

Education and Training in Ecological Organic Agriculture (EOA)

Curriculum for Institutionalization



**Biovision
Africa Trust**



www.eoa-africa.org

INTRODUCTION

By 2025, 330 million young Africans will be eligible to enter the labour market. This means that more jobs need to be created to absorb the upsurge in manpower and more food needs to be produced sustainably to meet the increasing consumption demand. How we respond to this challenge and opportunity through appropriate agricultural education and training is very crucial. We need to train and nurture hands-on men and women at all levels capable of driving an ecologically sustainable and friendly agriculture to mitigate against climate change, enhance food sovereignty, conserve the environment and improve livelihoods.

The Ecological Organic Agriculture Initiative (EOA-I) has a mission to promote ecologically sound strategies and practices among diverse stakeholders in production, processing, marketing and policy making. The goal is to mainstream EOA into national agricultural production systems by 2025 in order to improve agricultural productivity, food security, access to markets and sustainable development in Africa. The EOA Initiative was first piloted in six African countries (Kenya, Uganda, Tanzania, Ethiopia, Zambia and Nigeria) in 2012 with support from the Swedish Society for Nature and Conservation (SSNC) and SIDA.

The pilot was based on a framework of six pillars (Research, Training & Extension; Information and Communication; Value Chain and Market Development; Networking and Partnerships; Policy and Programme Development; and Institutional Capacity Development). The Research, Training and Extension pillar underscored the great shortage of agricultural professionals-local development agents, experts and researchers, with the necessary training to understand and become creative actors in the development of EOA. During the pilot phase, a study was undertaken in the six African countries to review agriculture-related course curricula offered in major educational and training institutions with the aim of identifying courses that had EOA components. This was to help in understanding the extent to which ecological organic agriculture was streamlined into training curricula; identify needs and gaps and come up with proposals for future course contents. Curriculum country reports were collected and analyzed. Matrices comparing curricula of institutions involved in EOA training were developed for each of the six countries and courses with EOA components were identified in each country's series of curricula.

GAPS IN EOA EDUCATION AND TRAINING CURRICULA

- Organic Agriculture is generally offered at certificate and diploma levels. However, at degree level, aspects of Ecological Organic Agriculture are mostly offered as part of other course units or as a module.
- It is only at Uganda Martyrs University in Uganda that EOA is offered as a full degree programme.
- Subject areas related to soil science, and environment were offered by all curricula in the different countries and institutions.
- EOA core subject areas such as standards and certification, internal control systems, and related policy issues were offered in just a few institutions.
- It was not easy to determine whether subject areas offered, of those commonly included in agricultural sciences, were based on either EOA principles or normal agricultural science.
- Inadequate knowledge and trained manpower on EOA prevents inclusion of EOA in the curricula.
- There are gaps in EOA policy, in the relationship between climate change and EOA, in the inter-linkages between EOA nutrition, food and security and in practices of EOA by farming communities, colleges and communities.



Information sharing and dissemination

INSTITUTIONS WHO'S CURRICULA WERE ANALYZED

KENYA

- Baraton University
- Bukura Agricultural College
- Egerton University
- Jomo Kenyatta University of Agriculture & Technology (JKUAT)
- Kenyatta University
- Moi University- Chepkoilel Campus and
- University of Nairobi (UON)

NIGERIA

- University of Ibadan

TANZANIA

- Sokoine University of Agriculture(SUA)

UGANDA

- Bukalasa Agriculture College (BAC)
- Center for Ecosystems Research and Development (CERD)
- Kulika Uganda (KU)
- Kyera Agriculture Training College (KATC)
- Mbuye Farm School (MFS)
- Mt. of the Moon University (MMU)
- National Organic Agriculture Movement of Uganda (NOGAMU)
- Ndejje University (NU)
- RUCID Organic Agriculture Training College (RUCID)
- St. Jude College of Organic Agriculture (SJCOA)
- Uganda Martyrs University (UMU)



Transfer of right knowledge and technologies



Training farmers through exchange visits



A farmers information hub

ZAMBIA

- Chipembi Farm College
- College of Agriculture, Monze
- College of Agriculture, Mpika
- Cooperative College
- Copperbelt University
- In-service Training Trust
- Kasisi Agric Training Centre
- Mulungushi University
- Nkumbi College
- Natural Resources Development College (NRDC)
- Open University
- Palabana Dairy Training College
- Popota College
- Rusangu University
- University of Zambia
- Zambia Centre for Horticultural training
- Zambia Forestry College

RECOMMENDATIONS FOR CURRICULA REVIEW

- The above observations call for harmonized understanding and training in EOA at the different levels.
- There is need to introduce organic agriculture to as many training institutions as possible.
- Setting of EOA curricula has to be improved by orienting it more to existing needs for jobs, products and environmental factors.
- EOA teachers need be trained to be better trainers
- There is need to improve EOA course evaluations
- More lobbying and advocacy for EOA friendly policies is required.
- Develop extension EOA systems in Africa that put more emphasis on practical skills Practical year training program should be included as a means of exposure to organic agriculture through farm visits, establishing and managing personal organic farm plots.

PROPOSED EOA CURRICULA AT VARIOUS LEVELS

The study and stakeholder workshops held recommended the integration of ecological organic agriculture in learning institutions through the following course contents at certificate, diploma, degree and masters levels.



Participants during the regional sharing workshop on assessment of results on the ecological organic agriculture (eoa) curricula in education and agricultural training institutions in six african countries

CERTIFICATE IN ECOLOGICAL ORGANIC AGRICULTURE COURSE CONTENT

- General principles of organic agriculture
- Soil health (Bio-fertilizers development, organic composting, soil fertility management, Soil & water conservation)
- Production of organic crops
- Principles of animal husbandry
- Agro forestry (Propagation & management of trees and landscaping)
- Organic pest management
- Integrated husbandry practices
- Water management on the farm (i.e. irrigation & water harvesting technologies)
- Farm power, maintenance and repair
- Management & production of small livestock (bees, fish, poultry & rabbits)
- Climate change, mitigation & adaptation
- Indigenous knowledge systems and cultural values
- Farm management and record keeping
- Post harvest handling technologies
- Internal control systems
- Markets and marketing
- Extension methods & communication skills
- Group dynamics
- Standardization and certification
- Food & nutrition
- Computer skills.



Participants during West Africa Organic conference on mainstreaming EOA in Africa

DIPLOMA IN ECOLOGICAL ORGANIC AGRICULTURE

COURSE CONTENT

Foundational Courses (Pre-requisites)

1. Agricultural Mathematics
2. Introduction to Botany
3. Introduction to Zoology
4. Computer Literacy
5. Introduction to Chemistry
6. Communication Skills

Core Competency Courses (For the Subject matter)

1. Principles of Ecological Organic Agriculture
2. Soil Science
3. Plant Sciences - Plant husbandry
4. Animal Science - Animal husbandry
5. Social Sciences
6. Economics
7. Agricultural Engineering i. Appropriate technologies
8. Sustainability (Ecology, Renewable energy)
9. Post harvest handling
10. Research Methodology

Skill building Courses (For competency building – Building ones character)

1. Field attachment/Internship
2. Farm demonstrations
3. Exchange and learning visits

Cross cutting courses (social economics)

1. Gender
2. Climate Change
3. Health Education and Nutrition
4. Social and professional Ethics
5. Community Development
6. Policy
7. Emerging Issues in Ecological Organic Agriculture



An extension officer assisting a farmer in his farm



Community information officers being trained on best farmer training practice

BACHELORS PROGRAM IN ECOLOGICAL ORGANIC AGRICULTURE

COURSE CONTENT

FOUNDATION COURSES

1. Botany
2. Zoology
3. Entomology
4. Pathology
5. Ecology
6. Climatology
7. Applied Chemistry
8. Applied Physics
9. Agricultural Mathematics
10. Communication skills
11. Agricultural Statistics
12. Introduction to sociology

CORE COURSES

1. Ecological Organic Agriculture Principles
2. Agro-ecology
3. Ecological Organic Agriculture Crop Production
4. Ecological Organic Agriculture Livestock Production
5. Soil fertility management in EOA
6. Food processing techniques in EOA
7. IPM in Ecological Organic Agriculture
8. Entrepreneurship
9. Post harvest handling Techniques & Storage of Ecological Organic Agriculture Produce
10. Policies issues in Ecological Organic Agriculture
11. Agricultural economics
12. Farm machinery and Structures
13. Ecological Organic Agriculture Apiculture
14. Ecological Organic Agriculture Aquaculture
15. Seed technology and systems



Teaching in progress at a university

OTHER COURSES

1. Forage production in EOA
2. Animal health care in EOA
3. Use of indigenous knowledge in EOA
4. Value addition to crop and livestock produce in EOA
5. Plant health Management in EOA
6. Environmental Management. Strategies in Ecological Organic Agriculture
7. Weed Management in EOA
8. Organic Vegetable Production
9. Organic Fruit Production
10. Plant breeding techniques in EOA
11. Animal breeding Techniques in EOA
12. EOA and Climate change mitigation and adaptation
13. Biotechnology application in EOA
14. Organic Aquaculture
15. Agro-biodiversity: Agro-forestry & Apiculture in EOA
16. Soil and water conservation in EOA
17. Land Use Management in EOA
18. Agricultural Statistics
19. Agricultural Extension in EOA
20. Standards and Certification in EOA
21. Final year research project + seminars

MASTERS PROGRAM IN ECOLOGICAL ORGANIC AGRICULTURE COURSE CONTENT

CORE COURSES

1. Advanced Research methods in EOA (k)
2. Advocacy and Policy issues in EOA (ms)
3. Entrepreneurship and marketing of ECA Produce (s & ms)
4. Organic Certification and Geographical indications (Gis) (k & ms)

OTHER COURSES

1. Advanced crop production systems in EOA
2. Soil fertility building and crop nutrition
3. Post harvest-handling of organic produce
4. Advanced breeding methods in EOA
5. Seed systems in EOA
6. Bio-pesticide production technology in EOA
7. Soil conservation and soil water management
8. Advanced organic livestock production
9. Advanced organic livestock breeding techniques
10. Advanced organic aquaculture
11. Food handling and safety
12. Ethno-veterinary medicine of organic livestock
13. 14. Intensive urban organic agriculture
14. Organic Standard Development
15. Organic fertilizer production Technology
16. Advanced plant health management



Farmers being trained on how to access information on a computer



Participants of an ecological organic agriculture tot training

Agriculture needs a new direction: Agro ecology. The 2009 global food crisis signaled the need for a turning point in the global food system. Modern agriculture, which began in the 1950s, is more resource intensive, very fossil fuel dependent, using fertilizers, and based on massive production. This policy has to change.

Prof Hilal Elver, the new UN's Special Rapporteur on the Right to Food

EOA Contact Institutions

AFRICA UNION COMMISSION	Lead Coordination Organizations	
<p>Dr. Edeme Janet (PhD) EOAI Head of Division Rural Economy and Agriculture Department, AUC Chair, EOA Continental Steering Committee</p> <p>P. O. Box 3243 Addis Ababa, Ethiopia Tel: +251 11 551 77 00 Email: EdemeJ@africa-union.org www.au.int</p>	<p>Biovision Africa Trust</p> <p>Dr. David Amudavi (PhD) Director Biovision Africa Trust EOA SDC Supported Project Coordinator</p> <p>P.O. Box 30772-00100 Nairobi, Kenya Tel: +254 (20) 863 2007/8</p> <p>Email: info@biovisionafricatrust.org www.biovisionafricatrust.org</p>	<p>PELUM Kenya</p> <p>Zachary M. Makanya</p> <p>Country Coordinator, PELUM EOA SSNC Supported Project Coordinator</p> <p>P.O. Box 6123-01000, Thika, Kenya Tel: +254 (20) 2622674 Email: pelumkenya@pelum.net www.pelum.net</p>

Development Partners



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