENCES

CHARLES WALAGA

Uganda Organic Certification Ltd., P.O. Box, Kampala, Uganda, ccwalaga@yahoo.com

Abstract

The absence of a national organic certification programme is generally considered a major constraint to accessing international organic markets for organic producers in developing countries, more so in sub-Saharan Africa. Stakeholders in Uganda embarked on the development of a private sector national organic certification programme in the early 1990s culminating in the formation of a stakeholder owned third party certification body (UgoCert) and the development an organic standard (the Uganda Organic Standards).

The process was consultative involving local and international stakeholders and was supported by development partners. The Uganda Organic Certification programme has contributed to raising the profile of Uganda's organic sector, has brought organic certification services nearer to the producers and has significantly lowered the certification costs for Ugandan based organic operators. The development process 0f Uganda's national organic certification programme also led to the development of technical capacity that has been crucial in expanding the scope and depth of the organic sector in Uganda. Organic certification is now offered as one of the study units in the Uganda Martyrs University's agriculture Bachelors degree courses and the Masters degree course in agro-ecology. The Uganda national organic certification programme played a key role in developing the East African Organic Products Standard (EAOPS) and UgoCert is playing a lead role in facilitating its recognition by the European Union Commission as an equivalent standard to the EU Regulation 834/2007. UgoCert is the first Certification Body in sub-Saharan Africa to be recognised by the European Community as a third country organic certification body hence paving the way for many others to follow a similar path of recognition. These developments have a potential to further propel the organic sector in Uganda, and the East African Region, to new heights hence conforming the importance of some form of national or regional organic certification programme to the development of the organic sector in any country and/or region.
The paper presents the process of the development of Uganda's national organic certification programme, discusses the factors that have made it possible and the challenges that were faced. The roles so far played by the Uganda national certification programme and the constraints faced are presented. The paper concludes with recommendations on possible processes for the development of national organic certification programmes in sub-Saharan African countries and the roles of such programmes in what is a rapidly changing and growing global organic sector.

Key words: Development process, National, Organic Certification Programme, Challenges, Successes, Recommendations

THE ECOLOGICAL ORGANIC AGRICULTURE INITIATIVE: THE FUTURE OF AFRICAN DEVELOPMENT

ZACHARY MAKANYA

Mr. Makanya is the Country Coordinator / CEO for PELUM-Kenya. He has 25 years in community, organizational and network development. PELUM-Kenya, under the leadership of Mr. Makanya, is currently coordinating the implementation of the Pilot EOA Initiative which is supported by SSNC and rolled out by Pillar coordinating organization: Tanzania Organic Agriculture Movement (TOAM-Tanzania) Biovision Foundation (Kenya), National Organic Agricultural Movement of Uganda (NOGUM-Uganda) and Institute for Sustainable Development (ISD-Ethiopia). Mr. Makanya has been involved in promotion of ecological agriculture for over a decade. He is a member of several National and International Boards including the Chairperson of the Board of the Africa Biodiversity Network (ABN)
Africa is endowed with huge resources and hence would be expected to be one of the richest continents in the world. However, its communities are among the poorest in the world and still depend on external food aid, funds aid and in-kind contributions. Yet, every year, billions of US dollars are spent to help lift African small scale farmers and communities out of abject poverty.
With the passage of time, donors and supporters of development are becoming almost fatigued and skeptical on whether all these concerted efforts will really help reverse the negative poverty trends in Africa.
The Ecological Organic Agriculture (EOA) Initiative is an African initiated and led initiative that has emerged from intense consultations and discussions among the CSOs, Networks and National Organic Agriculture Movements who are promoting ecological agriculture. It aims at promoting Ecological Agriculture among partners in order to improve the livelihoods security of African small scale and grass-root communities. Many questions are being asked: What is EOA Initiative? What are its vision, mission, thrusts and strategies? How has it progressed so far? How can the development and funding partners in Africa and the world at large be part of the rolling out of the EOA Initiative? The presentation by Mr. Makanya aims at shedding more light and creating awareness on EOA Initiative.

ICT HELPS FARMERS INCREASE YIELDS, ENTER NEW MARKETS, AND SHARE INFORMATION: EXPERIENCES FROM AFRICA AND LATIN AMERICA

THERESA STANTON

IICD, tstanton@iicd.org

Abstract

Information and Communication Technology (ICT) can be used in various combinations (videos, community radio, smart phones, notebooks, online platforms) to help key players in agriculture; from small-scale farmers and extension workers to researchers and policy-makers. This paper draws on the experiences of several farmer organisations in Africa and Latin America who have managed, with the help of ICT, to successfully increase their yields, enter new markets, gain organic certification, or access market price information. The International Institute for Communication and Development (IICD) has 15 years experience of working with farmers' associations, Farmer Information Centres, agricultural research institutes, and other stakeholders. Together, we identify the information farmers need and then use different combinations of ICT, depending on the farmers' needs and wishes, to package the information and deliver it in a fast, efficient and cost-effective way. A selection of these experiences and best practices will be shared, from countries as far apart as Bolivia, Ghana, Burkina Faso, Zambia and Mali, particularly those relevant to organic agriculture. Special attention will be given to the benefits of ICT for organic farmers, with regard to improving data collection, using web portals and social media to attract international buyers, and improving internal control systems for national certification.

STUDY ON IDENTIFICATION OF GAPS AND INTERVENTION NEEDS OF SMALLHOLDER ORGANIC FARMERS IN ETHIOPIA

ADDISU ALEMAYEHU

Addisu Alemayehu, P.O. Box 687, Code 1230, Addis Ababa, Ethiopia, Tel. +251911807523/913152956, E-mail alfrd05@yahoo.com.
(Addisu Alemayehu is a founder and board member of the Ethiopian Association of Organic Agriculture (EAOA) and Assistant Research III at Tepi National Spice Research Centre TNSRC)

Abstract

A study on identification and analysis of the major gaps of smallholder organic farmers of Ethiopia in terms of technical, technological, institutional and financial is conducted in year 2011 in order to develop strategic programme that fill the gaps of organic producers. In order to make the study both primary and secondary information were collected through questionnaire, desk review, field visit, key informative interviews and group discussion. The study covered 80 respondents from 14 cooperatives that include 12 districts, 44 kebeles and 3 regions. The study revealed that in Ethiopia, there are certified, in-conversion and non-certified organic farms producing for export and local markets. Whereas certified farms produce for the export market, the non-certified farmers produce for the local market.
Currently (2010) Ethiopia has 136'436 hectares of certified organic land, managed by 123'062 certified organic smallholder farmers and three large processing companies. The total certified organic production was79'231.18 metric tons which has increased by 47 percent and 50 percent respectively, compared with 2008 and 2009. The total organic export was 12'342 metric tons which has an increase of 43 percent compared with 2009 and by 164 percent compared with 2008 where the country earned a total of 33.9 million US dollars from exports, which is double the amount earned in 2009 (16.92 million US dollars), due to an increase in production and price
The Study revealed that most of the challenges were technical and technological which are differing at different organizational levels. Among the list of the challenges identified at producers levels : limited

skills and information on market, shortage of technical support providing institution on training, shortage of logistics and infrastructure development, limited access to credit, improved technologies and farm equipments, shortage of clean and fair price transporting services and packaging materials were the prominent. Analysis of these gaps and need of interventions along with suggested activities and strategies were also discussed in this report.

Key Words: certified organic, smallholder, gaps and interventions

INFLUENCE OF SEWAGE SLUDGE, MYCORRHIZA AND DIFFERENT FERTILIZER APPLICATIONS ON THE GROWTH AND YIELD OF OKRA (*ABELMOSCHUS ESCULENTUS [L.] MOENCH*)

MOSES B. ADEWOLE* AND ABIOLA O. ILESANMI

Institute of Ecology and Environmental Studies, Obafemi Awolowo University, Ile-Ife, Nigeria
* Corresponding author. Tel.: +2348034784267, E-mail address: adewoledele2005@yahoo.co.uk

Abstract

This study investigated the effects of different fertilizer applications on the growth response of okra, cultivated on a 'contaminated' field with sewage sludge from the two oxidation ponds of the Obafemi Awolowo University, Ile-Ife, Nigeria. This was with a view to assessing the growth performance and yield of the test crop under different soil amendments. Okra variety, NHAe 47-4 with NPK 12-12-17 (IO), compost organic fertilizer (OR), Glomus mosseae mycorrhiza (MY) and zero fertilizer applications as control (CT) was laid out in a completely randomised block design and each treatment plot (4 m x 2 m) was replicated four times. Growth parameters such as plant height, stem girth and number of leaves of okra increased with added soil amendments from 4 weeks after planting in the order: IO > OR > MY > CT. The highest mean yield of 16.3 t ha^{-1} obtained with 6.0 t ha^{-1} of MY was not significantly ($p < 0.05$) higher than 15.4 t ha^{-1} obtained with application of 0.2 t ha^{-1} of IO, but significantly ($p < 0.05$) higher than 13.1 and 10.4 t ha^{-1} obtained with applications of 6.0 and zero t ha^{-1} of OR and CT respectively. The study concluded that for a moderately 'treated field' with sewage sludge from domestic wastes, arbuscular mycorrhizal fungi can be integrated into soil fertility management to achieve low-cost sustainable agricultural systems for enhanced productivity of okra.

Keyword: arbuscular mycorrhizal, okra yield, sewage sludge, soil fertility, carbon farming

THE CONCEPT OF ORGANIC CLIMATE SMART AGRICULTURE –'ORGANIC FOR AFRICA!'

ANDRE LEU

President of IFOAM

Abstract

The Concept of Climate Smart Agriculture (CSA) became the dominant agricultural paradigm at the United Nations Climate Change meeting in Durban, South Africa. Several of the methods proposed for CSA, such as mulching, crop rotations, recycling organic matter and composting are ones that are commonly used in organic agriculture (OA) and were largely developed by the organic movement.
Within the suite of practices that being promoted as CSA, Conservation Agriculture (CA), is emerging as the main practice. There are several CA practices that can and are being used in OA, however the dominant form of CA that is being heavily promoted to governments are no-till systems that use herbicides and

GMOs. These are being promoted by UN agriculture organizations, industry, farming organizations agricultural departments and academics as the future for Africa.
These groups are arguing that CA is superior to OA, because OA still uses tillage and because the over use of tillage can damage soils, CA must have better soil quality and is better for sequestering CO_2 into the soil to mitigate and adapt to climate change.
These types of arguments need to be countered by promoting the viable organic forms of OA based on published literature and recognized good practices. This includes the published peer reviewed research comparing organic tillage with conventional tillage and no-tillage systems which show that the organic systems have better soil quality including higher levels of CO_2 sequestration. Published data on adaptation shows that organic systems are more resilient in the climate extremes that are already occurring due to climate change. This is particularly important for African farmers as they are considered the most vulnerable to the weather extremes caused by climate change.
Other important areas of emerging organic practices are the new FiBL and Rodale no-till/low-till systems as well as Pasture Cropping in Australia. These organic no-till/low-till systems are showing good data on significantly lower energy use coupled with higher levels of soil CO_2 sequestration and high yields. They check all the boxes.
Very critically given that most of Africa and the world's agriculture is practiced by small holders on less than 2 hectares, proven smallholder no/low till systems such as those advocated by Fukuoka and Agro-ecology such successional agroforestry systems as well as the hand roller cover crop systems from Rodale need to be promoted.
The clear benefits of composting combined strategic correct tillage methods as practiced in Tigray, Ethiopia and at Sekem, Egypt, need be promoted as proven forms of Climate Smart Agriculture that clearly fit within the paradigm of Conservation Agriculture.
There has been no acknowledgement of the key role of the organic movement in relation to the methods used in CSA until the South Africa President, Jacob Zuma, gave an address to the high level summit on CSA that clearly articulate the multiple benefits of OA.
Climate Change is a major priority for IFOAM. IFOAM is an umbrella organization composed of over 750 member organizations in 116 countries. Our member organizations potentially represent several million famers. Most of these farmers are smallholders in developing countries and are some of the most vulnerable people to the extremes of climate change. To this end IFOAM would like to assist with the development of CSA to ensure that farmers have a choice between organic or conventional practices, rather than the current position where organic agriculture is ignored, while other agricultural systems are promoted.

THE ORGANIC MANAGEMENT OF RABBITS: AN OPPORTUNITY FOR REVERSING FOOD INSECURITY FOR THE URBAN AND PERI-URBAN POOR. THE KENYAN CASE

ANNE JACKLYNNE WANJIKU KUNGU

Ministry of Livestock Development, Department of Livestock Production P.O Box 6962-01000 Thika, Kenya, E-Mail: ajwkungu@yahoo.com

Abstract

Over half of the World's population now lives in the urban cities for the first time and more than ever before they live in the slums. Urban food insecurity and poverty are closely intertwined and are highly increased by climate change. (World Disaster Report 2010). Kenya is no exceptional.
The paper will give experiences of how small-scale organic rabbit rearing has significantly changed the lives of the urban and peri-urban poor of Thika District in Central Kenya. The small-scale farmers have embraced organic management of rabbits as a profitable enterprise in terms of revenue and animal protein for the household food security and for improved livelihoods reversing their earlier status. The farmers have come together to form common interest group / association referred to as Rabbit Breeders Association of Kenya RABAK).
The author will also highlight how the urban and peri-urban poor slum dwellers, are struggling to ensure the rabbit enterprise is profitable amidst a lot of challenges such as: the climate change, sexism in nutrition,

city by-laws prohibiting keeping of livestock in the cities, poor extension programmes targeting slum livestock keepers, while at the same time battling to demystify the socio-cultural myths, religious beliefs and taboos that surrounds the rabbit rearing among the Kenyan communities.
The author concludes by recommending that the small-scale organic management of rabbits is an opportunity that no city governor should ignore, as they are all faced with common problems. There is need to expanding this programme within Thika in central Kenya and then rolling it out to the rest of the country and the Sub Saharan Africa.

Key words: organic management, poverty, food insecurity, nutrition, climate change

EXPERIENCES OF PARTNERING WITH LOCAL BASED ORGANIZATIONS IN DISSEMINATION OF ORGANIC AGRICULTURE INFORMATION AND ENVIRONMENT CONSERVATION: INFONET-BIOVISION AND PARTNERS

ANNE BRUNTSE

Project Manager, Infonet-Biovision Project
Biovision Farmer Communication Programme
c/o icipe, P.O. Box 30772, 00100, Duduville Kasarani, Nairobi/Kenya
Tel: +254 (20) 863 2007/8; abruntse@ymail.com;
www.infonet-biovision.org, www.organicfarmermagazine.org

Abstract

The value of getting timely quality information to smallholder farmers cannot be underplayed. Hence, there is an increasing recognition by the agricultural Research and Development community to increase the farmers' knowledge base through an integrated approach including information and communication technologies (Ballantyne, 2009; Kesavan and Swaminathan, 2008; Liang and Brookfield, 2009). With the emerging challenges of poverty, food insecurity, decreasing agricultural productivity and climate change smallholder farmers require creative approaches to enhance access to information, and transform it into useful application. Such approaches should unlock the farmers' capabilities to innovatively manage soils, water, biological resources, pests, disease vectors, genetic diversity, and conserve natural resources in a culturally appropriate manner. Infonet-Biovision has developed a farmer resource website www.infonet-biovision.org, and has had 3 years experience with pilot outreach methodologies for organic and sustainable agriculture and environment conservation using applied ICT. This paper examines experiences with the past, present and future plans for partnering with local communities and research organizations in Kenya/East Africa to promote changes in agricultural practices and community organization.

EFFECTIVENESS OF ORGANIC FERTILIZER IN INCREASING PRODUCTION - THE EXPERIENCE OF FARMER FIELD SCHOOLS IN ZANZIBAR

ASHA OMAR FAKIH, DR MWATIMA JUMA & SULEIMAN S. MOHAMED

Agricultural Services Support Programme & Agricultural Support Development Programme – Livestock, Department of Planning, Policy and Research, Ministry of Agriculture and Natural Resources, P.O.BOX 159, Zanzibar, Tanzania, Email: aofo_2@yahoo.com

Abstract

This study gives voice to the experience obtained by Agriculture Services Support Programme and Agriculture Sector Development Programme – Livestock, (ASSP/ASDP-L) from Farmer Field Schools

(FFS) in Zanzibar from 2007 to 2011. Many research studies have focused on the main stream research methodology and have been for a long time biased on the use of chemical fertilizers for increase productivity. Farmer's perception and need for research involving the use of own local available resources have been neglected. Farmer Field School is a season long approach and therefore provides an opportunity for farmers to witness the results in their own fields.
The study addresses the following key question: what is the experience of participatory action research (PAR) within the setting of FFS? Using FFS approach, this research incorporates better farmer organizations, making use of participatory appraisal tools for their problem identification; participatory addressing the issue of decline in soil fertility using local available material, seeing result and making better judgment on the use of improved technology. The study includes visual identification on impact of different organic manure for increase in yield of banana and cassava.
Increase in agriculture productivity is recognised among others as the major solution for poverty reduction and improve in food security for smallholder farmers. This study invites a discussion about what it takes to have farmers' participation in learning techniques in improving soil fertility for a sustainable crop production. Techniques which are within the economic means of smallholder farmers and that can be easily adopted by other farmers. Future research will look into linking these farmers to the available organic markets especially within hotel industries.

BUILDING ON SUCCESS: PGS AND THE ORGANIC VALUE CHAIN IN SOUTHERN AFRICA.

AUERBACH, R & HAUPTFLEISCH, K.

Abstract

While the organic sector world-wide has grown steadily for fifty years, and the sector in East Africa has developed rapidly over the past ten years, Southern African organic farming (except for Zambia) has largely remained the province of a small group of white commercial organic farmers, and, like East Africa, has been largely export driven. Recent South African government policy has shifted towards organic agriculture, and the African Union has come out publicly in support of Organic Agriculture as a sensible development path for Africa. The Department of Trade and Industry Organic Value Chain study is critiqued, and related to successes with participatory guarantee systems and sustainable community investment programmes in southern KwaZulu-Natal and near Johannesburg. A strategy for southern African organic development is outlined, building on positive aspects of the Millennium Villages Project and east African organic development strategies.

Key words: African organic farming, sustainable local investment, participatory guarantee system

EFFECT OF MIXED-MANURE COMPOST AND FARM YARD MANURES ON GROWTH AND YIELD OF MAIZE

BELLO, W. B[1]. AND ADEJUYIGBE, C.O[2].

[1] Department of Agricultural Technology, Oyo State College of Agriculture, P.M.B 10,Igbo-ora Oyo State Nigeria.
[2] Department of Soil Science and Land Resources Management, University of Agriculture, Abeokuta, Nigeria. Email;- waswarith@yahoo.com, Phone Number: 08069787575

Abstract

A field experiment was conducted at Oyo State College of Agriculture Research farm in Igboora, to characterize Farm yard manures with its maize base composted materials mixture of equal quantities (cow-dung, poultry, and Pig manures with maize stover in 3 of plant maize stover to 1mixed manures) on the

performance and productivity of Maize spanning from 2010-2011 growing seasons. The treatments (control, compost, poultry, pig and cow-dung manures all applied at 5 t/ha) were evaluated in a randomized complete block design (RCBD) and replicated three times. Data were analysed using ANOVA and the means were separated using Duncan multiple range test. There were significant (P>0.05) in the manures considered except leaf numbers at 4-6 weeks after planting (WAP). However, the compost treatment gave higher values than the manures used separately in all evaluated parameters. Generally, vegetative growth increased rapidly in all the treatments from 4 to 10WAP .The observed trend of the result is compost>poultry>pig>cow-dung manures at 5 t/ha>control in the order shown for both vegetative and yield characters considered. The compost application resulted in a significantly higher than the manures, alone and control. The highest grain yield (11.4 t/ha), number of seeds/cob (845seeds), dehusk cob weight (0.56 kg), root biomass (0.76 kg) per treatment, maize filled length/cob (16.37 cm) and cob diameter (17cm) were recorded with the addition of compost, control was lowest in all characters considered. The study showed that compost amendment has a positive influence on nutrient release and management strategy for a sustainable maize production in the region.

Key words: Maize base compost, manure

FIGHTING VARROA DESTRUCTOR IN THE AFRICAN HONEYBEES USING ORGANIC CONTROL METHODS

BOSCO OKELLO,

Chief Executive Officer, ApiTrade Africa, Uganda
Email: info@apitradeafrica.org / bokello@apitradeafrica.org

Abstract

The presence of Varroa destructor in Africa is worrying! In 2009, this destructive bee pest was found in beehives in Kenya, Tanzania, Uganda, Ghana and Madagascar. Several Sub-Saharan Africa honey-producing and exporting countries are also on the Varroa suspect-list. If not well managed, the pest can cause big losses to bee populations; many bee farmers may also be forced to use pesticides which consequently results in loss of organic honey and beeswax market produced in Africa.
On account of different studies done in the region (between 2009 and 2011) and a specific case study on Uganda (2011), this paper presents the results, with emphasis on the distribution, prevalence and effects on honey production. The key findings of these studies are that Varroa is already widespread in East Africa but there is no significant destruction on bee population (attributable to it) yet. African honeybees also appear to exhibit high levels of tolerance to the pest. The studies thus conclude that organic and natural methods could be very effective in managing the pest population and mitigating its potential effects on the honeybees and honey trade.
Further research is however necessary to understand how the African bees have so far managed to cope with the presence of Varroa in the hives to the extent that honey production remains unaffected. Research may also help identify alternative organic and natural methods, based on indigenous African beekeeping skills, which can be used to manage and mitigate Varroa in the bee colonies.

Keywords: Varroa, honey, Africa, beekeeping, trade

WOMEN COOPERATIVE CENTER.

JOSHUA AMWAI MACHINGA.

Common Ground for Africa, Contact: PO Box 2487 Kitale 30200, Kenya. Emails: tcground@gmail.com
Tel: + 254 720 626 482.

Abstract

Agriculture remains the mainstay of Kenya's economy. Kenya's population is approximately 36 million yet the capacity of available resources to meet the demand of this growing population for food remains untapped. Sustainable agriculture presents the major solution to this crisis, which can easily be utilized by women.
There are growing marketing opportunities in farming associated with organic farming system. A significant segment of the public is willing to pay some premium for food produced in an environmentally sound way with fewer chemicals in response to both health and environmental concerns.
However, farmers lack consistent and accessible opportunities to markets their products. Establishing a cooperative is one way of providing the market infrastructure to tap that potential and capability for earning a living with their production. As a result, Common Ground for Africa established a Women Cooperative Center providing an opportunity for local women (mostly windows and single mothers) to work cooperatively for their mutual benefit. The establishment of the Women Cooperative Center, CGA empowered women by providing:

- Leadership training and GROW BIOINTENSIVE (Organic) farming workshops
- Training materials, tools and seeds.
- Ongoing mentoring and coaching
- Training in leadership, marketing and business

The Center is enabling women to learn skills that will transform their lives through self-sufficiency. This is accomplished through developing a market infrastructure to distribute production and set fair market prices. Over 150 women farmers, weavers and other women of modest means have been organized to form a cooperative to achieve better terms of trade for their labor. The project plays a vital role in reinvigorating female farmers and, supporting stewardship while revitalizing rural communities. The paper will share the experience gained in establishment and management of the women managed Market Cooperative Center.

Key words: Organic market, produce and cooperative.

INTERCROPPING WITH CROTALARIA BREVIDENS BENTH. REDUCES BACTERIAL WILT DISEASE INCIDENCES IN TOMATO CROP.

D. O. OKEYO AND H. OGINDO

Department of Applied Plant Sciences, Maseno University. Kenya

Abstract

Tomato is a popular horticultural vegetable crop among small and large scale farmers in Kenya, grown for its nutritional and industrial purposes; however its production has been limited by high incidences of Bacterial wilt (BW) which has neither effective curative nor preventative methods. The objective of this study was to determine if intercropping of tomato with crotalaria sp. would remedy this problem. Three tomato varieties including Money maker, Cal J., and Prostar F1 were grown under PVC covered greenhouse conditions in a soil medium already infected by bacterial pathogen in alternating rows with crotalaria sp., at Ojola-Kisumu, in Western Kenya in February, 2011. A control without crotalaria sp. was

also included. The study was laid in a randomized complete block design replicated four times in four adjacent greenhouses. After reaching fruiting stage (3 months), the number tomato plants with signs and symptoms of BW in both intercropped and non-intercropped plots were recorded for each of the tomato varieties. The study was repeated twice in June and October, 2011. Data was imposed to ANOVA and means separated using LSD at 0.05 significant level in SAS. The results indicated that incidences of bacterial wilt reduced by between 50 to 70% among the rows intercropped with crotalaria sp. across all the three varieties, however, prostar F1 showed the least incidences of BW followed by Cal. J and Money maker, respectively. This study provided a means of moderating and managing bacterial wilt disease incidences in tomato crop, a solution that would be affordable to tomato growing small scale farmers compared to the use of costly chemicals that are also toxic and unfriendly to the environment.

DIVERSITY: A NORM FOR AFRICA'S ORGANIC AGRICULTURE AND INDISPENSIBLE MEANS FOR CLIMATE CHANGE ADAPTATION AND MITIGATION

REGASSA FEYISSA

Ethio-Organic Seed Action (EOSA), Ethiopia

Abstract

Africa's agriculture is characterized by diverse agro-ecologies and broad genetic resources base of crops and livestock, and by dynamic farming and production systems and its complex management practices. The present agro-ecology and the diversity it harbors evolved through these management practices. Diversity in general is a norm for Africa's agriculture and provides the opportunity to foster agro-biodiversity and other environmental services. It also provides the opportunity to enhance agro-ecosystem resilience and farmers' capacity to better face risks and uncertainties. The use, enhancement and management strategy of the diversity does not show any rigidity in techniques; but rather, remains a way of thinking, which maintains a dynamic equilibrium and can be adapted as changing circumstances require. It is through this dynamism, for example, that many African agricultural crops little or not known to agricultural science to date have been developed and are intensively utilized throughout the continent. It is unfortunate however, that the complexity of Africa's agriculture has always been undermined due to misperception that has resulted in underinvestment for its improvement.

Africa's agriculture is diversity based and has survived so long evolving through complexities of environmental dynamism and management practices, on which the principle of Africa's organic agriculture need to base itself. Organic agriculture involves a complex system of land use and cultivation, requiring sophisticated knowledge of the stability of soil types to crops grown, climatic variation and soil fertility. In this regard, Africa's organic agricultural products can strictly be considered as the products of agro-ecosystem management rather than agricultural products produced by excluding one or the other external chemical input. Systemic management of genetic diversity including the symbiotic relationships of elements of soil-life support system is its base. Through such management, the soil fertility is improved organically leading to the stabilization of soil organic matter that eventually results in heightened sequestration of carbon in the soils. This is one aspect of the noble practices of Africa's farmers in contributing to climate change mitigation, for which they should be recognized.

Nevertheless, there are growing concerns, which are legitimate, particularly on how the complexity of Africa's agriculture is still perceived by reductionists and promoters of standardization of agricultural practices. It is ironic that both the agro-biodiversity resource base and practices of its management have always been taken as indicators for backwardness and poverty, but with little or no investment for its improvement rather than on its disruption. It is also an emerging concern that irrational approach and the reduction of ecological agriculture of Africa to solely business oriented organic bio-mass products or processes would possibly lead to catastrophic consequences of socio-economic and environmental costs.

This presentation will try to highlight prospects and potential of Africa's ecological agriculture as source of environment and health friendly products, and the challenges it is facing and would face.

CAN ORGANIC FOOD REDUCE CHILD MORTALITY(MDG 4) IN SSA?

DR GITAHI THEURI

Kenyatta University, School of Applied Human Sciences, Nairobi, Kenya,
email gitahi_t@yahoo.com

Abstract

Organically grown food promotes environment sustainability and produces fruit, vegetables, meat and milk containing 40% more anti-oxidants, iron and zinc all crucial for child growth, development and immune function.
While use of herbicides, pesticides, chemical fertilizers, paid for with scarce foreign exchange, in conventional farming leave chemical residues in food produce causing neurotoxins, endocrine disruptors, reproductive and developmental toxins likely to increase child mortality and poverty as scare resources are re-allocated towards seeking expensive medical diagnosis and management of degenerative conditions. Endocrine disruption may impair hormones involved in fetal growth and development of tissues that otherwise regulate intrauterine programming that in turn influences survival in the uterus and at birth with long term effects on the offspring.
Is organic farming potentially a cheap intervention to aid SSA achieve millennium development goals to reduce child mortality, eradicating extreme poverty and hunger as well as ensuring environmental sustainability?

ENHANCED PRODUCTIVITY OF TWO SOYBEAN (GLYCINE MAX (L.) MERRILL) VARIETIES THROUGH APPLICATION OF SPENT POULTRY MANURE

VICTOR OLOWE* AND SIMEON FAKOLADE

Institute of Food Security, Environmental Resources and Agricultural Research (IFSERAR), Federal University of Agriculture, Abeokuta (FUNAAB), Nigeria, *owebaba@yahoo.com

Abstract

Poultry manure is an excellent source of nutrients and it is fast becoming the most commonly used soil amendment from organic source among the resource poor farmers in the tropics. Unfortunately, it becomes a nuisance on the farm because it is usually abandoned and exposed after the required quantity had been applied to the crops on the field. Consequently, a field trial was conducted during the late cropping season (June – Dec.) of 2010 to evaluate the performance of two soybean (Glycine max (L.) Merrill) varieties as affected by the application of different rates of spent poultry manure. The experiment was laid out in a randomized complete block design in split plot arrangement and replicated three times. The main plot consisted of the two soybean varieties: TGx 1740-2F (early maturing) and TGx 1448-2E (late maturing), while the poultry manure (0, 28 and 56 tonnes.ha^{-1}) was allocated to the sub-plot. Nitrogen requirement determined the manure application rates and the two manure rates of 28 and 56 tonnes .ha-1 matched 30 and 60 kgN.ha^{-1}, respectively. Data were collected on the following agronomic characters of soybeans: aboveground plant weight, height to first pod, number and weight of pods and seeds per plant, 100 grain weight and grain yield. On average, TGx 1448-2E produced grain yield that was significantly ($p<0.05$) higher than that of TGx 1740-2F by 59%. Application of poultry manure resulted in significantly ($p<0.05$) higher aboveground plant weight of plants, pod number and weight per plant, and grain yield than the control. Application of 28 tonnes.ha-1 of the poultry manure was adequate for optimum performance of soybean. It is therefore, recommended that spent poultry manure can still be applied to soybeans provided the nitrogen content is determined.

Keywords: grain yield, poultry manure, soybean

HOW FAIR TRADE STRENGTHEN ORGANIC FARMING AND VICE VERSA, ESPECIALLY IN AFRICA

ISABEL VERTRIEST

Oxfam Wereldwinkels Belgium

Abstract

The activities of Oxfam are rooted in indignation about unfair trade relations and practices between the North and the South. Our answer to this injustice is an attitude of solidarity. That is why Oxfam consider Fair Trade to be a Sustainable Economic Development Strategy (FairSEDeS), or the use of trade as a key lever for the development of disadvantaged producer groups.
Together we strive to obtain more bargaining clout in negotiations, more ownership of the production process and a greater economic independence for our producers. This means:

- The basic price (minimum price) is essential
- We opt as much as possible to establish trading relations with small, disadvantaged producers
- The Fair Trade premium is always part of the price we pay producers
- On request, we facilitate pre-financing for producers
- The percentage of Fair Trade ingredients must be as high as possible:

Fair Trade as a hub to organic farming or vice versa. Because of the disadvantaged situation of producers in Africa organic farming is common, however without Organic certification. Organic certification is needed to obtain the organic price in the market. In Latin America the volume of the production often decrease starting with organic certification. In many Latin American coffee regions people were used to utilize fertilizers and becoming organic decreases the production. That is in the African coffee production different. And many coffee producers uses their Fair Trade extra income to get the organic certification.
We opt very clearly for more ownership for our producers. We want them to gain more control over (part of) the production and trade chain, in order to make their position in the local and regional economic context stronger. That way, producers and their communities do not just own their coffee or cocoa but also have the opportunity to grow.
Description of organic coffee: Case KCU in Tanzania: First Fair Trade and now conversion towards organic Robusta coffee. Case Sopackdi Congo, Gumutindo Uganda, Oromya Ethiopia and Rooibostea

ORGANIC FARMING IN THE CONTEXT OF KILIMO KWANZA, TANZANIA

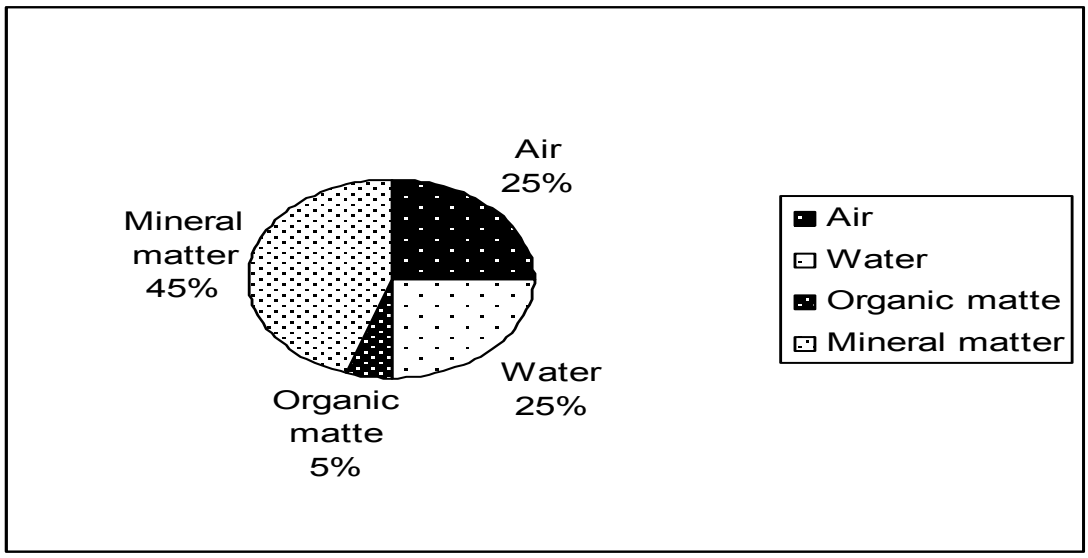
MWADHINI O. MYANZA

Executive Director, Tanzania

Abstract

Kilimo Kwanza, “a mother earth agricultural model” is the current household name in Tanzania, demonstrates a need for integration of crop and animal production and fishing industry. Its popularity is hinged on its centrality in the economic development endeavors, well thought initiative created by a think-tank taxed by the Government to look into ways and means to revitalize agriculture by addressing crosscutting issues. The concept is intended to fast track agricultural development measures by embarking on a number of interventions in a spirit of Public –Private –Partnership.
Ten actionable pillars of Kilimo Kwanza are; Political will to push natural agricultural transformation, Enhance financing for agriculture, Institutional reorganization and management of agriculture, Paradigm shift to strategic agricultural production, Land availability for agriculture, Incentives to stimulate investments in agriculture, Industrialization for agricultural transformation, Science, technology and human

resources to support agricultural transformation, Infrastructure Development to support agricultural transformation and Mobilization.
The model focuses on healthy and just farms, food systems, communities and environment by bringing people together for education, alliance building and advocacy. Collection of specific natural methods, which when applied to farming, produces results that are in harmony with the environment which include Land preparation, planting, management of crop growth, weed management, harvesting, storage and marketing. Soil conservation and management contribute about 60 % of the crop quantity and quality production. For efficient organic farming, the growers need to know much about soil.



Small holder farmers have doubled food production in a decade by using simple ecological methods and most efficient farming techniques. Scientific evidence demonstrates that organic methods outperform the use of chemical fertilizers in boosting food production where the hungry live –especially in unfavorable environments, headed. Soils productivity and crops protection against pests have greatly improved by natural environment such as beneficial trees, plants, animals and insects, according to the local studies. Agro-ecological projects in IRTECO intervention areas have shown an average income increase of 60 per cent.

SYSTEM OF RICE INTENSIFICATION: CASE STUDY OF A RICE CULTIVATION METHOD FOR INCREASING RICE GRAIN YIELD THROUGH BETTER MANAGEMENT PRACTICES AND ORGANIC AGRICULTURE

Abstract

Several innovations have been made in rice cultivation in order to increase grain yield and[ ]better meet the world's food demand. The "Green Revolution"[ ]which was one such accomplishment has undoubtedly contributed to a tremendous yield increase in Asia, where many farmers were able to afford the new technology. However, it failed to help many farmers in Africa, where farmers are constrained by their limited financial resources and which is characterized by an immense variability of agro-ecological conditions. While plant growth and productivity are known to derive from the interaction between genetic potential (G) and environmental factors (E), efforts to improve rice production have usually focused on making changes in G, assuming a standard E that is created by conventional rice-growing practices. Genotypes have been assessed for their performance in continuously-flooded paddy soils, with optimally-dense plant populations, with reliance on inorganic fertilization to raise yields.

The System of Rice Intensification (SRI) developed in Madagascar and now becoming accepted in much of Asia proposes that GxE interactions can be made more productive with different management practices: optimally-sparse plant populations, established with very young seedlings carefully transplanted, intermittent flooding of paddies, with active soil aeration, and with soil organic matter enhanced as much as possible. This paper evaluates the effects of alternative SRI cultural practices on grain yield, with particular attention to their impact on the growth and functioning of rice plant roots and on associated nutrient-use efficiencies that could be contributing to the observed higher grain yields.
On-station experiments and on-farm surveys were conducted in Madagascar in 2001 to evaluate SRI practices in comparison with standard cultural methods, considering how rice plants' expression of their genetic potential was affected by different crop management practices. Controlling for both soil and farmer effects, rice plants cultivated with SRI methods produced average yields more than double those achieved with standard practice (6.26 vs. 2.63 t/ha).
Multi-local trials undertaken with the SRI-Group of Madagascar and done under the real environmental conditions of farmers in 2010 confirmed these findings. Plants grown with the conventional method produced a grain yield of 3.16 t/hawhile those with the SRI method gave4.23 t/ha. Use of a local organic fertilization "Bat Guano" increased SRI grain yield even more, up to 5.72/t ha.
The most evident phenotypic difference was in plant root growth, assessed by root-pulling resistance (RPR), a summary measure of root system development. On average, uprooting single SRI plants required 55.2 kg of force/plant, while pulling up clumps of three conventionally-grown plants required 20.7 kg/hill, or 6.9 kg/plant. SRI plants thus offered 8 times more resistance per plant to uprooting.
Direct measurements confirmed that SRI methods induced both greater and deeper root growth, which could be contributing to increased nutrient uptake throughout the crop cycle, compared with the shallower rooting and shorter duration of root functioning under continuous flooding. Application of organic fertilization combined with an appropriate soil and water management allows a greater expression of the genetic potential of the rice plants and can help limited-resource farmers to improve their yield and enhance their revenue.
Use of macronutrient elements for grain production was compared between SRI and conventional rice plants. It was observed that P taken up by SRI plants was more efficiently used for grain production. One kg of absorbed P produced 347.3 kg of grain for SRI while that of conventional method was only 291.1kg of grain. This efficient use of P leads to higher grain yield production for SRI methods.
80% of Malagasy are rural farmers with a landholding size of 0.6 ha. Farmers started to experience SRI since 1984, and local NGOs and various projects have provided technical supervision. Technical assistance was however quite intermittent and seldom effectively until 2008, which meant that SRI diffusion was slow and unevern. Support from the Better U Foundation in California, USA, helped Malagasy SRI promoters to coordinate their efforts and share/exchange their experience through the SRI-Group (Groupement SRI) of Madagascar. This experience sharing and the collaborative efforts of regional SRI actors have led to greater impact in local communitieswith an average yield increase of at least about 1.5 tons/ha more, with a surface area of 112,000 ha and the number of practitioners almost 160,000 by most recent reckoning.
SRI methods are now being extended or extrapolated to the organic growth of other crops, such as wheat, finger millet, sugarcane, even teff in Ethiopia, and various legumes and vegetables in India. This is one reason why SRI is understood not as a technology but as a management system that can have broad applicability. Its methods are often counter-intuitive, however, so there needs to be a change in mindset and a willingness to be experimental.

DEVELOPMENT OF ORGANIC STANDARDS IN AFRICA – CHALLENGES AND OPPORTUNITIES

JOELLE KATTO-ANDRIGHETTO AND HERVÉ BOUAGNIMBECK

Abstract

The world of organic standards is a very dynamic one, globally. The situation is complex, with more than 100 different organic standards used for organic certification worldwide. It is also in constant change. Every year, new organic standards are developed, including private standards and government regulations.

Processes of harmonization and equivalence, although not as fast as we would like to, are shaping the picture. Regional harmonization might mean a concentration of standards (reducing the overall number of standards), while new open doors in terms of equivalence allow locally developed standard to emerge and replace foreign standards that have typically dominated in the standard landscape.
Africa is by no mean exempt of these developments. One successful process of regional harmonization took place in East Africa, and several other regions of Africa are exploring whether they could do the same, what are the lessons learned and what aspects they should replicate and what aspects they should not. Interest and capacity of donors or programs to support these processes of harmonization is obviously an essential piece of the picture in Africa.
The regulatory "trend" commonly observed in countries with an emerging (or even sometimes just embryonic) organic sector can also be observed in Africa. There is interest from several governments to start regulating organic agriculture, which implies developing organic production rules. In other countries, the private sector is taking and retaining a leading role in developing and using locally adapted organic standards. In both cases, the classical dilemma in developing the standard is to find the right balance between locally adapted and internationally acceptable. The possibility of obtaining EU equivalence, and the possibility to be approved in the IFOAM Family of Standards, are two new heavyweights in the international recognition side of the balance.
Another new development is the new IFOAM standard, a globally usable organic standard that CBs, national organic movements and PGS initiatives can choose to use instead of spending resources to develop their own standards. A few organizations in Africa have expressed interest to go this path.
All these developments present challenges and opportunities for the organic stakeholders in Africa. The presentation will explain the above trends and issues, reveal the associated challenges as well highlight some emerging opportunities. The targeted audience includes national organic movements, certification bodies, policy makers, supporting organizations and organic companies in Africa. The objective is to provide them with information relevant to help them make the right choices in terms of standard development, adoption or maintenance.

THE DEVELOPMENT AND IMPLEMENTATION OF ORGANIC POLICY IN SOUTH AFRICA

KGOMOAMOGODI PETJE

Department of Agriculture, Forestry and Fisheries, South Africa, KgomoamogodiP@daff.gov.za

Abstract

In 2006, the sector stakeholders approached the Department of Trade and Industry (DTi) requesting financial support for commissioning the development of an organic sector study and the development of value-chain strategy, focusing mainly on identifying challenges that impede the development of the organic sector and also looking at existing opportunities that could be enhanced. The study was commissioned, conducted and completed in 2007. The study recommended the following strategic goals:

(i) the provision by government of the appropriate support and regulatory environment to enhance sector growth,
(ii) a representative sector body driving the development of organic agriculture in South Africa,
(iii) the support and development of aspirant producers,
(iv) set clear market objectives for organic agriculture in South Africa and abroad, and
(v) to maximise of the benefits of organic agriculture to the environment and society.

The challenges or problems identified in the organic sector cannot be solved or addressed without the government support. Through this policy, the Department of Agriculture, Forestry and Fisheries (DAFF) took initiative to address the challenges faced by the organic sector. Through extensive consultation with sector stakeholders and support within the department, a draft policy on Organic Production was created. The purpose of this policy is to create a broad framework for the development of a prosperous organic sector that is globally competitive and capable of supporting government's commitments towards poverty

alleviation, decent work creation, food security, improved health and nutrition and potentially genuinely sustainable economic development. It proposes a set of coherent policy instruments that will put the organic sector on a higher growth path. This paper provides an overview of the development and implementation of organic policy and sector in South Africa. It focuses on intervention programmes meant to improve participation of all stakeholders in organic sector in the context of global best practices. It is proposed that the country needs, in the short run, better organized activities that will enhance increased profitability and continuous production of organic produce both at domestic and export markets on a sustainable basis and provide a veritable source of foreign exchange earnings.

Keywords: organic sector, policy, strategic goals

GROWTH, YIELD AND PHYSIOLOGICAL EFFICIENCY OF MAIZE (ZEA MAYS L.) AS INFLUENCED BY COMPOST RATES IN AN ORGANIC BASED CROPPING SYSTEM

ATAYESE M.O*, LAWAL O. I., OYEKANMI A.A, SAKARIYAWO O.S, ADERIBIGBE S.G, ADEYEMI O.R.

Department of Plant Physiology and Crop Production, University of Agriculture P.M.B. 2240, Alabata road, Abeokuta, Nigeria
*Corresponding author: atayese2000@yahoo.com

Abstract

Physiological efficiency of the nutrient use play an important role under trial conditions especially with regard to nutrient recovery in the various nutrient pools of the soil/plant system, albeit the agronomic and recovery efficiency may be more of interest to the practical maize growers. A study was conducted during the early and late-rain seasons of 2010 at the Teaching and Research farm of University of Agriculture, Abeokuta. Ogun State to evaluate the effect of compost on yield and Physiological efficiency of maize in an organic based cropping system. The experimental design was Randomised Complete Block Design with four replicates. Four maize cultivars and three rates of compost (0, 2.5, and 5.0 t/ha) were involved. Growth, yield and efficiency of maize were investigated. Results indicated a significant variation in Number of leaf, stem girth and Plant height in response to fertilizer, variety and the seasons. Compost rate at 5.0 tons/ha elicited the highest significant response ($p<0.05$) on cob length, cob girth, grain yield and the resultant physiological efficiency for the two seasons. The control treatment, 0 tons/ha produced the least effect for all the growth parameters measured. Comparative evaluation among examined varieties of maize indicated that, while 2008-DTMA-Y-STR and 2004-TZE-Y-POP-DT-STR-C4 recorded the longest significant cob length with the least significant stem diameter, 2008-DTMA-Y-STR was having the longest significant tasselling duration, with the least significant Anthesis-silking Interval. Maize var. 2008-DTMA-Y-STR displayed a promising adaptive capability and productivity. Comparatively, Nitrogen content in the plant tissue significantly contributed to maize grain yield and physiological efficiency.

Key words: Physiological efficiency, compost, Anthesis-silking Interval, tasselling duration.

ORGANIC AGRICULTURE POLICY DEVELOPMENT AND IMPLEMENTATION IN KENYA

MONICA R. MUENI

P.O. Box 30028, 00100, Nairobi, Kenya, monicamueni2004@yahoo.com

Abstract

In Kenya the organic agriculture sub-sector has gained increased importance in its contribution to food security, gender empowerment, premium prices, reduced financial risks, increased profit margins and

access to new markets. Other notable benefits the farmers are benefiting from include the knock-on effect on conventional prices and price stability being experienced on the fair trade regime. Organic agriculture provides a cheap means of replenishing depleted soil nutrients while empowering women to participate in income generating agricultural practices. The health benefits of organic products are fetching farmers' competitive prices thereby improving farmers' economic status notwithstanding the use of locally available farm inputs in place purchased ones. The stable demand for organic products has promoted contraction and therefore stabilized prices and supply for the benefit of farmers.

The challenges facing the sub-sector include; inadequate research and development; weak research-extension-farmer linkages, and low production levels due to the small parcels of land where organic farming is being practiced.. Value addition and processing are poorly developed consisting mainly of transport and handling as opposed to change of form. The existing legal and regulatory framework is not conducive for the growth and development of organic agriculture due to poor enforcement of produce and product standards. These shortcomings have resulted in poor performance of the organic agriculture sub-sector.

The Organic Agriculture policy which was formulated in 2010 aims at giving a clear direction for sustainable growth and development of the organic agriculture sub-sector. The policy has addressed issues pertaining to, research, extension, production, processing, marketing, storage, quality control and, institutional and legal framework and accelerating public-private sector partnerships for the organic agriculture sub-sector. The proposals the policy need to be supported by an appropriate legal framework and will require the support of all stakeholders for its successful implementation.

In the formulation this policy, the Ministry of Agriculture benefited immensely from contributions of various stakeholders particularly the expertise of the drafting team who were composed of experts from the MOA, KARI, KOAN, UoN, KIOF, Rutuba Foundation, SACDEP and KEBS. I wish to thank individuals, groups and organizations whose invaluable input contributed to the development of this policy paper on the organic agriculture sub-sector.

ORGANIC FARMING AS A PANACEA TO DEFORESTATION: THE CASE OF NAMINYANGA ORGANIC FARMERS ASSOCIATION (NOFA), MALAWI.

LIMSON KALUZI

Abstract

Malawi Organic Growers Association (MOGA), a farmer organization, has been working to scale out and up organic agriculture in Malawi. One farmer group which has a magnificent and salient story about transition from bad to good is Naminyanga, Organic Farmers Association (NOFA). The deforestation was extreme. The most arching part of it is that the deforestation was not followed by afforestation. The department of forestry worked tirelessly to arrest the situation but to no avail. A heart breaking and sad story occurred that provoked interventions from the Non-governmental Organization fraternity. A forestry officer on duty gunned down a charcoal burner. The demise of the charcoal burner triggered chaos around the community. The community of the charcoal burners took revenge by murdering one of the forestry officers.

Increasing the income of the community was crucial if they were to stop cutting down of tress carelessly for charcoal and firewood. MOGA introduced organic agriculture to address their degraded land, offer alternative for exorbitant inputs and help them cultivate high value crops. The increase in the production and introduction of high value crops and accessibility to value markets increased the income of the farmers. The main challenge encountered in this project was low funding. The main lesson drawn is that organic agriculture is effective in increasing income of resource poor farmers. Production requires less costly inputs as compared to inorganic methods. As such, farmers who lack capital consider organic agriculture as a production system that will support them.

GROWTH AND YIELD OF TWO VARIETIES OF JEWS MALLOW (CORCHORUS OLITORUS L.) UNDER DIFFERENT RATES OF ORGANIC FERTILIZER

*AJAYI, E.O[1]; AKINFASOYE, J.A[1]; OGUNLETI, D.O.[2] AND MONKIO, T.N[2]

[1]National Horticultural Research Institute, P.M.B 5432 Idi-Ishin, Jericho. Ibadan
[2]Federal College of Agriculture, Institute of Agricultural Research and Training, Moor Plantation, Ibadan
*Corresponding author: oluwakayodefunmi@gmail.com

Abstract

Vegetables play a vital role in the improvement of nutritional status of any population. Jute plant (Corchorus olitorius L.) is a leafy vegetable, grown in Nigeria and in many other tropical countries for its nutritious leaves. The use of inorganic fertilizers contribute to soil acidity, physical and chemical degradation, therefore there is a recent global shift from chemical fertilizers to organic fertilizers which are renewable, easily accessible, cheap and less harmful. The objective of this study was therefore to evaluate the performance of two varieties of Corchorus olitorus under different rates of organic fertilizer. The experiment was carried out on the research field of National Horticultural Research Institute (NIHORT), Ibadan, Nigeria between January-March, 2011. The two varieties of Corchorus olitorus used were "Angbadu and Oniyaya" while the organic fertilizer rates include 0, 30, 60 and 90 Kg N/ha. The experiment was arranged in a 2 x 4 factorial fitted into randomized complete block design with three replications. The results showed that oniyaya performed better than amugbadu in terms of plant height, number of leaves and branches, fresh stem weight and dry stem, shoot and root weight. Growth and yield of Corchorus olitorus increased as fertilizer rate was increased from 0 kgN/ha to 90 kgN/ha. It is therefore concluded that yield of Corchorus olitorus could significantly be improved by application of organic fertilizer at the rate of 90 kg N/ha.

INNOVATIVE PRACTICES TO ENHANCE ORGANIC AGRICULTURE PRODUCTION AMONG LOW TECHNOLOGY FARMERS

*E.C. ODION[1], U.L. ARUNAH[1], A.I. SHARIFAI[1], B.E. SAMBO[2], S.A. OGEDEGBE[2] AND H. YARO[2].

[1]Department of Agronomy, Institute for Agricultural Research, Ahmadu Bello University, Zaria.
[2]Other Research Institutions/Bodies, *corresponding author,

Abstract

Low technology farming is beset with problems due to the inability of farmers to invest in means to improve output and thus break out of the cycle of poverty. The practice of organic agriculture is however opening up avenues to reassess what is naturally available to these farmers and use such means to improve on their productive capacity. Investing in biological nitrogen fixation is cheaper than investing in chemical nitrogen to boost soil productivity; while medicinal plants can also play vital roles in the control of pests and diseases; two important aspects of organic agricultural production. Cowpea (Vigna unguiculata (L.)Walp) sown at very high population density produced between seven and fifteen tons/ha of green fodder depending on the clipping time; which translated to about 140kgN/ha of total nitrogen added to the soil in four seasons. The cash equivalent was around N18,500.0 of nitrogen - about six bags of urea fertilizer. Hyptis sauveolens (Poit.) (African bush tea); is a weed that has a lot of potentials for use in pests and diseases control in plants and animals. It has antimicrobial, insecticidal, acaricidal, larvicidal and anti-inflammatory effect. It has been used successfully in the production of organic cotton, and has shown promises with tomatoes, roselle, cowpea and groundnut. Also lablab, (Lablab purpureus (L.) var. ILRI 147); when clipped after 12 WAS produced cumulative fresh herbage of over 30t/ha, of which more than 50% was at 12WAS. When the fodder is conserved either by ensiling in bags, on concrete or on the ground, results showed that ensiled fodder had significantly higher ash and nitrogen free extract than the dried

fodder, though they were similar in dry matter and crude protein; indicating that such technologies can be used to boost animal production among low technology farmers.

Key words: Biological nitrogen fixation, clipping management, organic agriculture.

RABBIT REARING: AN OPORTUNITY TO REVERSE FOOD INSECURITY FOR THE ZAMBIAN PERI-URBAN POOR AND RURAL COMMUNITIES

MARTHA KEMBO

Zambian SciTech Resource Foundation, Zambia, marthakembo@yahoo.com

Abstract

The Zambian rural and peri-urban population consists mainly of small scale farmers surviving on rain fed crops and small livestock. Generally, economic activities are very low, hardly meeting basic household needs. After end of rain season and harvest in May/June it is common for people sit back and wait for the next rain season in November/December. Thus, almost half of the years income generation opportunity is wasted., especially by the youth who often turn to bad vices. Slaughtering and consuming the few animals possessed by a household is not much of an option as in villages prestige and respect is measured by the number of livestock owned. This practice denies the children the much needed protein resulting in high malnutrition while the women and the youth continue in poverty.

As a response to this, rabbit rearing could provide meaningful occupation for many households and provide food and income throughout the year.

The author, a small scale rabbit farmer carried out a small research after finding problems to acquire rabbit breeding stock. She discovered that while the rabbit industry can be a viable industry with examples of having reduced poverty in some countries; in Zambia it is an unfamiliar and silent industry undertaken by a few educated farmers dotted around Lusaka and its peri-urban areas. Those farmers operate as individuals with no support from extension service of the Ministry of Agriculture, nor from NGOs with mandate to reduce poverty. The research further revealed that in Zambia rabbit consumption is negligible

This paper serves to outline how rabbit farming has potential to improve people's livelihoods .. It could target the youth, women and the disabled . Due to its relatively low demand for inputs the enterprise can easily be good for organic meat and skin production.

The author also seeks to advocate the government to support the industry by developing a deliberate strategy for implementation through a public private partnership arrangement.

MOBILIZING LOCAL MARKETS: THE ROLE OF SME'S

MOSES GICHURU NDIRITU

Chair, Gitundu Gataro origin self help group
Managing Director: Bonde soko & marketing services
Email:kingsolo54@hotmail.com
Tel: +254 722343166/ +254 738 343 166
Postal: P.o Box 15199-20100 NAKURU KENYA

Abstract

The sustainability of small scale organic farming lies in market access of their organic produce: the challenges to access the market lies in the fact that organic groups are spread out ie:- large geographical areas and more often produces " small quantities" that are logistically difficult and uneconomical to reach the export markets.

The "uneconomical" levels of productions rarely attract the " big boys" in organic business and hence many groups rarely survive after a few years of initiation and conversation into organic production.
The solution lies in incorporating and harmonizing the existing networks of agro-based SME'S existing in the Africa food chain industry as a link between the farmers and markets.
The said SME'S need to be trained and inducted into the and advantages of organic production, encouraged to package organic, products as per to markets demands and eventually Create a niche organic market and segment within their existing agricultural business.
This paper will explore ways on how to induct the SME into organic value chain and also gives learning experience of BONDE SOKO services case study in Kenya.

EFFECT OF ORGANIC PESTICIDE SPRAYS ON COTTON PESTS AND YIELDS IN NORTHERN UGANDA

MOSES ODEKE[1]; ALASTAIR TAYLOR[1]; AND JIMMY APULE[1]; LUCY SENYA[1]

[1]Agro-ECO Uganda P.O Box 71982 Kampala Uganda
Correspondents Email:modeug2002@yahoo.com

Abstract

Cotton is an important traditional cash crop in Uganda and is an important source of income for smallholder farmers in many parts of Uganda. A study was conducted in northern Uganda to investigate effect of organic pesticide sprays on cotton pests and yields. The main objective of the study was to identify major pests constraining organic cotton production; and assess the effectiveness of the local organic pesticide sprays against the common pests. Three (3) organic pesticide treatments were imposed on the trials. These included: T1 (chili; garlic and soap mixture); T2 (lantana; pawpaw leaves and soap mixture); and T3 (control; no organic sprays).
The results show that; cotton lygus and bollworms were the most common pests in organic cotton production. The results on organic sprays indicated that T1 spray (chili, garlic, soap spray) seems to have had more effect on bollworms than lygus. The trial plots sprayed with chili mixture had relatively fewer bollworms compared to the control plots. Similarly, trial plots sprayed with T1 (chili mixture) and T2 (lantana mixture) sprays had relatively fewer lygus (%) compared to the control plots clearly suggesting that the organic pesticides had an effect on occurrence of cotton lygus. The results also show that lantana, pawpaw leaves and soap spray appears to be more effective against the lygus compared to chili, garlic and soap mixture. Overall, these results suggest that chili, garlic, soap spray seems to be more effective against bollworms, while lantana, pawpaw leaves, and soap mixture is more effective against cotton lygus. Results on effect of organic pesticide sprays on yields (seed cotton yields) indicate that plots that were sprayed with lantana; pawpaw leaves and soap mixture performed better (538.9Kg/acre) than those that were sprayed with chili, garlic and soap mixture (506.9 Kg/acre). Results on organic pesticide sprays have revealed a great potential of the organic pesticides in controlling cotton pests. These findings could be used to design appropriate pest management strategies in organic cotton producing areas in Tropical Africa.

Key words: Pests; Organic Pesticide Sprays; Cotton; Yields; Northern Uganda; Tropical Africa

DOES SOIL TYPES AFFECT PHOSPHORUS RELEASE PATTERN OF TITHONIA DIVERSIFOLIA COMPOST AND POULTRY MANURE?

KOLAWOLE G. O.

Department of Crop Production and Soil Science, Ladoke Akintola University of Technology, PMB 4000, Ogbomoso, 210001, Oyo State, Nigeria
Email: oladejokolawole@hotmail.com

Abstract

In organic farming, use of organic ameliorants is a pivotal strategy for soil P fertility improvement in tropical soils that are inherently low in phosphorus. Knowledge of P availability from added organic residues in different soil types will be valuable for efficient nutrient management and in maintaining synchrony between P release and plant uptake. Incubation experiment was conducted for 42 days to determine P release patterns of Tithonia compost and poultry manure in three dominant soil types in the southern Guinea savannan of Nigeria. For Egbeda soil (Oxic Paleustult), soil P decreased with increase in days after incubation from 7.37 mg kg^{-1} in day0 to 3.41 mg kg^{-1} in day42 with addition of Tithonia compost whereas application of poultry manure had no significant effect on soil P content. Soil pH was positively correlated with soil P (r = 0.79), For Itagunmodi soil (Rhodic Paleustult), application of Tithonia compost and poultry manure increased P significantly from 1.21mg kg^{-1} in day0 to 3.47 mg kg^{-1} in day42. Soil pH had significantly negative correlation with P (r = -0.64) with application of Tithonia compost only. For Majeroku soil (Abruptic Tropaqualf), soil P also increased from 3.27 mg kg^{-1} in day0 to 7.20 mg kg^{-1} in day7 and declined to 5.85 mg kg^{-1} in day42 with application of Tithonia compost. Similarly, addition of poultry manure significantly increased soil P from 3.32 mg kg^{-1} in day0 to maximum of 9.93 mg kg^{-1} in day28 but declined to 7.95 mg kg^{-1} in day42. Soil pH was correlated with P (r = 0.68). The results showed that P release patterns of Tithonia compost and poultry manure are dependent on soil characteristics that may influence nutrient use efficiency by crops.

EVALUATION OF EFFECTIVE MICROORGANISMS (EM) TECHNOLOGY ON MAIZE (ZEA MAYS L.) GROWTH, DEVELOPMENT AND YIELD IN MOROGORO TANZANIA

SAIDIA PAUL SABAS[1]; CHILAGANE DAUDI AMOS[2]; ALEXANDER WOSTRY[3] AND MARO JANET FARES[3].

1 Lake Zone Agriculture Research Institute Ukiriguru, P.o Box 1433 Mwanza, Tanzania
2 Iringa District Council, District Agricultural and Livestock Development Office, Iringa Tanzania
3 Bustani ya Tushikamane – Garden of Solidarity, P.O Box. 765 Morogoro, Tanzania
Corresponding author: Paul Sabas Saidia, LZARDI Ukiriguru, Box 1433, Mwanza, Tanzania, E mail saidiapaul@yahoo.co.uk, Mobile +255 783 299 684 or +255 653 299 684

Abstract

The field experiment was conducted at Tushikamane Centre Kilakala, Morogoro Tanzania to investigate the effect of EM technology on maize (Zea mays L.) growth, development and yield. Maize is a major cereal consumed; over 80% of population depends on maize for food in Tanzania. Low soil fertility, insect pests and diseases are among the primary constraints in maize production. This is due to continuous cultivation without fertilizing the soil, poor and lack of proper measures to control pest and diseases. Most farmers in both rural and urban areas of Tanzania are not aware with the use of organic fertilizers especially the EM (Effective Microorganism) technology in agriculture to increase crop yield without the use of agricultural chemicals or artificial fertilizers, the method of farming is inexpensive, capable of producing high-quality products, high yield produces and preserving the environment. Therefore, this research work mainly aimed at studying the efficiency of EM technology on maize (Zea mays L.) crop performance in the field.

Five treatments comprising of EM technology EM-Bokashi, Bokashi and EM-A, EM-FPE and EM-5, combination of Bokashi, EM-A, EMFPE and EM5, and absolute control were compared in a randomized complete block design with three replications. Bokashi leaves (3.7%N) at 1851.9kg/ha, 200 mls of EMA mixed with water to make a 2L solution, EMFPE and EM5 were mixed with water at 200mls to get a 2L solution which was sprayed thrice a week scheduled for application. Three weeks were scheduled for application of EM.
Application of EM-Bokashi produced an average yield of 3.06 tonha^{-1}, EM-Bokashi and EM-A produced grain yield of 3.24 tonha^{-1}, EMFPE and EM-5 produced 3.11 tonha^{-1} and, application of all EM-Bokashi, EM-A, EMFPE and EM-5 produced grain yield of 3.51 tonha^{-1}, while absolute control produced 2.12 tonha^{-1}. Application of EM improved maize crop yield from 2.1 to 3.5 tonha^{-1}, the increase is about 1.4 tonha^{-1} equivalent to 67 percent.

STIMULATING DOMESTIC ORGANIC MARKET DEVELOPMENT THROUGH ORGANIC FARMERS MARKETS: KENYAN EXPERIENCE

Organic farmers market is a market exclusively attended by organic farmers who bring vegetables, fruits and processed products from their farms and sell direct to consumers while discussing with them how they produce their products. The market may be formal with strict rules and regulations governing the operation or non formal where the participating farmers meet regularly under a loose arrangement.
Organic farmers markets premiered in the western countries as a direct marketing tool to provide an avenue where smallholder organic producers meet with their consumers to interact. It has spread all over the world with the concept being taken up by developing countries. In Africa, Organic farmers Market have been going on in South Africa and have shown good success. It has been a source of healthy food and information on organic foods for consumers, and a market for producers.
KOAN started facilitating organic farmers markets in Kenya in 2006. The markets have emerged as a key component of market access to farmers and an enjoyable shopping experience for consumers. Some of the key organic farmers markets that have been held include Rosslyn Organic Farmers Market in The River Garden Centre-2008, The Arboretum Organic famers Market-2007, The City Park Organic farmers Market-2007, Talisman Restaurant Farmers Market-2009 and of recent the Rusty Nail Organic Farmers Market-Karen, which is currently held every Saturday from 9.00 to 4.00 p.m- from 2010.
Since KOAN started to organize the markets, they have played a key role in creating awareness to consumers who attend while providing them an opportunity to source healthy and tasty products. In the rusty Nail market, close to 200 consumers shop every Saturday. Some of the key achievements for the organic farmers markets have been; providing farmer's opportunity to market their products, provide an awareness of consumption of organic products and environmental conservation, creating trust with consumers through direct contact with consumers and have provided an avenue for consumers to source organic foods.

Key Words: Farmers markets, direct marketing, smallholder farmers, consumer awareness

ASSESSMENT OF EFFICIENCY DIFFERENTIALS AMONG ORGANIC AND IN-ORGANIC USER SMALL SCALE ARABLE FARMERS IN NIGERIA. A STOCHASTIC FRONTIER APPROACH.

*OGUNWANDE I.O

* Department of Agricultural Technology, Oyo State College of Agriculture, Oyo State, Nigeria.
E-mail: segog23ng@yahoo.com

Abstract

The study investigated the difference in productivity of small scale farmers that made use of organic fertilizer and otherwise in the study area. A total of a hundred and twenty(120) farmers were interviewed using simple random sampling technique. Sixty(60) copies of questionnaires were administered on each of organic and in-organic fertilizer small scale farmers. Descriptive Statistics(DS) was used to identify socio-economic characteristics of respondents. The technical efficiency of individual farmers' farm, determinants of the said efficiency and the level of productivity were the objectives upon which the research was launched to base the findings on. Stochastic Frontier Production Function(SPFS) was used to determine the impact of organic fertilizer or otherwise on efficiency frontier attained by each of the arable crop farmers under study. Also, Tobit regression model was used to identify the factors among factors responsible for the degree of efficiency score attained by each of the groups under study. The tested hypothesis revealed that organic fertilizer improves the efficiency and productivity of farmers tremendously at a very high significant level.

Keywords: Organic fertilizer, Arable crop farmers, Technical Efficiency, Tobit Model

COMPARATIVE PERFORMANCE OF OKRA (ABELMOSCHUS ESCULENTUS) UNDER SUBSISTENCE ORGANIC FARMING USING DRIP AND WATERING CAN METHODS OF IRRIGATION

E. A. AIYELARI, S.O. OSHUNSANYA AND O. ALIKU

Department of Agronomy, University of Ibadan, Nigeria
Corresponding Author: soshunsanya@yahoo.com (+234-8059759169)

Abstract

Modified irrigation technique that poor resource farmers can afford and use easily is urgently needed in order to produce on a continuous basis to meet the demand of ever-increasing population globally. Therefore, a field experiment was conducted at University of Ibadan, during the dry season in 2011 to evaluate the performance of organic okra under modified bucket kit-drip and watering-can methods of irrigation.
The plots under bucket kit-drip irrigation system produced higher fresh fruit weight (88.9 kg ha^{-1}) compared to the watering-can system (77.8 kg ha^{-1}). There were significant differences in the mean values of 49.6 and 41.5, for number of leaves; 5.3 cm and 4.0 cm, for stem diameter; and 246.3 cm and 186.9 cm, for plant height under the drip and watering-can system respectively, with the drip system having higher values. Bucket kit-drip irrigation treatment had a higher mean percentage plant survival (88.9 %) than those under the watering-can method (86.7 %). The study showed that the drip system is more effective in making the environment suitable for plant survival that resulted to improved plant growth and yield.
Key words: Bucket kit-drip irrigation, Watering-can irrigation, Okra yield

PRINCIPLES AND PRACTICES OF HOLISTIC MANAGEMENT AND HOW THESE CAN AND DO SUPPORT ORGANIC PRODUCTION

WIEBKE VOLKMANN

Namibia Centre for Holistic Management, Namibia, wiebke@mweb.com.na

Abstract

To understand the presentation of two case studies from Namibia, a preceding overview of the key principles of Holistic Management is suggested to the organizers of the African Organic Conference. Holistic Management is a risk management tool that helps to simultaneously consider immediate and long term consequences of management decisions on the ecological, social and economic resource base and the values that are important to the managers and users of these resources. It helps decision makers to invest their efforts into addressing the root cause of problems and to recognize opportunity where usually we see challenge. Holistic Management has emerged from observations and experiences by scientists and resource management practitioners from all over the world and especially in Africa it corresponds with seasoned cultural practices. It was especially informed by studies and insights of Allan Savory in Southern Africa and other seasonal rainfall environments and it is continually updated by a network of agricultural practitioners and scientists around the world.

Hooved animals are recognized for their role in fertilizing and breaking soil capping, trampling down moribund grass to form a protective mulch layer and planting seeds over vast areas of land without direct human labor, machinery, fossil fuel and with minimal external inputs.

Mimicking the movement of large herds of wild herbivores in season rain fall areas livestock farmers combine their animals to graze at relative high density. The resulting even utilization of all plant species stimulates bio-diversity and benefits animal health and production through a balanced, varied diet. The planned moves of animals from one place to the next are also guided by the need of perennial grasses for a sufficiently long recovery period during the growing season when grass tufts not only grow out and produce seeds but also deposit energy reserves in their roots.

While these ecological insights were and are the original foundation of Holistic Management the livelihood needs and opportunities and the likely short and long term effects on human and social dynamics are addressed through a decision testing process that gives equal importance to ecological, economic and human/social concerns. In this way the whole chain of production (including waste management) is addressed.

The systematic approach enables managers to design and implement pro-active and practical strategies without being overwhelmed by the complexity. In this regard Holistic Management can be seen as a social technology that supports natural balancing of human needs and resource use. This presentation makes use of innovative illustration and communication materials used in the field to engage commercial producers and communal farmers in participatory discussions.

Experiences from both commercial, freehold land managers and communal lands in Southern Africa illustrate the multiple benefits for household, community, national and global contexts. Real life examples from Zimbabwe, Namibia, South Africa and Botswana serve as evidence for the practical experience gathered over the past 30 years. Improved livelihood, quality of life and ecological restoration are now attracting the attention of policy makers and large scale development programs in Namibia as well as neighboring countries.

Key words: Holistic Management, tripple bottom line, ecological literacy, decision making

FACING THE CHALLENGES OF ORGANIC LIVESTOCK PRODUCTION IN THE SEMI-ARID SAVANNAH CLIMATE OF NAMIBIA WITH THE HELP OF HOLISTIC MANAGEMENT™

JUDITH ISELE AND EKKEHARD KUELBS

Namibian Organic Association; Namibia Centre for Holistic Management, Namibia
standards@noa.org.na; iselkuel@iway.na
www.noa.org.na

Abstract

Up to now only two cattle and no small stock farms are certified by the Namibian Organic Association. Natural circumstances favor extensive livestock farming on the basis of animals foraging on natural pasture. Even when conventionally managed, these free range conditions naturally allow animal husbandry that is closer to organic ideals than most European farming systems ever achieve. Being uniquely able to convert plant material into animal produce, ruminants are simultaneously 'gardeners of their own food. Therefore sound management of rangelands (soils included!) needs to get as much attention as the wellbeing of the animals. (IDEL, 2011; VOLKMANN, 2011)

The example of Farm Springbockvley and it's combined herds of small and large stock are used here to showcase the typical Namibian circumstances of livestock farming on the one hand and to distinguish between the conventional and the more sustainably managed farms on the other hand. In addition, the challenges and constraints of converting to organic agriculture are demonstrated.

Springbockvley with its highly efficient, low input approach and well adapted indigenous animals that require almost no external inputs, is ideally set up for organic production.

For this paper records and statements of the past 20 years are gathered that are based on the knowledge and understanding of sustainable practical farming on farm Springbockvley. Well adapted small frame cattle and sheep are run in few combined herds of up to 300 head of cattle and 2000 sheep per herd.

With the practice of Holistic Management™ Planned Grazing and low-stress livestock handling techniques it was possible to continually increase stocking rates over the years (see also BARROW, BINDING AND SMITH 2010). Simultaneously, since 1995 a remarkable ratio in meat production per hectare of more than one third of the stocking rate was and is maintained and compares well with those of areas with higher production capacities. Since 1997 the business recorded a continually improvinging farming income with almost constant levels of farming expenses that do not make up more than approximately one third of the income. (ISELE AND KÜLBS 1989-2011; ISELE, KÜLBS WITH VOLKMANN, 2010) Contrary to the trend in conventional and industrial agriculture these outcomes confirm the approach that focuses on combined herd performance i.e. overall animal production per hectare.

In approaching the challenges of organic livestock production the adoption of Holistic Management™ procedures readily provides tools for optimizing livestock farming in a sustainable way. The use of urea and other synthetic nitrogen compounds is prohibited in organic production. Sound grazing planning goes a long way towards optimal supply of all nutrients for the animals' needs. Given that most parts of the dry country are unsuitable for crop production (soybeans or else), further research on alternative protein sources might be crucial to sustain healthy and well-fed organic animals. (BARROW, BINDING AND SMITH 2010).

In the domestic and regional markets it is questionable whether substantial premiums for organic meat are achievable. This paper discusses possible motives behind converting to organic production nevertheless.

Key words: sustainable rangeland management, extensive livestock farming, adapted cattle and sheep, Holistic Management™, Namibia

COMMUNITY BASED RANGELAND AND LIVESTOCK MANAGEMENT (CBRLM) AS A MULTIPLE-BENEFIT STRATEGY FOR IMPROVING MEAT PRODUCTION WITH LOW EXTERNAL INPUTS

COLIN NOTT

Integrated Rural Development and Nature Conservation, Wiebke Volkmann,
GOPA-CBRLM and Namibia Centre for Holistic Management, Namibia
canott@iafrica.com.na, Website: www.irdnc.org.na

Abstract

This presentation focuses on mixed agricultural production on communal (open access) land in Namibia.. Both subsistence and commercial farming experiences a decline in carrying capacity and crop yields over the past decades. Because of the multiple production goals of livestock owners in communal areas any intervention to address farming practices requires a flexible, holistic approach.

The key strategy of CBRLM involves combining the animals of various owners in a negotiated grazing area and herding them according to a grazing plan. This does not directly stem from a desire to produce and market organic produce but it satisfies most of the criteria of organic production and therefore is seen as a relevant contribution to this conference. Previous agricultural extension had tried to curb overgrazing and loss of top soil and perennial grasses by encouraging farmers to reduce their stock numbers. Besides being socially unacceptable this strategy has also not had the desired result of reversing land degradation. (MAWF, 2009). This paper describes the recent efforts on communal land with regards to improving quality and sustainability of livestock and the resource base which it depends on.

The Namibian NGO Integrated Rural Development and Nature Conservation (IRDNC) together with relevant line ministries was instrumental in developing community facilitation processes and a legal framework and joint ventures that now return material, financial and decision making benefits to rural communities from tourism and wildlife enterprises. Building on this success the organization went on to explore ways to reduce the risks of ecological break down and of limited income streams by enhancing the traditional livestock practices of rural communities.

CBRLM requires few or no external inputs for raising healthy animals while lowering the risk and improving the money earning capacity of pastoralists who up to now were at the mercy of erratic climate, climate change and market dynamics. The practice is gaining momentum because it builds on and combines culturally acceptable forms of management (herding) with sound ecological and scientific knowledge. Ecological benefits of CBRLM are not limited to the production of healthy animal and dry land crop produce but also to enhancing ecological services, such as an improved water and mineral cycle, biological management of "problem organisms" and increased soil carbon sequestration.

The economic advantages from herding come through reduced losses (to predators, abandonement, stock theft and neglect of disease or injury) as well as improved animal nutrition and from that better animal condition and production (milk, birth rates, slaughter weights and grading). Job opportunities and improved livelihoods in rural areas, reduced conflict over resource use and water infrastructure maintenance, reduced and shared labor especially for HIV/AIDS affected households and the social cohesion through a joint purpose are some of the social benefits that have come from herding and planned grazing.

This paper also discusses how the grass roots experiences of an NGO (IRDNC) are informing and inspiring large scale national development programs and policy making.

Key words: communal land, sustainable rangeland management, policy making, indigenous livestock, low-input agriculture.

GUIDELINES FOR THE PRODUCTION, PROCESSING, LABELING AND MARKETING OF ORGANICALLY PRODUCED FOODS IN SUDAN

BATOUL MOHAMMAD ABDO

Ministry of Agriculture and Irrigation, Khartoum, Sudan
batatis77@hotmail.com

Abstract

1. These guidelines have been prepared for the purpose of providing an agreed approach to the requirements which underpin production of, and the labeling and claims for, organically produced foods.
2. The aims of these guidelines are:
   - To protect consumers against deception and fraud in the market place and unsubstantiated product claims;
   - To protect producers of organic produce against misrepresentation of other agricultural produce as being organic;
   - To ensure that all stages of production, preparation, storage, transport and marketing are subject to inspection and comply with these guidelines
   - To harmonize provisions for the production, certification, identification and labeling have organically grown produce;
   - To provide guidelines for organic food control systems in order to facilitate recognition of systems as equivalent for the purposes of imports; exports and local consumption.
   - To maintain and enhance organic agricultural systems in Sudan so as to contribute to local and global preservation.
3. These guidelines are at this stage a first step into official harmonization of the requirements for organic products in terms of production and marketing standards, inspection arrangements and labeling requirements. In this area the experience with the development of such requirements and their implementation is still very limited. Moreover, consumer perception on the organic production method may, in certain detailed but important provisions.

AN INNOVATIVE TRAINING METHOD FOR FARMERS AND GARDENERS AS INITIATED BY THE BIODYNAMIC AGRICULTURAL ASSOCIATION OF SOUTHERN AFRICA.

HELEN VAN ZYL

Biodynamic Agricultural Association of Southern Africa
info@bdaasa.org.za: South Africa.

Abstract

Given the burning issues in world agriculture it is incumbent on those concerned and involved to develop a methodology of training that answers the urgent and challenging needs on the ground with farmers and gardeners in southern Africa.
The Biodynamic Association has developed training modules for farmers and gardeners over the past 5 years. The purpose is to expand and develop biodynamic and organic agriculture. The intention is to research and continually re examine what are the most appropriate courses needed for each region.
This presentation will focus on the early stages of setting up and initiating training modules. Based on a wholistic approach and the concept of collaboration, the local skills can be incorporated to form a training circle who develop training modules to meet the specific needs of the region. While theory is applied practically in the training a key innovative component is the ability to co create together through active participation.

Good afternoon everyone. My name is Helen van Zyl and I stand here representing the Biodynamic Agricultural Association of Southern Africa. I am very pleased and appreciative of this all important conference in our southern continent and to all those that were inspired to create it and work tirelessly to make it happen. This conference brings so many people together to honor our farmers and their work. This conference creates an abundant possibility for new ideas to emerge for a renewal in the present state of our agriculture.

CHALLENGES OF CONVERSION TO ORGANIC LIVESTOCK PRODUCTION IN SMALLHOLDER FARMS IN KENYA

[1]ODHONG', C.O*, [2]VAARST, M AND [1]WAHOME, R.G.

[1] University of Nairobi, [2] Aarhus University
*P. O. Box charles.odhong@students.uonbi.ac.ke

Abstract

Certified organic livestock production in Kenya nearly does not exist despite the fact that livestock production forms an integral part of many organic farms, because of its role in nutrient recycling on the farm. The purpose of the study was to indentify and document the challenges of conversion to organic livestock production. A total of 63 semi-structured questionnaires were administered smallholder farmers in Kiambu and Kajiado whose crop enterprises were certified to determine the influence of production and socioeconomic factors to conversion of their livestock enterprises. Survey data were documented and analyzed using SPSS and the ground theory method. Dairy cattle, goats and chicken constituted the main livestock kept by the farmers. None of the farmers had converted their livestock enterprises to organic and the animals were mainly kept for subsistence purposes. 60% of the dairy cattle, goat and chicken owners were female and were more involved in routine livestock management, with farming as their major source of income. 40% of the farmers have practiced crop-livestock integration for more than 7 years and have considered managing their livestock organically. Results suggest that lack of approved livestock feeds and organically approved technologies to use against pest and diseases were the most important constraints to the farmers and the major hindrance to conversion of the livestock enterprises. Farmers reported using a number of organic innovations for prevention of mastitis, de-worming and reducing inflammation but found that the innovations were not sufficient remedies forcing them to seek alternative inorganic solutions. The prospects of organic livestock production are dependent on farmers' socioeconomic status, support to organic livestock production, research, education and extension. These factors should therefore be considered when planning strategies to develop organic livestock production in smallholder farming systems.

Key words: organic livestock production, smallholder, conversion, Kenya

SUSTAINABLE ORGANIC AGRICULTURE: A FARMING SYSTEM TO ENHANCE RURAL FOOD AND INCOME SECURITY AND LESSEN THE VULNERABILITY OF RESOURCE CONSTRAINED FARMERS TO CLIMATE CHANGE EFFECTS: A CASE STUDY OF CHONGWE DISTRICT, KAZUNGULA, SESHEKE, SHANGOMBO AND MONGU.

KATE BINGLEY, KOMBA L. TEH, ANGELA MWALE, CONRAD MUYAULE, DONALD ZULU, MANTINA MUVELA, SUNDAY SIAME, DANIEL KALALA.

Kasisi Agricultural Training Centre P.O. Box 30652, Lusaka. Danielkalala2@gmail.com

Abstract

Agriculture is the main stay for the majority of rural Zambians. However, agricultural productivity and production remain low due to a number of factors and as a result, chronic food and income insecurity and severe poverty still remain high in most rural communities. To address some of the problems, a consortium consisting Kasisi Agricultural Training Centre (KATC), the Jesuit Centre for Theological Reflection (JCTR), Caritas Livingstone, and Catholic Relief Services (CRS), funded by the Scottish Catholic International Aid Fund (SCIAF) and the Scottish Government worked together to implement the Promotion of Rural Food Security Programme (PRFSP) in Chongwe, Kazungula, Sesheke, Shangombo and Mongu districts. The overall objective of the programme was to improve food security, household incomes, and resilience to climate change of marginalized rural communities in Zambia through more widespread adoption of organic/conservation farming practices. After three years of implementation of the programme, there was an increase in the adoption of organic agriculture (OA) practices among the households trained in OA, from 17.5% to 43%. The average size of land under cultivation using OA practices was seen to increase from 0.5 ha to 1.3 ha. The maize yield among farmers who had adopted OA practices increased from 2.2 tons/ha to 2.4 tons/ha. The percentage of participating households planting at least one drought tolerant crop variety from each of the three types of crops promoted by the program (cereals, legumes, and oil seeds) was seen to increase from 40.5% to 51%. The mean number of months that households have food from own farm production increased 6.5 to 9.5. More than 60% of the participating farmers reported improved yields for three consecutive seasons. Sixty-one percent of the participating households had increased their income by 50% from sales of farm produce. There was an increase in the percentage of target households with surplus crops for sale in each marketing season from 25.9% to 69%. Going by these figures it can be said that OA presents a viable and appropriate farming system for increased productivity and production, increased food and income security, increased adaptation to climate change effects and contribution to poverty reduction.

Extract: Final Evaluation report - PRFSP

PERMACULTURE: A LAND USE DESIGN TO ENSURE AGRICULTURE SUSTAINABILITY AND FOOD AND INCOME SECURITY

DANIEL KALALA, BENSON H. CHISHALA, FELIX HAAZELE, BERNARD MOONGA, SHIRLEY NG'ANDU, KALALUKA MUNYINDA, BRIDGET O'CONNOR, ELIAS KUNTASHULA, CHEWE NKONDE

Kasisi Agricultural Training Centre P.O. Box 30652, Lusaka. Danielkalala2@gmail.com

Abstract

The greatest challenge to agriculture is to sustainably produce enough food to feed the world population. Besides not being sustainable, current agriculture practices do not guarantee adequate production and access to food for all. Permaculture is a land use design that mimics nature, and aims at maintaining the ecological balance thus promoting sustainability. To assess the practical application of Permaculture, Kasisi

Agricultural Training Centre in conjunction with the University of Zambia conducted a trial whose main objective was to design a 1 hectare rain-fed permaculture trial and compare its output with 1 hectare monocrop hybrid maize. In the three years of the trial, there has been a net build up in soil fertility in the trial plot as observed in increases in pH (from 4.3 to 5.3); nitrogen (from 0.081% to 0.11%); organic matter (from 1.57% to 1.75%); and phosphorus (1 to 35 ppm). Soil results for the control farmers for the second and third years, reveal that the soils are still acidic with pH values ranging from 4.4 to 4.7 and 4.1-4.8 in second and third years respectively. The N content for the two years ranged from 0.06 to 0.08% in the second year and 0.06 to 0.1% in the third year. The soil organic matter, phosphorus and potassium content were also found to be relatively low. The permaculture plot had a negative gross margin in the first year. But this improved in the second and third years, with values ranging between K 1,000,000 to K 2,000,000/ha. Results from the four maize monocrop control farmers revealed that only one farmer had managed to break even in all the three years, the other three had negative gross margins ranging from - K 1,100,000 to - K 3,360,000 in all the three years. From its inception, the trial plot has had an average of 17 to 22 different crops to ensure a balanced and nutritious diet and all year round food availability. Going by these findings, permaculture clearly presents a very good alternative farming system that can enhance food and income security while improving the soil fertility thus ensuring sustainability.

ON-FARM EVALUATION OF BOTANICAL PRODUCTS AS STORED GRAIN PROTECTANT AGAINST MAIZE PESTS

DONALD ZULU[1], BLESSWELL HANKWEEKWE[2] AND MOSES CHIBESA[2]

[1]Kasisi Agricultural Training Centre (KATC), P. O. Box 30652, Lusaka, Zambia
E-mail: donald.zulu@gmail.com
[2]The Copperbelt University, School of Natural Resources, Kitwe, Zambia

Abstract

This study was conducted to evaluate the efficacy of botanical products (2 % by weight of powdered root bark and 5 % water extract of Securidaca longependuculata root bark) as storage grain protectant against maize pests in four selected areas of Chongwe district of Zambia. These botanical products were compared with the synthetic chemical (Shumba), 0.25 % by weight of diatomaceous earth and without insecticides application as a control. Shumba, Securidaca root bark powder and water extract and diatomaceous earth all performed well in reducing live insects during maize storage as compared to the no insecticide application. This study suggests that Securidaca root bark can be used as an alternative to synthetic pesticides against maize grain pests especially in organic farming systems.

Key words:. Botanical product, Securidaca longependuculata

INTEGRATING AGROFORESTRY INTO ORGANIC FARMING

DONALD ZULU

Kasisi Agricultural Training Centre (KATC), P. O. Box 30652, Lusaka, Zambia
E-mail: donald.zulu@gmail.com

Abstract

One of the greatest constraints facing smallholder farmers in sub-Saharan Africa includes low and declining soil fertility and has grave consequences on food security. Integrating agroforestry practices involving fertilizer (leguminous) trees into organic farming systems could address this problem. Fertilizer tree systems are based on biological nitrogen fixation, biomass production and nutrient cycling. There is

overwhelming evidence from peer reviewed papers on the effect of fertilizer trees on crop productivity. For example, maize yield in sub-Saharan Africa is reportedly doubled and in some cases tripled relative to unfertilized maize. Whilst fertilizer trees shows potential in enhancing agricultural productivity, adoption is particularly low in Chongwe district in particular and the rest of sub-Saharan Africa. To significantly increase adoption of agroforestry, Kasisi Agricultural Training Centre (KATC) proposes use of holistic, pragmatic and appropriate extension strategies involving participatory community mobilization, rigorous training, demonstrations, field days, intensive farm visits and motivational tours. These extension strategies are crucial in increasing adoption since agroforestry is knowledge intensive and has a characteristic long term perspective in terms of accruing benefits from trees and shrubs. This paper explores the potential of integrating fertilizer trees into organic farming and increasing adoption by combining evidence from peer reviewed literature and KATC's experience in promoting fertilizer trees within the organic agriculture framework.

Key words: Fertilizer trees, organic farming, food security

DEVELOPMENTS IN THE GHANA ORGANIC AGRICULTURE SECTOR

EMELIA MONNEY[1], CHARLES SACKEY[2],

[1] Horticulture Development Unit, Directorate of Crop Services, Ministry of Food and Agriculture, Accra. P. O. Box M37 Accra, Ghana eomonney@gmail.com
[2] GIZ-MOAP, Ministry of Food and Agriculture, Accra P. O. Box 9698 KIA, Accra charles.sackey@giz.de

Abstract

Ghana envisages that the development of a vibrant agriculture sector is critical to the economic development of the country. To maximize productivity for enhanced growth in incomes and improved livelihoods, the Ministry of Food and Agriculture (MOFA) in Ghana has been mandated to promote the sector's development under the objectives of 1. Improve agriculture productivity, incomes and employment opportunities; 2. Contribute effectively to balance of payments; 3. Establish effective agriculture ¬ industry linkages; and 4. Promote balanced regional development. To achieve these objectives, a number of interventions have been implemented over the years with varied results. Within the last 10 years, the Ministry has focused on the development and implementation of the Food and Agriculture Sector Development Policies – FASDEP I and FASDEP II

Working within the framework provided by the FASDEP II, the organic desk focused on advocacy, capacity building, group development and market development for the organic sector. Most of the work had been done with support from the German International Cooperation Market Oriented Agriculture Programme (GIZ – MOAP). Achievements so far are 1. The training of 30 MOFA staff and other stakeholders in the 10 regions of Ghana, on the principles of organic agriculture. 2. The appointment of core of MOFA staff to further advocate for and promote organic agriculture in the regions. Through the collaboration of these regional officers in the Upper East Region, the desk is collaborating with the Coalition for the Advancement of Organic Farming (CAOF) in the Upper East, and Northern Regions of Ghana and the Christian Aid who are working with CAOF to promote organic agriculture for export and the domestic market.

Alternative forms of agriculture production that guarantee food safety are considered priority under FASDEP II, especially in relation to diversification alternatives in agriculture production, increase in income generation for small and medium-scale farmers and improvement of farmers' access to domestic and international markets. Organic agriculture development and marketing when promoted within this context will contribute much to the achievement of MOFA's objectives in the FASDEP II.

Key words: agriculture, collaboration development, organic.

OPPORTUNITIES FOR ORGANIC MARKET DEVELOPMENT IN TANZANIA

EVELYNE, A. LAZARO, SEVERIN DONASIAN AND KALUNDE P. SIBUGA

Sokoine University of Agriculture, Tanzania, P. O. Box 3007, Morogoro
Lazaroa55@yahoo.co.uk &lazaroa@suanet.ac.tz

Abstract

Agriculture is ,'a backbone of the economy of Tanzania . For almost fifty years, since Tanzania independence in 1961, this has been a key slogan in documents in Tanzania. Development efforts in Tanzania has to a large extent focused on improvements of the agriculture sector and the rural sector where the majority of the poor reside. Policy oriented efforts include the establishment of the national wide Agricultural Sector Development Programme(2006/2007) and the current Kilimo Kwanza as a key strategy for poverty reduction. These efforts aim at transforming the agricultural sector for higher economic growth, poverty reduction and improved food security. These efforts need to be concious of possible environmental effects that may result from application of some external industrial inputs. Organic agriculture has the potential to reduce negative enviromental impacts resulting from halful inputs. Promotion of Organic agriculture however, requires critical analysis of markets for organic products. Organic agricuture is largely a market-oriented production. The current global trends in organic products trade and consumers tastes provide an oppotunity for organic agriculture in Tanzania. These trends to some extent have influences organic agricultre practitioners to focus more on export market of organic prodcuts. This paper argues that with the current trends in organic production in Tanzania efforts by both the private sector and government should aim at value addition and developing domestic markets for organic products. The opportunites for domestic market for organic products result for the expantion of the tourist sector, introduction of supermarkets and environmental consiousness among local consumers.

Key words: Tanzania, Organic agriculture, organic market development

RIGHT TIMING FOR COMPOST APPLICATION: OBD-PLUS COMPOST EXPERIENCE IN RAISING MAIZE (ZEA MAYS)

O. E. AYANFE-OLUWA,[1], V.O. ADURAMIGBA-MODUPE, [2] AND O. O. ADEOLUWA[3]

[1] Federal College Agriculture, Moor Plantation, Ibadan, Nigeria
[2] Institute of Agricultural Research and Training, Moor Plantation, Ibadan, Nigeria
[3]Department of Agronomy, University of Ibadan, Ibadan, Nigeria
*Corresponding author: femcrown2004@yahoo.com

Abstract

The right time for composts application is crucial to the timely mineralization of their nutrients for crop use. The right time of application of OBD-plus, a city waste based organic fertilizer was investigated using maize (Zea mays) as the test crop.

The field experiment replicated three times was conducted in the experimental site of the Institute of Agricultural Research and Training, Moor Plantation, Ibadan, Nigeria with a randomized complete block design. The treatments used were 5, 10 and 10 t/ha OBD-plus compost, mineral fertilizer (300kg/ha NPK 15-15-15) and Control (no soil additive). The different levels of compost were applied two weeks before planting while the mineral fertilizer was applied 2 weeks after planting. The treatment means were analyzed using Analysis of Variance (ANOVA) and the means were compared using standard error of means (SEM)

The results of this investigation (at $P<0.05$) revealed that the various levels of OBD-plus compost (5 t;1.22 t/ha, 10 t;1.16 t/ha and 15t; 1.22 t/ha) performed lower than NPK 15-15-15 (2.54 t/ha) at the main planting,

however, 10 t OBD (35.02 kg/ha) performed better than the NPK 15-15-15 (25.24 kg/ha) in the residual planting as revealed by the grain yield of maize. Thus the result of this finding suggests that OBD-Plus could be a good Compost if applied early enough to ensure mineralization of its nutrients to meet up with crop demand. Thus a good understanding of the potential of Composts vis-à-vis its right time of application is essential in profitable fertilizer application.

Key words: OBD- plus, city waste, compost, Zea mays.

POLICY AND ADVOCACY ISSUES: DEVELOPING THE ORGANIC AGRICULTURE SECTOR IN ZIMBABWE; A CASE OF MASHONALAND EAST

FORTUNATE HOFISI NYAKANDA

Z O P P A Trust, Zimbabwe, fortunate@zoppa.org.zw

Abstract

Zimbabwe is one country that has been working to get into organic agriculture for more than 20 years now with limited success. There are a few individuals who managed to do it and do it well and managed to access the export niche' market with certified organic products. Attempts have been done by farmer groups, organisations and individuals who intended to do it but somehow failed and ended up doing sustainable agriculture. Therefore most of the intended organic agriculture failed to go beyond just sustainable agriculture to true organics. A study was carried by ZOPPA in 2011 to look at the bottle necks to the development of this sector. This paper summarises the findings to this study and give some recommendations, the recommendations which came from stakeholders.

Key words: ZOPPA- Zimbabwe organic producers and Promoters Association

AN AGGRESSIVE INVADING WEED POSES CHALLENGE TO ORGANIC AGRICULTURE IN NJGERIA.

GIDEON O ADEOYE

Department of Agronomy, University of Ibadan, Nigeria
Email; kutulolaola@yahoo.com

Abstract

In Nigeria an unclassified noxious and aggressive weed has invaded the farming system. Till now weed taxonomists have been trying to classify the weed. Can you help us? It took over our cassava farm. The bulk volume of soil taken by the root in the rhizosphere is 10-100 times the biomass weight. It thrives where other weeds and cultivated crops fail. It is an indicator plant for deficiency symptoms in soil fertility evaluation of essential elements. When hand weeded, the stems re-establish themselves with ease because nodes and even internode cells develop roots easily. The prevailing weeds in the ecosystem -Chromolina odorata and Tithonia diversifolia are displaced by this noxious weed. The weed resembles Aspilia spp but the leaves and inflorescence are distinct.

The weed is suspected to be a cross in the family Asteracea. Because of its economic devastation in the farming system, reducing yield of crops below economic levels it is named in Yoruba Language in Nigeria ('Polokolekun' or 'Yomiloju oloko') interpreted as 'make farmer to shed tears or to weep for sorrow because of crop failure and economic loss.

Current action taken on the weed. Because of the root volume and active growth, it is being used as a test crop for phytoremediation of polluted land in a Ph.D. project.
Because Chickens peck the leaves it is being tried as chicken feed. It is being composted as organic fertilizer. The seed which is very hardy is being observed for survival after a season of incorporation in the soil and survival after composting. It is being tried for generation of biogas through anaerobic digestion. When incorporated as live mulch it sprouts. Therefore, depth of incorporation in the soil is being studied for effective control of the weed as live mulch

SURVEY REPORT ON THE WEED

A survey was carried out in northern part of Oyo State, Nigeria. The following observations were made:
The Ladoke Akintola University of Technology organic lemon grass, tumeric and ginger farm under conversion was invaded by this noxious weed defying normal organic cultural weeding techniques. As a result, a survey team of NOAN members, ELOC Farm in Ghana, Mr James Cole, The NAPEP Director and Director of LAS Organic Farm visited Oyo north in the Northern Guinea savannah to evaluate the extent of invasion of the weed. Few pictures were taken.
The following discoveries were made: Once a field was opened up, the weed took over and smouldered the cultivated crops. In a remote village in shaki local government area, an old woman (farmer) told us that the weed was first observed about 12 years ago in the dung of nomadic cattle. This zone is transition zone for pastoral nomads from the Sahel and Sudan savanna during the dry season.
In 2011 when there was a long drawn dry spell, the weeds were wiped away for about four months after the onset of rain. This depicts the effect of climate change. The weeds have come back. There are challenges:

- An effective organic weeding strategy is yet to be advanced
- The taxonomic classification is yet to be done.
- African organic farmers should watch out for this weed invation

CONVENTIONALIZATION OF THE ORGANIC SESAME NETWORK FROM BURKINA-FASO: PRIVATE STANDARD OR STATE FAILURE?

Corresponding author:
LAURENT C. GLIN, FiBL West Africa and Environmental Policy Group/Wageningnen University, P.O Box 8130, 6700 EW, Wageningen, The Netherlands.Email: Laurent.glin@wur.nl, glinlaurent@gmail.com ;

Co-authors
ARTHUR P.J. MOL, Environmental Policy Group, Department of Social Sciences, Wageningnen University, P.O Box 8130, 6700 EW, Wageningen, The Netherlands. Email: arthur.mol@wur.nl;
PETER OOSTEVEER, Environmental Policy Group, Department of Social Sciences, Wageningnen University, P.O Box 8130, 6700 EW, Wageningen, The Netherlands. Email: peter.oosterveer@wur.nl.

Abstract

This research examines the structure and development of the organic sesame network from Burkina-Faso to explain the declining trend in organic sesame export. The paper addresses particularly the question whether the organic sesame network is structurally (re)shaped as a conventional mainstream market or whether it still presents a real alternative to the organization and governance of mainstream sesame production and trade. Combining an alternative food economy framework with the concept of 'conventionalization', this paper proves that the organic sesame is unable to offer a viable alternative to conventional trading, but is instead increasingly incorporated in the mainstream market channels. This case study also raises questions about the legitimacy and effectiveness of private and voluntary standards in governing alternative agrofood supply chains. We hypothesize that the organic standard, mainly driven and governed through private and

civil society networks, is seemingly more attentive to production processes than to vertical chain relations. As such, it could hardly address issues of chain inequity, power imbalances, and trust mechanisms across chain, all so central in (global) agro-food governance.

PRACTICAL APPLICATION OF ORGANIC FARMING, PINK RICE PRODUCTION IN THE REGION OF ALAOTRA MANGORO, MADAGASCAR

In Madagascar, rice cultivation is the vital concern of all the people. All development efforts aimed at improving rice production among rural farmers and their livelihoods. The National Confederation, through the Koloharena Ivolomarina's cooperative Amparafaravola (Region of Alaotra Mangoro, Madagascar) is contributing to this aim. The Cooperative, grouping associations of rice producers began to work in organic farming of the best quality rice according to the System of Rice Intensification (SRI) in 2006.
This paper/case study will highlight the benefits of the combination of the System of Rice Intensification and organic farming in a market-oriented production in Madagascar. This happen specifically in an area called the "breadbasket of Madagascar," which is characterized by its ability to produce rice surplus for marketing.
The success factors of Koloharena are the member services, the opening exchanges with local, national and international partners. Koloharena's structure is a movement which operates using basic producer associations. The Federation and the Cooperative shall be responsible for promoting these exchanges, to ensure and develop the marketing and capacity building of producer organizations, to help them throughout the production.
This paper/case study presents the benefits of organic and intensive rice production by comparison of usual practice: inputs, labor and techniques used. It also makes a point on the significant increase in yield and price. Production costs with no significant difference.
The Koloharena's efforts to bring Madagascar in its place in terms of quality rice export. Ivolomarina's cooperative produced a surplus of 6T/ha during the last harvest. It would increase exports to the international market. In the near future, the National Confederation plans to increase the system benefits in other regions of Madagascar that have significant potential. Some varieties such as "Lahimenandrazana" have already been tested. Communications with Slow Food in Italy have been drawn in this direction. Its implementation remains a challenge for the whole movement Koloharena.

CLIMATE CHANGE AND VARIABILITY: EXPERIENCE, COPING AND ADAPTATION STRATEGIES AMONG SMALLHOLDER ORGANIC FARMERS OF CENTRAL KENYA.

[1]NDUKHU, O. H, [1]ONWONGA, R.N. [1]WAHOME, R.G. [2]JENSEN, H.H.

[1]University of Nairobi, Kenya, [2]Aarhus University, Denmark.

Abstract

The study to assess smallholder organic farmers' experience, coping and adaptation strategies to climate change and variability (CCV) was conducted in Kajiado, Kiambu and Murang'a counties of central Kenya. About 100 certified organic farmers were interviewed using a semi- structured questionnaire. Experience on CCV was depicted in terms of rising air temperatures (68%), reducing rainfalls (75%), droughts and seasonal fluctuations (50%). Information on CCV was acquired through personal experience (26%) and from both the print and electronic media (69%). Among the leading causes of CCV cited were; emission of green house gases into the atmosphere from industries (34%), deforestation and poor agricultural practices (64%). The most profound effect of climate change was stated as reduced crop yields (85%). Crop failure and flooding of crop fields were reported by 10 and 5% of farmers interviewed respectively. Farmers were using both scientific (74%) and traditional (23%) methods of weather forecasting. The farmers reported that, employing the use of decision support tools alongside modern methods of weather forecasting could

provide a noble alternative to the traditional weather forecasting methods and hence better preparedness to combat the effects of CCV. Most (95%) farmers' responded to the effects of CCV through; growing of drought resistant crops, mulching, application of organic inputs and use of innovative organic farming techniques. This is in addition to, agroforestry and rain water harvesting techniques. The farmers asserted that through trainings and exposure, they will be empowered to cope with and reverse the negative impacts of CCV and consequently guarantee food and nutritional security.

Key words: climate change and variability; decision support tools' organic farming techniques

PRELIMINARY RESULTS OF THE GLOBAL COMPARATIVE STUDY ON INTERACTIONS BETWEEN SOCIAL PROCESSES AND PARTICIPATORY GUARANTEE SYSTEMS

HERVÉ BOUAGNIMBECK[1], ROBERTO UGAS2 AND JANNET VILLANUEVA[3]

[1] Organic for Africa!, International Federation of Organic Agriculture Movements, Email: h.bouagnimbeck@ifoam.org Charles-de-Gaulle-Str. 5, 53113 Bonn, Germany, www.ifoam.org
[2] Roberto Ugas, Universidad Nacional Agraria La Molina UNALM, Lima Peru
[3] AGROECO project and the PGS committee of IFOAM

Abstract

Participatory Guarantee Systems (PGS) are locally focused organic verification systems. They assess producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge building and exchange.
PGS are viable organic verification systems complementary alternative to third party certification. They are particularly appropriate for local markets and organized smallholder farmers due to low financial costs and less paperwork involved in the verification process. Although not yet widely established in Africa, PGS could become the primary means by which organic producers are certified and organized for supplying the African organic market.
In order to further develop Participatory Guarantee Systems as a tool for improving livelihoods of smallholders, IFOAM carries out a global comparative study on interactions between social processes such as seed conservation systems and Participatory Guarantee Systems (PGS). The study is conducted in the framework of the project AGROECO ("Ecological and socio economic intensification for food security in smallholder agriculture in Central Andes, Peru"). Main research questions

- How do PGS and social processes (e.g. seed management) interact and what are common patterns of success?
- How do successful PGS communities address food security in their PGS?
- Which main factors favor the sustainability of the PGS?
- How can PGS evolve without being donor driven?
- How do successful PGS communities manage their resources (e.g. seeds, knowledge, biodiversity)?
- Which lessons learnt from successful PGS communities are context specific (i.e. cannot directly be transmitted to a different context) and which lessons are widely applicable?

These questions are explored using a participatory rapid appraisal method based mainly on qualitative studies. In-depth case studies have started and are conducted by different local researchers among eight selected successful and motivated cases of communities using PGS and social processes, including:

- The Bryanston Organic & Natural Market (South Africa)
- KeyStone Foundation (India)
- Green Foundation (India)
- Ecovida (CETAP), Brazil
- MASIPAG (Association of Sustainable Agriculture Practitioners of Palimbang), the Philippines
- Nature et Progrès (COMAC Lozère), France

- Red Tianguis, Mexico
- ANPE (Asociacion Nacional de Productores Ecologicos) and IDMA (Instituto de Desarrollo y Medio Ambiente), Peru

The purpose of the presentation is to present the preliminary results of the study. It will be an occasion for participants to learn from existing successful PGS experiences around the world. Moreover, the presentation will demonstrate the positive role of PGS and organic agriculture in improving food security and livelihoods of rural communities.
The International Development Research Center (IDRC) and the Canadian International Development Agency (CIDA) support the AGROECO project.

IFOAM ORGANIC FOR AFRICA! CAMPAIGN

HERVÉ BOUAGNIMBECK[1] AND ROBERT JORDAN[2]

[1] Hervé Bouagnimbeck, Organic for Africa!, International Federation of Organic Agriculture Movements, Email: h.bouagnimbeck@ifoam.org Charles-de-Gaulle-Str. 5, 53113 Bonn, Germany, www.ifoam.org
[2] Robert Jordan, Advocacy Manager, !, International Federation of Organic Agriculture Movements

Abstract

Mainstreaming Organic Agriculture into African policies and agricultural development agenda, especially within CAADP – Africa's Comprehensive Agriculture Development Program

Many studies from intergovernmental agencies, independent universities and organizations as well as specific experiences of farm families engaged in organic farming have proven that Organic Agriculture, both certified and non-certified, is not only sound agronomy but essential for successful and sustainable farming systems in Africa. Furthermore, organic farming systems are highly suitable for smallholders and family farmers as increased yields and resilience are achieved without costly inputs or infrastructure. This is achieved in Organic Agriculture through eco-intensification – the improved use of biodiversity, ecosystem services and local knowledge to optimize the productivity and climate resilience of farming systems.
Despite the suitability of Organic Agriculture for Africa, it receives little support from African governments and is generally not integrated into agriculture, climate change and poverty reduction policies and development plans such as CAADP. Instead, chemical and GMO agriculture are promoted over affordable and sustainable practices.
This absence of national and regional policy frameworks that enable Organic Agriculture is a major constraint to realizing its multi-functional benefits and for growing the capacity for African governments to develop sustainable, resilient and productive farming.
IFOAM's Organic for Africa! Campaign aims to re-address the balance and build awareness of accessible and resilient organic based production systems and position organic agriculture at the core of African policies and agricultural development plans.
The Organic for Africa! Initiative builds on the work of the IFOAM Africa Office and adds value to the African arena where other stakeholders are also very active, especially within the framework of the African Ecological Organic Agriculture Initiative. Africa is also well integrated into the full spectrum of IFOAM's global advocacy activities. For instance IFOAM is working with the African Union, the African organic sector and agencies such as the World Food Program, UNCCD and UNCTAD to systematically provide African governments and intergovernmental organizations with evidence-based information on the multi-functional benefits of Organic Agriculture, to answer their questions and support the mainstreaming of organic agriculture into CAADP. IFOAM is very active within the major UN processes such as climate change, food security and sustainable development (including Rio+20) to raise awareness and create linkages and collaborations that will benefit the whole organic movement and our main target beneficiaries – Africa's small scale producers and communities who unfortunately are often very poor food insecure and

highly vulnerable to climate change and land degradation. Some recent activities implemented in the framework of the Organic for Africa! include:

- The International Conference 'Ecological Organic Agriculture: The Alternative for Africa' held at the UNEP Headquarters in Nairobi, Kenya, in November 2011.
- The IFOAM advocacy activities at the United Nations Climate Change conference in Durban in December 2011.
- High profile advocacy event at the BioFach Congress on 'Addressing Hunger – What Can We Do?' featuring the World Food Program, UNCCD and leading development, training and extension organizations from the organic movement in February 2012

The presentation will introduce IFOAM's Organic for Africa! Initiative, present its key activities and illustrate the comprehensive range strategic advocacy activities aimed at elevating organic agriculture as a key tool in the transition of agriculture in Africa.

NETWORK ORGANIZATION OF ORGANIC VALUE CHAINS IN KENYA'S TOURISM INDUSTRY

MR. JOSPHAT NJENGA, PROF. EDWARD G. KARURI, DR. JONATHAN NZUMA,
DR. JOHN WANGOH AND PROF. RAPHAEL WAHOME

Network organization/ governance constitute a distinct form of coordination of economic activities thereby improving efficiency and reduction in agency problems for organizations. Network organization along the value chain has an important role in agribusiness and marketing. There is inadequate data about the networks in the organic value- chains in Kenya since no empirical study had been conducted. The present study was designed to analyze the networks for organic foods value- chains for the tourist sector. From the analysis, the weak links in the networks will be identified and appropriate measures taken to strengthened since the strength of the network depends on the weakest link. This study was conducted using a survey. Snowball sampling design was used and the data collected using semi structured questionnaires during the interviews. The data was analysed using Ucinet Version 6. From the analysis, linkages amongst training and sector support groups were found to be weak links with centrality degrees of 38.462. Furthermore, their frequencies of interactions are minimal hence inefficiencies in the sector. Retailers have the highest centrality degree of 92.308, followed by the Kenya Organic Agriculture Network with 76.923. The organic value chain network centralization is 47.337%. These results indicate that that the sector is not adequately networked. The study recommended that trade and sector support groups be strengthened since this was a notable weakness in the chain. Retailers have high degree of centrality; they have adequate knowledge of all the opportunities and operations in the sector. They could therefore be used to strenghten the network and rules designed to govern them to prevent exploitation of farmers by paying them very little.

Keywords: Organic agriculture, Network, Value chain

EVALUATION OF THE TRACEABILITY SYSTEMS IN THE ORGANIC VALUE- CHAINS IN KENYA

MR. JOSPHAT NJENGA, PROF. EDWARD G. KARURI, DR. JONATHAN NZUMA,
DR. JOHN WANGOH AND PROF. RAPHAEL WAHOME

One of the reasons for imperfections in organic produce markets is presence of information asymmetry. Such attributes can result in market failure due to a lack of credible transfer of information along the value chain. Analysis of food supply chain traceability is through the analyses of the "track" and "trace" systems. Effective information exchange and traceability is the key to improving value chain performance and competitiveness in today's complex and rapidly changing environment. The present study was conducted to assess the traceability systems along organic foods value- chains. The study was conducted using a survey

of the major stakeholders along the organic value chain. Since the stakeholders were few in number, a census of all stakeholders was done. Data collection was through interview using semi- structured questionnaires. The data was analysed using SPSS version 17. Of the farmers interviewed, 87% could neither track nor trace their operations and didn't keep records mainly because they have inadequate knowledge. Farmer groups assist farmers in tracing and tracking their operations and relay on physical monitoring to enhance compliance. All farmers did not conduct internal audits and have insufficient trace and track review mechanism. Middlemen (66.7% of the surveyed middlemen) and organic food processors (100% of the surveyed processors) have well established track and trace system to sustain trade. They have adequate documentation (60%), monitoring (100%), internal audits (42%) and review systems (100%). The organic produce market surveyed has trace and tracking system which is not adequately documented since consumers do not demand tracing and tracking. The study recommend that all stakeholders along the organic value- chains be trained on how to implement and maintaing trace and track systems. All the gaps in the current track and trace system should be identified and SWOT analysis conducted to convert weaknesses into strengths and threats into opportunities.

Keywords: Organic agriculture, traceability systems, trace, track

IMPROVING SOIL HEALTH AND FERTILITY IN AFRICA USING FOREST/MOUNTAIN MICROORGANISMS TECHNOLOGY

ANDREW JOSEPH, KALEMA,

Agro Eco Louisbolk Institute, Eastern Africa, Uganda
j.kalema@louisbolk.org

Abstract

The technology provides cheap and quick althernative to smallscale farmers in Africa to restore back soil health/life and fertility on their farms by converting organic natural resources in their farming environment, using Forest/Mountain Microorganisms (MM), into quality organic solid and liquid fertilizers. By applying these organic fertilizers rich in soil life and nutrients to farming soils, crop production and product quality of organic farmers in Africa are expected to increase and this will attract better markets and hence improve their household incomes. A pilot project was set up in 2010, supported by Progreso Program to validate the technology in Uganda among organised producers engaged in coffee and cocoa production. Inspite of the fact that rebuilding soil health and fertility is a gradual process, there is an increasing adoptation of the MM technology among small-scale farmers and this trend is predicted to grow. Posters and farmer friendly booklets on the technology were developed to facilitate learning and dissemination of the technique.

Key words: Forest/Mountain Microorganisms, Soil health, Soil fertility, Organic fertilizers.

GOVERNANCE OF DOMESTIC MARKETS FOR ORGANIC PRODUCTS IN KENYA

MURIMI M. L., NZUMA M.J. AND WAHOME R.G.

University of Nairobi, Kenya, College of Agriculture and Veterinary Sciences, Box 29053 Email:
leah.murimi@yahoo.com

Abstract

This paper describes from a transaction costs perspective the structure of the Kenyan domestic organic market. Vegetable, Dairy and Egg Value chains have been identified as the most prevalent in the market and accordingly selected for analysis. Emphasis is placed on how agents along the value chains act or

counteract as well as how market transactions are carried out in view of various forms of transaction costs. An array of marketing channels used by farmers with their different features is presented. More than 50% of the respondents sold their products through the weekly farmers market. The box scheme is a new phenomenon but rapidly gaining popularity due to the convenience of making orders through the mobile phone or internet. Comparison of profitability is also made along the value chains. Greatest potential gains may be observed in the supermarket channel but these are constrained by lack of reliable contractual agreements. The study involved a review of other studies on local marketing in Africa, a structured questionnaire administered to a random sample of organic farmers and semi structured interviews with managers of organic outlets. Secondary information was also obtained from the national organic movement.

Key words: Organic, Kenya, value chains, transaction costs, channels.

PHILIPPINES GMO-FREE ZONES: SUCCESSFUL ROOTS IN ORGANIC POLICY AND LAW

LEE ARUELO

Third World Network

Abstract

The Philippines has been Party to the Cartagena Protocol on Biosafety since 2006. To date, the Philippines has no biosafety law, only biosafety regulations, i.e., Department of Agriculture Administrative Order No. 8, Series of 2002; and the National Biosafety Framework (NBF). The Philippines imports GMOs mainly from the United States which is a non-Party to the Protocol. Since December 2002, there have been 58 GMO applications approved by the Bureau of Plant Industry-Department of Agriculture for release to the environment. On the other hand, the Philippine Government recognizes the importance of Organic Agriculture by having an Organic Agriculture Act of 2010; Philippine National Standards of Organic Agriculture; and Organic Certification Center of the Philippines, Inc.

GMO-Free Zones in the Philippines have been enacted and implemented via GMO Ban Ordinances, which are the legal bases for such zones at the local level. The Philippine experience on GMO-Free Zones shows that the GMO Ban Ordinances are most effective when there are concrete links to organic policy and law. In this regard, NGOs and peoples' organizations (POs) have advocated first for the passage of an Organic Agriculture Ordinance before advocating for a GMO Ban Ordinance.

The experience from the Philippines also shows the importance of direct lobbying work and partnership with local government units. For example, cooperation at the provincial government level resulted in the enactment and implementation of the GMO Ban Ordinance in the Province of Negros Occidental, and the enactment of the Organic Agriculture Ordinance and GMO-Free Province Ordinance in Negros Oriental.

Finally, the need for a strong and concerted movement of NGOs and POs with sufficient knowledge and skills on the issue (e.g. organic agriculture vis-à-vis GMOs) is necessary to ensure success in direct lobbying work; as well as to ensure effective and efficient implementation of the Organic Agriculture Ordinance and GMO Ban Ordinance.

ORGANIC CERTIFICATION MADE SIMPLE; PRACTICAL EXPERIENCES & LESSONS LEARNED IN TANZANIA

LEONARD MTAMA, TANCERT

A dream of going organic production in Tanzania goes back to 100 years ago by Benedictine missionaries when settled in the southwest part of the country. That followed with first two certified project late in 1992. However, the expansion was limited and too slow due to many factors including that of lack of knowledge on the principles of production and skills to implement compliance criteria to organic related standards; a

pre requisite of certification. Resources of extending such knowledge to the producers also were limiting. However, to date the situation is changing. There are more than 25 organic certified projects in Tanzania and many others within the region that are producing and exporting organic produces. All of these happened just ten years back. What is the secret behind this leap?
Since 2003 Tanzania decided to establish an organic movement; TOAM and a local CB TanCert. Main objects behind this decision include elaborating clearly in a simple and understandable manner various organic standards to producers and exporters within the country. At the same time to provide players of the organic supply chain with requirements of various organic markets worldwide. The two organisations also mobilise resources in terms of funds and human. During the process standards were set in place for organic production which in 2007 with other similar standards within the region formed a cornerstone to the founding of East Africa Organic Standards. In collaboration with interested organisation TOAM continued to implement a training programme for organic stakeholders. The training is done once in every year lasting for two weeks. It is during this training when standards governing the principles of organic production are discussed and elaborated to the local context. Policy makers and academicians are involved in same; similarly traders and exporters. Tanzanian policy is yet to regulate the sector; stakeholders still enjoy implementation with minimum risks of contaminations from unallowed inputs including the genetically modified substances.
The formation of the movement and local CB in Tanzania witnessed the increase in number of certified projects from 4 in year 2003 to 28 in 2011. Number of crops certified expanded from cotton and spices lasted from the nineties to more than ten. More produces came in as raw; cashew nuts, fruits, cocoa, coffee, vanilla, tea, oilseeds, and honey. Processed produces comprised of inputs, fish fillets from wild catch of Nile perch and garments form organic cotton. All these developments in organic production in Tanzania yet experienced various challenges including the following:

- Translation of the standards; procedures and requirements to the local context; international standards are too complicated and complex
- Taking certificate responsibility down to growers; currently only exporter is responsible
- Associating rotational and intercrops in the organic market though different destinations; for instance; cotton is sold as organic while legumes and trap crops traded as conventional
- Introduce and establish simple but efficient tools and equipment that WILL facilitate handling of compost and farm yard manure at the level of smallholders
- Establish local and regional markets of organic produces especially food crops from rotational and intercrops
- The emphasised group production and certification facilitate the documentation of farm activities and records of individuals members
- PGS is also important to consider where distance is not a limit

PRODUCTIVITY AND GROWTH IN ORGANIC VALUE CHAINS (PROGROV)– RESEARCH IN UGANDA, KENYA AND TANZANIA

LISE ANDREASEN AND NIELS HALBERG

International Centre for Research in Organic Food Systems (ICROFS)
Research Centre Foulum, Blichers Allé 20, P.O. Box 50, 8830 Tjele, Denmark,
lise.andreasen@icrofs.org and niels.halberg@icrofs.org

Abstract

The project ProGrOV is about improving productivity and growth in existing organic value-chains in Uganda, Kenya and Tanzania by way of developing agro-ecological -methods, governance and management of chains, and by capacity development regarding research focused on organic and interdisciplinary approaches.
Organic value cains and sustainable agricultural intensification. The organic principles of farming based of health, ecology, fairness and care includes multiple functions highlighted in the IAASTD. Furthermore,

organic food and fibre is one of the fastest growing high-value market chains with potential for benefiting a huge number of smallholder farmers and processing companies in East Africa. Besides the global market, there is an increasing demand in the region partly via up-market supermarkets and the tourist industry. However, it is not clear to which extent market oriented smallholder farmers will be competitive in such markets. Previous projects have demonstrated positive results from development of organic value-chains, however, also concluding that chain actors face a number of challenges, such as limited capacity of local farming communities to respond to requirements of complex market chains as well as capacity needs to be strengthened among the farmers regarding organic agricultural system development and agro-ecological practices. While some research has focused on improving productivity and Natural Resource Management of smallholder farmers in Eastern Africa, this has in most cases not been associated with studies of how to link improved production to market access and quality demands.
ProGrOV Project Approach: In the ProGrOV project production elements of organic value chains will be studies with respect to how farmers best can respond to and collaborate with demands of the intermediaries and markets. There will be focus on the integration of livestock, product quality-soil, and product quality-pest management relationship in organic value chains for the export market, high end domestic market and the tourism sector.
As collaboration with the chain actors, such as farmers and processers, is essential in the studies, the value-chains approach of the project is combined with participatory approaches in each of the studies, in order to ensure that the knowledge generated through the studies will be useful and applicable to real life situations.

DEVELOPMENT OF THE NAMIBIAN ORGANIC SECTOR AND NAMIBIAN ORGANIC ASSOCIATION (NOA) PGS

MANJO SMITH

Namibian Organic Association, IFOAM World Board Member info@noa.org.na; Website: www.noa.org.na

Abstract

This paper traces the recent development of the Namibian organic sector. Prior to 2009, there was no formal sector development in the country. A large area of land was certified through an international certification body for the export of devil's claw (a medicinal product), and one producer was selling biodynamic produce to the local market without a biodynamic or organic quality guarantee. Since then the Namibian Organic Association was established by a group of producers, which acquired funding for the development of the NOA Organic Standards and the Participatory Guarantee System (PGS). Participants in the PGS include producers, consumers, and trade representatives. Currently, a wide range of products are sold with the NOA Organic and NOA Organic-in-Conversion mark in the informal and formal trading sectors. More producers are converting to organic agriculture or have started adopting organic production principles.

Key words: organic sector development, participatory guarantee system (PGS), Namibia Organic Association, Namibia

EXPLORING THE CONCEPTS OF FOOD SOVEREIGNTY AND SOCIAL CAPITAL IN RELATION TO THE ORGANIC PRINCIPLES, PRACTICES AND POLICIES

METTE VAARST

Aarhus University, Denmark, Mette.Vaarst@agrsci.dk

Abstract

Food sovereignty is a concept based on an idea of food security (a varied diet with diversified, nutritious and culturally appropriate food) for everybody including the right of people to define their own food and agriculture, to protect and regulate domestic agricultural production and trade in order to achieve sustainable development objectives. Food sovereignty is a concept which has become increasingly discussed and debated, especially in relation to power over seed, water, land and food, which become privatized and belong to corporations, rather than to the people, communities and countries, where farming and processing of food take place.
Organic agriculture also faces several challenges in relation to food sovereignty, although the concept can be argued to be strongly related to the organic principles of health, care, fairness and ecology. Organic food is often subjected to food systems and markets, over which the producers or their organisations have no influence. The argument in this presentation is to emphasise the fairness and care aspects of the trade systems, and thus the importance of involving the actors at all levels in organising the food systems.
Social capital is defined and used differently in various contexts, but refers to social networking and resources, which can be mobilised in communities and societies through collective action and exchange of e.g. knowledge and experience. Strengthening social capital in local societies may empower and improve the ownership of peasants, processors and societies, which are in risk of losing power over land, food, other agricultural products and trade.
In this paper we explore the concept of food sovereignty and the potential role of active social capital building e.g. through farmer organisations, active policy making and governmental regulations related to the current development of the Global food systems. We emphasise in particular the formation of social networks for farmers, processors and small businesses, as well as agricultural learning network building as important pathways to organic farming and food systems with appropriate weight on fairness and care.

Key words: Food sovereignty, social capital, organic principles, learning, interaction

ORGANIC NEEM TREE (*AZADIRACHTA INDICA*) EXTRACT: KEY TO THE CONTROL OF INSECT PESTS COMPLEX OF THE GRAPE-VINE (*VITIS VINIFERA L.*) FOR SUSTAINABLE CROP PRODUCTIVITY

*[1]*SAMBO, B. E. AND* [2]*P. C. OKUTU*

[1]Department of Horticulture, Federal College of Forestry Mechanization,
P.M.B. 2273, Afaka, Kaduna – Nigeria.
2Department of Agronomy, Institute for Agricultural Research, Ahmadu Bello University,
P.M.B. 1044, Samaru, Zaria – Nigeria.
* Corresponding author. E- mail: banelisam@yahoo.com. Tel: +2348023308577.

Abstract

The neem tree (Azadirachta indica) belongs to the family Meliaceae. The neem oil extract (Azadirachtin) has long been discovered to repel or control insect pest species; and entomologist have discovered that the Neem plant extract can affect more than 200 species of insects as well as mites, nematodes, fungi, bacteria and even some viruses. The neem oil is been used to protect stored corn, sorghum, beans and other stored

grains or foods against pest. It is indeed true that prior to the advent of synthetic chemicals, plant parts have (organically) been used to protect food from pest invasion. It is against this backdrop that this on-farm study on the efficacy of the neem tree (Azadirachta indica) as a potential organic source for the management and control of the insect pest complex and yield of the grapevine (Vitis vinifera L.) was carried out in the institute of Agricultural Research, Ahmadu Bello University Staff Quarters, Samaru, Zaria – Nigeria (11˚, 11' N', 07˚, 38' E and 686m above sea level); in the Northern Guinea Savannah agro-ecology. The results indicated that the combination of (NSE + NLS), was significantly ($p \leq 0.05$) most effective in the management and control of the insect pests complex found in grapevine production; compared to the single dose treatments of NSE and NLS; which were in turn statistically not different with each other; but significantly ($p \leq 0.05$) better than the control. This resulted in better grapevine crop vigor growth and yield. The treatment combination of NSE and NLS recorded a 79% higher fruit yield (kg plant^{1}) over the control; and 48% and 68% over those treated with NSE and NLS (single doses) respectively. The combination treatment of NSE + NLS was concluded to be most effective in controlling the various insect pest complexes of the grapevine; resulting in better crop growth and fruit yield. It can be concluded that the organic neem tree extract offers an eco-friendly, organically, sustainable window for crops protection with all the attendant environmental and human health benefits and enhanced crop productivity.

Key words: Neem, organic, synthetic, insect pest complex, eco-friendly, crop vigor, sustainable, productivity

ATTITUDES AND WILLINGNESS OF CONSUMERS TO PAY FOR ORGANIC AGRICULTURAL PRODUCTS: IMPLICATION FOR ESTABLISHING NICHE MARKET IN NIGERIA

NKIRU THERESA MELUDU[1], A.A ADEOLUWA[2] AND T.J ABOLADE[3]

[1&3] Department of Agricultural Extension and Rural Development and
[2] Agronomy, Faculty of Agriculture and Forestry, University Of Ibadan.
e-mail; nkiru_m@yahoo.com

Abstract

Organic agriculture will sustain farmers' as well as the consumers' health since the use of agro – chemicals will not be involved in their agricultural production. This study was carried out with the general objective of determining the attitudes and willingness of consumers to pay for organic agricultural products in Ibadan, South – Western part of Nigeria.There was a significant association between education ($\chi^{2} = 0.174$; $p = 0.04$) and occupation ($\chi^{2} = 0.282$; $p = 0.04$), of the respondents and their willingness to pay for organic agricultural products. There is also significant relationship between attitude as regards to organic agricultural products enhanced good health (χ^{2} value = 13.946; P value = 0.007) and willingness to buy. This implies that majority of the consumers are willing to pay for organic agricultural products. There is need to create awareness to both the farmers and consumers on the benefits of organic agriculture, through training by the agricultural extension agents.

Keywords: organic agriculture, consumers, better health, attitude, willingness to buy, niche market

SOLVING PEST PROBLEMS IN ORGANIC AGRICULTURE: CRUDE CASSAVA WATER EXTRACT A POSSIBLE HERBICIDE

OLAJUMOKE O. FAYINMINNU[1], OLUBUNMI O. FADINA[1], AND ADEOLU A. ADEDAPO[2]

[1]Department of Crop Protection and Environmental Biology, University of Ibadan, Ibadan, Nigeria.
[2]Department of Veterinary Physiology, Biochemistry and Pharmacology, University of Ibadan, Ibadan, Nigeria, olorijkb2008@yahoo.co.uk; fk_ojo@yahoo.com

Abstract

Chemical composition of three sources of crude cassava water extract (CCWE) was evaluated in different varieties of cassava MS6 Manihot Selection (local variety), TMS 30555 Tropical Manihot Selection (Improved variety) and Bulk. Extraction of CCWE from the pulp of cassava fresh roots was prepared and the chemical composition was determined in the analytical laboratory.The result of the analysis showed that, the main active ingredient present was Hydrocyanic acid (HCN) with other elements. The different elements were Magnesium (Mg), Manganese (Mn), Iron (Fe), Sulphur (S), Copper (Cu) and Zinc (Zn). Nitrogen (N), Phosphorous (P) and Potassium (K) were present in high quantity. The study showed that due to the presence of the HCN in the extracts, this waste found around the cassava processing sites possesses phytotoxic and herbicidal effects on weeds/vegetation in form of leaf decoloration (yellowing), wilting and eventual death. Crude cassava water extract showed a probable natural herbicide in organic agriculture which can be used by the peasant farmers in solving the problem of weeds as pest. It is environmentally friendly and biodegrades easily into harmless compounds in the environment. This extract is also a growth regulator due to the presence of essential elements that would be supplied to the crops. Little concentrations of CCWE are needed to enforce growth in some plants.

Keywords: Chemical composition, crude cassava water extract, hydrocyanic acid, elements, natural herbicide.

ENHANCING THE POTENTIAL FOR ORGANIC COFFEE PRODUCTION IN TANZANIA

JAMES M. TERI, GODSTEVEN P. MARO, DEUSDEDIT L. KILAMBO, JEREMIAH M. MAGESA AND DAMIAN MTENGA

Tanzania Coffee Research Institute (TaCRI), P.O. Box 3004, Moshi, Tanzania,
E-mail: tacriced@kicheko.com; james.teri@tacri.org

Abstract

Organic coffee is coffee grown, following the principles of organic farming, without the use of chemical pesticides and fertilizers, relying on none chemical pest management and use of organic sources of nutrients like composite, green manure and farm yard manure. Regular or conventional or mainstream coffee is produced by applying the principles of good crop husbandry used in conventional agriculture involving use of suitable chemical pesticides to control pests, diseases and weeds and application of appropriate doses of suitable chemical fertilizers that supply the major nutrients - nitrogen (N), phosphorus (P) and potassium (K) and the minor nutrients – boron (B) and zinc (Zn). Organically produced coffee would have some environmental benefits in addition to meeting a growing niche market that offers some premiums. Tanzania has been a source of appreciable amounts of certified organic fair trade coffees (both Arabica & Robusta). However, there are agronomic challenges associated with meeting the certification requirements for organic coffee production that will also be profitable to the grower in spite of the premium prices currently offered. This paper reviews progress made by the Tanzania Coffee Research Institute (TaCRI) in addressing these challenges.
Key words: Organic coffee, Tanzania

CHALLENGES FACED BY SMALLHOLDER ORGANIC FARMERS OF THE CENTRAL AND RIFT VALLEY PROVINCE OF KENYA

[1] QUINTAR GENGA [2]RICHARD ONWONGA[3] HENNING JENSEN

University of Nairobi, Department of Land Resource Management & Agricultural Technology, Kenya, Contact Address: Genga Quintar, C/O Anthony Odhiambo, BOX 58049 00200 Nairobi, Kenya, e-mail: kweentarz@yahoo.com

Abstract

Demand for uncontaminated and safe agricultural products has created a major shift from the use of conventional farming practices. However with this increase in demand, there is still a major gap in supply of organic produce in Kenya. The study's main objective was to determine the major vegetables grown by these farmers and the challenges and constraints they face that lead to the low production. The study also looked into coping strategies adopted by these farmers to enhance production of vegetables. A total of 70 organically certified farmers (Ngong', Dagoretti, Limuru and Murang'a) were selected for a detailed agro-biodiversity analysis. Standard questionnaires (prepared after pretesting) and administered through personal interviews, observations and farm visits were the tools used for data collection. The method employed to analyze the collected data was; Descriptive analysis consisting of calculating percentages over the group, mean, and standard deviation. This also includes the nonparametric tests such as group comparison. 74% of farmers produced kales, 67% produced spinach. Of these farmers, 78% produced both kales and spinach. Another 38% of the total farmers produced tomatoes. The challenges faced in production of the key vegetables included; unpredictable rains 85%, lack of irrigation equipment 43%, crop pest and diseases 28%, lack of proper soil testing and analysis facilities 37% and lack of standardized input application rates 66%. These challenges applied across the three vegetables, however of the 28% who cited pests and diseases, 86% referred to tomato as the most affected. Coping strategies adopted by the farmers included irrigation with 64%, mass application of manure 45% and use of traditional methods of weather forecasting 16%. Research and extension efforts ought to be directed towards soil analysis, irrigation and greenhouse production and recommendations on site specific input rate application made available to the farmers.

Keywords: Organic inputs, vegetables, Kenya, smallholders

PROMOTING THE DEVELOPMENT OF AN ORGANIC SHORT SUPPLY CHAIN – HOW IT WORKS

RIAAN VAN ZYL

Mandate Holder and researcher, The Green Road, Stellenbosch Waldorf School, PO Box 6426, Uniedal 7612, Stellenbosch, 7600, Tel: +27 21 8869767, Cell: +27 82 5737293, riaan@treedoc.co.za

Abstract

Research and development of a short supply chain within a defined geographical area by establishing a transparent relationship between local organic farmers and a committed local consumer base, and further understanding the logistical and resource needs to maintain resilience and sustainability within the system. Six key questions were developed around which the research directive was built. They are:

1. What level of "sales" is required to sustain the Supply Chain Initiative?
2. Is the existing Market big enough?
3. Is the supply of Production large enough?
4. How can this level of "Sales" be accomplished?

5. How much Operating Expenses and Investment will be required?
6. Is the system resilient to sustain the changes needed?

Key Words: Standards, Partisipatory Guarantee System (PGS), Training, Leverage, Waste reduction, Communication, New Economy, Fertility.

ENHANCING RESEARCH STRATEGIES TO PROMOTE ECOLOGICAL ORGANIC AGRICULTURE IN AGRICULTURAL INSTITUTIONS IN NIGERIA: A CONSIDERATION FOR CAPACITY BUILDING IN AFRICA

Dr. N.T Meludu, P.O. Olanrewaju, T.J. Abolade

Department of Agricultural Extension and Rural Development, University of Ibadan, Ibadan Nigeria
E-mail: rocktunde@yahoo.co.uk

Abstract

Organic agriculture has the potentials to influence and address the factors that contribute to food insecurity and health risk, which characterize much of agricultural production in developing countries. The pivotal importance of research to enhance organic farming's abilities to develop local potential and offer viable solutions to context-specific needs this call for a concerted effort in both basic and applied research at the evolutionary trends of organic agriculture worldwide. This form the basis to investigate the researchers' sources of information, research areas, and level of involvement in organic agriculture research.The total population for this study was 72 agriculture researchers in Nigerian research institutes in Ibadan metropolis of Oyo state. The methodology used in this study involved a combination of descriptive and inferential as data processing methods. Data were collected through questionnaire and data were analyzed using frequency distribution, percentage, chi-square and Pearson Product Moment Correlation (PPMC).Internet (94.4%) is the major source of information. The study also showed majority of the respondents' specialized area of research in organic agriculture is the use of poultry droppings, with the least in composting techniques. The level of involvement is low with 0.58 as the highest ratio. Funding for research (79.2%) has the highest score as constraints in organic agriculture research. In conclusion, the results of this study revealed strengths that deserve consideration as well as weaknesses of research in organic agriculture across the selected research institutes. This implies that, there is need for capacity building, and proper funding for adaptive and appropriate ecology organic agriculture research.

Key words: Agricultural researchers, Organic agriculture, Involvement

FACTORS THAT HAVE HAD A REVERSAL EFFECT ON THE ADOPTION OF ORGANIC FARMING –THE CASE OF CHONGWE DISTRICT

ROBSON NYIRENDA, DR HENRIETTA KALINDA

KASISI AGRICULTURAL TRAINING CENTRE (KATC), P. O Box 30652, Lusaka,
Email: KATC@iconnect.zm, robbienyirenda@gmail.com

Abstract

The United Nations Conference on Trade and Development (UNCTAD) report of 2010 indicates that there is potential for organic farming systems to reduce world hunger, however the number of farmers that have fully converted to organic farming is still fairly small. There are a number of reasons for this situation, such as global economic trends, market forces, social and political responses, organic practices, availability of

organic inputs etc. Results from 30 farmers interviewed in Chongwe district and the literature review have shown that organic farming as a system is as much a political issue as it is an economic one. Some of the internal factors reported among the 30 farmers, as impeding adoption include difficulties with pest management, labour intensity resulting in labour constraints, availability of alternative farming systems, and benefits accruing only in the long term. Factors such as number of active household members, gender and level of education did not show any significant impact on the adoption of organic farming systems. Key external factors were government policy i.e. promotion of inorganic fertilizers, hybrid seed and no policy and support to organic agriculture, global economic trends and uncertain market condition in some cases leading to disadoption resulting in reduced effect on the growth of the organic industry in Chongwe district.

THE CASE OF MR CHARLES ZULU-AN INTEGRATED ORGANIC FARM.

CHARLES ZULU, DR HENRIETTA KALINDA, ROBSON NYIRENDA, AND EDWIN MATAMBO

KASISI AGRICULTURAL TRAINING CENTRE, P. O Box 30652, Lusaka
Email: KATC@iconnect.zm, robbienyirenda@gmail.com

Abstract

The integration of livestock and crops in an organic farm, as in the case of Mr Charles Zulu of Kasenga B settlement scheme which is about 30km from Chongwe town has shown positive results, which include positive outcome for the use of both indigenous and scientific knowledge in dealing with challenges. The concept of farmers as experimenters and initiators of their own destinies can clearly be attested through various principles and practices that Mr Charles Zulu is using. Mr Zulu uses simple and affordable methods for managing his enterprises. Innovations include improved housing for his livestock mainly birds (guinea fowls, chickens, turkeys, quails) and goats, water harvesting and management systems for his garden. The management system for his birds such as chickens, guinea fowl and turkeys is based on both indigenous and scientific knowledge; the incubation of guinea fowl eggs is done by chickens and is able to achieve a hatch rate of 80 %. The farmer grows garden crops such turmeric, garlic, onion, tomatoes, maize and pumpkins using organic methods. The seed used plays an important role in the control of diseases and pest; other practices which he follows include crop rotation, companion planting and use of botanical pesticides. Marketing remains one of the main challenges faced by farmers; however Mr Zulu has innovative ways of getting around this challenge such as value addition i.e. Smoking chickens for which there is a growing market, forward contracts for vegetables and the open market as a fallback.

MARKETING STRATEGIES AND FINANCING MECHANISMS ALONG ORGANIC SUPPLY CHAINS? ARE THEY DIFFERENT FROM CONVENTIONAL?

PILAR SANTACOLOMA AND WILLIAM EDWARDSON

FAO, Italy, pilar.santacoloma@fao.org

Abstract

Fostering organic supply chains is becoming of increasing interest to developing countries, since the demand for organic products is growing, providing new market opportunities and premium prices for producers who comply with organic certification standards. This paper focuses on case studies of organic rice in Thailand and India, coffee and fruits from African countries and horticulture products in Hungary and Brazil. It summarizes the findings related to marketing, financing and value-added components of these organic ventures and then provides conclusions and recommendations for policy makers, private sector and support organizations in the future development of organic product supply chains in developing countries.

Key words: marketing strategies, financing mechanisms, organic supply chains, value-adding opportunities, and farmers' income-generation

ORGANIC LIVESTOCK FARMING: CASE OF AFRICAN PASTAROLISTS

Abstract

The future of Africa lies in integrating economic, social equity and environment concerns .Thirty years ago everyone believed that condition and productivity of African rangelands was determined by stocking rates. This knowledge derived from research and informed many government policies towards rangeland management and African pastoralists due to keeping large livestock numbers were seen as the cause of rangeland degradation. However this knowledge has been revisited and revealed that African rangelands are not driven by stocking rates alone but a complex natural relationship between the people, their livelihoods and the environment. These studies have further shown that degradation of Africa rangelands is not mostly due to overstocking but to natural climatic cycles and most importantly to traditional rangeland management by pastoralists when it was able conserve biodiversity and allow rangelands to recover.
In these practices livestock played the key role as a tool by grazing and trampling which ensures nutrient cycling and preparing the soil surface for water penetration and improving the soil water holding capacity. Soil biological activity is enhanced which is the key principle of organic agriculture. Therefore African pastoralists are most experienced organic producers in quality and practice. Unfortunately the marketing of livestock products from African pastoralist as certified organic produce is most constrained by requirements of certified slaughter and processing facilities, difficulties in supplying consistent quality and grades, interruption to market supply due to recurring droughts and most importantly the marginalization of products produced by the poor. Keekonyokie masai abattoir in kiserian Kenya is community owned meat enterprise that is marketing conservation organic beef products. In Addition the abattoir has biogas plant that generates electricity to operate its meat cold rooms and sell organic fertilizer to local farmers demonstrating in practice the full opportunity and challenges of organic livestock production by poor pastoralists

This paper gives critical review of the of our pastoralists organic livestock production its challenges and how masai pastoralists in Kenya have formed their own meat processing enterprises to overcome the challenges of marketing their produce as high quality organic meat through innovation and lobbying for awareness among consumers based on experiences of keekonyokie meat enterprise in Kenya

Keywords: Pastoralists, grazing practices, rangeland degradation, livestock, nutrient cycles, organic meat products, biogas and market challenges

GROWING ORGANIC MAIZE IN ZAMBIA

Abstract

Fertilizer prices have shown a general increase over the past few years due to increased energy cost and futures markets in mined nutrient sources. Farmers all over the world are looking for alternatives in order to reduce costs and increase profits. Organic systems offer potential 'cheap fertilizer' through efficient nutrient cycling, but often organic farmer find their crop yields lower than those they obtain using synthetic fertilizer. The challenge for all of us is to find efficient ways to improve our yield potential without relying on expensive inputs, in order to feed and ever increasing population. This paper highlights some interesting new and old innovations which may be able to improve yield and profit and at the same time improve and re-generate our soils so we can feed more people now and in the future.
Green manure/cover crop (gm/cc) systems.
A new look at cover crops based on farm research in Kafue over the last 10 years and leading edge research from South America reveals some evidence of how to capture, store and release nutrients in organic

cropping systems. The practice of growing velvet bean(mucuna pruriens) in maize is not new a report from Alabama in 1917 estimates the area under maize/velvet bean intercrop in Alabama state in 1917 was around 2500000 acres (1million Ha) (S.Templton et al.1917). During this period, most of the maize production in the USA was carried out using hand labour and animal draft power. Research with organic maize production on Old Orchard Organic Farm in Kafue, Zambia using velvet bean as a fertilizer compared with maize fertilized with composted chicken litter.
Yields and costs were compared in side-by-side trials using open pollinated and hybrid maize varieties on a sandy clay loam. A typical cost and yield analysis for small-scale farmers in the region is included for comparison sake. Rain fall figures for the 2010/11 rainy season and labour cost/input are indicated.
The comparison was between a hybrid maize variety Seed Co ZS206, a yellow maize variety and the open pollinated maize variety 'Gankata', both classed as late maturing varieties with approximate maturity in 150 days.

ORGANIC FARMING AND SOCIAL CAPITAL BUILDING IN SMALL HOLDER FARMER COMMUNITIES IN THE RWENZORI REGION

THADDEO TIBASIIMA[1)], JANE NALUNGA[2)], METTE VAARST[3)],
INGE LIS DISSING[4)] AND AAGE DISSING[4)]

[1)]SATNET, Uganda, tadsima2000@yahoo.com;
[2)]NOGAMU, Uganda, jnalunga@nogamu.org.ug;
[3)]Organic Denmark, Denmark, Mette.Vaarst@agrsci.dk;
[4)]Organic Denmark, Denmark, fasavenj11@gmail.com

Abstract

The Rwenzori region is a part of Uganda which is endowed with a bio-diverse environment in which farmers depend mostly on natural resources and sustain their agricultural activities. Small holder farmers in this region are locked in a vicious cycle of poverty, partly due to limited capacity to appropriately utilize the available natural resources. In addition, the culture of interacting and sharing knowledge among small holder farmers has been reported from farmer communities as dying out.
To meet the multiple challenges in farmer communities, we found it inevitable to introduce a group focused and practically oriented approach, which could promote social relations amongst farmers. Social relations include a combination of social trust, exchange of ideas, norms, attitudes, beliefs, values, common learning and culture that people draw upon to solve common problems.
In 2009 SATNET, NOGAMU and Organic Denmark (OD) piloted a Farmer Family Learning Group approach to promote organic farming for family food security, improved incomes and advocacy. We were inspired by the popular Farmer Field School approach, although including other elements.
Each of the FFLG was allocated a Community Process Facilitator. These were taken through a course which basically transformed them from being 'trainers' to becoming 'facilitators' for organic farmer groups. To date, more than 60 functional FFLG have been established, and each of them consists typically of 15-30 households (whole families), who work together on each other's farm to solve their own problems and attain a common goal, and to discuss relevant and important issues in their farms and community. They meet at the host's farm, analyse the situation together, and design and implement recommendations which will improve the farm production through building resilience to shocks. The participants evaluated which change in their families were the most significant. In a process of collecting all the results from all groups, this 'Most Significant Change' achieved was increased interaction in communities as the epicenter to sharing knowledge, improving utilization of local resources, accessing markets, reducing family conflicts, and increasingly take control over resources by women. Community services were improved through the FFLGs' interventions in the local community.

ORGANIC PRODUCTION AND AGROECOLOGY PRACTICES AND INDIGENOUS PEOPLES RIGHTS IN SOUTH AFRICA

THIERRY ALBAN REVERT[1] AND LIESL HASBROOK[2]

[1] NOPI (South Africa) Afrikara Cooperative
[2] BDAASA (South Africa) Afrikara Cooperative
tar@planetac.co.za and liesl@bdaasa.org.za

Abstract

Organic Production and Agroecology Practices (OPAP) are the essence of traditional agriculture and has been practiced from the onset of the agrarian age. Indigenous people defined by the UNHRC are referred as a local population which is the foundation of a tribal or ethnic culture and occupy a defined territory. In Africa, indigenous people are the main custodian of land, neighbouring with „ colonized“ land owned by private individuals or companies. Indigenous People Rights have been signed by all countries in the world only in October 2010.
The relationship between indigenous people and organic agriculture make them inseparable. Small traditional farmers are responsible for the feeding of 2/3 of the planet and are not subject to any market based organic certification system, and are not accounted in national economic statistics as determined by GDP formulae, and referred to as "the informal sector"
Indigenous People of the World gathered in 2010 in Cochabamba (Bolivia) to counter the debacle of COP 15 Copenhagen, to produce another fundamental element of world's jurisprudence: The Rights of Nature now tabled for discussion at the UNHRC.
Another key report from the UNHRC on the Right to Food is outlining the importance of Organic production and Agroecology Practices.
The interconnectedness of the Indigenous Peoples Rights and the Rights of Nature with the principles of Organic Agriculture and Agroecology Practices forms the base for the reconstruction of the Rural, peri-urban and inner city sustainable agriculture in South Africa.
The National Organic Produce Initiative (NOPI) is designed to set up cooperative structures which use transfer of skills, artisan training, education, coaching and mentoring for small scale farmers as the foundation for subsistence farming, evolving to surplus to supply local markets.

SUPPORTING SUSTAINABLE INNOVATIONS FOR ENHANCED FOOD SECURITY: THE BETTER U FOUNDATION'S SRI INITIATIVE IN MADAGASCAR

WINIFRED FITZGERALD AND RAMES ABHUKARA

Abstract

This paper/case study will review the Better U Foundation's efforts to promote the dissemination of the System of Rice Intensification (SRI) in Madagascar among small, rural farmers with the goal of enhancing families' food security and improving their livelihoods while also contributing to the protection of the environment. These efforts are supported by four inter-related, mutually reinforcing strategies: (1) supporting marginalized and vulnerable groups; (2) working with partners that have experience in rural development and conservation efforts; (3) building on existing resources, capacities and infrastructure in order to move forward with SRI activities in a flexible, swift manner and to maximize the value-added of the Foundation's investments; and, (4) advancing our understanding of SRI through collaborative learning and exchange.
The effectiveness of these four strategies is reinforced in two important ways: (1) promoting dialogue and dissemination about SRI in Madagascar across different players, and (2) fostering linkages and partnerships. In promoting partnerships between and among civil society organizations, the public sector, multi and bi-lateral donors and other development actors, the BUF's program in Madagascar encourages

the pooling of resources and the establishment of productive relationships, and attempts to ensure transformational development and the sustainability of its actions.
The Foundation has adopted a two-pronged approach for its work in Madagascar: to support direct field activities of partners to boost the practice of SRI with rural farmers around the country, and to support the establishment and operations of the Secretariat for the SRI Group of Madagascar to serve as a hub for SRI activities. The BUF attempts to promote synergies, complementarities and collaboration across these different groups.
The paper/case study describes how SRI promotion efforts in Madagascar have been both horizontal and vertical (for dissemination purposes with farmers but also for networking, alliance building and policy development with other NGOs, INGOs, donors and government) in alignment with the strategies and approaches outlined above. The paper/case study presents progress at the field level (farmers/households), at the institutional level (partners, organizations and programs), and at the policy, advocacy and awareness-raising level, and demonstrates that small, strategic investments can have important results.

SAMCERT, AN INNOVATIVE IFAD PROGRAMME IMPLEMENTED BY ICEA: SUPPORTING SMALLHOLDERS ACCESS TO MARKETS FOR CERTIFIED SUSTAINABLE PRODUCTS FROM WESTERN AND CENTRAL AFRICA

MICHELE MACCARI AND STEVEN SCHOMBERGER,

IFAD, Italy, E-mail: m.maccari@icea.info

Abstract

The present paper consists in the presentation of the SAMCERT programme (Strengthening Smallholders' Access to Markets for Certified Sustainable Products), funded by IFAD and implemented by ICEA in collaboration with AGROFUTURO. The paper will present in details the background, the rationale, the proposed programme and the expected outputs and benefits of the programme.

Key words: Smallholders, certification, markets.

CASE STUDY: OLD ORCHARD ORGANIC FARM

SEBASTIAN SCOTT

Abstract

Since establishing the Old Orchard Organic Farm in 2008 the farm has grown every year in diversity and size. The farm has been run by two people since the onset and this includes building, irrigation installation, crop management and marketing. The total area under production today is approx. 3ha for cropping and 1ha for our free range pigs. Our production is diversified to break the risk and spread the work load over the year. The farm has developed the following enterprises as profit making ventures: Banana production currently 1000 plants, 0.7ha; Vegetable production; Egg production; Broiler production; Pork production; Dry-land crops for animal feed production; Macadamia nut production (plants not yet bearing nuts); Research on dry-land crop production.
The idea to start the farm came from a desire to help develop rural Zambia and empower people through knowledge in natural resource management. The farm has become a 'research station' for small-scale farming systems which aim to reduce cost, increase profits and re-generate our natural resource base. As much as possible we try to learn from nature to develop systems which have multi species and beneficial interactions.

ORGANIC FARMING, ANIMAL HEALTH: POSSIBLE CORRELATION

AFUSAT T. JAGUN-JUBRIL[1], OLAYINKA A. ORIDUPA[2]

[1]Department of Veterinary Pathology, University of Ibadan, Ibadan, Nigeria.
[2]Department of Veterinary Physiology, Biochemistry & Pharmacology, University of Ibadan, Ibadan, Nigeria. Corresponding author: afusatjagun@yahoo.com, +2348034701005

Abstract

Medicinal plants have played a vital role in health care in the history of mankind and the animals under his care. Several communities in developing countries still depend largely on medicinal plants for prophylaxis and cure of diseases. These plants mostly grow of in the wild uncultivated, which means little or no inorganic intervention is done in the process of their cultivation. This review seeks to document some existing knowledge on medicinal plant used in folkloric medicine for animal health management with the view of collating scientifically verified medicinal plants and the empirically established uses. Medicinal plants with proven antibacterial, antifungal, antiviral, anti-inflammatory, analgesic, anti-oxidant, anthelminthic and anti-protozoan activity, amongst others were reviewed.
Most livestock farmers in developing and under-developed countries are peasant farmers with limited income and therefore less likely to afford adequate veterinary care for their animals. This review will serve to educate and enlighten farmers, regardless of their economic class, on the available natural resources which can be explored for the benefit of their animals from their immediate environment and the recommended administration and safety of these medicinal plants.
Medicinal plants are environmental friendly with little or no incidences of drug residue in the environment and the attendant problems of development of resistant strains of microorganisms.

Keywords: Medicinal plants, Animal health

POLICY COORDINATION CONSIDERATIONS OF CROSS-CUTTING ISSUES IN ENVIRONMENT AND EDUCATION SECTOR TOWARDS SUSTAINABLE AGRICULTURE IN UGANDA

STELLA NAMANJI[1] AND CHARLES SSEKYEWA[2]

[1] Uganda Martyrs University, snamanji@umu.ac.ug
[2] Center for Ecosystems Research and Development (CERD), cssekyewa@gmail.com

Abstract

This paper examines how issues of environment and education, which impact on the performance of the agriculture sector are addressed in the coordination of respective policy processes. Environment and Education are considered to be independent variables while agriculture is the dependent variable. The paper deals with selected Ugandan environment and education policies vis-à-vis the agriculture policy. The extent to which they incorporate sustainable agriculture concerns is determined and discussed. This is done by conducting a process evaluation of those selected independent variable policies.
The aim of this paper is to enable Ugandan Public Policy makers to distinguish between doing things right and doing the right things in formulating development policies, such that a proper development path is taken for sustainable development. Sustainable Agriculture being the back bone of Uganda's economy, employing over 80% of the population majority of whom are women, yet its performance e is still very low, needs a more holistic approach to Policy formulation, planning and implementation.
The methodology employed in this policy paper is based on a qualitative analysis of Policy documents, both national and international policies. National policies assessed were the education Act (2008) and the education Policy (2006) then the National environment Policy (1995.) The international policies were

looked as a way of having additional information on the cross-cutting issues towards sustainable agriculture. For the three selected sectors quantitative data was generated by scoring the performance of the selected sector policies basing on checklist of issues that must be considered in the process of formulating Policies guided from Rossi et al. (2004). Sectors were purposively chosen on the basis of their potential to reduce poverty and accessibility to documents, as well as time constraints. Relatedly, the study also employed a comparative analysis having agriculture as the dependent variable then education and environment policies as the independent variables and establishing which sector policy addressees well the cross-cutting issues towards sustainable agriculture. Besides looking at the Policy papers, other scientific literature related to the study area was reviewed as a backup.

Findings indicate that both the Education Act (2008) and the Education Policy (2006) are very short in provision of concern for cross-cutting issues towards agriculture. Both the sector policy and Act are not clear on the process that policy formulation takes thus scoring 45% on this. In relation to the cross-cutting issues, aspects of practical agriculture curricula and re-tooling of agriculture trainees to be job creators remain hanging at both planning and implementation levels. Even when the responsibility is decentralized, it would be sensible to articulate these issues in the education policy reviewed. On the other hand, the environment Policy seems to be doing well in terms of the Policy process with a score of 91% policy formulation considers the involvement of various stakeholders and these are clearly mentioned in the policy document. From the expected cross-cutting issues, it is evident that environment policy takes care of majority issues of agriculture sector cross-cutting concerns. However, the issue of forecasting for sustainable agriculture for timely production seems not to be well addressed at implementation level.

Given the findings, it was recommended that all sector policy processes have to be well coordinated taking into consideration intra and inter-sectoral issues as a way of developing comprehensive and effective policies, having a multidisciplinary approach to Policy formulation such that all issues cross cutting for the various sectors are taken care of, because of climate change problems, it is important that weather forecasting for farming is planned for in national Policies. To have relevant agricultural practioners, it is recommended that practical curricula are embedded in existing educational systems at all levels, having sustainable agriculture positioned strategically as a business central to the economic development of Uganda at policy planning and implementation finally, School teachers should avoid making digging as a punishment to students who have done wrong, as this makes children hate agriculture thus contributing to the poor performance of this sector.

As a lesson for other developing countries dependent on sustainable agriculture, it is very important that a holistic and multidisciplinary/ multi-sector approach is taken at policy formulation, planning and implementation because this is the only way that plans can have coherence and address issues that touch each sector. On the other hand it enables proper coordination of plans which in turn reduces fraud and misuse of funds whenever sectors work hand in hand. For further research therefore, it is required that a more sector wide analysis is done with more sectors to generate information and a model of how cross-cutting issues can be incorporated in different sector policies for sustainable development.

COMPREHENSIVE UNDERSTANDING AS BASIS FOR SUSTAINABLE DEVELOPMENT OF ORGANIC AGRO-ECOSYSTEMS

STELLA NAMANJI[1] AND CHARLES SSEKYEWA[2]

[1] Uganda Martyrs University, snamanji@umu.ac.ug
[2] Center for Ecosystems Research and Development (CERD), cssekyewa@gmail.com

Abstract

Everything takes place in an environment. Components of a particular environment are impacting on each other in one way or another. This is the basis of the eco-systems approach. This being the case, it is understandable that for the organic agro-ecosystem to perform and meet challenge of climate change, hunger, poverty and ill health, it must be considered in a comprehensive manner. Each component would then be well understood and its impact on the rest of the system known. Often factors limiting performance

of the organic-agro-ecosystem have been misunderstood. This has always resulted into prescribing wrong solutions to existing problems and hence the failure for the system to meet our expectations.
A system consists of parts, processes and interactions. There is a complexity of interactions with which components and processes are interrelated. A break down in one component of the system results into the whole system being at standstill.
The complexity of a system means a multiplicity of objectives which have to be realized. Therefore, if the system is to be well understood, there is need for an interdisciplinary, multi-sectoral, and multicultural analysis. This would then imply input from a whole variety of disciplines in order to understand better the complete system, (Paper for the workshop and policy round table on agro ecosystem services, 2007).
Even for scholarly work, the goal in agriculture would include developing a richer understanding of the essential human endeavor and analyzing potential for interventions into any current practice. Such interventions are motivated by a great diversity of issues for example, less pollution, greater resource efficiency, more stable production, greater social equity (Conway, 1985).further in his study on "Agro ecosystem analysis", Conway(1985), went ahead to show agro ecosystems as a framework for study of farming endeavors, connecting both the concept of the agro ecosystem and its analysis, leading towards systems thinking. The idea of a system is presented as a group of interacting components, operating together for a common purpose, capable of reacting as a whole to external stimuli. Take the case of the national park with grassland, trees, animals and the road, all co-existing and bringing about a mutual existence.
This paper examines the best way to comprehensively understand the organic agro-ecosystem to design appropriate solutions to existing problems and increase the sectors performance.
A system consists of parts, processes and interactions. There is a complexity of interactions with which components and processes are interrelated. A break down in one component of the system results into the whole system being at standstill.

ORGANISING AND MARKETING OF GHANAIAN SMALL SCALE FARMER'S PRODUCTS IN EUROPE

PATRICK DEEGBE

Wad African foods limited Ghana

Abstract

Wad is the acronym of Weija agricultural development limited, the company is an associative enterprise; it works exclusively with small scale farmers from the rural areas in Ghana. The company started in the year 2000 and made its first export in 2001. The main export markets are Switzerland and Germany. Wad African foods limited exports both fresh and dry organic pineapple, mango, papaya and coconut. The company processed its own dry organic products.
The company supports its farmers in organic training and certification. The areas where Wad organic farmers can be found are Ekumfi Atwia for pineapples Somanya for mangoes, Mepon from papaya and Kwanyarko for coconut. The soil and climatic conditions are good for the cultivation of the said crops in those regions.
In 2006 the company collaborated with FAO in a project with reference "FAO project GCP/404/RAF/GER Increasing incomes and food security of small farmers in West and Central Africa through exports of organic and fair-trade tropical products"
The collaboration resulted in a significant increase in the quantities of products purchase from the company partner farmers and its exports. The company is building a new facility to meet the increasing demand of its products.

AFRICAN ORGANIC PRODUCT AND THE EU: STATUS, REQUIREMENTS, OPPORTUNITIES AND AU-EU INITIATIVES

FRANCIS FAY

Deputy Head of Unit for ACP, South Africa, G8/G20 and FAO, DG Agriculture and Rural Development, European Commission, Brussels, Belgium, francis.fay@ec.europa.eu

Abstract

The size of the European Union (EU) market in organic product is estimated in the order of EUR 19 billion. It is an open market for organic product exported from Africa. Since 2010, the African Union (AU) and EU Commissions have initiated agricultural policy cooperation, focussing on value adding schemes and in particular organic farming. The benefits of the organic production method in terms of sustainability make it a system well-suited to African needs in agriculture and in particular for smallholders. While the EU market is an important outlet, local and regional markets in Africa for organic-labelled product should also grow. If necessary, alternatives to third party certification, such as producer guarantee systems of control can be applied and developed. Initiatives on organic farming should be mainstreamed into national and regional agricultural policies to ensure development opportunities for the sector and coherence with the Comprehensive African Agricultural Development Programme. At regional level, the EU is developing formal trade and development relations with the regions to guarantee market access to the EU and provide for formal agricultural cooperation, which can also cover organic farming. Stakeholders have an opportunity to mainstream organic farming into national and regional agricultural policies and help ensure the growth of the sector.

Key words: AU, EU, policy, trade

THE PIP PROGRAMME AND ITS SUPPORT FOR ORGANIC PRODUCTION

John Cox

PIP, Belgium, john.cox@coleacp.org

Abstract

COLEACP-PIP is a European Union funded programme that provides technical assistance to the Africa-Caribbean-Pacific (ACP) fresh fruit and vegetable export sector. In accordance with the Millennium Development Goals, the main objective is to: "Maintain and, if possible, increase the contribution made by export horticulture to the reduction of poverty in ACP countries". While export horticulture is the principal focus, where possible outputs are adapted to also benefit production for local and regional markets.

A first phase of the programme ran from 2001 to 2010, directed primarily at supporting compliance with the evolving EU food safety regulations and private standards. This was achieved through capacity building of producers, exporters, and local service providers, with a special emphasis on SMEs and small-scale producers. A second phase, running from 2010-14, has broadened the scope to also consider sustainability, and the social and environmental impacts of production. Within this context there is a strong drive to promote and support ethical trade, minimal pesticide residues, Integrated Crop Management, and alternative production systems, including organic.

PIP is demand-driven and provides support within the context of supply chains. Requests for assistance from the organic sector have grown significantly in recent years, and PIP is supporting a range of initiatives. Among these is support to producers and exporters in organic production; currently 19 companies (sourcing their produce from several thousand smallholder outgrowers), spread among nine African countries, are receiving training and assistance towards organic certification. PIP also aims to

strengthen ACP involvement in standard-setting and policy-making. ACP representatives are sponsored to attend international meetings, and a strategy is under development to support National Organic Association Movements (NOAMS). Activities are already in place or under discussions with NOAMs in Jamaica, Rwanda, and Zambia.

Key words: PIP, EU, horticulture, value-chains, ACP, pesticides

The 2nd African Organic Conference in Lusaka, Zambia 2-4 May

Organic agriculture in Africa is growing rapidly. More than 1 million hectares of arable land and at least 530,000 farmers are certified, according to organic standards in Africa. Uganda and Ethiopia have each more than 100,000 certified organic farms and Tanzania some 85,000. Most of the certified organic production is sold for exports, but there are good organic markets in South Africa and Egypt and emerging markets in countries such as Senegal and Kenya. Many more farmers, from Morocco to Madagascar, from Cairo to Cape Town, practice organic farming for the benefit of local communities and the environment.

The 2nd African Organic Conference in Lusaka, Zambia 2-4 May, provided an opportunity to showcase the contribution that organic agriculture already makes and discuss how it can be scaled up to meet the combined needs of more food production, maintaining the environment and increasing income. The conference was organized by the Organic Producers and Processors Association of Zambia (OPPAZ) in cooperation with the Ministry of Agriculture and Livestock of Zambia, the United Nations Conference on Trade and Development (UNCTAD), United Nations Food and Agriculture Organization (FAO) and Grow Organic Africa under the auspices of the International Federation of Organic Agriculture Movement (IFOAM) and the African Union.

More information about the conference is available at
www. www.africanorganicconference.com