



**EXTENSION PROJECT: PHASE III**

**QUARTERLY REPORTS:**

**OCTOBER TO DECEMBER 2001**

**And**

**JANUARY TO MARCH 2002**

**Prepared By**

**WT Bunderson, ZD Jere, IM Hayes, HSK Phombeya and JH Pratt**

**With**

**G Banda, GG Chammagomo and M Dausi**

**NATURE PROGRAM**

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**Sponsored by The United States Agency for International Development**

*Implemented by Washington State University  
With the Land Resources and Conservation Department*

**Under Cooperative Grant Agreement No. 623-0235-A-00-2065**



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## ADMINISTRATION AND COORDINATION

### *Financial and Technical Reports/Publications:*

- September-November Financial reports to WSU for onward processing to USAID.
- MAFE Quarterly Report for July-September 2001.
- Malawi Agroforestry Extension Project: Overview of MAFE Trials of Undersowing and Improved Fallows with *Tephrosia vogelii*, *Sesbania sesban* and *Crotalaria grahaminiana*. October 1, 2001. MAFE Project, Lilongwe.

## SUPPORT SERVICES

### Partner Network

A full list of MAFE's partners was provided in Table 2 of the quarterly report for July to September 2001.

### The Resource Center

*The demand for services provided through the Resource Center has risen sharply over the past 2 years with support to over 60 partners. It has also been accompanied by a willingness to pay commercial fees for each service rendered. This demonstrates real market needs and a high degree of confidence in the program.*

*The key issue for the DLRC and MAI is to coordinate a strategy with MAFE to ensure the sustainability of these services after MAFE ends in July 2002.*

The construction of MAFE's Resource Center is almost complete and most facilities are now operational including:

Customer and Library Services for technical, germplasm and extension support.

- Training Classroom, fully equipped with audio-visual facilities.
- Seed Banks for cold and refrigerated storage of tree seed.
- Warehouse for storage of nursery supplies and tools.
- Offices for the Resource Center Coordinator and Manager.

The only items left are the shelving and display boards for the library.

## Training

Table 1: Training courses conducted from October to December 2001

Topics covered	Organization	Audience	No. of Participants
Nursery Management	Lilongwe Youth Org.	Frontline staff	14
	CARE Malawi	Trainers	4
Agroforestry and Soil Conservation	Peace Corps and Counterparts	Frontline staff	31
	CADECOM	Trainers	17
	CARE Malawi	Trainers	4
<b>TOTAL</b>			<b>70</b>

## Production of Extension and Training Materials

*MAFEP is making intensive revisions to update and expand its extension and training materials for dissemination to partners and policy makers.*

*These materials reflect the current state of the art in agroforestry and soil conservation based on 15 years of research and extension. They are and will remain an important legacy of the project to serve the interests and needs of implementers, researchers, farmers, policy makers and others, both now and in the future.*

Materials completed or in progress include:

### ***Training Kit***

A new training kit with 90 color transparencies was produced on agroforestry and soil conservation practices. 100 copies were produced and shipped to Malawi by WSU for sale to partners through the Resource Center.

### ***Landcare Practices in Malawi***

This is a complete revision of the 1995 *Field Manual of Agroforestry Practices in Malawi*, but re-titled *Landcare Practices in Malawi* to reflect a broader coverage of NRM technologies. Final reviews and editing were completed for printing and binding at WSU by next quarter. A total of 5000 copies are planned for shipment and sale through the Resource Center. The organization and contents of the manual are as follows:

#### **Acknowledgements**

#### **Foreword**

#### **The Malawi Agroforestry Extension Project**

#### **Chapter 1: Landcare Issues in Malawi**

#### **Chapter 2: Developing Community-Based Action Plans**

#### **Chapter 3: Tree Propagation and Outplanting**

- Chapter 4: Soil and Water Conservation**
- Chapter 5: Tree Planting for Improving Soil Fertility**
- Chapter 6: Tree Planting for Wood and Other Products**
- Chapter 7: Common Agroforestry Species in Malawi**
- Reference Tables on Agroforestry and Soil Conservation Practices**
- Index of Species**
- Glossary**
- Literature Cited**

***Agroforestry and Soil Conservation Booklets***

- The English version of the booklet on best-bet Agroforestry and Soil Conservation Practices in Malawi has been revised to reflect the latest improvements in the practices promoted. Printing will be done at WSU in the first quarter of 2002. The booklets will be available for sale to partners through the Resource Center.
- The above booklet has been translated into Chichewa and 3100 copies have been printed and shipped to Malawi. A Yao version is also planned in 2002.
- Two additional booklets have been prepared for printing by WSU during the first quarter of 2002:
  1. Tree Seed Collection, Nursery Management and Outplanting
  2. Common Agroforestry and Soil Conservation Species in Malawi.

3000 copies will be printed for each of these booklets.

***Radio Messages***

Radio messages were produced and aired on the following topics during December:

**Table 2: Radio messages produced and aired on Radio MBC from October to December 2001**

<b>Subject Matter</b>	<b>No. of air times</b>
Vetiver Nurseries and Contour Vegetation Strips	10
Undersowing Tephrosia with maize	10
Vetiver planting behind checkdams and along gullies	10

***Irrigation Manual***

A new irrigation manual on the extension and use of the treadle pump in Malawi is in preparation. The first 2 chapters have been drafted. Completion of the manual is expected in April/May 2002.

### **Chichewa Posters and Leaflets**

Chichewa posters are being revised as needed for reprinting. Four new ones are also planned for production during the 2001/02 workplan period. The list of posters is shown below.

<b>Posters on Tree Propagation/Outplanting</b>	<b>Posters on Soil &amp; Water Conservation and Agroforestry Practices</b>	<b>Leaflets on Irrigation with the Treadle Pump</b>
<ul style="list-style-type: none"> <li>● Tree species and uses (complete)</li> <li>● Nursery design and construction (complete)</li> <li>● Nursery management (complete)</li> <li>● Tree spacing (complete)</li> <li>● Tree outplanting (complete)</li> </ul>	<ul style="list-style-type: none"> <li>● Contour ridging using a line level (complete)</li> <li>● Measures for gully control (in prep)</li> <li>● Use of vetiver in gully control (in prep)</li> <li>● Stream bank protection (complete)</li> <li>● Soil and water conservation using vetiver grass (complete)</li> <li>● Dispersed systematic interplanting (complete)</li> <li>● Undersowing maize with <i>Tephrosia vogelii</i> (complete)</li> <li>● Improved fallows with <i>Tephrosia vogelii</i> (complete)</li> <li>● Natural regeneration of trees in communal and farm land areas (in prep)</li> </ul>	<ul style="list-style-type: none"> <li>● Treadle pump setup, use and maintenance (series of 2 in prep)</li> <li>● Treadle pump plot layout (series of 2 in prep)</li> <li>● Vegetable nursery production and transplanting (in prep)</li> <li>● Irrigated crop spacing and fertilizer application (in prep)</li> <li>● Irrigation of green maize (in prep)</li> <li>● Water management (in prep)</li> </ul>

Additional extension materials planned for 2001/02 included 4 leaflets in Chichewa on Dispersed Systematic Interplanting, Undersowing maize with *Tephrosia vogelii*, homestead and boundary tree planting, and soil and water conservation using vetiver grass.

### **Distribution of Extension and Training Materials**

The distribution of materials to partners during the quarter is shown in Table 3.

<b>Table 3: Extension Materials Distributed</b>							
<b>ORGANIZATION</b>	<b>Posters</b>			<b>Chichewa Booklet on Best Bet Practices</b>	<b>AF/SC Training Kit</b>	<b>Leaflets on Contour Ridging</b>	<b>Line Levels</b>
	<b>Nursery Mgt &amp; Outplanting (series of 5)</b>	<b>Soil Cons. (Series of 2)</b>	<b>Agroforestry (series of 2)</b>				
<b>Govt/Projects</b>							
Kasungu DANIDA Project							35
Salima ADD	5	2	2	50			25
Kasungu ADD				50			
Peace Corps	755	302	302	157			150
Lilongwe ADD	10	4	4	55			
Karonga ADD				50	1		
Blantyre ADD				80			
Machinga ADD				80			
Team Tree				10			
Mzuzu ADD				50			
Shire Valley ADD				50			
LRCD.				10			
<b>sub-total</b>	<b>770</b>	<b>306</b>	<b>308</b>	<b>642</b>	<b>1</b>		<b>210</b>
<b>NGOs</b>							
PLAN International							61
CSC/WBADP				50			42
Dedza NICE							10
CADECOM Lilongwe				1	1		
TLC Malawi	5	2	2	72	1	160	
ARET					1		
Friends of Nature Sanctuary	15	6	6				
JICA	5	2	2				
Wildlife Society of Malawi	5	2	2	2			
Bunda College of Agriculture	5	2	2	1			
African Bible College				2			
CARE International				7			
Auther				1			
ELDP				5			
STAMCOM				1			
World Bank				1			
Mbavi Estates				5			
NICE National Office				2			
USAID				1			
<b>sub-total</b>	<b>35</b>	<b>14</b>	<b>14</b>	<b>151</b>	<b>3</b>	<b>160</b>	<b>113</b>
<b>Totals for the quarter</b>	<b>800</b>	<b>320</b>	<b>320</b>	<b>793</b>	<b>4</b>	<b>160</b>	<b>323</b>

### **Germplasm and Other Inputs Distributed during the Quarter**

Details of seed and other inputs distributed to partners for the quarter are shown in Table 4.

Table 4: Germplasm and Other Inputs Distributed to Partners from October to December, 2001

Organisation	<i>Acacia galpinii</i>	<i>Acacia polyacantha</i>	<i>Azadirachta indica</i>	<i>Albizia adianthifolia</i>	<i>Albizia lebbek</i>	<i>Albizia versicolor</i>	<i>Albizia zimmermanii</i>	<i>Faidherbia albida</i>	<i>Girardinia sepium</i>	<i>Khaya anthotheca</i>	<i>Melia azadirach</i>	<i>Sesbania sesban</i>	<i>Senna siamea</i>	<i>Senna spectabilis</i>	<i>T. sericea</i>	<i>Tephrosia vogelii</i> (kg)	<i>Ziziphus mauritiana</i>	Total Seed (kg)	Totals Tubes
Action Aid - Malawi								3								150		153	
Blantyre ADD								43.48					3					47	
Chikwawa CADECOM													10					10	
Chiweta PWP	0.75	0.36			0.4					2.01					2			5	
Christian Service Committee													3	30		100		133	
CSC/WBADP	10	10			12			15					4	4				54	
CRS Phalombe													30					30	
CYMMT																20		20	
Dedza Hills																60		60	0
ELDP								15.22					30	30		90		166	0
Lilongwe Golf Club																30		30	
Holly Leonard																5		5	
Karonga ADD			50		4			5.43			20.57		3		8			91	0
Kasungu DANIDA Project								6		5						24		35	0
Machinga ADD		3	24					48.91					5			150		231	48000
Manjawira EPA																130		130	0
Mnjiri CDSS	0.04	0.03	1	0.01	0.03		0.03	0.04		0.17			0	0				1	0
Nkhoma Synod														0		2		2	0
PLAN International								30				30				30		90	0
PWP	83.34	60.6		14.4	33.33	41.67							12	19				264	182000
Senzani ADP																133		133	
Team Tree Project													2			20		22	0
TLC	8.33	3.14	3.44		3.34	15					3.43		4	2		1116		1159	0
TLC Zambia	2.92	1.36						0.39				0.14		0			5	10	12500
World Food Program									20									20	0
Others																12		12	
<b>Totals</b>	<b>105.4</b>	<b>78.49</b>	<b>78.44</b>	<b>14.41</b>	<b>53.1</b>	<b>56.67</b>	<b>0.03</b>	<b>167.5</b>	<b>20</b>	<b>7.18</b>	<b>24</b>	<b>30.14</b>	<b>107</b>	<b>85</b>	<b>10</b>	<b>2060</b>	<b>5</b>	<b>2902</b>	<b>411500</b>

## **Field Programs**

MAFE is actively supporting the field programs of its many Government, Project and NGO partners. Much of the support has focused on encouraging early planting of *Tephrosia* with maize, as well as vetiver grass and tree seedlings.

Main activities during the quarter included the following:

- »»▶ Continued collection of tree seed for the 2000/01 season with packing, labeling and storage.
- »»▶ Supervision of field programs in MAFE and partner sites, including:
  - Tree nursery management and outplanting activities for homesteads and farms.
  - Collection and planting of Vetiver grass in nurseries and contour lines.
  - Interplanting of *Tephrosia* with maize.
  - Assessment of extension, field, and technical issues with corrective measures.

## **Issues and Concerns about Extension Services**

Several concerns were noted with respect to support activities provided to farmers by field staff:

- Continued use of ineffective top-down extension approaches
- Little or no use of practical on-farm demonstrations
- Limited follow-up support to farmers, coupled with poor supervision
- No participation of FAs in working directly with farmers in implementing new practices, an essential activity during the early phase of extension.

Overall, Field Assistants do not understand how to manage and supervise an extension program. This problem may also be common at higher levels of management.

MAFE is addressing these concerns as follows:

- Provision of quality training on technical issues as well as extension matters
- Focusing efforts in a concentrated manner to produce visible results
- Providing resources needed to reach and support farmers on a regular/systematic basis (including transport, inputs, simple extension materials, and planning tools)
- Weekly supervision of field staff by management to correct problems early and to motivate staff with confidence
- Active participation of FAs with farmers to implement new practices in the field
- Mobilization of farmers on a communal basis for broader and faster impacts.

## MARKETING & ENTERPRISE PROGRAM FOR NR PRODUCTS

### Reports

- The MEP mid-phase report was substantially completed in partnership with EDETA and circulated for peer review.
- The long-delayed Chemical Analysis report from Chancellor College Chemists was not received until December.
- The mid-phase report was summarised for presentation at a Forestry Research Symposium but the latter was cancelled at short notice.

### A-SNAPP Market Study

Dr Peter Wyeth, Associate Agricultural Economist, WSU International Programs visited MAFE in November to prepare the program of market investigations to be carried out with A-SNAPP and Rutgers University. A regional 'commodity' study encompassing 5 countries will cover a shortlist of 6 strategic species: Devil's Claw (*Harpagophytum procumbens*), at the request of A-SNAPP but not directly involving MAFE; Marula (*Sclerocarya birrea*); Moringa (*Moringa oleifera*); Neem (*Azadirachta indica*); Jatropha (*Jatropha curcas*) and Natal Mahogany (*Trichilia emetica*). MAFE also plans to undertake separate investigations for Tephrosia (*Tephrosia vogelii*)

It was agreed with USAID, Washington that the work by the marketing and production analysis Specialists from the Region would be conducted in two stages, starting with preparation of a report on available secondary data, including the state of current knowledge on each species and its products. It was hoped that, subject to contractual formalities, the report on secondary data would be completed by the end of January, 2002 in time to make preparations for follow-up fieldwork in February after A-SNAPP's February 6 – 8 Ghana Round Table Conference.

Dr Wyeth's next visit is planned for early February 2002.

### *Moringa Conference*

Dr Henry Phombeya and John Pratt attended the Dar Es Salaam International Moringa Products Workshop organized by Church World Service (CWS), Centre for Development of Enterprise (CDE) and PROPAGE (Association for the Promotion of and Propagation of Arid and Semi-Arid Plant Resources). This has spawned networking by MAFE in information exchange with other workers in this field.

The workshop revealed that the state of knowledge in Malawi on the applications of this species was as high as in most other countries. Results of work on improvement of oil extraction technology and determination of economics of production by MAFE and its partners attracted considerable interest.

### ***Moringa Product Standards***

Eight multi-disciplinary themes of international concern were determined by Workshop participants to require immediate action. While there is a 'history of use' in producer countries, work on product quality, including regulatory compliance and toxicological screening (principally leaves and oil) was identified as the No. 1 priority for enabling international markets to be penetrated by respective 'novel' products.

Through initiative of Optima of Africa Ltd, Tanzania and MAFE, the Malawi Bureau of Standards is exploring with the Tanzania Bureau of Standards the scope for establishing common African Standards for Moringa products. Such work would be costly but would benefit the whole continent. It could attract support from CDE. It is planned that results of tests carried out by Leatherhead Food Research Association (LFRA) for MAFE will be supplied to MBS to assist this future work.

### ***Moringa Production Systems***

The Workshop concluded that more product-oriented research into Moringa cultivation – including canopy management – should be carried out, specially in Malawi and Tanzania (with assistance from ICRAF, Kenya). It was also agreed that there was a general need to improve and standardize leaf and oil processing systems

It was also agreed that techniques for intensive fresh and dried leaf production in nutritional programs (West Africa and Nicaragua) should be further developed. A CWS-sponsored series of clinical trials in South Africa and Malawi by Mr B. Burger and associates from University of Stellenbosch is examining the effect of Moringa leaves and other extracts on the viral count of HIV AIDS patients.

### **Processing and Marketing**

The six week oil extraction trial with Moringa seeds by EDETA, BCM Associates (a group of small-scale producers) and BCA started in Lower Shire during November and then moved into Salima and Mangochi in December. It encompasses:

1. Field trial for *Bunda-modified* ram press on Moringa and other seeds.
2. Experimentation at village level to assure seed quality control (e.g. pre-cleaning; moisture) and basic hygiene of seed preparation and product/by-product handling, with laboratory testing of output samples.
3. Trial to determine feasibility of a seed supply chain for processing: logistics and price formation.

A number of cultural/social organization barriers were encountered in the initial work in the South but work in Salima and Mangochi went ahead as previously negotiated with communities.

### **Chemistry**

Samples of foliage, seeds and oils were despatched to LFRA and the Institute for Food Research for testing and characterization on the advice of Chancellor College Chemists.

The work plan for the coming months is outlined below.

**MAFE PLAN OF WORK, JANUARY-MARCH 2002**

	ACTIVITY	LEAD RESPONSIBILITY	2002		
			Jan	Feb	Mar
<b>1</b>	<b>REPORTS/PAPERS</b>				
1.1	Produce Quartely Reports	TB	■		
1.2	Prepare RC Proposal for	IH, TB, ZJ, HSKP	■	■	
1.3	TOR to commission tech. Papers	TB	■		
1.4	AF Symposium Papers:				
	MAFE Partnership	ZJ	■		
	AF/SC Extension Approach	ZJ/TB/IH	■		
1.5	TDY-Rogers: assess economics of specific AF/SC technologies	WSU			■
<b>2</b>	<b>EXTENSION</b>				
2.1	Chichewa Leaflets x 4	ZJ/HP	■	■	
2.2	Posters - NTR	ZJ/HP			
2.3	Seed / Polytube acquisition	HP	■	■	
2.4	Final AF/SC Poster Production	HP			
2.5	Irrigation Manual (Draft complete)	IH/ZJ/TB			■
2.6	Irrigation Posters	IH/ZJ	■	■	■
2.7	Irrigation Training Kit	IH/ZJ/TB	■	■	■
<b>3</b>	<b>CTA SADC Visit</b>	HP		■	
<b>4</b>	<b>MEP Country/Regional Market</b>			■	
4.1	A-SNAPP investigations/planning market survey	JHP/PW + CONSULTANTS	■		
4.2	A-SNAPP national/regional market survey of strategic	JHP/PW + CONSULTANTS		■	
4.3	Completion of survey report	JHP/PW + CONSULTANTS			■
<b>5</b>	<b>LFRA/IFR lab assessments of strategic species products</b>	JHP / CHANCELLOR COLLEGE	■	■	

Personnel Codes: TB=T Bunderson; IH=I Hayes; ZJ=Z Jere; HP=H Phombeya; JHP=J Pratt; PW=P Wyeth



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- Malawi Agroforestry Extension Project: Semi-Annual Report, July to December 2001. Submitted to LRCD, January 2002.
- MAFE Quarterly Report for October – December 2002.
- Proposal to USAID to sustain the Resource Center beyond July 2002. April 2002.
- An article on undersowing *Tephrosia vogelii* was published in *Horticulture in Malawi*, Vol 3, No. 4 2001 by WT Bunderson, ZD Jere IM Hayes and H Phombeya.
- An article about MAFE's marketing activities was submitted for publication in *Horticulture* magazine by JH Pratt.

## SUPPORT SERVICES

### Training

One training course was held from March 10-16<sup>th</sup> for 34 field staff from the Mchinji District Forestry Office.

### Radio Messages

Radio messages produced and aired on MBC during the quarter are shown in **Table 1**.

**Table 1: Radio Messages**

Content of Messages	No. of air times
Systematic Tree Interplanting	10
Boundary Tree Planting	10
Stream Bank Planting	10
Tree Management	10
Removal of tubes before outplanting trees (aired as an announcement because of the common failure not to remove tubes)	3

### Production of Extension and Training Materials

Production of new extension and training materials was a major focus for the quarter as outlined below:

- Draft publications completed:
  1. A Field Manual for Treadle Pump Irrigation in Malawi.
  2. A Training Kit for Treadle Pump Irrigation in Malawi.
  3. A series of 7 Chichewa leaflets on Irrigation.
  4. A series of 3 Chichewa leaflets on Agroforestry and Soil Conservation.

➔ Publications ready for printing at WSU:

1. A Field Manual for Landcare Practices in Malawi.
2. Tree Seed Collection, Nursery Management and Outplanting.
3. Common Agroforestry and Soil Conservation Species in Malawi.
4. Best-bet Agroforestry and Soil Conservation Practices in Malawi (Revised)

➔ Chichewa Posters printed:

Four new posters were produced, and old ones reprinted as shown in **Table 2** below:

**Table 2: Posters Produced and Printed**

SUBJECT MATTER	Numbers produced
<b>Soil and Water Conservation</b>	
Contour Vetiver Hedges	1050
Contour Ridging	900
Checkdams	5000
Streambank Protection	5000
Gully Control (new)	5000
<b>Soil Fertility Improvement</b>	
Dispersed Systematic Interplanting (new)	3000
Undersowing with <i>Tephrosia vogelii</i> (new)	2000
Improved Fallows (new)	3000
<b>Nursery Management and Outplanting</b>	
Nursery Construction	2000
Nursery Management	2000
Tree Species and Uses	3000
Tree Spacing	3000
Tree Outplanting	5000

### Germplasm and Other Inputs Distributed during the Quarter

**Table 3** shows the distribution of these materials to partners for the quarter although this is typically the off-season.

**Table 3: Seed and Inputs Distributed to Partners from January to March, 2002**

Organisation	SPECIES (kg)				No. Polytubes 20 x 15 cm
	<i>Afzelia quanzensis</i>	<i>Faidherbia albida</i>	<i>Sesbania sesban</i>	<i>Tephrosia vogelii</i>	
Dedza Hills RDP				100	
TLC				216	
Stephanos Orphanage - Blantyre			5	5	
Peace Corps Volunteers	1	1		5	3000
<b>Total</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>326</b>	<b>3000</b>

## Distribution of Extension and Training Materials

Table 4 shows the distribution of materials to partners during the quarter.

ORGANIZATION	No. By Subject Matter of Poster			Chichewa Booklet on Best Bet Practices	AF / SC Training Kit	Contour Ridging Leaflet	Line Levels
	Nursery Mgt & Outplanting (Series of 5)	Soil and Water Conservation (Series of 5)	Agroforestry (Series of 3)				
<b>Govt/Projects</b>							
Regional Forestry Office (Center)					1		
Ministry of Agriculture Headquarters	10	10	6	2	2	2	
Shire Valley ADD					1		
Blantyre ADD					1		
Kasungu ADD	5	5	3	2	1		
Malawi College of Forestry					1		
Land Resources Conservation Dept.					1		
Dowa DFO	250	100	100	20		20	
Machinga ADD	50	20	20		2		
Salima ADD	140	140			1		
PROSCARP		2	1	10			
Karonga RDP					1		
Chitpa RDP					1		
Karonga DFO	50	50	30	10	1		
Chitipa DFO	50	50	30	10	1		
Rumphu DFO	50	50	30	10			
Mzuzu DFO	50	50	30	10	1		
Chikangawa DFO	50	50	30	10			
NkhataBay DFO	50	50	30	10			
Likoma DFO	50	50	30	10			
Mzuzu Urban DFO	50	50	30	10			
RFO North	50	50	30	10	1		
Sustainable Forestry Management (North)	50	50	30	10			
Mchinji DFO	200	200	120	40		40	
Mzimba DFO	50	50	30	10	1		
<b>Sub-Total</b>	<b>1205</b>	<b>1027</b>	<b>580</b>	<b>184</b>	<b>18</b>	<b>62</b>	<b>0</b>
<b>NGOs</b>							
International Eye Foundation	5	2	2	1		2	
COSPE				44			
CTA Visitors							7
Concern Universal	25	5					
New Team of Peace Corps	80	80	48	16			
NICE Lilongwe		150		1		30	
TECS				2			
Lilongwe Kadamsana CBO		1				32	
<b>Sub-Total</b>	<b>110</b>	<b>238</b>	<b>50</b>	<b>64</b>	<b>0</b>	<b>64</b>	<b>7</b>
<b>Grand Total</b>	<b>1315</b>	<b>1265</b>	<b>630</b>	<b>248</b>	<b>18</b>	<b>126</b>	<b>7</b>

## Field Programs

Main activities during the quarter included supervision of field programs in MAFE and partner sites, including:

- Tree outplanting activities for homesteads and farms.
- Collection and planting of Vetiver grass in nurseries and contour lines.
- Undersowing *Tephrosia* with maize.
- Systematic interplanting of *Faidherbia albida* with maize.
- Assessment of extension, field, and technical issues with corrective measures.
- Monitoring and evaluation activities to assess field results by technology.

## Proposal to Sustain the Activities and Functions of the Resource Center

A proposal was written and submitted to USAID to provide bridging funds over a 2-year period on how best to sustain partner support services of the Resource Center after the close of MAFE on July 31, 2002. The aim is two-fold in nature:

1. Continue critical Resource Center services to prevent disruption of the rapidly expanding adoption of agroforestry and soil conservation technologies and practices; and
2. Ensure the development of a financially viable strategy that will allow the Resource Center to fulfil its service functions after the 2-year bridging period.

The proposal involves a mechanism that maintains the present leadership of LRCD/MAI for the Resource Center with implementation support by WSU. USAID Malawi will evaluate the proposal with input from the Botswana contracting office.

## MARKETING & ENTERPRISE PROGRAM FOR NR PRODUCTS

### A-SNAPP Market Study and Market Prospects

To provide a foundation for the Market Study and as agreed with USAID, Dr Peter Wyeth, Associate Agricultural Economist, WSU International Programs commissioned John Pratt and consultants in South Africa, Zambia and Zimbabwe to write contributions to a Summary Review of Current Knowledge of the 5 tree species targeted in the Study. Their reports were substantially completed in February and the overall draft Review was completed in March.

The Review indicated that Marula (*Sclerocarya birrea*) was already the subject of numerous investigations, research and market development within the region and should not be pursued under the Market Study. Detailed information received on the Zimbabwe *Jatropha (Jatropha curcas)* 'industry' implied that the industry was contracting. It gave no basis for suggesting that the crop be commercialised in Malawi for "high value" purposes. For the purposes of both food security/ nutritional supplements and possible commercialisation of its oil, further investigation of uses and markets for Moringa (*Moringa oleifera*) was strongly advocated. On a selective basis further inquiry about commercial possibilities and subsistence uses of Neem (*Azadirachta indica*) and Natal Mahogany (*Trichilia emetica*) were proposed.

John Pratt, assisted by International Eye Foundation, carried out a survey of traditional uses of Moringa, Neem and African Star-Chestnut (*Sterculia africana*) in the Lower Shire Valley in March. This revealed very high importance of Moringa in food security and universal use of Neem for treating digestive ailments.

Assisted by Juliet Chiluwe of EDETA, he investigated demand for natural plant products (NPPs) from targeted species among cosmetic processors in Blantyre. With the exception of one pharmaceuticals and cosmetics company, they do not use true raw materials; they all repack semi-finished products imported from South Africa and Zimbabwe.

European markets appear likely to provide market opportunities for MAFE oils and these may be pursued during the remaining months of the project: MAFE is responding to four inquiries for Moringa oil, including one from Swiss interests whose Moringa operations in Tanzania could not satisfy demand. Interest is being sought from the USA also.

### **Conferences and Workshops**

John Pratt attended the A-SNAPP February Ghana Round Table Conference in Accra with Dr Peter Wyeth, WSU International Programs. They presented respective papers on the MAFE MEP Activities and Progress, and the planned A-SNAPP Southern Africa Regional Market Survey. The USAID representative stated a clear vision for A-SNAPP's future. This encompassed both smallscale NPP processing and a focus on the rural poor, both of which are features of MAFE's commercial orientation.

The MEP Mid-Phase Report previously summarised for presentation at the (twice postponed) Triennial Forestry Research Symposium was presented at the rescheduled Symposium in February. NPPs R & D were granted higher status in the forthcoming National Forestry Research agenda but implementation would require identification of a new source of funding.

John Pratt attended the concluding session of an ICRAF workshop for planning a new phase of a regional research and commercialisation program for indigenous fruits (including Marula).

His Abstract entitled 'On-Farm and Wild Trees: Prospecting for Commercial Products' was accepted for oral presentation by the organizing committee (ICRAF) of the Southern African Agroforestry Conference that will be held during May20-24, 2002.

### **Processing and Marketing**

The commercial oil extraction trial on Moringa seeds carried out by BCM Associates (a group of small-scale producers) and EDETA moved to Salima and Mangochi in December. It also continued in Blantyre where it drew on seed supplies transported from Chikwawa.

Cultural barriers and poor planning by BCM Associates for the use of working capital caused slippage and low production in Salima but by the end of the program 170 liters of Moringa oil and 6 liters of African Star-Chestnut oil had been produced. Most of the Moringa oil was from Chikwawa seed. The production cost (excluding overheads) was slightly over K200/liter (\$3/liter); this was much lower than had been achieved by MAFE experimentally and established a new baseline for determining commercial feasibility. The oil was batch filtered under a contract with Naming'omba Tea Estates Ltd, Thyolo using equipment normally used

for macadamia nut oil. Samples of this batch (90 liters) were sent to Malawi Bureau of Standards and Leatherhead Food Research Association (LFRA) for assay. Initial indications of oil quality are very encouraging and introduction to four interested overseas buyers is planned.

### **Chemistry**

LFRA completed analysis of 7 samples of Moringa oil (from previous experiments and the start of the BCM Associates program) but had to repeat two tests that gave unexpected results; LFRA results on tests for oils of Manketti (*Schinziophyton rautanenii*) – a species in which SANProTA is strongly interested - and African Star-Chestnut are awaited.

Institute for Food Research (IFR) completed Glucosinolate analysis on Moringa seed and leaf samples. Reporting on the remaining IFR tests, including Tephrosia (*Tephrosia vogelii*) leaves and seeds was deferred.

### **WORKPLAN FOR NEXT QUARTER**

MAFE's work plan for the coming quarter through July is outlined below.

PLAN OF WORK: MAFE APRIL-JULY 2002

	ACTIVITY	LEAD RESPONSIBILITY	2002			
			Apr	May	Jun	Jul
1	<b>REPORTS/PAPERS</b>					
1.1	Quartely Reps	TB	■			
1.2	RC Proposal	IH/TB/ZJ/HP				
1.3	Completion of Tech. Papers	TB + Consultant		■	■	
1.4	AF Symposium Papers:					
	MAFE Partnership Model/Results	ZJ	■			
	AF/SC Extension Approach	ZJ/TB/IH				
1.5	TDY-Rogers: assess economics of specific AF/SC technologies	WSU				
2	<b>EXTENSION MATERIALS/INPUTS</b>					
2.1	Series of 4 AF/SC Chichewa Leaflets	ZJ/HP	■			
2.2	4 New AF/SC Posters	ZJ/HP				
2.3	Seed / Polytube acquisition	HP			■	
2.4	Final AF/SC Poster Production	HP			■	
2.5	Irrigation Manual (Draft complete)	IH/ZJ/TB	■			
2.6	Series of 7 Irrigation leaflets	IH/ZJ				
2.7	Irrigation Training Kit	IH/ZJ/TB				
2.8	Landcare Manual finalized/printed	TB/ZJ/IH				
2.9	Booklet completed on Nursery Mgt	TB/ZJ/IH				
2.10	Booklet completed on Common AF Species	TB/ZJ/IH				
3	<b>MEP Country/Regional Market Study</b>					
3.1	Business training program run by Prof Jerman Rose for 16 small-scale producers and EDETA trainers.	EDETA & WSU	■			
3.2	Field study/PRA for traditional uses of Natal Mahogany	JHP		■		
3.3	Editing of draft Summary Review of Current Knowledge for A-SNAPP national and regional market survey; report on field survey in Lower Shire.	JHP + regional consultants;	■			
3.4	LFRA international laboratory assessment of selected oil and seed samples; detection of minor chemical components by Institute for Food Research;	JHP + Chancellor College				
3.5	MBS tests of samples against MBS Standard 51.	JHP + Chancellor College				
3.6	Subject to above, introduction of Moringa and Manketti oil samples to international traders and to Malawi traders.	BCMA/JHP				
3.7	Subject to laboratory assessment, semi-commercial production of Manketti oil for introduction to international traders.	BCMA/JHP				
3.8	Dr Linda Robison study of medicinal uses of targeted species	EDETA & WSU				
3.9	Drafting for ICRAF Conference Paper and Final Report preparation	JHP				
4.0	<b>PROJECT WRAP UP</b>					
4.1	ZDJ trip to WSU	ZJ + WSU		■		
4.2	Accounts	IH/TB/ZJ				
4.3	Equipment/veh handover	IH/TB/ZJ				
4.4	Final Report	TB/ZJ/IH/HP/JHP				
4.5	Handover Full Set of Project Reports x 2	TB/ZJ/IH				
4.6	Staff close down	TB/ZJ/IH				
4.7	Closing seminar	TB/ZJ/IH				
4.8	Arrival of WSU Personnel	TB + WSU				

Personnel Codes: TB=T Bunderson; IH= I Hayes; HP=H Phombeya; JHP= J Pratt; ZJ= Z Jere; PW= P Wyeth