



Report of Annual Review and Planning Meeting for Optimisation of Pesticidal-plants: Technology, Innovation, Outreach & Networks (OPTIONS) Project



Prepared by University of Zimbabwe

March 2015

Meeting held at Bronte Hotel, Harare, Zimbabwe, 2-4 February, 2015



Organiser: University of Zimbabwe

Workshop participants

Prof Phil Stevenson¹, *NRI, University of Greenwich, UK. (Lead institute) & RBG, Kew, UK*

Prof Steve Belmain¹, *Natural Resources Institute, University of Greenwich, UK. (Lead institute)*

Dr Brighton Mvumi^{1&2}, *University of Zimbabwe, Harare, Zimbabwe*

Prof Murray Isman³, *University of British Columbia, Canada*

Dr Phosiso Sola, *CIFOR, Kenya*

Dr Paul Kusolwa² *Sokoine University of Agriculture, Tanzania*

Mr John Kamanula², *Mzuzu University, Malawi*

Mr Christopher Chapano, *National Herbarium and Botanic Gardens, Zimbabwe*

Mr Emmanuel Nyahangare, *University of Zimbabwe, Harare, Zimbabwe*

Mr Paul Keeley, *Sustainable Global Gardens, UK*

Mrs. Carole Keeley, *Sustainable Global Gardens, UK*

Mr. Edwin Mazhawidza, *University of Zimbabwe, Zimbabwe*

Dr Parveen Anjarwalla – *ICRAF, Kenya*

Dr. H. Mtui, *Sokoine University of Agriculture, Tanzania*

Dr Itambo Malombe – *Head, Botany Department, National Museums of Kenya*

Mr Gwande, *Environment Africa, Zimbabwe*

¹ Work package leaders; ² Country coordinators; ³ Member of Project Advisory Board

SUMMARY and OBJECTIVES of ACP S&T

The ACP Science and Technology Programme is an ACP-EU co-operation programme launched in June 2008. Open to all 79 member states of the African, Caribbean and Pacific Group of States (ACP), the 27 member states of the European Union (EU), the 3 EU candidate countries, and the 3 member states of the European Free Trade Association (EFTA) that belong to the European Economic Area (EEA), it funds partnership projects selected through open Calls for Project Proposals.

Objectives of the programme and priority issues

Global objectives of call:

1. Address Science and Technology divide between ACP states and industrialised countries.
2. Strengthen Science Technology and Innovation (STI) in ACP countries (enable creation, update and use).
3. Use STI as enabler for poverty reduction, growth and socio-economic development.

The **specific objective**: contribute to building and strengthening capacities in STI in ACP countries.

Result 1 – STI goals and priorities are identified, formulated and mainstreamed in the national and regional strategies of ACP countries.

Result 2 – National and regional capacities to devise, manage, monitor, evaluate and disseminate STI programmes and their results are improved.

Result 3 – The importance of STI for development is acknowledged by decision-makers, mechanisms of innovation understood by policy-makers and a culture of science promoted among the general public.

The programme prioritises Energy Access and Efficiency and Agriculture /Food Security.

Welcome and Opening Remarks, University of Zimbabwe

Dr Mvumi made special welcome remarks to the participants many who were visiting Zimbabwe for the first time. He also formally congratulated and introduced to the house Professor Steve Belmain on his attainment of professorship.

As part of the official opening remarks, the Dean of The Faculty of Agriculture of The University of Zimbabwe, Dr Charles Mutisi was naturally excited to receive all the guests to Zimbabwe and to University of Zimbabwe in particular. He remarked in his official address that the OPTIONS project was particularly an interesting one for Zimbabwe as it resonated well with the national economic blue print (see Appendix 1 for whole speech). The participants were wished well in tackling the objectives of the meeting.

Introduction of participants

All participants introduced themselves and the organisation they were coming from and what they do.

Workshop Objectives

Prof Philip C. Stevenson – Natural Resources Institute (NRI), University of Greenwich & Royal Botanic Gardens (RBG) Kew, UK.

The workshop started with Prof Stevenson recapping on the origins of the OPTIONS project for the benefit of those who were attending for the first time. This was not before he reminded the house that NRI had a history of working with Zimbabwe in the development of the artificial cow used in the control of tsetse flies. He reiterated on the funding of the project from EU through the Africa Caribbean Pacific Science and Technology (ACPS&T) Programme whose purpose is to strengthen internal S&T capacity of ACP countries to support research, development and innovation at three levels (institutional, administrative and policy making level, academic research and technology level and at the business and civil society level). In his address Prof Stevenson emphasized and reminded the members of the need to come up with appropriate technologies which are accessible relevant and sustainable. He also called for the members to pursue developing proper harvesting protocols and exploration of the use of pyrethrum extracts.

As the project leader, Prof Stevenson also gave a summary of what the project had achieved to date in line with the project objectives

- Inception meeting ✓
- 3 X annual meetings of OPTIONS partnership; ✓
- 3 X national level network meetings hosted by country coordinators: ✓ ✓ ✓
- OPTIONS project website; <http://projects.nri.org/options/>
- International Soc. of Pesticidal Plants established – processes initiated.

In conclusion the expected outcomes of the review and planning meeting were summarised as follows:

- Share Results and activities reporting from each partner and discuss their significance
- Assess progress against projected outcomes
- Planning activities for year 2 and beyond
 - Policies & Policy documents
 - Improve technical capacities
 - Outreach and training
 - Commercialisation
 - Research and training outputs
 - Future funding /collaborations

Partners Project updates

A. Dr Parveen Anjarwalla - ICRAF

Dr Parveen presented on the progress made by ICRAF to date. They managed to host the OPTIONS Inception meeting with partners hosted at ICRAF on 17-19 March 2014. They have also been doing germplasm collection and propagation studies. In October 2014, they held an OPTIONS training workshop on propagation and was attended by 58 participants. To reach out and help farmers they also have 3 draft pesticidal plants leaflets and 1 booklet. Their propagation experiments have shown that *Securidaca longepedunculata* can be easily germinated and experiments for *Zanha africana* and *Strychnos spinosa* are still on-going.

Questions & Issues raised	Response
Is the chemistry of <i>Zanha africana</i> and <i>Securidaca longepedunculata</i> established	It was noted chemistry have been established.
How long does <i>Z. africana</i> and <i>Securidaca</i> take to maturity in relation to the time they will be used?	It was noted that it takes a long time but however, many seedlings can be grown and used after their chemistry have been established.
ICRAF was also to look into air layering of <i>Securidaca</i>	

B. Paul Keeley - Sustainable Global Gardens (SSG)

Mr Paul Keeley presented their progress in the first year. They have managed to establish contacts with as many Kenyan NGOs as possible and using Maendeleo Mashinani Organisation, based in Busia County, as a pilot group. SSG have also done some baseline surveys in 2014 to find out what is currently known about pesticidal plants in Kenya.

The survey showed that pest control mainly based on 'doing nothing', or 'Agrovets' chemicals, or traditional 'non-plant' methods eg. ash, manure solution etc. A few of the farmers [< 20%] were using pesticidal plants. Those who showed interest on pesticidal plants wanted to know if there was readily available training for low cost techniques and also if seeds for pesticidal plants were readily available. In response to this need SGG has managed to do 4 training sessions in Kenya and distributed 16 KOAN booklets. Over 1000 *Tephrosia vogelii* plants were reported to have been distributed and planted by farmers.

Issues and Questions Arising	Response
Work on different soaps for efficacy enhancement	
To concentrate on something that gives farmers benefits in a year	
Need to ensure the <i>Tephrosia</i> cultivar distributed is the correct one	The correct cultivar name was confirmed by the specialists in the meeting
Most farmers are ignorant about PPs	Need for more training materials e.g. literature
How the farmers can produce per annum 400-600 t of pyrethrum	

C. Dr Itambo Malombe - National Museums of Kenya

Dr Malombe presented on the progress they have made to date. They managed to do several things including data-basing of specimen data and production of pesticidal plant species distribution maps based on East Africa Herbarium records, reconnaissance and site validation for pesticidal species, baseline survey of farmer groups and CBOs capacities, stakeholder workshops in two communities/counties, pesticidal species germplasm collection and distribution, and pesticidal plant propagation for outreach in year 2.

Questions & Issues raised	Response
Farmers enthusiasm to grow nurseries – Are they reacting because they are getting incentives?	It was highlighted that best incentive is income (Commercial through marketing), regular contact with the farmers, meeting incentives and information. It was further suggested that incentives may be through ownership and involvement
Participants were also tasked to look for export market opportunities	

D. Dr Paul Kusolwa - Sokoine University of Agriculture (SUA)

The country coordinator Dr Paul Kusolwa shared with the meeting participants how they kick-started the project in Tanzania with evaluation of several pesticidal plants against storage pests in beans, technical dissemination of procedures and co-learning activities with the farmers. In summary their experiments with the farmers showed that *Zanha africana*, *N. mitis*, *C. ambrosioides*, are the most potent extracts in bruchid inhibition. Already the plants are being promoted to the farmers for wider adoption and usage. As part of promotion and trying to influence policy the team in Tanzania held engagement workshops with participants from Government, Media, Farmers, Ministry of Agriculture departments (MVIWATA, INADES, SAT), SUA and other stakeholders. Thus the policy development process was initiated with partners to eventually develop a policy document

Questions and Issues	Response
It was resolved that SU should interact with pyrethrum sector like MGK since we focus on storage pests.	
What is the attitude of pesticide regulators? Are they flexible?	Yes they are
Promotion component needs research aspect	
It was suggested that capacity building and demonstration needs to be done	
SU was also tasked to work on different concentrations of PPs	
The house suggested that Phil to do Seminar to be done at country level on capacity building and demonstration	
An issue of geographical locations was raised and it was suggested that efficacy may differ in terms of concentration due to temperature, population pressure	
Participants enquired whether the beans that were used were clean and whether artificial infestation was used	The beans were clean and natural infestation was used

E. Mr John Kamanula – Mzuzu University (MU)

Mr Kamanula walked the team over progress made in Malawi over the past year. He basically reported on the different engagement stakeholder meetings held in several

districts of Malawi. The engagement involved participation of Government departments, NGOs, Private companies, Universities, Students and Extension workers. Malawi had been tasked with establishment of Pyrethrum as a pesticide and Mr Kamanula presented to the team that after sourcing for the seeds, to date a nursery has already been established and a crop of pyrethrum thriving in the country. As part of capacity building a total of 8 students are currently involved in the pesticidal projects in Malawi. Some of the students are working on *Eucalyptus* which has been shown to be quite popular as a pesticidal plant and many people are growing it for purposes of reforestation though.

Matters arising from presentation	Response
It was suggested that more should be done on concentration for example how much oil is produced from dry and wet mass	
Comparing pounding and distillation methods of extraction	
It was suggested that MU conducts tests on other <i>Eucalyptus</i> spp because they are many	MU MSc students are already working on that

F. Dr Brighton Mvumi - University of Zimbabwe

The update from Zimbabwe by Dr Mvumi showed that they managed to hold engagement meetings with local partners (Environment Africa and National Herbarium) and also several engagement meetings with Government ministries. These meetings culminated into the OPTIONS inception meeting in Zimbabwe which had a total of 36 participants drawn from Universities, NGOs, Government, Farmers and the Private sector. Apart from the meetings they have also managed to do voucher specimen collections of pesticidal plants used for the control of cattle ticks in collaboration with National Botanic Garden and Herbarium of the Department of Research and Specialist Services, Zimbabwe. The OPTIONS project presentations were awarded the 3rd prize (out of 69 contestants in UZ Science Cluster) of excellence at the Research and Intellectual Expo hosted by the University of Zimbabwe. The occasion attracted all research institutions in the country. A further \$6 000 research grant has since been extended to the team by the UZ Research Board to continue the good work. Going forward there are ongoing on-station livestock and vegetable experiments using pesticidal plants.

UZ reported that they have since established that Pyrethrum was once grown in Zimbabwe but had since been stopped. Efforts are underway to engage relevant stakeholders and find ways of resuscitating the programmes in line with the project objectives.

Matters Arising – Zimbabwe	Responses
Zimbabwe was encouraged to look into growing pyrethrum and coordinate with Malawi.	
Suggestions were that they get seed from MGK.	
The team were also tasked to investigate requirements for registering pyrethrum products	
Discussion on pesticide regulators – are they thinking of pesticidal plants as well?	It is a new subject to them

G. Dr. Sola noted that in all the presentations that were done the issue of policy was side-lined. Participants agreed to follow-up on this.

H. Prof Steve Belmain – Natural Resources Institute

NRI updated the house that the OPTIONS website had already been put up and members were encouraged to join the group discussions and raise awareness on its availability. Everyone was also encouraged to send in their articles, events, publications to Prof Belmain for posting.

In a project related to OPTIONS funded by the McKnight Foundation, the NRI team is also working on the safety and effectiveness of pesticidal plants for agro-ecological intensification of legumes in Tanzania.

Kilimanjaro bean field trials summary:

- Soap during extraction increased yield compared to adding soap after extraction
- PPs at 10% had higher yields than synthetic – 800 kg/ha more beans with *Tephrosia* than Karate
- Zero beneficials observed in synthetic plots vs. abundance of ladybirds, spiders, hoverflies in PP-treated plots

The following plants are under review under farming conditions *Tephrosia vogelii*, *Tithonia diversifolia*, *Vernonia amygdalina* and *Lippia javanica* in Malawi.

Summary on Safe and effective PPs for Agroecological intensification of legumes

- Field and farm trials are working, often showing comparable efficacy to synthetics whilst protecting beneficial insects. Field work needs more replication for efficacy, environmental and socio-economic analyses

- Nelson Mandela African Institute of Science and Technology MPhil students have worked well and delivered good research. Unexpected policy issues have required compromise between what students need and what the project needs
- Over next years, the project will move increasingly towards engagement with pesticidal plant value chains, regulations and commercial sector
- New field work under way with bean farmers, and ecosystem services baseline analysis

I. Prof. Phil Stevenson – Kew Royal Botanic Gardens (KRBG)

KRBG through Prof Stevenson raised the following issues

- Issue of using liquid soap and suggestions that we may carry out trials on different soaps. Soap may be used as a surfactant but which soap?
- Invention of capsules for crop protection?
- Impact of growing Eucalyptus in Kenya: What is the impact of EG on the ecosystems? Wild life ecology - most not indigenous but need to look at the complementary research. Insect pests are now destroying Eucalyptus hence not sustainable
- An issue was raised on chemical use for pesticidal plant extraction; are they not toxic? It was alluded that they may be toxic to humans
- We must not assume all plant materials are safe

J. Planning and Way forward

Table 1: Workplan deliberations and way forward by Work Package

Work Package	Issues and Action Points
Work Package 1	<ul style="list-style-type: none"> ➤ All were reminded to bring in their annual reports by end of February ➤ The Financial and Technical reports to be sent to Professor Stevenson so he can add the communication plan by EU ➤ A suggestion was made to increase visibility of the project through use of signage, T-shirts, media and tours ➤ Zimbabwe is going to host the 2nd International Pesticidal Plant Conference in Victoria Falls. <ul style="list-style-type: none"> ○ Proposed dates: 1st week of Feb 2017 ○ Dr Mvumi and the International Organising Team to start looking for financial and logistical support from supportive institutions ○ Budget for approximately 140 participants ○ 1st Announcement to be flighted as soon as possible <ul style="list-style-type: none"> ▪ Prepare a book of abstracts ○ <p><i>Proposed Organizations to be approached</i></p> <ul style="list-style-type: none"> ➤ AAS NEP, DAAD, IFS, AgKHAN, Orange oil SA, ORO Agri SA, IPA, USAID, Brazil contacts, Asian contacts, Chinese contacts, MGK, AGRA, Chinese Academic Society , Organic Associations (ZOPPA), MGK pesticide network, IPUF- South Africa ➤ A flyer needs to be sorted out as soon as is possible with the proposed speakers <p><i>Proposed Keynote Speakers</i></p> <ul style="list-style-type: none"> ➤ Prof Murray Isman, Opende- India, Professor B Torto ➤ Can we get someone from Brazil; Italy? ➤ <i>Profs Isman, Stevenson and Belmain</i> to continue scouting for the suitable candidates.

Work Package 2	<ul style="list-style-type: none"> ➤ With regards to Policy brochures, all country coordinators were encouraged to work with relevant Permanent Secretaries to produce the briefs ➤ Kenya could use the technical review process already underway - <i>Drs Muthoka and Sola</i> ➤ It was agreed that magazines with PP articles, newspapers, NMM popular articles, briefs on how to collect and use seed should now start for all partners ➤ Some of the articles could contain components of policy and should be able to communicate to the small scale farmers on how to use, produce and manage pesticidal plants ➤ It was advised to target the organic farming sector incorporating issues, opportunities for example in Zimbabwe, ZOPPA has made significant progress ➤ To enhance chances of meaningful discussions with policy officials, all information should be on fact sheets for meeting with officials ➤ Zimbabwe, Malawi and Tanzania could start with <i>Lippia javanica</i>, <i>Tephrosia vogelii</i>, and <i>Pyrethrum</i> ➤ SGG will focus on handouts on plant parts and seed propagation and how to grow the plants ➤ Tanzania (<i>Dr Paul Kusolwa</i>) was asked to provide documentation on safety and scientific evidence for registration to which it was suggested that members use plant materials with a lot of information like <i>Tephrosia vogelii</i> to expedite the processes ➤ Full packaged documents on efficacy, toxicity, safety, standardization, and procedures need to be sorted out and members were tasked to send this information to <i>Professor Stevenson</i> for consolidation ➤ <i>Professor Isman</i> encouraged all members to link up with the private sector and work on specific products. It is easier that way. Eventually these products should be on the market and play their role in ensuring food security. ➤ Zimbabwe and Malawi should start working on the policy and also explore possibilities of registering pyrethrum - <i>Dr Mvumi & Mr Kamanula</i> ➤ Kenya to look for possibilities of registering nurseries
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Work Package 3	<ul style="list-style-type: none"> ➤ There are plans to conduct scientific training sessions to 20-60 scientists. <i>Professors Belmain and Stevenson</i> will conduct these trainings in four countries and <i>Prof Stevenson</i> to do a follow up on trainees. ➤ SGG will assist in offering extension to other farmers in growing pesticidal plants in Kenya ➤ Malawi tasked to look into agronomic practices for pyrethrum production and come up with fact sheets ➤ Zimbabwe needs to get pyrethrum seed from Chitipa and start growing pyrethrum ➤ ICRAF to coordinate with KMM for nursery production of pesticidal plants in Kenya ➤ Zimbabwe to engage schools through Environment Africa in developing of pesticidal plant nurseries <p>KEW will do micro propagation</p> <ul style="list-style-type: none"> ➤ The issue of using incentives to encourage farmers to uptake growing of pesticidal plants was discussed and some members felt that monetary incentives were not a sustainable way but could be done by means of nurseries through product marketing, involvement through project cycle and proper feedbacks. In Kenya, however, government officers are allowed to get incentives and SGG was paying farmers USD1.50 per tree survival after 5-6 years. ➤ Professor Stevenson will investigate the issue on incentives across different countries ➤ It was agreed that all project partners should submit their updated work plans to Professor Stevenson
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Work Package 4

- It was resolved that countries need to seriously engage policy leaders
- ICRAF need to do step by step policy acts and look for someone to assist
- Countries were advised to sort out committees at technical level and then later agree on next level
- To ensure optimum results it was noted that it could be better to call for an all stakeholder meeting including farmer groups and conduct the meeting on policy
- It was agreed that it is critical to engage people who implement these policies
- Country coordinator's to look into policies in their countries related to the subject
- It was suggested that all policies could be synthesized through the SADC and FANRPAN platforms
- It was agreed that all country coordinator's to meet in July in Arusha Tanzania to discuss the progress on policy by country reps and identify and address gaps.
- Dr Sola promises to circulate presentation on policy to all members
- Because of the similarity of the work that SGG and EA are doing, they were tasked to work together and work with schools on establishment of nurseries.
Competitions may be done and prizes given to best performers as incentives
- Members were encouraged to share as much information through radio programs, newspaper articles, or any other media. It was suggested that media houses can be brought together after which presentations are done and the journalists can make stories and do follow ups to interesting and topical ones.
- Alternatively the partners could prepare articles for the journalists to publish
 - E.g. Malawi to produce an article on Pyrethrum growing, opportunities and challenges (*John Kamanula, Brighton Mvumi, and Steve Belmain*)
 - Murray to produce a broad article for wider Africa
- Malawi was encouraged to do extraction of pyrethrum and also to extract oils from other Eucalyptus spp and test them
- Phil to work on special oils capsules which need to be demonstrated across countries for storage pests (Zim – LGB, Bruchids, Mw-Sitophilus). There should be a standard protocol. Material to be delivered to countries in June and July

Table 2: Summary of Specific Action Points by Organisation¹

Organization/ Researcher	Specific Action Points
RBG – Professor Phil Stevenson	<ul style="list-style-type: none"> ➤ Propagation training to scientists ➤ Making special oil capsules ➤ Extension on PPs ➤ Work on new spp. ➤ HPLC ➤ Newspaper articles
SGG –Paul Keeley	<ul style="list-style-type: none"> ➤ Meeting stakeholders ➤ Local training sessions ➤ SGG study news letter ➤ Visit Busia for monitoring <i>Tephrosia vogelii</i> ➤ Powder manufacturing of <i>Tephrosia vogelii</i> ➤ Introduce new tree spp. ➤ Tree project
MKK – Dr Malombe	<ul style="list-style-type: none"> ➤ Communication ➤ Propagation ➤ Scaling up of PPs ➤ Policy implementation
ICRAF – Dr Parveen	<ul style="list-style-type: none"> ➤ Propagation of 3 spp ➤ Produce 3 leaflets ➤ Finalise 1 handout ➤ Policy understanding
National Herbarium- Zimbabwe – Mr Chapano	<ul style="list-style-type: none"> ➤ Propagation of pesticidal plants ➤ Mapping of pesticidal plants in Zimbabwe ➤ Dissemination of information on PPs during tours ➤ Brochure development ➤ Banner of PPs plants on Shows ➤ Produce a paper ➤ Policy undertaking
Malawi – Mr Kamanula	<ul style="list-style-type: none"> ➤ Pyrethrum growing ➤ Quality control of Eucalyptus oil extraction ➤ Laboratory bioassays ➤ On farm trails

¹ After the Meeting participants circulated detailed Year 2 workplans (see Appendix 2)

SUA – Dr Paul Kusolwa	<ul style="list-style-type: none"> ➤ Develop policy document with help of Dr Sola ➤ Produce 2 manuscripts ➤ Increase farmer network ➤ Increase collection of <i>Z. africana</i> ➤ Large scale application of PPs eg 20-25 kg bags ➤ Cuttings propagation of <i>Z. africana</i>
University of Zimbabwe – Dr B Mvumi	<ul style="list-style-type: none"> ➤ Conduct trials against ticks, storage pests and in vegetables (RSM and aphids) ➤ Identification of correct species for <i>Lippia javanica</i> ➤ Pursue pyrethrum production and resuscitation ➤ Development of Policy briefs
Environment Africa-Zimbabwe – Mr Gwande	<ul style="list-style-type: none"> ➤ Conduct baseline surveys on PPs ➤ Identify the plant materials ➤ Establishment of farmer fields
Professor Murray	<ul style="list-style-type: none"> ➤ Dissemination of botanical extract pesticides

K. Date and venue of next meeting

Having no further issues to discuss the Meeting ended with the announcement that the next review and planning meeting will be held in Arusha, Tanzania in February 2016.

L. ANNEX I: The Opening Speech by The Dean of Agriculture, Dr Charles Mutisi

The Project leader Professor Phil Stevenson, project advisor Professor Murray Isman; our country host Dr Brighton Mvumi, all the leaders of the work packages from different countries and all the project partners ;

It is my singular honour this morning to officially welcome you all to our wonderful country from your different work stations in the region and abroad. I understand some of you are coming from as far as the United Kingdom and Canada and I must say we are truly happy to receive you here.

When Dr Mvumi (Brighton) asked me to give the official remarks as you start your deliberations on the progress that you are making in your OPTIONS project, I thought to myself what an opportune time for you to visit Zimbabwe. I say opportune time because when I look at your broad project objective of “promoting and facilitating the uptake of innovative technologies for improved food security based on pesticidal plants”, I see that it resonates very well with our national ZIMASSET economic blue print. As a country all our efforts and research activities are being modelled towards harnessing locally available resources to ensure Agricultural productivity and subsequently Food Security. That is why your local group managed to scoop two prizes for their exhibitions during the Research and Intellectual Expo in September 2014.

We are aware of the global perennial threat of pests to agricultural productivity and also the limitations of conventional synthetic pesticides in comprehensively dealing with agricultural pests. We therefore get excited when programmes like OPTIONS begin to explore alternative novel ways of controlling pests. Someone once said “*No problem can resist the continuous bombardment of focused thinking*”. I have great belief that pesticidal plants will play a key role in the near future as an alternative way of pest control. After all, most synthetic pesticides found on the market today can be traced back to the forest.

As I close I want to encourage you to use this opportunity to exploit the diversity of your expertise to sharpen and bring to track your project objectives. I also would like to remind you that we wait to see fully packaged pesticidal plant remedies made available to the farmers soon.

With that I wish you fruitful discussions and the best of Zimbabwean hospitality in the short time that you will be here.

Mazvita, Siyabonga, Thank you!!

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Training of laboratory staff on phytochemical analysis												
University of Zimbabwe												
1. Test <i>Maerua edulis</i> compounds on ticks, vegetables and storage pests												
2. Test <i>Lippia</i> compounds from different <i>Lippia</i> collections												
3. Test innovative ways of dispensing pesticidal plants versus storage pests												
4. Livestock on-station experiments from laboratory work												
5. Screen plants identified in surveys for acaricidal characteristics												
6. Explore possibility of pyrethrum production in Zimbabwe												
7. Contribution to newspaper and weblog stories about the implication of legislation and policy. (Kenya, Tz, Zim, Malawi) continuous												
8. Contribute towards development of Policy Briefs												
9. Develop capacity of research students, extension staff and farmers in PP												
10. Prepare initial flyer and keynote speakers for the ICPP												
NRI/KRBG												
1. Synthesis of <i>Maerua</i> compounds – testing against Bruchids, <i>Helicoverpa</i> and ticks (UZim) by July												
2. Publication of hopanes paper. Submitted by June												

