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SEED ENTERPRISE MANAGEMENT INSTITUTE
(SEMIs)

FIRST PROGRESS REPORT

1st February 2010 to 31st July, 2010

2010

Executive summary

The project to establish a Seed Enterprise Management Institute (SEMI), at the University of Nairobi (UON) College of Agriculture and Veterinary Sciences (CAVS) is an initiative funded by Association for a Green Revolution in Africa (AGRA). It is a collaborative project led by UON. Collaborators include Iowa State University (ISU), International Maize and Wheat Improvement Center (CIMMYT), Kenya Seed Company (KSCo), Kenya Plant Health Inspectorate Services (KEPHIS) and other private and public institutions in the seed delivery systems. The role of SEMIs is mainly geared to providing capacity to the seed industry in sub-Saharan Africa mainly through training on seed systems management for seed practitioners.

SEMI officially began operations in February, 2010. A series of meetings were held between AGRA, UON, ISU and other collaborators for implementation of the project. The main focus for SEMI in 2010 was to initiate and administer short courses, on seed in the seed value chain, for seed practitioners in sub-Saharan Africa that have special relevance to the seed industry in Africa, and to initiate construction of a seed processing unit and seed laboratory at CAVS. To this end, several meetings were held in order to come up with suitable curricula that would address the main challenges facing seed practitioners, especially the seed companies, in the production and provision of high quality seed to farmers in sub-Saharan Africa. Six course curricula were developed and passed by the university administration as SEMI short courses on seed production and Management. These are: i) Seed production, II) Seed drying, processing and storage, III) Seed Marketing, IV) Seed Business Management, V) Seed Quality Assurance, and VI) Seed Legislation and Accreditation. In addition, trainers from the University of Nairobi attended a Training of Trainers (TOT) course at ISU in order to familiarize themselves with the operations of an internationally recognized seed institute. The details for the implementation and curriculum development meetings and, the ISU visit are included in this report.

Within this reporting period (February – July 2010), four courses on Seed Production, Seed Drying, Processing and Storage, Seed Business Management and Seed Marketing have been held with great success. Participants to these courses were drawn from 13 sub-Saharan African countries including from West Africa: Ghana, Nigeria, Mali, Niger and Burkina Faso, from Southern Africa: Mozambique, Zambia, Malawi, and from Eastern Africa: Ethiopia, Uganda, Tanzania, Rwanda, and Kenya. In total, 119 participants from over 30 seed companies have benefited from the trainings. The details of these four trainings are included in this report.

On the construction of SEMI seed processing and laboratory facilities, Allan Gaul a seed science specialist from ISU made visits and took measurements of the existing facilities at CAVS to facilitate the preparation of the construction plans for the institute.

INTRODUCTION

SEED ENTERPRISE MANAGEMENT INSTITUTE (SEMIS)

The seed Enterprise Management institute (SEMIs) was set up as a way of contributing towards the alleviation of food insecurity in sub-Saharan Africa. Seed represents living genetic material to be exploited and holds the ultimate benefit to be expected from all other farming activities. Acquisition of seed of an improved variety symbolizes the potential to improve agricultural output and very often, access to good seed differentiates between good and poor farmers Africa. Many farmers in sub-Saharan Africa do not have access to high quality seed and many are those that have to travel long distances to get certified seed. Also, in many areas in Africa, certified seed is unaffordable to the farmers or totally lacking. While there are many farmers in Africa, who out of ignorance, do not know the benefits certified seed, others have become disillusioned from the effects of provision of poor quality seed choosing to grow their own saved seed.

SEMIs seeks to address some of these challenges by providing capacity to the seed industry through training of seed company personnel on various aspects of high quality seed production, marketing and management. SEMIs seeks to make the seed system, and specifically the seed companies in Africa more vibrant and responsive to the needs of the farmers. Through the training offered, the seed companies are equipped with knowledge for better management of crucial aspects like seed production and processing in order to upscale production and lower overall production overheads thus making seed more available and affordable. SEMIs also conducts training on seed marketing- a crucially important aspect of any seed business. Company personnel are also trained on good business management to better equip them good managerial skills necessary for running self-sustaining profitable seed businesses. With the realization that only through provision of high quality seed can companies gain the trust of farmers, SEMIs is also offering training on seed quality assurance and seed legislation and accreditation.

Apart from the short course trainings, SEMIs will also establish a fully fledged seed training institute with a seed processing unit at the University of Nairobi. This will serve both as training facility and also as a service provider for seed companies with limited capacity to process seed. Other activities will include production of breeder seed of the University's newly released high yielding bean lines and, seed production, at the University farm in Kibwezi. To enhance information dissemination, SEMIs will also establish a website to serve as a first call on seed issues in sub-Saharan Africa.

REPORT ON SEMIs INCEPTION AND PLANNING MEETING

MEETING DATE: THURSDAY 11TH FEBRUARY 2010

**MEETING VENUE: COLLEGE OF AGRICULTURE AND VETERINARY
SCIENCES, UNIVERSITY OF NAIROBI**

Introduction

A project inception meeting was held in order to lay out the foundation of the SEMIs project. In attendance were officials from AGRA, UoN, and ISU. The main objective of the meeting was to launch and fast track the initiation process of the SEMIs project. Highlights of the meeting included briefs on the project overview, and discussions on the importance of the project. Major outputs of the meeting were priority settings for the project and setting of time lines for SEMIs activities. The priority crops for SEMIs and the course details were also discussed. Dates for commencement of the courses and other important SEMIs activities were also set.

Meeting Minutes

In attendance:

	Name	Institution	Title/ Profession	Contact details
1	Joe DeVries	AGRA	Program Director PASS	jdevries@agra-alliance.org
2	Agnes W. Mwang'ombe	University of Nairobi	Principal, C.A.V.S	principal-cavs@uonbi.ac.ke
3	Joe Cortes	Iowa state University	Global Seed Program Leader	icortes@iastate.edu
4	Florence Olubayo	University of Nairobi	Agricultural Entomologist, Chairman Plant science and Crop protection dept.	fmmogi@yahoo.com
5	James Okeno	Iowa state University	Visiting Scientist, ISU	jaketch@iastate.edu
6	George Bigirwa	AGRA	Program officer, SEPA	gbgirwa@agra-alliance.org
7	Rufaro Madakadze	AGRA	Program officer, EACI	rmadakadze@agra-alliance.org
8	John MacRobert	CIMMYT	Seed Systems Specialist	j.macrobert@cgiar.org
9	Aline O'Connor Funk	Consultant for AGRA	Consultant	alineoc@aol.com
10	David Ndung'u	CIMMYT	Plant Breeder	Kamundian@yahoo.com
11	Tim Waema	University of Nairobi	Computer Scientist	waema@uonbi.ac.ke

12	Rama D. Narla	University of Nairobi	Plant Pathologist	Virup_n@yahoo.com
13	James W. Muthomi	University of Nairobi	Plant Pathologist	James_wanjohi@yahoo.com
Apologies				
	Kiarie Njoroge	University of Nairobi	Plant Breeder/ cropping systems specialist	knkabuu@yahoo.com

1. Project overview – By A.W. Mwang’ombe

Presented an overview of the project titled: “Establishment of seed Enterprise management Institute to facilitate capacity building and support quality seed production for increased food security and poverty alleviation”.

Components of the project:

- a) Capacity building for seed merchants and postgraduate students pursuing plant breeding and seed related disciplines.
- b) Establishment of seed training institute (SEMI) at the University of Nairobi with seed processing unit,
- c) Promotion of the production of breeders seeds of newly released high yielding bean lines,
- d) Use a relevant website for SEMIs to facilitate information sharing through the net,
- e) Seed production at Kibwezi field station to support seed out growers, contract services to seed companies for foundation and / or certified seed production(Foreseen for phase II of this program),

These components will demonstrate to the trainees all key stages in production, processing and marketing of quality seed in practice.

Overall goal of the Project

Eradication of food insecurity through capacity building of seed actors for improved seed systems to better deliver high quality seeds to small scale farmers at affordable prices.

Specific objectives:

1. To produce seed production and marketing management expertise with competency to run the seed industry in the SSA region.
2. To train seed industry practitioners on the best practices to efficiently produce adequate high quality seed and supply them quickly enough to meet the farmers planting schedules at affordable prices.

3. To enhance production of seed of important varieties by seed industry stakeholders to meet the planting material requirements of the SSA region, using efficient seed production, marketing and distribution channels.
4. To strengthen the capacity of the SSA region to train on seed production and marketing management strategies that target enhanced seed technology diffusion and uptake.
5. To establish a seed processing unit at the University of Nairobi to serve as a capacity building facility as well as support provision to seed industry of improved varieties developed at the University.
6. Develop a regional capacity to facilitate information sharing on seed issues and related disciplines throughout Sub-Saharan Africa.
7. Utilize idle facilities at Kibwezi for seed production of dry land crops and orphaned crops at a late stage (phase II).

Training Courses

Category1

Seed production and processing

Seed Technology

Breeding and disease/pest management

Category2

Seed company management I

Seed company management II

Category3

Marketing promotion

Leadership course

Category4

MSc and PhD courses

Participants

1. Seed company managers requiring a maximum one-week course on entrepreneurship.
2. Seed production technical staff who require realignment on managerial and field operation skills to enhance output.
3. Masters and PhD students to be equipped with seed production and industry.

2. Problems in the seed industry – Aline O'Connor

Presented slides highlighting the problems associate with the seed industry

3. SEMIs project – Joe DeVries

In his remarks, he highlighted the importance of the project as follows:

- i) Modern seed industry is just starting in most countries.
- ii) Set up of SEMIs would be a major investment in seed industry, which is critical for the

development of the agricultural industry.

- iii) The seed industry will benefit from SEMIs and the demand for SEMIs is big since the need for such an institute is felt in many countries, where farmers usually recycle own seed.

The priorities for the project should be:

- i) Start the training courses as soon as possible (probably by April, May or latest by June 2010). The training curriculum should be short term, flexible, and use existing facilities in the in the College of Agriculture and Veterinary Sciences in collaboration with established institutions like KEPHIS and Kenya Seed Company especially for further practical exposure.
- ii) Initiation of hiring process for project staff and procurement of items that do not need to wait for the US seed engineer's visit.
- iii) Start construction of the SEMIs facilities at the University of Nairobi and this should run co-currently with the training courses.
- iv) Include basic courses like agronomy in the curricula and aspects of insect pest spoilage in the seed quality assurance course.

4. Priority crops for SEMIs

The following were agreed to be the priority crops:

Cereals – maize, sorghum and millets, rice

Legumes – beans, cowpeas, pigeon peas, soy beans, ground nuts.

Other crops - indigenous vegetables, sunflower.

5. Training courses

Course	Duration	Course contributors	Responsible person at UoN
Seed production	1 week	John MacRobert, Kiarie Njoroge, James Okeno,	Kiarie Njoroge
Seed drying, processing and storage	1 week	Allan, Florence Olubayo, Duncan Mbuge	Florence Olubayo
Seed quality assurance	1 week	Joe Cortes, Agnes Mwang'ombe, James Okeno, James Muthomi, Rama Narla, Florence Olubayo	Agnes Mwang'ombe/ Rama Narla/ James Muthomi
Seed legislation and accreditation	1 week	Joe Corter, James Muthomi, Njoroge Kiarie	James Muthomi

Seed market and farmer awareness	1 week	Evans Aosa, Aline, J. J. Okello, Florence Olubayo	Florence Olubayo
Seed enterprise development	1 week	J. J. Okello, Kiarie Njoroge, Ailine, Evans Aosa	Njoroge Kiarie

Note that in all these courses, there is a need for ICT integration.

The following was agreed about the training courses:

- i) The curriculum should indicate course title, course description and contact hours. ii) The courses should be practical oriented: 60% practicals and 40% theory.
- iii) Each course should have distinct modules, each module covering 1–2days.
- iv) At the end of each course, trainees will be awarded a certificate bearing logos of the collaborating institutions (AGRA, CIMMYT, University of Nairobi, ISU) and signed by the college Principal. University of Nairobi should explore the possibility where those Trainees who complete all the six courses can be awarded a University of Nairobi certificate signed by the Vice Chancellor. However, if this was found possible, the trainees should in addition have all the pre-requisite qualifications for this level as per UoN regulations.
- v) Qualifications of the trainees will vary from certificate to degree holders.
- vi) To hold a workshop to harmonize the courses. Course conveners and subject matter specialists to be invited to the curriculum development workshop.
- vii) Course Trainers of Trainers (ToTs) to visit Iowa State University to familiarize themselves with the seed production and processing facilities and go through a two weeks training course tailor made for SEMIs project at ISU.
- viii) It is foreseen that SEMIs in line with UoN regulations for an Institute will later develop diploma, postgraduate diploma and MSc. courses and seek approval upto senate level
- ix) Other short courses that may be considered for development include financial management and human resource management.

6. Schedule of activities

- a) Curriculum development workshop: 8th-12th March 2010

Activity	Proposed timing	Responsibility
Seed marketing and farmer awareness/ Seed enterprise development	8th-9th March	Aline, UoN Staff and AGRA
Seed quality assurance/ legislation and accreditation/	Seed 9th March 2010	Joe Cortes, Uon Staff and AGRA

Seed production	10th March	John, UoN Staff and AGRA
Seed drying, processing and storage	11th-12th March	Allan, Duncan Mbuge, project team from UoN and AGRA

b) Training courses

Activity	Proposed timing
Training of Trainers (Agnes Mwang'ombe, Florence Olubayo, Kiarie Njoroge, James Muthomi) at ISU	10 th to 24th April 2010
Seed production	3 -7 th May 2010
Curriculum development workshop	8 th -12 th March 2010
Seed drying, processing and storage	10 th -14 th May 2010
Seed marketing and farmer awareness/ Seed enterprise development	28 th June-9 th July 2010
Seed quality assurance/ Seed legislation and accreditation	20 th September-1 st October 2010

c) SEMIs facilities

Activity	Proposed timing	Responsibility
Design of SEMIs facilities: floor plan, specification of equipment. Allan from ISU to come and work together with a local engineer	15-19th March 2010	Allan Gaul, Duncan Mbuge and the Project team from UoN
Installation of equipment at SEMIs facility	October 2010	

7. Way forward

- i) Training courses to use crops (beans and maize) already planted at the field station, including the collection plots. Dr. Kiarie to ensure availability of desired crops at right stages of growth for practical training.
- ii) Practicals for seed processing may be done at seed facilities at Kiboko, Katumani, or KEPHIS-Lanet (Nakuru).

- iii) Training to target class sizes of about 30 trainees for each course.
- iv) Postgraduate students sponsored by AGRA to be included during the 2nd year of training. However, if funds for this component of the training are availed then the training can be done between July and end of September 2010.
- v) Costing for each course to be done (some seed companies may be willing to sponsor their staff members). Fees paid will go towards sustainability of the institute.
- vi) SEMIs facility to be self-contained with laboratories and offices (seed processing, treatment, ICT), offices and power back up (generator).
- vii) David Ndung'u will be the project officer and he will help to start operationalize the SEMIs plan. To be allocated a temporary office at the field station.
- viii) Contact persons for the project:
 - a. At University of Nairobi – Agnes Mwang'ombe
 - b. At AGRA- George Bigirwa



Participants at the Inception Meeting attentively listen to Professor Mwang'ombe's presentation

**REPORT ON A CONSULTATIVE WORKSHOP FOR CURRICULUM
DEVELOPMENT OF SEMIs COURSES**

WORKSHOP DATES: 3RD TO 6TH MAY 2010

**VENUE: KENYA COMMERCIAL BANK
TRAINING INSTITUTE, KAREN**

Introduction

Emanating from the deliberations of the SEMIs inception meeting, SEMIs held a consultative workshop meeting between the 3rd and 6th of March in order to develop curricula for SEMIs courses that were to be held later in the year. Curricula developed were to conform to University of Nairobi set guidelines on curriculum development. In attendance were mainly University of Nairobi staff members, while the Kenya Agricultural Research Institute (KARI) and Kenya Plant Health Inspectorate Services (KEPHIS) were represented by Dr. Riungu, the Director of KARI Muguga and Dr. S.K. Sikinyi respectively. Deliberations during the three day workshop mainly focused on inputting the different topics for each of the SEMIs course module frameworks earlier developed by the project partners. The major output of the meeting were six revised drafts of SEMIs curricula, designated as the KCB SEMIs curricula drafts. These revised drafts would at a later date be finalized at a partners workshop scheduled at University of Nairobi Kabete campus.

In attendance:

Name	Institution	Email	Telephone number
Prof. A.W. Mwang'ombe	UoN	mwangombe@kenyaweb.com	0722788895
Dr. Olubayo F.M.	UoN	fmmogi@yahoo.com	0722347659
Dr. Kiarie Njoroge	UoN	kiarie.njoroge@uonbi.ac.ke	072443124
Dr. G.N. Chemining'wa	UoN	umchemin@hotmail.com	0721723806
Dr. Riungu	KARI Muguga	teriungu@yahoo.co.uk	0722224510
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179
Dr. E.C.K. Ngugi	UoN	kahiu@uonbi.ac.ke	0722558465
Prof. E. W. Mutitu	UoN	mutitu@uonbi.ac.ke	0722305866
Dr. Nyikal	UoN	Rnyikal@uonbi.ac.ke	0722248405
Prof. Aosa	UoN	eaosa@uonbi.ac.ke	0722518872
Prof. P.M. Kimani	UoN	pmkimani@uon.ac.ke	0724511585
Dr. Sikinyi	UoN	esikinyi@KEPHIS.org	0722767026
D. Ndung'u	SEMIs	kamundian@yahoo.com	0723323911

Dr. Duncan Mbuge	UoN	dmbuge@yahoo.co.uk	0736429414
Secretariat			
Dr. J. Ambuko	UoN	ambuko@yahoo.com	0722676458
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General introduction:

Overview of the Seed Enterprise Management Institute (SEMI) – Prof. A. W. Mwang'ombe

Acquisition of seed of an improved variety symbolizes the potential to improve agricultural output, and very often, access to good seed differentiates between good and poor farmers in Africa. Research to generate new seeds has not, however, produced much impact in terms of food security in sub-Saharan Africa (SSA) households principally because seed-supply chains have either been lacking or inappropriate. Traditionally, improved seed systems exist to service better-off farmers but this has to change to accommodate all farmers if agriculture has to effectively address the problem of poverty through income generation by the farming communities. To produce the needed change, better resource mobilization is required in SSA so as to promote efficiency in management of the seed industry, both in government and in the private sector.

Components of the project

The project has five components namely:

- (a) establishment of seed training institute (SEMI) at University of Nairobi (UoN) with a seed processing unit,
 - (b) Capacity building for seed merchants and postgraduate students pursuing plant breeding and seed related disciplines
 - (c) Promotion of the production of breeders seeds of newly released high yielding bean lines
 - (d) Use a relevant website for SEMIs to facilitate information sharing through the net (to serve as a first call on seed issues in sub-Saharan Africa
 - (e) seed production at Kibwezi field station to support amongst others seed out grower contract services to seed companies for foundation and or certified seed production (to come in phase II)
- These components will also serve to demonstrate to the trainees who come to SEMIs all key stages in production, processing and marketing of quality seed

Goal and objectives

Overall Goal: Eradication of food insecurity through capacity building of seed actors for improved seed systems to better deliver high quality seeds to small scale farmers at affordable prices.

Specific objectives:

To produce seed production and marketing management expertise with competency to run the seed industry in the SSA region.

To train seed industry practitioners on the best practices to efficiently produce adequate high quality seed and supply them quickly enough to meet the farmers planting schedules at affordable prices.

To enhance production of seed of improved varieties by seed industry stakeholders to meet the planting material requirements of the SSA region, using efficient seed production, marketing and distribution channels.

To strengthen the capacity of the SSA region to train on seed production and marketing management strategies that target enhanced seed technology diffusion and uptake.

To establish a seed processing unit at UoN to serve as a capacity building facility as well as support provision to seed industry of improved varieties developed at UoN.

Develop a regional capacity to facilitate information sharing on seed issues and related disciplines throughout sub-Saharan Africa.

Utilize idle facilities at Kibwezi for seed production of dry land crops and orphaned crops at a later stage (Phase II).

SEMI target groups for training:

1. Seed company managers requiring a maximum one-week course on entrepreneurship. This will be aimed at senior company personnel whose responsibility is to steer the company to profitability through growth, and need to be well versed with topics such as company strategy, marketing, personnel management, equipment, seed storage, use of out growers etc.
2. Seed Production technical staffs that will need realignment on managerial and field operational skills to enhance outputs. Major aspects of seed production including hybrid seed production would be covered.
3. MSc and PhD students to be equipped with seed production and entrepreneurial expertise on managerial and economic aspects of the seed industry.

Training focus

Category 1:

- Seed Production & processing: Training on production of the various classes of seed and other associated operations. This will target senior staff that require both theory and hands on training in this area.
- Seed Technology: Will be mainly a quality control training course for senior production managers, with a heavy hands-on field training using actual crops.

- Breeding and Disease/Pest Management: Will incorporate crop breeding and management, data taking and their processing including integrated crop management for various field crops of interest in the region. The course will target breeding program personnel.

Category 2:

- Seed Company Management I: Will be entrepreneur training on high level management on all aspects of seed business. It will be mainly for those young seed Companies requiring refined business management start-up skills. The course will last one week.
- Seed Company Management II: Will be a management course covering formulating strategies on technical issues, leadership skills, and decision making for growth and funding options. The course will be at a higher level and will target more mature/senior company managers.

Category 3:

- Marketing promotion: This course will be aimed at promoting farmer education on principles and techniques of marketing for effective selling. It will be targeted at any personnel involved in farmer marketing of farm produce including seed.
- Leadership Course: Will be aimed at senior industry managers to sharpen their leadership skills. Focus will be on best leadership practices in global agriculture, and strategic skills in developing efficient teams for the industry. Delivery will incorporate renowned speakers especially from the Industry.

Category 4:

- A course will be run for graduate students (MSc & PhD) to sharpen their seed production and management skills and to prepare them manage a seed enterprise successfully.
- This course will have two parts: introductory and advanced. (Details are in the proposal).

Course modules

- Course Module 1: Seed Production
- Course Module 2: Seed Drying, Processing & Storage
- Course Module 3: Seed Quality Control: Testing and Certification
- Course Module 4: Seed Legislation and Accreditation
- Course Module 5: Seed Market and Farmer Awareness
- Course Module 6: Seed Enterprise Development
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Human Capacity building

- Training Current and Future Seed Experts/ Leaders
Executive Education
Degree Programs (for future)
- Great Students” – Tremendous diversity

- “Great student experience”: Collaboration with Our Partners
Issues and challenges

- Space
- Financial sustainability
- Continued recruitment of highest calibre faculty and students
- Continuous improvement in professional education
- Staff development and retention

Foreseen Main activities:

- Establishment of networks of stakeholders for training.
- Assembling of implementation teams/partners.
- Acquisition of facilities and their improvement.
- Seed production and consequent processing and marketing strategy-development as aid to training.
- Establishment of seed processing units at University of Nairobi as a capacity building facility and as a seed dissemination requirement.
- Mobilization of idle facilities at Kibwezi farm as an essential part of training in dry land and orphaned seed crop production later.
- Establishment of a Web-based seed related information sharing center for Sub-Saharan African countries.
- Curriculum and course manual development.
- Actualization of delivery of courses.

The objectives and expected outputs of the workshop – Dr. Kiarie Njoroge

Purpose of management training in SEMIs

Train and nurture a better appreciation of essential concepts, skills and hands on techniques fundamental to the development, operation and management of an efficient seed programme to service the poor farmers in sub-Saharan Africa.

General Objectives of the workshop

- i. Develop curricula for six short courses already identified to start off SEMIs.
- ii. Discuss and agree on the way forward for other courses.

Specific Objectives

1. Develop six short course outlines.
2. Generate the associated course descriptions.
3. Agree on the admission criteria, mode/s of delivery, examinations and awards.
4. List essential facilities and other requirements that must be in place to mount the first course.
5. Discuss, prioritize and suggest way forward for other SEMIs courses, namely: Diploma, BSc. and MSc. on seed science and technology.

Expected workshop outputs:

Fair copies of six drafts of the short courses on seed production management. The draft will include the rationale, targets audience, course objectives, admission criteria, mode of delivery, course outlines, course duration, course description and materials required.

The six courses are:

- i. Seed production
- ii. Seed drying, processing and storage
- iii. Seed market and farmer awareness
- iv. Seed enterprise development
- v. Seed quality assurance
- vi. Seed legislation and accreditation.

After the general introduction the business of the meeting commenced.

Day 1: Issues arising from the meeting:

It was stressed that the workshop was meant to harmonize the curriculum for SEMIs training workshop. It was important to harmonize what the various experts had proposed as topics in the different modules, harmonize and present them in a manner acceptable to the University for approval.

The initial focus for SEMIs is on food security crops however, there a suggestion that oil crops could be included as case studies so as to broaden SEMIs scope.

There was already a draft of the modules from the experts but it was stressed that there was need to synthesize the material and make it relevant and realistic for the African region

It was also stressed that the document needed to be owned by the university and therefore had to be in a format acceptable and in line with University of Nairobi regulations for curricula.

The workshop was meant to set the stage for the consultative meeting with experts on 8th-12th March to be held at College of Agriculture and Veterinary Sciences (CAVS), upper Kabete Campus.

In order to further get acquainted with seed management, it was mentioned that there will be a familiarization tour by the project managers to Iowa State University (ISU) who are partners in SEMIs. ISU has a seed science Center which deals with all aspects of seed production. The familiarization tour was scheduled for the 10th-23rd of April, 2010

Professor Mwang'ombe indicated there was a proposed training of trainers' workshop to be held in Nairobi some time before the commencement of the training in May in order for the resource persons to get well prepared for course delivery.

As SEMIs will be putting up a seed processing unit at the CAVS, Prof. Mwang'ombe indicated there was an engineer from ISU who was meant to come to CAVS for designing of the same.

Prof. Kimani indicated there was need for the workshop participants to travel to Kenya Plant

Health Inspectorate Services (KEPHIS) seed inspection unit at Lanet, Nakuru in order to familiarize with the processes of seed inspection.

Professor Mwang'ombe indicated that the programme could facilitate the trip.

There was suggestion that SEMIs need to have close association with organizations such as KEPHIS and Kenya Seed Company (KSCo) and visits by trainees to these institutions would offer experiential learning.

For seed science and technology KSCo was suggested as having good facilities for the training to get the much needed hands on experience.

Dr. Sikinyi from KEPHIS indicated that KSCo also had a seed processing unit at Ruaraka in Nairobi

It was also suggested that it would be helpful if should be regulated such that all the trainees get to visit Kenya seed Company seed production facilities in Kitale. This is where Kenya seed does most of the seed production for maize and tother cereals.

Kenya Agricultural Research Institute (KARI) Njoro in Nakuru was also suggested a possible visit for students as they have good seed laboratories.

Having agreed on the importance of a reconnaissance trip for the group to Kitale and Nakuru it was decided that some participants from the workshop would travel to these destinations between the 17th and 19th of March. Expected output for the trip was for the participants to familiarize themselves with the seed production facilities there and decide on how relevant the trip would be for trainees.



Participants at the workshop listen keenly to Dr. Olubayo's presentation

Seed Production Module:

Professor Kimani led the group on discussions on what was important, what was to be deleted from the draft already present what was to be added.

Discussed issues pertaining to this module:

- Regulatory and commercial aspects of seed
- Key words quality, regulatory, knowledge and practical skills.
- It was suggested that indigenous vegetables could also be included in the training.
- However, there was also a suggestion to give more focus to food security crops especially maize and sorghum.
- Managerial capacity to execute seed production processes is required, how to plan seed production, seed grower contracts, price determinations, managing growers and grower training and development, managing seed production small holder farmers
- There was discussion too on the need for assessment and quizzes.
- Can the proposed draft get senate approval if there is no assessment?
- General consensus was that there should be learner assessment and course evaluation. There would be simple review questions at the end of the module to assess the grasp of the module by the trainees and a course evaluation to determine the relevance of the course for trainees and to help on improvement of the training. Simple quizzes, it was suggested would motivate the trainees.
- Recommendation for feasibility of issuing a University of Nairobi certificate for trainees who complete all six modules.
- On certification, there was general consensus that on successful completion of the module, trainees would be awarded a certificate of attendance
- On the issue of admission requirements it was agreed that trainees should have at least a pass or equivalent of Kenya Certificate of Secondary Education (KCSE)

- For some of the courses especially those related to managerial responsibility, experience in seed business or enterprise would be recommended as an added advantage.
- However, there was discussion on whether the requirement would lock out those people from small start-up seed companies who may not even have staff with KCSE certificates.
- It was stressed that this was a skills enhancement course and as many people as possible need to be eligible.
- There was also a suggestion that the current draft seemed overloaded taking into consideration that the courses would be conducted in one week and it was suggested that some topics be knocked off.
- It was agreed the courses would be conducted over one week as trainees cannot afford more time out of their jobs.
- Proposed charges for students for course administration were set for USD 500 in accordance with other institutions.
- On the practicals for students on seed production it was suggested trainees could visit demonstration plots at the university's field station.
- Dr. Kiarie indicated he had already planted some demonstration plots which maybe ready by the time when the first module is being delivered in May.
- These demonstration plots would be used for illustration of seed production techniques including detassling, rouging, irrigation and crop protection.
- Students would also perform germination and other seed testing techniques in the university's laboratory. Also demonstrations in the laboratory of what is breeder's seed, certified seed, what is the white label and how seed packets look.
- On case studies to be carried out, one of the suggestions was that trainees could be asked to review the production department of a seed company in the host country.

- Another case study suggested was for trainees to prepare seed production plans for a model seed company based on certain criteria or to define the production department's personnel structure and budgets.
- Others group projects suggested was for trainees to draw up a contractual agreement for seed growers
- There was suggestion that Information communication technology (ICT) should be included for trainees to familiarize with spreadsheets for data tracking and for maintaining data records.
- For seed production module there was a general feeling that trainees should be given an opportunity to visit with KSC facilities at Kitale.
- On the issue of teaching resources it was suggested that a video of seed production would be appropriate. Other instructions aids would include pamphlets from seed companies and KEPHIS, seed manuals and power point presentations. Some videos could also be shot locally.
- Utilization of seed manual from CIAT as resource material.
- Carry home material for trainees was also stressed as very important.

Seed drying, processing and storage module:

Issues arising from discussion on this module:

- Overall objective was defined. But emphasis would be on participants to gain practical knowledge on seed processing and the types of practical equipment needed for small and big seed companies.
- Packaging, shelling, abrasion damage, cracked seed are important aspects of seed.
- Issues of post harvest handling were also discussed.
- Also information management came to the fore as an important topic especially in tracking seed batches from points of receiving to packaging.
- Plant layout organization, management and administration were also discussed.

End of day 1

Day 2: Thursday 4th March

Continuation of seed drying and processing

Prof Aosa from the business school joined the workshop.

Matters discussed:

Proper waste management in seed processing

Waste or by product management?

Seed processing facilities to be set up by SEMIs were also discussed.

Lecture and computer rooms were indicated as important for students and should be considered in the design of the seed processing unit

Other important facilities should include those for accommodation and catering, instructors' offices, library, graduate study rooms and seminar rooms.

The components of a seed processing unit were discussed including cold storage and other processing requirements.

There was a discussion that study and instruction guides including seed laboratory manuals as important information material

SEED LEGISLATION AND ACCREDITATION MODULE

Facilitator: Dr. Muthomi

Overall objective of the module was discussed

Issues on seed accreditation and legislation were discussed

The role of KEPHIS in seed legislation and accreditation was discussed at length.

It is important to develop good working relationship with KEPHIS as they are the authorities in seed legislation and accreditation.

Dr. Sikinyi from KEPHIS was available to elucidate the process of legislation and accreditation required for certification of seed.

SEED BUSINESS MANAGEMENT MODULE:

Facilitator: Dr. Nyikal

Aline O'conner's input on the module was discussed:

Issues arising:

- The overall objective of the this course is for the trainees to gain exposure and knowledge of sound business practices which will enable them to build healthy, sustainable businesses.
- Fundamental planning, record keeping and analytical skills in seed business are important.
- Describe critical financial elements in running a profitable seed business.

SEED MARKETING AND FARMER AWARENESS MODULE:

Facilitator: Dr. Nyikal

Overall objective:

- To enhance participants knowledge and skills in seed marketing in order to come up with a product that is desirable to farmers
- Strong critical thinking skills were considered important for marketing and farmer awareness
- Illustration of the essential components of a successful marketing strategy, profiling and targeting of farmers and merchant/customer relationships
- Identifying agro-dealers, illustration of the roles and types of promotional media, simulation of realistic marketing
- Suggested practicals for trainees: how to draw a good business plan

End of Day 2

Day 3: 5th March 2010

SEED QUALITY ASSURANCE MODULE

Facilitator: Dr. Narla

- Discussions on the module of seed quality were embarked on. Objectives, specific objectives-provision of skills on field inspection
- To enhance the understanding of seed testing methods and seed certification schemes
- To enhance the understanding of the regulatory process employed by national and international Regulatory bodies.

- Good knowledge on seed quality determination and certification process was considered essential and relevant for the seed industry. Seed health includes aspects of biotechnology
- Certification: To expose participants to the basic concepts necessary for seed certification and its relevance in both national and international seed movement and trade
- To impart trainees with fundamental tools of seed health testing and their significance in the management of seed borne diseases and pests
- To expose participants to the basic concepts of processes involved in seed testing, and seed quality determination

Discussion on other proposed courses to be offered by the University in line with SEMIs curriculum:

- The focus should initially be on the certificate focused short courses that the institute will be offering.
- Other courses suggested for later implementation:
 - Diploma (postgraduate)
 - M.Sc. Seed Science and biotechnology
- There is urgent need for focused short courses with a pan-African focus

Conclusions and Way forward:

Logistics of field trip to Kenya Seed company seed processing plant in Kitale and KEPHIS seed testing Laboratory in Lanet Nakuru, for workshop attendees were discussed and finalised

On the curriculum the following dates were proposed as tentative:

- The full draft of the curriculum should be at the department level by the 16th of March 2010 for onward transmission
- It should be at the faculty by Friday 19th March, 2010
- At CAB by Wednesday 24th March 2010
- At the Deans Committee -30th March or 6th April, 2010
- At the Senate- Sometimes in April 2010

On SEMIs short course certification, proposals were:

1. Certificate of attendance signed by the Principle CAVS, for any single module

attended

2. Certificate of the University of Nairobi for trainees taking all 6 modules
 - a. Examinations
 - b. Duration including attachment and special project
 - c. Entry requirements – C- or equivalent
 - d. Charges- add charges for the special project and attachment.
- There was debate on the way forward for SEMIs and it was felt that for it to get a full institute title, SEMIs need to take seriously the issue of offering diploma (post graduate) and also MSc. degrees plus other seed technology Courses
- To drive this process the following were recommended: - Drs. Muthomi, Kiarie, Olubayo, Mbuge, Narla, Dr. Sikinyi (KEPHIS), Dr. Riungu (Director, KARI Muguga South)
- For the May courses, critical logistical issues on facilitation of the project were discussed:
 - Times on when the demonstration plots for trainees should be planted
 - Other requirements for practicals and the facilities to host the students. Dr. Riungu (KARI Muguga) and Dr. Sikinyi (KEPHIS) were recommended to aid in Identifying demonstrations in KARI or KEPHIS for students to view.

Closing remarks by Prof. Mwang'ombe

- Vote of thanks to all the attendees
- She stressed that SEMIs was not just a project like any other but a new cause to set up an institute within UoN. The process has to be owned by the university and she was confident the actors would drive the process through.
- Special thanks: KEPHIS, KARI, and Professor Mutitu for taking time out of her busy schedule.
- Professor Mutitu thought the project was very exciting with great potential for tangible results

End day 3

Day 4: 6th March 2010

Cleaning up and harmonization of outputs and drafting of report: Drs. Muthomi, Kiarie, Ambuko, Ndung'u. ICT-Njeri

The Draft curriculum emanating from this workshop was identified as the KCB Curriculum draft.



Professor Mwang'ombe (front row fourth left), with participants at the end of the workshop

SEED ENTERPRISE MANAGAMENT
INSTITUTE (SEMIs)

Report on a consultative workshop for
developing a curriculum for SEMIs

8th -12th March, 2010

Venue: College of Agriculture and Veterinary
Sciences, Upper Kabete Campus.

Introduction

SEMI held a meeting on the 8th of March, 2010 as follow up to the meeting held at the Kenya Commercial Bank. The objective of the meeting was to deliberate and consolidate, harmonize and improve on the SEMI curriculum KCB drafts. Expected outputs of the meeting were revised drafts of the SEMI curricula that could be presented to the University of Nairobi Administration for consideration and ratification as University approved Curricula. In attendance at different sessions of the five day meeting were representatives from University of Nairobi, CIMMYT, ISU, AGRA, KARI and KEPHIS.

In attendance:

Name	Institution	Email	Telephone number
Day 1			
Dr. Olubayo F.M.	UoN (CAVS)	fmmogi@yahoo.com	0722347659
Dr. Kiarie Njoroge	UoN (CAVS)	kiarie.njoroge@uonbi.ac.ke	072443124
Dr. Justus M. Munyoki	UoN (school of business)	jimmunyoki@uonbi.ac.ke	
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179
Prof. Evans Aosa	UoN	eaosa@uonbi.ac.ke	0722518872
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Aline O'Connor	AGRA	alineoc@aol.com	
Funk			
Charity Venessa Njeri	UoN (ICT department)	charityvanessa@uonbi.ac.ke	0722281835
David K. Ndung'u	SEMI	kamundian@yahoo.com	0723323911
Dr. George Bigirwa	AGRA	gbigirwa@agra-alliance.org	0733940404
Day 2			
Dr. Olubayo F.M.	UoN (CAVS)	fmmogi@yahoo.com	0722347659
Dr. Kiarie Njoroge	UoN (CAVS)	kiarie.njoroge@uonbi.ac.ke	072443124
Dr. Josiah Aduda	UoN (school of business)	jaduda@uonbi.ac.ke	
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179

Prof. Aosa	UoN	eaosa@uonbi.ac.ke	0722518872
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Aline O'Connor Funk	AGRA	alineoc@aol.com	
Charity Venessa Njeri	UoN (ICT department)	charityvanessa@uonbi.ac.ke	0722281835
David K. Ndung'u	SEMIs	kamundian@yahoo.com	0723323911
Dr. Duncan Mbuge	UoN	dmbuge@yahoo.co.uk	0736429414
Dr. Rufaro Madakadze	AGRA	RMadakadze@agra-alliance.org	0737440080
Dr. Rose Nyikal	UoN (CAVS)	rnyikal@uonbi.ac.ke	0722248405
Dr. Florence K. Muindi	UoN (School of business)	Florence_muindi@uonbi.ac.ke	
Day 3			
Dr. Rufaro Madakadze	AGRA	RMadakadze@agra-alliance.org	0737440080
Charity Venessa Njeri	UoN (ICT department)	charityvanessa@uonbi.ac.ke	0722281835
David K. Ndung'u	SEMIs	kamundian@yahoo.com	0723323911
Dr. Teresio C. Riungu	KARI Muguga	teriungu@yahoo.co.uk	0722224510
Dr. Joe Cortes	Iowa State University		
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Dr. Olubayo F.M.	UoN (CAVS)	fmmogi@yahoo.com	0722347659
Dr. Kiarie Njoroge	UoN (CAVS)	kiarie.njoroge@uonbi.ac.ke	072443124
Dr. John McRobert	CIMMYT	j.mcrobert@cgiar.org	-
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179
Day 4			
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Dr. Olubayo F.M.	UoN (CAVS)	fmmogi@yahoo.com	0722347659

Dr. Kiarie Njoroge	UoN (CAVS)	kiarie.njoroge@uonbi.ac.ke	072443124
David K. Ndung'u	SEMIs	kamundian@yahoo.com	0723323911
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179
Charity Venessa Njeri	UoN (ICT Department)	charityvanessa@uonbi.ac.ke	0722281835
Dr. Duncan Mbuge	UoN	dmbuge@yahoo.co.uk	0736429414
Day 5			
Dr. Olubayo F.M.	UoN (CAVS)	fmmogi@yahoo.com	0722347659
Dr. Kiarie Njoroge	UoN (CAVS)	kiarie.njoroge@uonbi.ac.ke	072443124
Dr. Narla, R.D.	UoN	virup_n@yahoo.com	0722745284
Dr. J. W. Muthomi	UoN	James_wanjohi@yahoo.com	0722984179
Dr. Duncan Mbuge	UoN	dmbuge@yahoo.co.uk	0736429414

Proceedings:

Day 1:

Seed enterprise management Module:

Facilitator: Aline O'Connor:

- Aline indicated that SEMIs was about utilizing the academic excellence at the University of Nairobi and linking it other expertise so as to make SEMIs relevant and vibrant.
- She stressed that there was extremely great interest in SEMIs from all over sub-Saharan Africa as SEMIs would be different and revolutionary in its scope and operation.
- There was great potential for SEMIs to make tangible impact in the way seed companies produce seed and hence on food security in SSA.
- Aline indicated that already some seed companies in Nigeria for example were ready to send some of their staff for training at SEMIs.
- Many entrepreneurs see the benefit of this form of training and are therefore more than willing to send staff for training.
- The name of the module was changed from Seed enterprise management to Seed business management.

- On the topics of the module, Prof. Evans Aosa was in agreement that the topics were adequate and there was great content in the three units.
- The seed tool box was identified as a very useful resource for the course
- On the course structure, discussion was on various issues including what needed to be done to get the module well administered and the material necessary for the training.
- There was a suggestion that since CIMMYT had on occasion conducted training of a similar nature, they should be contacted for course content. John McRobert to be contacted.
- Aline suggested that to make the training more interesting, there has to be creativity. Interactive games for example were suggested as a way of spicing up module delivery.
- There was suggestion for field visits and lectures on-site in the field.
- Suggested visits were to:
 - A communications centre
 - Seed enterprises
- It was suggested that it was important to bring in experts from different fields as guest lecturers or resource people
- In marketing there is a need to keep track of your goods; therefore there was suggestion that video resources and ICT be utilized in course administration and delivery.
- The business school was identified as a potential source of teaching aids.
- Prof Aosa indicated there was need to utilize business people in town as guest speakers
- This would also make the module more interesting and fun The agreed time for lectures and practicals was 50% for each The 6 days was considered adequate to administer the course
- Aline indicated there was need to instill financial literacy on the trainees in order they can better manage their businesses
- On course evaluation there was general consensus that basic exercises at the end of each module would suffice for assessment of grasp of topic by the trainees
- On certification, it was Prof. Aosa indicated that this was a non-award program as there were no university-set examinations.
- Aline indicate there were a total of 30 students expected for the first intake in May, 2010

- Aline also pointed out that with regard to teaching, Prof. Aosa and the rest of the team to administer the course could rearrange the delivery in any form they deemed fit.
- John McRobert's book and the seed tool box were identified as important resource material
- For ICT, it was indicated that simple ICT applications like Excel spreadsheets were crucial for trainees to be taught. This could be offered for one or two hours
- Suggestions for evening class for those trainees willing to learn more on ICT
- 60% of the trainees might not have ICT knowledge and therefore the component of
- ICT was considered crucial
- With spreadsheets, it was possible to track agro dealers, sales and customers.
- Also there was suggestion that participant willing to learn more on ICT could come a day earlier to familiarize with basics of spreadsheets and other excel software
- Also participants should be made aware of the power of the digital camera.

SEED MARKETTING MODULES

Facilitator: Aline O,connor:

- It was agreed that the module be changed from seed marketing and farmer awareness to Seed marketing.
- Issues of importance of customer awareness were discussed
- Definitions of markets, creating a marketing strategy and execution of the same were considered as essential areas to demonstrate to the trainees
- Issues of inculcating practical skills and critical thinking skills were discussed. The topics were considered adequate and relevant to the seed sector.
- Tool box to be utilized as a good resource for administering the course
- Also John McRobert's book on Seed business management in Africa
- Aline suggested that practical skills in communications were important for the trainees. Videos could be shot from the area to get the challenges of farmers by doing farmer
- interviews

- For curriculum material, handouts for students were considered as essential. D. Ndung'u was to contact John McRobert on the materials that could be relevant for this module.
- Trainees also need take-home material in the form of handouts, power point presentation and pamphlets that are relevant for each module.
- For training materials, the professors or instructors would have to develop their own training material for each of the topics they would be teaching.
- Identification of important websites relevant to each of the modules
- Importance of ICT in marketing
- Trainees to be given time on computers to do simulation for record keeping, marketing, and distribution
- For this module, it was generally felt a field trip was not necessary, however if there was real need for participants to go out into the field, then it was suggested that a visit to a seed company which deals with marketing issues, for example, Simlaw Seeds in Nairobi, could be organized.
- Instead there would be utilization of videos as teaching aids
- There was suggestion of bringing in Agro dealers to talk to the participants. Jennifer in Machakos was suggested as one of the possible agro dealers who could be invited- liaise with George Bigirwa
- Use of photographs for demonstrations
- Ideas were also floated for guest speakers: Paul Seaward-liaise with George Bigirwa, someone from Syngenta

Material for administration of the course-some would be adopted and other material created to cater for the different topics

End day 1

Day 2

Dr. Kiarie gave a brief of the SEMIs for benefit of the newcomers. Funding for SEMIs is by AGRA

Most of the time was utilized in designing the day to day activities or day plans for the marketing and Seed business management Modules.

Aline noted that there needs to be an understanding by the trainees of financial statements as

most of the small seed companies experience cash flow problems. There needs to be understanding of capital expenses and their management

Issue of good business ethics was also important if companies are to get the confidence they need from the farmers- no counterfeiting

ICT should be incorporated for making cash flow sheets etc

Entrepreneurship and critical thinking are very important

Risk management, seed industry is not very profitable and it's also high risk. Therefore, it was appreciated that most of these companies are mission driven.

SEED QUALITY ASSURANCE MODULE:

Facilitator: Joe Cortes

Seed needs to have four important qualities:

- Genetic quality, Physiological quality, Physical quality, and phyto-sanitary quality

The objectives and specific objective of the course were discussed at length. What was important in the KCB version was retained and necessary additions were made.

- For practicals there should be seed analysis. Practical handouts are important.
- Joe Coates indicated that trainees should be able to inspect at least four different field crops.
- KEPHIS is to come in handy on issues of providing inspection fields
- There was emphasis that the training should be hands on
- Duration of six days for course administration was considered adequate
- Saturday was considered a good day for course evaluation and testing and winding up of the course.
- Important course material: crop protection compendium.
- Basics of field based quality assurance mechanisms to ensure high quality genetic purity
- Need for proper identification of diseases
- There was suggestion there could be a field trip to Lanet, Nakuru to visit with KEPHIS

SEED DRYING, PROCESSING AND STORAGE MODULE

Allan Gaul, the coordinator for this module was not present.

Facilitator: Joe Coates.

Objectives and specific objective were discussed.

Most of the topics were considered adequate for the module.

Additions and deletions to the module were made on the draft curriculum from the KCB workshop

End day 2

Day 3- 10th March 2010

Seed production Module:

Facilitator: John McRobert:

- There would be an initial assessment of the students in form of a small quiz in order for the instructor to learn more on the level of training of the trainees and therefore to adjust appropriately in the form of delivery
- It was suggested that trainees for seed production be exposed to DUS/NPT Tests:
- Training materials were also considered and John's book on seed business management was identified as a good resource.
- ICT was also taken care of and allocated 3 hours. 1 hour for basic spreadsheets and 2 hours for Seed plan
- Most of the curriculum was considered adequate
- More time was allocated to arranging the day plans for this module.
 - For the practicals, it was generally felt that trainees need to visit a seed company in order to the practical experience of seed production. Leldet and Kenya Seed Company were identified as some of the possible seed companies that could be visited.
 - Also a visit to KARI Njoro would be important to see how to manage inbred lines.
 - Course material: field books from CIAT, CIMMYT, ICRISAT, IITA, Leaflets from KARI on seed production.
 - Also included would be viewing of demonstrations at KARI Muguga.

- Small and informal seed delivery systems were to be visited.
- Visit to KEPHIS.

End Day 3

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- Day 4 and 5 were utilized in harmonizing comments, and formatting and cleaning the new document.
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SEMIS CURRICULA

Introduction

The final SEMIs course curricula after cleaning up were presented to the department of plant Science and Crop Protection, the faculty of Agriculture and college academic boards for approval. At these levels, the curricula were, with minor changes, approved and passed, and the following are now the official curricula for SEMIs short courses on:

1. SEED PRODUCTION
 2. SEED DRYING, PROCESSING AND STORAGE,
 3. SEED MARKETING
 4. SEED BUSINESS MANAGEMENT
 5. SEED LEGISLATION AND ACCREDITATION
 6. SEED QUALITY ASSURANCE
-

**SEMIs COURSE CURRICULA AS APPROVED BY THE
COLLEGE OF AGRICULTURE AND VETERINARY
SCIENCES ACADEMIC BOARD (CAB)**

UNIVERSITY OF NAIROBI
COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES
FACULTY OF AGRICULTURE

I. REGULATIONS AND SYLLABUS FOR THE SHORT COURSE IN SEED PRODUCTION

1. Introduction

In the Sub-Saharan region of Africa (SSA), agricultural development plans are assuming a positive upturn as a precursor to industrialization. Acquisition of good quality seed of an improved variety symbolizes the potential to improve agricultural output. Therefore a re-examination of the seed-systems is necessary as a starting point towards agricultural rejuvenation in SSA. Although significant progress has been made to generate new improved crop varieties through research, farmers are yet to benefit fully from these achievements. One of the major reasons for this is the lack of trained personnel with practical skills in the production of quality seed for processing and packaging for wide distribution. The seed production training module is intended to provide an introduction to the management of field seed production of hybrid, open- and self-pollinated crops commonly grown in Africa, such as maize, sorghum, beans, cowpeas, groundnuts and rice. The module will enable the trainees to understand the various aspects of seed production from planning, through field management of seed fields, seed-production-research to managing contracted seed growers.

2. Objectives of the course

The overall objective of the course is to enhance the participants' practical knowledge and skills for quality seed production and regulatory aspects of seed production in a commercial context.

The specific objectives are to provide training in:

- 2.1. Planning of seed production to achieve marketing goals
- 2.2. Management of seed production of field and horticultural crops including maize, vegetables (e.g. kale, indigenous vegetables), small grains, and grain legumes in sub-Saharan Africa.
- 2.3. Regulatory and quality assurance requirements for seed production and marketing.
- 2.4. Managing contract farming.

3. The trained personnel will have:

- 3.1. Good understanding of seed production management, regulations of quality assurance to achieve seed production goals.
- 3.2. Analytical and interactive ability to enable sound planning and implementation of seed production enterprise.
- 3.3. Ability to diagnose seed production problems and determine and apply practical solutions
- 3.4. Managerial capacity to design and implement a seed production strategy.

4. Admission Requirements

- 4.1 The common regulations governing short courses in the University of Nairobi shall apply.
- 4.2 At least KCSE or equivalent.

5. Course structure and duration

The short course in seed production shall be offered on full time basis as follows:

- 5.1 The course shall have six course units of face-to-face lectures, demonstrations, practicals and field visits.
- 5.2 The course shall cover a period of six days.

5.3 Lectures shall constitute 50% while field visits, demonstrations and practicals shall constitute 50% of the course time.

5.4 Practical will include laboratory and field demonstrations, field visits to a national plant protection organization (NPPO), seed companies, contracted seed growers and research institutions.

5.4 Assessment shall be by review quizzes and end of course evaluation.

6. Award

At the end of the course the trainees will be awarded a Certificate of participation.

7. Course outline

Code	Course Title	Hours
ASP1	Planning and Management of Seed Production	12
ASP2	Seed production research and Certification Standards	12
ASP3	Seed Grower Contracts and Management of Seed growers	11
TOTAL		35

8. Course descriptions

ASP 1: Planning and Management of seed production

Production goals, seed classes (nucleus, breeders, foundation and certified); seed bulking and maintenance; certified seed production, multiplication cycles, synchronizing production with markets, carryover seed, risks, personnel requirements, record keeping; cost management in seed production, processing and handling new and recycled seed (drying, cleaning, grading, treatment, packaging); seed quality control; purity maintenance. The

practical session will consist of laboratory demonstration of various classes of seeds and how they are labeled; seed packaging, and exercises on calculating seed production goals of all seed classes based on future sale targets;

Seed sources; target growing environments; mode of production; land preparation; isolation distances; planting and management of seed crops; harvesting, drying and storing seed crops; quality assurance requirements of hybrid, OPV and SPV seed production.

ASP 3: Seed production research and Certification Standards

Seed and seed systems (formal and informal); mating systems (cross and self pollination, vegetative propagation including grafting and tissue culture); elements of a seed production research program; descriptors, DUS/NPT tests; Relationship with national seed authorities, elements of seed certification; inspection regulations and procedures for seed certification; role of national and international regulatory agencies. The practicals will include field visits to the National seed regulatory agencies, seed companies and research institutions to get hands on experience on different seed production methods, out-grower contracting and certification processes.

ASP 4: Seed Grower Contracts and Management of Seed growers

The role of seed growers; criteria for selecting seed growers, forms of seed grower contracts and incentive schemes; methods of establishing seed producer prices (cost plus comparative pricing); preparing seed production budgets; managing growers, grower training and development. The practical session will be a class exercise to outline a grower training and development scheme; and preparation of a seed production budget for a farmer; Formal and informal seed delivery systems; methods of organizing small-holder farmers to produce crop seed, group dynamics, challenges related to seed production with small-holder farmers and potential practical solutions

UNIVERSITY OF NAIROBI

COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES FACULTY OF AGRICULTURE

REGULATIONS AND SYLLABUS FOR THE

II. SHORT COURSE IN SEED DRYING, PROCESSING AND STORAGE

1. Introduction

Production is only the first step in the delivery of good quality seed to the farmer. The post-harvest handling processes including drying, processing and storage, are key to the delivery of the seed in good condition. This module is intended to provide a basic introduction to the concepts of seed drying, processing and storage for individuals needing a general understanding of related technology. The module will impart knowledge and skills on the post-harvest technical operations typically utilized to prepare a seed lot for marketing and use. Risks of seed deterioration, mechanical damage and improved seed quality will be emphasized. Methods for evaluating seed cleaning equipment and process output will be reviewed in the context of a typical seed operation for selected seed crops. In addition, record keeping, information management, and plant layout considerations for various seed applications will be introduced, including special concerns for small lot processing.

2. The objectives of the course

The overall objective is to equip the participants with practical knowledge of the basic concepts involved in drying, processing and storage operations typically utilized to prepare a seed lot for marketing and use.

The specific objectives are:

- 2.1 To enhance knowledge on post-harvest factors affecting seed quality, including seed deterioration and mechanical seed damage
- 2.2 To impart knowledge on principles and practices related to seed processing, handling equipment and safety issues.
- 2.3 To enhance knowledge on by-product and waste management in seed processing
- 2.6 To improve knowledge on record keeping, information management and plant

layout considerations including special concerns for small lot processing.

3. Trained personnel will have:

- 3.1 Good knowledge of the importance of quality issues relevant to seed processing.
- 3.2 Understanding of the concepts and operation of machinery and handling equipment used for seed processing.
- 3.3 Understanding of the relationship between processing operations and other seed production and delivery systems.
- 3.4 Knowledge of the factors that influence the effectiveness of drying, storage and processing operations.

4. Admission Requirements

- 4.1 The common regulations governing short courses in the University of Nairobi shall apply.
- 4.2 At least KCSE or equivalent.

5. Course structure and duration

The short course in seed processing and storage shall be offered on full time basis as follows:

- 5.1 The course shall have six course units of face-to-face lectures, demonstrations, practicals and field visits.
- 5.2 The course shall cover a period of six days.
- 5.3 Lectures shall constitute 60% while field visits, demonstrations and practicals shall constitute 40% of the course time.
- 5.4. Practical will include field visits to a seed company for demonstrations on seed reception, laboratory, storage, drying and processing facilities
- 5.5 Assessment shall be by review quizzes and end-of-course evaluation

6. Award:

At the end of the course the trainees will be awarded a Certificate of Participation

7. Course Outline

Code	Course Title	Hours
APS1	Seed Processing Operations	12
APS2	Seed Drying, Storage Management and Safety Considerations	12
APS3	Finished Product and Plant Management	11
TOTAL		35

8. Course Description

APS 1: Seed Processing Operations

Review of techniques in seed processing including material handling, drying, storage, cleaning, treatment and storage; Air-screen cleaning and aspiration; spiral and belt separation; length, width, and thickness Sizing; additional crop specific processes; Fluidized density separation (destoner and gravity separator); optical detection and color separation; seed treatment chemicals and calibration concepts; seed treatment handling and application equipment.

APS 2: Seed Drying, Storage Management and Safety Considerations

Seed and equilibrium moisture relationships, aeration and temperature control; seed drying principles and moisture management; seed storage: principles, methods, and controls and pest management; Environmental concerns; safety consideration; automation and control.

APS 3: Finished Product and Plant Management

Packaging and palletizing equipment; plant-level sampling and testing for quality control and process improvement; plant layout considerations; record keeping and information management; maintenance and cost management

UNIVERSITY OF NAIROBI

COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES FACULTY OF AGRICULTURE

III. REGULATIONS AND SYLLABUS FOR THE SHORT COURSE IN SEED BUSINESS MANAGEMENT

Introduction

A seed enterprise, like any other business must be properly managed to realize the required benefits to the investor and to customers. Sound quality management entails following sound business practices that permit sustainable and viable businesses that are financially sound and produce benefits to society. Many well-financed and designed seed enterprises have collapsed in sub-Saharan Africa due to lack of good business management. Therefore, there is a need to train entrepreneurs in business management skills that are critical to the success of their businesses. Seed business management training encompasses all aspects of business from planning to marketing with emphasis on the value of critical thinking in both financial and human capital. Of special importance is the need for team building to ensure the various stakeholders in the value chain carry out their responsibilities efficiently. This course has been designed to allow the participants to acquire financial skills, understand the seed-markets and the value of critical thinking that will enable them to compete effectively.

Objectives of the course:

The overall objective of the course is to expose participants to knowledge of sound business practices which will enable them to build healthy and sustainable seed enterprises.

The specific objectives are:

To learn how to develop and implement a clear marketing strategy which responds to their own specific market and competitive situations;

To develop essential critical thinking skills which will enable them to solve business management problems as they arise;

To gain strong exposure to the critical financial skills needed to run and grow a business; To Build and motivate a strong team to assist in running and expanding a seed business To plan how to develop and implement a clear strategy

Trained personnel will have:

- Strong critical thinking skills in general, financial, and human resources management in seed business
- Fundamental seed business planning, record-keeping, and analysis skills
- Knowledge in building and managing teams to carry out the essential seed business responsibilities
- Strong working knowledge of the critical success factors for a seed enterprise, and how to achieve them.

Admission requirements

- The common regulations governing short courses in the University of Nairobi shall apply
- At least Kenya Certificate of Secondary Education (KCSE) or equivalent

Course structure and duration

- The short course in seed business management shall be offered on full time basis as follows:
- The course shall have three course units of face-to-face lectures, guest speakers in motivational and business management issues, group discussions and presentations
- The course shall cover a period of six days.
- Lectures shall constitute 60% and guest speakers, assignments and presentations shall constitute 40% of the course time
- Assessment shall be by quizzes and end-of-course evaluation.

Award

- On successful completion of the course the participants will be awarded a Certificate of Participation.

Course Outline

Code	Course Title	Hours
ABM 1	General Seed Business Management	12
ABM 2	Managing People in Seed Production	12
ABM 3	Financial Management in Seed Production	11
TOTAL		35

Course Description

ABM 1: General Seed Business Management

Seed enterprise overview: strategy development, goal setting, situation analysis and market assessment; self-inventory (strengths and weaknesses), segment focus (geography, product and customer type), competitive advantage, key strategic initiatives and execution, timing; the annual business cycle; habits of strong seed company managers; avoiding dangerous management distractions; types of capital & checklists; critical thinking approaches; elements of a good partnership; trust and ethics in the seed business; successful product planning; avoiding quality and product problems;

AMB 2: Managing people in Seed Production

Identifying the skills required by a seed enterprise; organizational design; job description; coaching/mentoring and delegating; performance assessment; incentive approaches; training and employee development; dealing with problem employees, practical session will involve motivational talks on the need for critical thinking in business management and relevant ICT applications (Excel spreadsheets; record cards; customer records maintenance, marketing process tracking)

ABM 3: Financial Management in Seed Production

Overview of financial functions in a seed enterprise; financial statement overview: income statement, balance sheet, cash flow statement; key financial framework for managers; the most common profitability problems; management accounting; essential numbers you must

know about your business; financial planning and forecasting; making investment decisions; practical sessions will involve speeches by authority guest speakers in the areas of business management, and discussions on individual home country situations, challenges and solution

UNIVERSITY OF NAIROBI
COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES
FACULTY OF AGRICULTURE

**IV. REGULATIONS AND SYLLABUS FOR THE SHORT COURSE IN SEED BUSINESS
MANAGEMENT**

Introduction

A seed enterprise, like any other business must be properly managed to realize the required benefits to the investor and to customers. Sound quality management entails following sound business practices that permit sustainable and viable businesses that are financially sound and produce benefits to society. Many well-financed and designed seed enterprises have collapsed in sub-Saharan Africa due to lack of good business management. Therefore, there is a need to train entrepreneurs in business management skills that are critical to the success of their businesses. Seed business management training encompasses all aspects of business from planning to marketing with emphasis on the value of critical thinking in both financial and human capital. Of special importance is the need for team building to ensure the various stakeholders in the value chain carry out their responsibilities efficiently. This course has been designed to allow the participants to acquire financial skills, understand the seed-markets and the value of critical thinking that will enable them to compete effectively.

Objectives of the course:

The overall objective of the course is to expose participants to knowledge of sound business practices which will enable them to build healthy and sustainable seed enterprises.

The specific objectives are:

To learn how to develop and implement a clear marketing strategy which responds to their own specific market and competitive situations;

To develop essential critical thinking skills which will enable them to solve business management problems as they arise;

To gain strong exposure to the critical financial skills needed to run and grow a business;

To Build and motivate a strong team to assist in running and expanding a seed business

To plan how to develop and implement a clear strategy

Trained personnel will have:

Strong critical thinking skills in general, financial, and human resources management in seed business

Fundamental seed business planning, record-keeping, and analysis skills

Knowledge in building and managing teams to carry out the essential seed business responsibilities

Strong working knowledge of the critical success factors for a seed enterprise, and how to achieve them

Admission requirements

The common regulations governing short courses in the University of Nairobi shall apply

At least Kenya Certificate of Secondary Education (KCSE) or equivalent

Course structure and duration

The short course in seed business management shall be offered on full time basis as follows:

The course shall have three course units of face-to-face lectures, guest speakers in motivational and business management issues, group discussions and presentations

The course shall cover a period of six days.

Lectures shall constitute 60% and guest speakers, assignments and presentations shall constitute 40% of the course time

Assessment shall be by quizzes and end-of-course evaluation.

Award

On successful completion of the course the participants will be awarded a Certificate of Participation.

Course Outline

Code	Course Title	Hours
ABM 1	General Seed Business Management	12
ABM 2	Managing People in Seed Production	12
ABM 3	Financial Management in Seed Production	11
TOTAL		35

Course Description

ABM 1: General Seed Business Management

Seed enterprise overview: strategy development, goal setting, situation analysis and market assessment; self-inventory (strengths and weaknesses), segment focus (geography, product and customer type), competitive advantage, key strategic initiatives and execution, timing; the annual business cycle; habits of strong seed company managers; avoiding dangerous management distractions; types of capital & checklists; critical thinking approaches;

elements of a good partnership; trust and ethics in the seed business; successful product planning; avoiding quality and product problems;

AMB 2: Managing people in Seed Production

Identifying the skills required by a seed enterprise; organizational design; job description; coaching/mentoring and delegating; performance assessment; incentive approaches; training and employee development; dealing with problem employees, practical session will involve motivational talks on the need for critical thinking in business management and relevant ICT applications (Excel spreadsheets; record cards; customer records maintenance, marketing process tracking)

ABM 3: Financial Management in Seed Production

Overview of financial functions in a seed enterprise; financial statement overview: income statement, balance sheet, cash flow statement; key financial framework for managers; the most common profitability problems; management accounting; essential numbers you must know about your business; financial planning and forecasting; making investment decisions; practical sessions will involve speeches by authority guest speakers in the areas of business management, and discussions on individual home country situations, challenges and solution

UNIVERSITY OF NAIROBI

COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES

FACULTY OF AGRICULTURE

V. REGULATIONS AND SYLLABUS FOR THE SHORT COURSE IN SEED LEGISLATION AND ACCREDITATION

1. Introduction

The seed systems in sub-Saharan Africa have to be responsive to the needs of the farmers and the industry must be dynamic enough to bring about the required changes that will make the agricultural sector grow within the existing legal frameworks. Knowledge on the rules and regulations governing the seed industry, both in government and private sector is a necessity for the sector practitioners. This module is designed to provide the participants with an understanding of the seed legislation, the enforcement necessary, and its impact on the growth of the seed industry, and its benefits to farmers and to agriculture in general. This will be accompanied by a discussion of the law and regulation components as well as the regional agreements within the African continent that facilitate seed trade. It will also include the development and establishment of accreditation schemes, including the designated authority requirements and the quality system of the seed enterprise. The procedures necessary to establish the scheme will be discussed on the basis of process management (a tool frequently used to develop quality systems for institutions worldwide). Free movement and trade in seed within SSA is a necessary prerequisite for achievement of a vibrant and responsive seed system that will improve agricultural production.

2. Objective of the course:

The overall objective is to equip participants with knowledge to understand and apply the legislation and accreditation/authorization requirements in local, regional and international seed industry.

The specific objectives are:

- 2.1. To enhance knowledge of the existing laws, regulations and the bodies that ensure their enforcement in seed industry systems.
- 2.2. To enhance understanding of the seed accreditation procedures.
- 2.3. To strengthen the understanding of the standard operating procedures in the seed quality management system.

3. Trained personnel will have

- 3.1. Understanding of the impact of seed legislation and its enforcement on the seed industry.
- 3.2. Knowledge on national, regional and international laws, regulations and agreements that facilitate seed production and trade.
- 3.3. Understanding of development and establishment of accreditation schemes, including the designated authority requirements and the quality system of the seed enterprise.
- 3.4. Understanding of the procedures involved in seed quality systems and standards worldwide

4. Admission Requirements

- 4.1 The common regulations governing short courses in the University of Nairobi shall apply.
- 4.2 Holders of at least KCSE or equivalent.

5. Course structure and duration

The short course in seed legislation and accreditation shall be offered on full time basis as follows:

- 5.1 The course shall have four course units of face-to-face lectures, demonstrations, group discussions and field visits. .
- 5.2. The course shall cover a period of six days.
- 5.3. Lectures shall constitute 60% while field visits and demonstrations shall constitute 40% of the course time..
- 5.4. Practical will include field visits to a national plant protection organization (NPPO) for demonstration on seed legislation and accreditation processes
- 5.5. Course assessment shall be by simple review quizzes and course evaluation at the end of the course.

6. Award

At the course the trainees will be awarded a Certificate of Participation

7. Course Outline

Code	Course Title	Hours
ALA1	Seed legislation	12
ALA2	Seed Accreditation Bodies and their functions	11
ALA3	Procedures in Seed Accreditation	12
Total		35

8 Course Descriptions

ALA 1: Seed Legislation

Introduction to seed legislation; national legislation in seed production and distribution; regional and international agreements to facilitate seed trade; Seed certification, variety

release, seed imports and exports; laws governing breeders rights (plant variety protection); ISTA rules; biosafety regulations; Registration of seed related institutions

ALA 2: Seed Accreditation Bodies and their functions

Principles of accreditation/authorization; accreditation bodies (NPPOs, NSAs, (National Seed Authority), ISTA, ISO, OECD, WTO, AOSA (Association of official seed analysts); components of accreditation)

ALA 3: Procedures in Seed Accreditation

Introduction to process management; process analysis and flowcharting; documentation structure and writing; quality standards and their management; Operational and support procedures (procedure for labs, termination, suspension); accreditation for individuals, seed companies, and seed laboratories ; Operational and support procedures for producers, processors and marketing agents; monitoring and evaluation of the implementation procedures

UNIVERSITY OF NAIROBI
COLLEGE OF AGRICULTURE AND VETERINARY SCIENCES
FACULTY OF AGRICULTURE

VI. REGULATIONS AND SYLLABUS FOR THE SHORT COURSE IN SEED QUALITY ASSURANCE

1. Introduction

Quality assurance of seed is important due to different reasons. Proper maintenance of varieties with improved traits such as high nutritional value, high yielding capacity, and tolerance to biotic and abiotic stresses is necessary in passing the benefits of the bred traits to the grower. Unanticipated seed quality problems may occur when seed is multiplied in alternative locations (or when lines are crossed to make hybrids). Due to adverse environmental changes during crop growth and seed formation, seed becomes vulnerable to pathogen attack and the effects may not be easily noticeable. Therefore it is important to maintain acceptable standards when multiplying seed of improved varieties. Proper maintenance of seed quality is essential to ensure that the seeds remain viable and produce vigorous plants. Hence, there is need for continuous testing using the appropriate and approved procedures both in the laboratory and field for quality assurance. The purpose of this course is to enhance knowledge and to develop skills in testing the seed for its quality through different nationally and internationally accepted procedures for the detection of multiple factors contaminating the seed. The students trained will be able to carry out laboratory evaluations and help in quarantine and regulatory agencies and private industry. They also will be trained to implement these tools to detect contaminated seed lots before they are allowed into production systems.

2. The objectives of the course:

The overall objective is to enhance participants' practical knowledge and skills on seed testing, quality assurance and certification procedures.

The specific objectives

- 2.1 To impart skills on seed fields inspection for maintenance of genetic purity.
- 2.2 To enhance skills of seed testing methods for evaluation of physical and physiological quality.

- 2.3 To improve the knowledge on phytosanitary quality through the identification of weeds, insects and pathogens.
- 2.4 To improve knowledge on national and international regulations governing the seed industry.
- 2.5 To enhance skills on field and laboratory seed data collection and management.

3. The trained personnel will have:

- 3.1. Good knowledge on seed quality determination and certification process
- 3.2. Ability to recognize various quality problems associated with seed
- 3.3. Hands-on skills on seed testing methods (purity, health, vigour, viability).
- 3.4. Ability to maintain records using ICT, interpret and communicate seed quality information.

4. Admission Requirements

- 4.1 The common regulations governing short courses in the University of Nairobi shall apply.
- 4.2 At least KCSE or equivalent.

5. Course structure and duration

The short course in seed quality assurance shall be offered on full time basis as follows:

- 5.1 The course shall have six course units of face-to-face lectures, demonstrations, practicals and field visits.
- 5.2 The course shall cover a period of six days.
- 5.3 Lectures shall constitute 40% while field visits, demonstrations, group discussions and practicals shall constitute 60% of the course time.
- 5.4 Practical will include field visits to a national plant protection organization (NPPO) and research institutions for demonstration on seed health testing procedures, field and laboratory inspection procedures and other specialized testing procedures.
- 5.4 Assessment shall be by quizzes and end of course evaluation.

6. Award:

At the end of the course the trainees will be awarded a Certificate of Participation

7. Course Outline

Code	Course Title	Hours
AQA1	Basic Concepts of Seed Quality Assurance	11
AQA2	Routine and Specialized Seed Health testing	14
AQA3	Seed Certification Procedures	10
TOTAL		35

8. Course Description

AQA 1: Basic concepts of seed quality assurance

Seed quality; importance, testing and certification; factors affecting seed quality; general overview of a seed laboratory; representative sampling procedures; identification of field and storage diseases and pests; varietal purity; seed treatment; purity maintenance; information management

AQA 2: Routine and Specialized Seed Health Testing

Purity test; noxious weed determination; moisture test; standard germination test; seed deterioration determination; vigor testing; other testing methods (TZ, bleach test, fast green, electrical conductivity); Seed pests and seed-borne diseases identification and their importance; diagnostic methods: routine testing methods (visual, wash, plate, blotter); biochemical-based testing methods; protein-based testing methods including ELISA; molecular-based diagnostic testing methods including PCR; data collection and management through ICT application.

AQA 3: Seed Certification Procedures

National, regional and international certification procedures; field and laboratory certification standards; methods field inspections of selected crops; seed labeling, field standards, field inspection methodology.

Training of Trainers Workshop

Venue: Iowa state University, Ames, USA

Date: 24th April -8th May, 2010

Introduction

A team from SEMIs from the University of Nairobi including Professor Mwang'ombe, the principal investigator of SEMIs; Dr. Olubayo, Chairman, department of plant science and crop protection, Dr. Kiarie and Dr. Muthomi attended the Train the Trainer Workshop (TOT) held at the Seed Science Centre at Iowa State University between the dates of 24th April and 8th May, 2010. Iowa State is one of the main collaborators in SEMIs and apart from providing resource persons for the courses, they will also be extensively involved in the construction of the seed processing unit at CAVS.

Objectives of the Visit

The main objectives of the visit to the workshop were for the SEMIs team to:

- familiarize themselves with facilities and operations of an established seed institute
- learn set-up and common procedures of an accredited seed laboratory
- strengthen linkages between SEMIs and the seed Science Center and explore other areas of collaboration between university of Nairobi and IOWA state University

The methods of training at the workshop included discussions, presentations, tour studies, laboratory demonstrations and symposium attendance.

Outputs:

- Among the places visited were the seed science Center at Iowa State University, USDA plant introduction Center and Pioneer and Syngenta Seed Companies.
- During the two week-long tour, the SEMIs team interacted and held important and fruitful discussions with principal personalities involved in seed Science. Among those the SEMIs team met included Manjit Misra, the Director of the Seed Science Center, the Deans of the college of Agriculture and life Science and, College of Veterinary Medicine, Wendy Wintersteen and Scott Hurd respectively, Del Koch, the executive Director of Committee of Agricultural Development (CAD), and other personnel from ISU, the seed science Center and United States Department of Agriculture (USDA).
- The SEMIs team also had the opportunity to participate in the BIGMAP symposium whose theme was –Food, Feed and Fuel for the World: Seed Biotechnology. This Symposium was held at the Gateway Hotel and Conference Center, at Iowa, Ames. Among presentations made were “Seed enterprise Development Challenges in Africa”

by Joseph DeVries of AGRA and the director of Programme for Africa's Seed Systems (PASS).

- At the seed Science Center, the SEMIs team underwent training on seed conditioning, seed testing and legislation and process management. They also toured the seed processing facilities where they acquainted themselves with the different seed processing equipment. The study tours took the team to Pioneer Dupont Seed Company in Des Moines and Syngenta Seed Company. These are among the top ten seed companies in the world. Among the places they toured were the seed quality department and the diagnostics laboratory at pioneer and the entomology and DNA (Marker) laboratory at Syngenta. The SEMIs team also visited the USDA plant introduction Center.
- Other discussions centered on SEMIs facilities requirements and the architectural map of the SEMIs facilities and the seed testing and seed health laboratories



SEMIs Team with James Aketch (extreme left) and Allan Gaul (extreme right) from ISU at pioneer seed company in Dupont.

IMPLEMENTATION OF APPROVED SEMIS COURSE CURRICULA

Introduction

The SEMIs courses began a little out of schedule due to unavoidable circumstances. The first course on seed production, initially intended to start on the 3rd of the May, 2010, finally kicked off on the 27th of May, 2010. The next course on seed drying processing and Storage was held back to back with the seed processing course between May 31 and 05th June, 2010. Another two courses on Seed business Management and Seed Marketing were held between 19th and 31st July, 2010. Most of the participants came from seed companies. In total, 119 participants from approximately 30 seed companies from 13 sub-Saharan African countries were trained in the four courses. The lead resource person for the seed production course was Dr. John McRobert, from CIMMYT, a seed specialist and trainer in seed production and the author of "Seed business management In Africa". KEPHIS, KARI and Kenya Seed Company also provided resource persons for the courses. In the seed drying, processing and storage course, Alan Gaul from ISU was the lead resource person. In both these two courses the lead resource persons were complemented by staff from CAVS among them Dr. Kiaria Njoroge, Dr. Kahiu Ngugi, Dr. Florence Olubayo, Dr. Duncan Mbuge among many others. For the seed Marketing and seed business management courses, the lead resource person was Aline O' Connor Funk, a seed specialist and a consultant for AGRA. For these two courses, CAVS cooperated with the University of Nairobi's School of Business to deliver the courses. Professor Evans Aosa and Dr. Justus Munyoki from the School of Business coordinated the seed Business Management and Seed Marketing courses respectively. Overall, the courses have been a great success with participants taking back to their seed companies and countries knowledge and important experiences on diverse aspect of seed Production, seed processing, seed marketing and business management.

SEMIs SEED PRODUCTION COURSE

Course dates: May, 24-29, 2010

Venue: University of Nairobi, College of
Agriculture and Veterinary Sciences

Introduction

SEMI held its first course on seed production between 24th and 29th May, 2010. Thirty one participants drawn from 12 countries representing 29 seed companies attended the course. John McRobert, a maize seed systems specialist, working for CIMMYT Harare, was the lead coordinator for the course. John is the author of a newly published book on seed business management-“Seed Business Management in Africa” and an authority in seed production. Other resource persons included staff from University of Nairobi, including Dr. Kiarie, a plant breeder, Dr. Olubayo, the chair of the plant science and Crop protection department at the University of Nairobi, among others. Other resource persons were from KEPHIS and KARI.

Participation by Country and Company

COUNTRY	Number of seed companies	COMPANY/Institution by Name	Number of participants
Mozambique	1	Semente Perfeita	1
Malawi	3	Seed Tech, Funwe Farm, ASSMAG	3
Zambia	3	IDE, Kamano, Kamasika	4
Rwanda	2	COAMV, RWASECO	2
Uganda	4	CAII, NARO-ABI, NARO-BEANS, BUWOPA	4
Kenya	2	Dryland, Leldet	2
Tanzania	2	Meru Agro, Itente	3
Ethiopia	1	Gadisa Gobena	1
Ghana	4	Alpha Seeds, Antika Enterprise, Savanna, M&B	4
Niger	2	Alheri, Hadin Kan Jamaa	2
Mali	1	Nakoshi Enterprise	1
Nigeria	4	Seed Project, Maslaha, Da-Al Green seeds, Share foundation	4
TOTAL	29		31

Most of the seed companies represented in this training are small seed enterprises, most with not more than 20 staff members. Many are located in extremely remote areas trying to ensure high quality seed gets to farmers at the appropriate times and price. The lead coordinator for the seed production course was John McRobert who works for the International Maize and Wheat Improvement Center (CIMMYT). John is the author of a recent published book-“Seed Business Management in Africa”.

Seed Production programme

TIME	Topics	INSTRUCTOR	COMMENTS
DAY 1: Monday, 24/05/2010			
Session title: Planning Seed Production			
8 -9am	Introduction and starter quiz	Dr. John McRobert, Dr. Kiarie	
9-10am	Seed production planning and management	John McRobert	Broad overview, synchronizing production and markets, multiplication cycles, contracting farmers
10-10.30 am	Break		
10.30-11.30 am	Seed classes and their production requirements	Mr Munyao (KEPHIS) & Dr. Kiarie	Seed class characteristics, maintenance of purity, labeling
11.30 am - 1.00 pm	Classroom exercise on seed production planning	John McRobert	Calculating production goals based on sales targets, seed yields and seeding rates
1 - 2pm	Lunch break		
2 -3pm	Introduction to basic Excel, SeedPlan spreadsheet	ICT-Njeri/ John McRobert	
3.00-4.00pm	Quality Assurance	Mr. Kinyanjui (KEPHIS)	
4.00 -4.15pm	Tea		
4.00 – 5.00pm	Structuring and managing a seed production department	John McRobert	Human resource requirements and management, logistics, warehousing, grower relations
Day 2: Tuesday, 25/05/2010			
Seed Production management			
8 -9am	Seed sources, target growing environments and land preparation	Drs. Kiarie/ Riungu	
9-10am	Isolation distances, planting and management	Drs. Kiarie/ Riungu	

	of seed crops		
10-10.30 am	Break		
10.30-12.0 am	Harvesting, drying and storing seed; quality assurance requirements for seed production, Pest management	Dr. Mbuge, Dr. KEPHIS, Dr. Olubayo, Dr. Muthomi	<ul style="list-style-type: none"> • Harvesting, drying and storage-Dr. Mbuge. • Quality assurance-KEPHIS • Disease and insect management-Drs. Olubayo, Dr. Muthomi. NB: One hour for crop protection
12.00-1.00 pm	Laboratory Demonstrations on common diseases and Pests	Professor Mwang'ombe, Dr. Olubayo, Dr. Muthomi	Laboratory demonstrations of diseased plant parts and different insect pests in botany Lab
1 - 2pm	Lunch break		
Seed Production Research			
2 -3pm	Types of seed systems, mating systems.	Dr. Riungu (KARI)	
3.00-4.00pm	Vegetative propagation, tissue culture, visit to tissue culture laboratory	Dr. Ngugi (UoN)	
4.00 – 5.00pm	Importance of seed production research, variety descriptors, DUS, maintenance	John McRobert, Patrick Maluku (KEPHIS), Ndung'u	
Day 3: Wednesday, 26/05/2010			
Seed Grower Contracts and price determination			
8 -9am	Seed growers (Role of seed growers, criteria of selecting seed growers, establishment of relationship with seed growers)	John McRobert / Robert Musyoki (KSCo)	
9-10am	Grower contracts and training (forms of seed grower contracts, incentive schemes, training & development of growers)	John McRobert/ Robert Musyoki (KSCo)	
10-10.15 am	Break		
10.15-11.15 am	Seed production costs & budgets	John McRobert	

Managing seed production with small-holder farmers			
11.15am - 12.15 pm	Formal & informal seed delivery systems, challenges related to seed production & potential practical solutions	KARI /UoN Dr. Ragwa, -Dr. Kiari, Prof. Mwang'ombe	
12.15-1.15	Methods of organizing small holder farmers, group dynamics,	UoN/ NGO- Professor Mwang'ombe	
1.15 – 2.15pm	Lunch break		
Certification Standards and their implementation			
2.15 -3.15pm	Elements of seed certification & relationship with national seed authorities,	KEPHIS	
3.15-4.15pm	Inspection regulations & procedures for seed certification,	KEPHIS	
4.15 – 5.15pm	Role of national & international regulatory agencies	KEPHIS	
5.15 -6.00 pm	Demonstrations of seed production	Kiarie / David Ndung'u	Field Station
Day 4: Thursday, 27/05/2010			
Field trips			
5.30-6.00am	Breakfast		
6am -8am	Travel to Nakuru	UoN-Dr. Kiarie and Ndung'u for logistics	
8.30am- 1.00pm	Field visit to Leldet seed production company (small grains, legumes)	UoN-Ndung'u to liaise with Jenny of Leldet	
1-2.00pm	Lunch break		
2.00-5.00pm	Visit to contract seed growers	UoN-Dr. Kiarie, Ndung'u for logistics	
Overnight at Nakuru			
Day 5: Friday, 28/05/2010			
8.00-1.00 pm	Visit to KEPHIS Lanet DUS & NPT		
1.00-2.00 pm	Lunch break		
Overnight at Nakuru –Merica Hotel			
Day 6: Saturday, 29/05/2010			
6.30-7.30am	Breakfast at Merica hotel		
8.00-10.00am	Travel to Nairobi	UoN-Dr. Kiarie,	

		Ndung'u for logistics	
11.00am-12.00pm	Quiz at UoN	UoN-Course administrators	Course administrators
10.00-11.00	General discussion	UoN-Dr. John McRobert, Dr. Kiarie	
11.00am-12.00pm	Award of certificates	UoN-Principal CAVS/AGRA	
6.00pm-10.00pm	Closing dinner	Dr. Olubayo	

The week-long course consisted of formal lectures at the University of Nairobi, college of Agriculture and Veterinary Sciences campus and visits to the seed industry. Lecture topics included seed production planning, seed systems, seed grower contracting, seed production budgets, seed quality and certification among many others. SEMIs lectures are based on a concept of learning through practice. "The training at SEMIs is about experiential learning", says the SEMIs team leader Professor Mwang'ombe, the Principal of the College of Agriculture and Veterinary Sciences. Over 50% of the training at the SEMIs courses is practical learning, where participants were able to go out in the field and practice important seed production functions like proper planting, detassling, line maintenance, pollinations among others. In the classroom, participants were able to plan for seed production using seed production programmes like "seed plan" on computers. Participants were also able to visit an upcoming small seed company, Leldet, based in the rift Valley where they were able to relate with one of their own, and share experiences and challenges they face on many different aspects of seed production.

Seed Quality is an important aspect for any seed system as it ensures that farmers get the right kind of seed for planting. One of the best recognized Seed quality assurance institutions in Africa is the Kenya Plant Health and Inspection Services, KEPHIS. Participants visited the KEPHIS laboratory at Nakuru, Njoro, where they were taken through the process of seed quality legislation and all other seed quality maintenance issues in seed production.

Course evaluation was done through course quizzes where participants were tested on topics learned. On successful completion of the course, participants were awarded with a certificate of participation.



Seed production lectures at CAVS



Laboratory practical sessions at CAVS botany

Laboratory.



Seed Maize detassling at Leldet farm



Visit to the KEPHIS laboratory Lanet Nakuru

“We from Ghana would never have known what happens here at KEPHIS had we not attended the SEMIs course” so says Joseph Bapule, one of the participants at the SEMIs course on seed production. This was a befitting close to the course and it surely provided a lot of knowledge on seed production issues.



Seed production discussions in the field at Leldet seed company



Professor Mwang'ombe presenting a certificate to Mutinta Muleya from Zambia

SEED DRYING, PROCESSING AND STORAGE COURSE

COURSE DATES: MAY, 31- 05 JUNE, 2010

**VENUE: UNIVERSITY OF NAIROBI, COLLEGE OF
AGRICULTURE AND VETERINARY SCIENCES**

Introduction

The SEMIs short course on seed drying, processing and storage was held between the 31st of May, 2010 and the 05th of June, 2010 at the University of Nairobi, College of Agriculture and Veterinary Sciences (CAVS). The lead resource person for this course was Alan Gaul from Iowa state university. Other resource persons were from the CAVS and from the Engineering department of the University. Resource persons were also drawn from KEPHIS and the Kenya Seed Company. In total there were 31 participants from over 13 sub-Saharan African countries representing over 31 seed companies. Countries represented included among others Mozambique, Nigeria, Mali, Niger, Rwanda, Uganda, Tanzania and Zambia.

COUNTRY	Number of seed companies	COMPANY/Institution by Name	No of participants
Mozambique	1	Lozane Farms	1
Malawi	3	Seed Tech, Funwe Farm, ASSMAG	3
Zambia	3	IDE, Kamano, Kamasika	4
Rwanda	2	COAMV, RWASECO	2
Uganda	4	CAII, NARO-ABI, NARO-BEANS, BUWOPA	4
Kenya	2	Dryland, Leldet	2
Tanzania	3	Meru Agro, Itente, Tanseed	3
Ethiopia	1	Gadisa Gobena	1
Ghana	4	Alpha Seeds, Antika Enterprise, Savanna, M&B	4
Niger	2	Alheri, Hadin Kan Jamaa	2
Mali	1	Nakoshi Enterprise	1
Nigeria	4	Seed Project, Maslaha, Da-Al Green seeds, Share foundation	4
TOTAL	30		31

Participants got to learn about the different machinery used in processing of seed and how they could modify them to fit to their diverse and distinctive needs. Alan was complemented by University of Nairobi lecturers, and experts from the seed industry who were able to share their experiences and challenges in the seed industry in general.

The training courses at SEMIs concentrate on experiential learning. Therefore, participants also got to visit Kenya seed Company, the largest seed company in East and Central Africa, where they got to learn all the steps involved in seed processing, right from seed reception, drying, cleaning, sorting to packaging of the final product for market.

Seed Drying, processing and Storage programme

TIME	Course unit	SESSION TITLE	INSTRUCTOR	COMMENTS
Day 1: Monday, 31/06/2010				
Overview and harvest related operations				
8.00-8.30 am		<ul style="list-style-type: none"> Introduction and starter quiz 	Allan Gaul/Dr. Mbuge	
8.30-10.00 am		<ul style="list-style-type: none"> Basic concepts and techniques in seed conditioning 	Alan Gaul	
10.00-10.15am		Coffee/Tea Health break		
10.15-12.00 pm		<ul style="list-style-type: none"> Pre-cleaning and seed surface modification operations seed handling 	Alan Gaul Practical	
Seed drying and storage management (3 hour time allocation)				
12.00 -1.00 pm		<ul style="list-style-type: none"> Seed and equilibrium moisture relationships Aeration and temperature control 	Prof Okoth	
1.00-2.00 pm		Lunch Break		
2.00-3.00 pm		<ul style="list-style-type: none"> Seed drying principles and moisture management 	Dr. Gitau	
3.00-4.00 pm		<ul style="list-style-type: none"> Seed storage: principles, methods and controls, 	Dr. Mutai	
Cleaning, sorting, and primary separation (3 hour time allocation)				
4.00-5.00pm		<ul style="list-style-type: none"> Air-screen cleaning and aspiration 	Alan Gaul	
Day 2: Tuesday, 10/06/2010				

8.00-10.00 am		<ul style="list-style-type: none"> ▪ Spiral and belt separation ▪ length, width, and thickness sizing ▪ additional crop specific processes 	Alan Gaul/Dr. Mbuge	
10.00-10.15am		Coffee/Tea Health Break		
Secondary separation and seed treatment				
10.15am-12.00pm		Fluidized density separation (destoner and gravity separator)	Alan Gaul	
12.00-1.00 pm		<ul style="list-style-type: none"> ▪ Optical detection and color separation 	Alan Gaul	
1.00-2.00pm		Lunch Break		
2.00-3.30pm		<ul style="list-style-type: none"> ▪ seed treatment chemicals and calibration concepts ▪ seed treatment handling and application equipment 	Alan Gaul	
Finished product and plant management (3 hour time allocation)				
3.30-4.30pm		<ul style="list-style-type: none"> ▪ Packaging and palletizing processes and equipment 	Dr. Gitau	
4.30-4.45pm		Tea/Coffee Health Break		
4.45-5.45pm		<ul style="list-style-type: none"> ▪ plant layout considerations 	Prof Okoth	
Day 3: Wednesday,02/06/2010				
8.00-9.00pm		<ul style="list-style-type: none"> ▪ plant-level sampling, testing for quality control and process improvement 	KEPHIS	
9.00-10.00 am		Information, communication technology (ICT)	Charity Njeri/Alan Gaul	Data management (Excel spreadsheets)

10.00-10.15am		Coffee/Tea health Break		
10.15-12.00pm		Plant and equipment maintenance	Alan Gaul	
12.00-1.00pm		Cost management	Prof Okoth	Operational costs
1.00-2.00pm		Lunch Break		
Environmental considerations, by-product management, safety & instrumentation				
2.00-3.00pm		<ul style="list-style-type: none"> ▪ Byproduct management ▪ Waste management 	Prof Okoth	
3.00-4.00pm		Safety management	Engineer Mutua	Safety management of workers. Occupational Health and safety advisory
4.00-4.15pm		Tea Break		
4.15-5.15pm		<ul style="list-style-type: none"> ▪ Instrumentation and control 	Prof Okoth/ Dr. Mbuge	
5.15-6.15pm		Practical session	Dr Mbuge/Mr. Wanguhu/Mr. Mwachoni/Mr. Mathenge.	Session at the processing lab at the department of Environmental and biosystems engineering (EBE)
Day 4: Thursday, 03/06/2010 (Field trip to Kitale)				
7.00-3pm		Travel to Kitale		
Day 5: Friday, 04/06/2010 (Field Trip to seed Industry)				
8.00-9.00am		<ul style="list-style-type: none"> ▪ Managing harvesting Receiving the harvest at point of processing ▪ Record keeping and information management 	Kenya seed/Dr. Mbuge	<ul style="list-style-type: none"> ▪ Arranging, receiving and documentin g harvest from out

				growers
9.00-10.00am		<ul style="list-style-type: none"> ▪ Pest management 	Kenya seed	Management of pests at Kenya Seed Company
10.00-10.15am		Tea/Coffee Health Break		
10.15am-12.15pm		Visit Kenya Seed (Elgon downs farm)		
12.15-1.30		Lunch and Travel to Seed Dryers		
1.30-3.30pm		Visit to Kenya seed (dryers)		
3.30-7.30		Travel to Nakuru		
Day 6: Saturday, 05/06/2010 (Field Trip to Seed Industry)				
7.00-9.00am-		Travel from Nakuru to Nairobi		
10.00-11.00		Course Quiz		
11.00-12.00pm		Discussion and course evaluation by participants		
6.00pm-10.00pm		Closing ceremony and award of Certificates		AGRA and Principal, CAVS



Allan Gaul explains a point to the participants at the seed laboratory at CAVS



Mr Wanguhu from the seed laboratory at CAVS demonstrates how seed cleaning is done using machines



Visit to Kenya Seed Company.



Kenya Seed Company commands a majority stake in production of seed throughout East and Central Africa

After the training the participants attended the closing and certificate award ceremony at popular restaurant in Nairobi. The ceremony was graced by the PASS Programme director, Dr. Joseph DeVries and personalities from CAVS and Kenya Seed Company. Dr. DeVries congratulated both the participants and the resource persons for their hard work in ensuring that the course was a success. Participants appreciated the role of SEMIs and were grateful to AGRA for their vision on the necessity of such an institute for the development of the seed industry in Africa. 'We have to continue communicating as only then can we get to share ideas on what is happening in different areas of the world. The information we have learned here on seed quality should be easily accessible', so says William Zem-mui Nambie from a small seed company in Ghana. This goes to show just how important the SEMIs courses are in bridging the information gap.

SEED BUSINESS MANAGEMENT COURSE

COURSE DATES: 19TH -24TH JULY, 2010

**VENUE: UNIVERSITY OF NAIROBI, COLLEGE OF
AGRICULTURE AND VETERINARY SCIENCES**

Introduction

SEMIs held the seed business management course for seed practitioners between 18th and 25th July, 2010. The Course attended mainly by Seed Company Chief Executive Officers (CEOs) from seed companies operating in many sub-Saharan African countries. Being a business oriented course CAVS collaborated with the University of Nairobi's School of business which provided the resource persons for the training. Aline O'Connor Funk a seed specialist and a consultant with AGRA, was the lead resource person for this course. Aline has wide experience in running successful seed companies having owned a seed company of her own at one time. In total there were 29 participants from 12 sub-Saharan African Countries representing 29 seed companies.

Table1. Country and company representation for SEMIs seed Business management course

COUNTRY	Number of seed companies represented	Companies by Name	Number of Participants
Mozambique	3	Lozane Farms, Matuel Comercial, Ikuru	3
Malawi	1	Seed Tech	1
Zambia	3	IDE, Kamano, Kamasika	3
Uganda	3	CAII, Naseco, Fica	3
Kenya	3	Dryland, Western Seed, Olerai	4
Tanzania	3	Meru Agro, Krishna seeds, Tanseed	3
Ethiopia	3	Anno Agro-Industry, Gadisa Gobena, Alemayehu	3
Ghana	2	Alpha Seeds, Savanna Seeds	2
Burkina Faso	1	Societe Agro-Productions	1
Nigeria	4	Seed Project, Da-Al Green Seeds, Jirkur Seed, Manoma seed	4
Mali	2	Faso Kaba, Nakosha	1
Rwanda	1	Rwaseco	1
12	29		29

Participants got training on such far reaching topics like business strategy, financial statements, Managerial skills, culture and ethics in business, human resource needs among others. The seed company tool box, a compilation of necessary tools” any seed company needs in order to run a successful seed enterprise, authored by Aline O’Connor Funk, was a most useful resource for the training. The Coordinator of the course was Professor Evans Aosa from the School of business.

Table 2: Seed business Management Programme. Coordinator: Professor Aosa.

TIME	SESSION TITLE	INSTRUCTOR	COMMENTS
Monday			
8.30-9.00am	Brief on SEMIs plus self introductions	Prof Mwang’ombe	
9.00-9.30 am	Course Introduction Objectives, Norms, Expectations	Prof. Aosa, Aline O’Connor Funk, Ms. Florence Muindi, Dr. Aduda	
9.00-10.00am	Introductory Quiz		Introductory quiz
10.00-10.15am	Tea/Coffee Health Break		
ABM 1: General Seed Business Management			
10.15-11.30am	Strategy – Why you need it	Prof. E. Aosa	
11.30-1.00pm	Strategic Management	Prof. E. Aosa	
1 pm- 2pm	Lunch		
2.00pm-4.00pm	- Managerial skills - Video	Ms. Aline O’Connor Funk	
4.00-4.15pm	Tea/Coffee health Break		
4.15-6.00pm	Key success factors in Seed Business	Aline O’Connor Funk	
Day 2: Tuesday			
8.00am-9.00am	Business Failure	Mr. J. Maalu	
9.00-10.00am	Culture and Ethics	Mr. J. Maalu	

10.00-10.30am	Tea/Coffee Health Break		
11.30-1.00pm	Critical Thinking	Ms. Aline O'Connor Funk	
1.00-2.00pm	Lunch Break		
2.00-4.00pm	Managing Operations	Mr. L. Mulwa	
4.00-4.15 pm	Coffee/Tea Health break		
4.15-5.30pm	Motivational Speaker	Mr. J. Kipngetich	Director, Kenya Wildlife Service
Day 3: Wednesday			
8.00-10.00am	Planning for HR Needs , Job Analysis	Ms. F. Muindi	
10.00am-10.15am	Coffee/Tea Health Break		
10.15-11.30	Recruitment and Selection	Ms. Muindi	
11.30-1.00pm	Training and Development	Ms. F. Muindi	
1.00-2.00pm	Lunch Break		
2.00-4.00pm	Performance Management and Team building	Ms. Aline O'Connor Funk	
4.00-4.15pm	Coffee/Tea Health break		
4.15-5.30pm	ICT skills	Ms. Aline O'Connor Funk and Charity Njeri	Basics on Excel spreadsheets
Day 4: Thursday			
8.00-9.00am	Financial Functions	Dr. J. Aduda	
9.00-10.00am	Financial Functions (contd.)	Dr. J. Aduda	

10.00-10.15	Tea/Coffee Health Break		
10.15-11.30am	Financial Statements	Mr. H. Ondigo	
11.30-1.00pm	Financial Statements (contd.)	Nr. H. Ondigo	
1.00pm-2.00pm	Lunch Break		
2.00-3.00pm	Profitability Indicators	Mr. H. Ondigo	
3.00-4.00pm	Common Profitability & Cash-flow Problems	Mr. H. Ondigo	
4.00-4.15pm	Coffee/Tea Health Break		
4.15-5.30	Guest Lecture	Paul Seaward	Farmer Input Promotion Services (FIPS)
Day 5: Friday			
8.00-10.00am	Financial Planning & Working Capital Management	Dr. J. Aduda	
10.00-10.15	Coffee/Tea Health Break		
10.15-1.00pm	Investment Decisions	Dr. J. Aduda	
1.00-2.00	Lunch Break		
2.00-4.00	Budgets & Cost Management	Dr. J. Aduda	
4.00-4.30	Health Break		
4.30-6.00 pm	Guest lecture	Patrick Oketa	African Seed Investment Fund (ASIF)
Day 6: Saturday			
8.00-9.00am	Course Quiz	Course administrators	
9.00am-10.00	Course Evaluation and discussions	Ms. Aline O'connor Funk, Prof. E. Aosa	
6.00pm-10.00pm	Closing Ceremony and award of certificates	Dr. Florence Olubayo	University of Nairobi/AGRA



Paul Seaward (standing) delivering a lecture to the participants.



Ms. Aline O'Connor Funk (rear ground) and professor Aosa (standing) deliver a joint presentation on governance.

Participants were accommodated at the Christian Health Association of Kenya (CHAK) guest house which is close to the college of Agriculture and Veterinary Sciences (CAVS), where lectures were conducted.



From Left, Farhun Yusuf (Western seed company), Beatrice Mukabaranga (Rwaseco, Rwanda), Tom Baligye (Uganda), Mrs Maimouna Coulibali (Mali), and Miss. Antwi Dakwa (Ghana) enjoy a meal at the guest house)



From Left: Goodluck Minja (FICA seeds, Tanzania), Apullah Adingtingah (Savanna seeds, Ghana) and Abel Lisboa (Ikuru, Mozambique)

After an intense week of training, participants were invited for the closing ceremony on Saturday 24th, July, 2010. The certification and closing ceremony was graced by the president of AGRA Dr. Namanga Ngongi, PASS Director, Dr. Joseph DeVries, the Principal of College of Agriculture and Veterinary Sciences, professor Agnes Mwang'ombe, SEPA programme officer, Dr. George Bigirwa, Programme officer for EACCI, Dr. Rufaro Madakadze, the deans of faculty of Agriculture, and Veterinary Sciences, Professor Shibairo and Dr. Njenga respectively and other personalities from CAVS. The school of business was represented by Professor Evans Aosa and Florence Muindi.



Dr. Namanga Ngongi, President of AGRA delivering a speech to the participants and guests at the award and closing ceremony for the seed business course.



Joseph DeVries the programme Director for Programme for Africa's Seed Systems (PASS) at the closing ceremony.

In his speech to the guests at the ceremony, Dr. Namanaga congratulated both the participants and the resource persons for their diligence and hard work. "I am pleased to see SEMIs growing in bounds and providing the very necessary capacity needed in the seed companies. This is major step in the fight against food insecurity" said Dr. Namanga Ngongi.

"We are excited with the pace at which this project has taken off and I want to thank Professor Mwang'ombe and her team for the excellent work done" said Dr. Joseph DeVries. Speaker after speaker commended the programme indicating that SEMIs was a noble idea whose time had really come. There is need for African seed entrepreneurs to get trained and/or retrained on aspects of seed right from production, to marketing. SEMIs is offering the necessary training to equip seed

practitioners from all over Africa with the necessary tools for them to run profitable, sustainable seed businesses to serve farmers from all over the continent.

Bakir Lozane, one of the participants and the CEO of lozane farms, a seed enterprise operating in northern part of Mozambique and dealing with a variety of crops from maize, sorghum, cowpeas, and soyabeans, stated that, “ SEMIs is the car that will accelerate the Green revolution in Africa”.

Asked about what he had learned, another participant of the course, Mr. Apullah Adingtingah, from Savannah seeds Ghana, said the following- “I am taking back teamwork, and delegation of power- delegation of power is important in any seed company as it ensures efficiency and high productivity of people. I am also taking home elements of public relations taught here which are crucially important in the management of a successful seed enterprise”.

“I am now going to manage a seed company, before we were just producing and selling seed-now we are going to start managing a seed company”, says Iwan Gwadabe, the CEO of seed Project from Nigeria.

“The course was wonderful- all the topics were useful, should we use them properly, it will improve our companies. The lectures were excellent and this is the best method for transferring knowledge to the seed companies-it will definitely usher in the green revolution”, said Mr. Mazeko Mulele from Kamasika seeds, a seed enterprise based in Zambia. Kamasika actually began as a cooperative of many seed growers, but is now, with the funding from AGRA, producing various types of seeds for the rural farmers in Zambia.

Mme Maimouna Coulibaly, from Faso Kaba Seed Company, a small but rapidly growing seed company based in Mali, and providing seeds of various crops to the rural poor in Mali was one of the participants for the seed business course. Mme Coulibaly is one of the winners of the much acclaimed and prestigious International African Business Award for 2010. This award is for persons who in one way or another are contributing to the progression and growth of African business in Africa. She and her husband manage the company based in rural Mali. With the help of AGRA, they are providing seed of superior varieties to poor farmers in the Mali and making a great difference in the lives of these farmers. Many congrats to Mme Coulibaly and Faso Kaba as she strives, in her own small way, to make the green revolution in Africa a reality. SEMIs will endeavour to keep providing the capacity needed to drive the seed businesses in Africa so that Mme Coulibaly and others are able to scale greater heights in the fight against food insecurity in Africa.



Mme Coulibaly delivers a speech to the guests at the closing ceremony



Mrs. Yogo Simone from Burkina Faso receives her certificate from Professor Aosa of the School of Business.



Seed Business course Participants with Joe DeVries, (extreme left), Professor Mwang'ombe (second left), Professor Aosa, (third right and Aline O'Connor Funk (Second row standing, seventh right)

SEED MARKETING COURSE

COURSE DATES: 26TH -31ST JULY, 2010

**VENUE: UNIVERSITY OF NAIROBI, COLLEGE OF
AGRICULTURE AND VETERINARY SCIENCES**

Introduction

The SEMIs course on seed marketing was held between the 25th and 31st July, 2010 at the college of Agriculture and Veterinary Sciences. The course was for seed company personnel involved in the marketing of improved seed. As in the case of seed business management course, CAVS worked together with the school of business to make the course a success. The coordinator of the course was Dr. Munyoki from the school of business with help from Aline O'Connor Funk, a seed specialist and a consultant with AGRA. In total there were 28 participants from 28 seed companies operating in 12 African countries.

Table 1. Country and company representation at SEMIs seed marketing course

COUNTRY	Number of seed companies represented	Companies by Name	Number of Participants
Mozambique	3	Lozane Farms, Matuel Comercial, Semente Perfeita	3
Malawi	1	Seed Tech	1
Zambia	3	IDE, Kamano, Kamasika	3
Uganda	3	CAII, Naseco, Fica	3
Kenya	4	Dryland, Leldet, Western Seed, Olerai	4
Tanzania	3	Meru Agro, Krishna seeds, Tanseed	3
Ethiopia	3	Anno Agro-Industry, Gadisa Gobena, Alemaheyu Makonnen	3
Ghana	2	Alpha Seeds, Savanna Seeds	2
Burkina Faso	1	Societe Agro-Productions	1
Nigeria	4	Seed Project, Da-Al Green Seeds, Jirkur Seed, Manoma seed	4
Mali	1	Faso Kaba	1
11	28		28

Topics for the course were diverse and tried, within the short time of the course to touch on the essential and practical basics of seed marketing.

TIME	SESSION TITLE	INSTRUCTOR	COMMENTS
Day 1: Monday, 26 th July 2010			
8.30-9.00am	Brief on SEMIs plus self introductions of Participants	Prof Mwang'ombe/Dr. Olubayo	
9.00-9.30am	Course introduction , Objectives, Norms and expectations	Dr. Justus Munyoki/Dr. Nyikal	
9.30-10.00am	Introductory Quiz	Dr. Justus Munyoki, Dr. Nyikal	Introductory quiz
10.00-10.30am	Tea/Coffee Health Break		
ABM 1: Introduction to Marketing and Marketing Definition			
10.30-11.30	Definitions of marketing; marketing concepts	Dr. Nyikal	
11.30-1.00pm	Approaches in the analysis of marketing	Dr. Justus Munyoki	
1 pm- 2pm	Lunch		
2.00-3.00pm	Commodity, functional and institutional approaches to Marketing	Mrs. Mary Kinoti	
3.00-4.00pm	Market segmentation, profiling and targeting customers	Mrs. Mary Kinoti	
4.00-4.15pm	Tea/Coffee health Break		
4.15-6.00pm	Key issues to understand about customers	Aline O'Connor Funk	
Day 2: Tuesday, 27 th July, 2010			
8.00am-9.00am	Key characteristics of firms that attract and/or retain	Aline O'Connor Funk	

	customers.	
9.00-10.30am	Culture and ethics in Marketing	Mrs. Mary Kinoti
10.30-11.00am	Tea/Coffee Health Break	
ASM 2: Developing a marketing strategy		
11.00-1.00pm	Marketing strategies: goals and market analysis	Dr. Raymond Musyoka
1.00-2.00pm	Lunch Break	
2.00-4.00pm	Pricing mechanisms in marketing	Dr. Raymond Musyoka
4.00-4.30 pm	Coffee/Tea Health break	
4.30-6.00pm	Real world marketing simulation and Video on resource on Corruption	Aline O'Connor Funk
Day 3: Wednesday, 28 th July, 2010		
8.00-10.00am	Promotional strategies; enhancing competitiveness	Dr. Munyoki
10.00am-10.15am	Coffee/Tea Health Break	
10.15-11.30	Distribution strategy and planning	Dr. Munyoki
11.30-1.00pm	Marketing and distribution calendars and video resource on Delegation	Aline O'Connor Funk
1.00-2.00pm	Lunch Break	
2.00-4.00pm	Elements of a successful sales collection process Customer feedback and results measurements	Dr. Nyikal
4.00-4.30pm	Coffee/Tea Health break	
4.30-5.30pm	Leadership Video resource	Aline O'Connor Funk
Day 4. Thursday, 29 th July, 2010		

8.00-10.00am	Marketing process and tracking.	Prof Francis Kibera	
10.00-10.30am	Tea/Coffee Health Break		
ASM 3: Marketing strategy execution and measurement			
10.30-11.30am	The need for customer information	Dr. Raymond Musyoka	
11.30am-1.00pm	Competitor analysis, and strategy execution	Dr. Munyoki	
1.00pm-2.00pm	Lunch Break		
2.00-4.00pm	Retail management	Dr. Raymond Musyoka	
4.00-4.30pm	Tea/Coffee health break		
4.30-6.00pm	Guest speaker	Mr. Mbugua Gecaga-Consultant	Dr. Munyoki/David Ndung'u
Day 5, Friday 30 th July, 2010			
8.00-10 am	Choosing agro-dealers	Ms. Catherine Ngahu	
10.00-10.30am	Coffee/Tea Health Break		
10.30-11.30am	Value of visual references and promotional activities	Ms. Catherine Ngahu	
11.30-1.00 am	Brand Management	Tom Mutugu	
1.00-2.00	Lunch Break		
2.00-4.00pm	Excel spreadsheets for marketing plus vital sales tracking tools	Charity Njeri	Excel spreadsheet basics for customer/sales
4.30-6.00pm	Guest speaker	Kenya seed company	David Ndung'u

Day 6 Saturday 03 rd July, 2010			
8.00-9.00am	Course Quiz	Course administrators	Dr. Nyikal, Dr. Munyoki, David Ndung'u
9.00am-10.00	Course Evaluation and discussions	Dr. Munyoki, Dr. Nyikal	
11.00am-12.00pm	Visit to the Kenya Seed Simlaw store on Kijabe street Nairobi	Dr. Munyoki/David Ndung'u	
6.00pm-10.00pm	Closing Ceremony and award of certificates	Dr. Olubayo	University of Nairobi/AGRA

Important topics on competitor analysis provided overviews on the different types of competitions in seed business and how to deal with each one of them. However, according to Aline O'Connor Funk, "your biggest competitor is not other seed companies but saved seed" she told the participants, highlighting the threat posed by farmers' previous season "saved" seed. Many farmers in Africa today still plant seed saved from the previous season resulting in much lower yields and increased disease incidences. Other important topics included pricing mechanisms and the importance of making one's product in to a brand. The lectures were interspersed with exercises and case studies to give the participants the practical experiences- a major objective of the SEMIs courses. Included in the one week course were two guest speakers-a marketing consultant in the real estate business and a marketing representative from the Kenya seed Company.



Mrs. Mary Kinoti from the school of business presenting a lecture on culture and ethics in marketing



The seed marketing course was very interactive and engaging for the participants with different views being expressed.



Participants listen keenly to a Kenya seed company official at the Kenya seed retail shop in Nairobi.



Posters and fliers from Kenya seed-important marketing tools for any seed company.

After a particularly exciting, interactive and informative week, participants were awarded certificates at the closing ceremony. In attendance were the SEPA programme officer Dr. George Bigirwa, Professor Agnes Mwang'ombe, the team leader of SEMIs, Dr. Florence Olubayo, the chair of department of Plant Science and crop protection, the Dean of the faculty of Agriculture, professor Shibairo among others.

"I am delighted to see the tremendous progress SEMIs has made over the short period since its inception. SEMIs began as an idea between me and Joe Devries as we were travelling around the country. I must admit that we did not expect it to grow with the rapidity currently being experienced and I must commend the team from the University of Nairobi for having taken up the idea so gallantly and bringing it to its current position right now" says Dr. George Bigirwa, the program manager for SEPA at AGRA.

Professor Mwang'ombe congratulated the participants urging them to implement what they had learned once they get back to their seed companies in their home countries. Roberta Musa, a marketing representative from Kamano seeds in Zambia, thanked the organisers of the course indicating there was a lot to be done on the basis of what they had learned during the one week course.



Professor Mwang'ombe receives a gift from Apullah Adingtingah, from Ghana on behalf of the participants as appreciation for the good work by University of Nairobi



Mr. Ekuka Edong from Fica seeds Uganda receives his certificate from the dean of the Faculty of Veterinary Sciences.

The seed marketing course had unprecedented number of women participants-seven in total. This is the highest number of women in all the four courses SEMIs has conducted. Maybe this was an indication of the important role women play in the world of marketing.



Female participants of the seed marketing course with Professor Mwang'ombe, Dr. Florence Olubayo, Aline O'Connor Funk and Dr. Rose Nyikal



Nancy Mohamed from Jirkur Seeds, Nigeria making a presentation during the course



SEMI's Seed Marketing Course Participants, 2010

SEED PROCESSING UNIT AND SEED LABORATORY

SEMI has embarked on plans for the construction of the seed processing unit and the seed laboratory. Alan Gaul, during his visit at CAVS did the measurements of the area on which the seed processing unit will be located. By the time of writing this report, SEMI was awaiting the detailed architectural plan for the seed processing unit from ISU. Apart from serving as a learning facility, the seed processing unit will also be available to seed companies in the area for utilization in seed processing. Many small seed companies both here in Kenya and around Africa are challenged in terms of good processing facilities. This unit will be a benefit these small seed companies and help in the dissemination of high quality seed to farmers.
