

## Responding to concerns over Eucalyptus

**T**he dilemma over the use of eucalypts for social, economic and environmental purposes has surfaced once again in Kenya.

On the one hand, it is highly popular with farmers because of its fast growth and importance as a cash crop. On the other hand there are public concerns that widespread planting of eucalypts might deplete water resources, reduce biodiversity, increase flooding, reduce nutrient cycling and compete with crops for growth resources.

In Kenya and South Africa, the introduction of hybrids or clonal eucalypts with even faster growth rates has raised new concerns. Therefore, there is an urgent need to critically assess the hard evidence for and against eucalypts before making any decision against its use in the region.

What are the lessons that we can learn from other countries, which have undergone such an experience? For example, eucalyptus is the main tree species planted by farmers for wood, fuel and income in Ethiopia.

The eucalypts dilemma in Ethiopia was debated in November 2000. In India, controversy over eucalypts and declining water tables was resolved in the early 1990s. In South Africa, the recent debate on exotic trees has resulted in the removal of invasive alien trees from the water catchments. The shar-

*Turn to Page 2*

## Will the eucalypts eat your children?



*The Tree Biotech manager, Mr. Benson Kany (right) leads his visitors in admiring the healthy seedlings ready for planting*

## Few forest-related issues generate more heated disagreement than commercial eucalypt, acacia, pine, and poplar plantations.

Proponents argue that fast-growing tree plantations offer a sustainable source of wood to meet the growing global demand for paper and other products. They also claim plantations generate substantial employment, reduce global warming and protect watersheds, and take pressure off natural forests.

Opponents disagree with these claims. They say plantations will dry up water supplies, degrade the soil, and fall victim to pests and diseases. They deny that plantations will help protect natural forests or provide many jobs. In fact, the opponents maintain that companies often destroy natural forests to grow plantations and displace small farmers and local communities, and they strongly object to calling these plantations "forests".

The issue is important because fast-growing tree plantations and global demand for paper are both increasing rapidly. There are some ten million hectares of commercial fast-growing tree plantations and the area is increasing by about one million hectares each year. Food and Agriculture Organization predicts that global paper consumption will be 80% higher in 2010 than it was in 1990, (in Kenya free primary education will push the paper demand even higher).

The real issue is how to manage them bet-

ter. No, eucalypts are unlikely to eat your children or turn your region into a desert. But there is still a lot that could be done to improve plantations.

Just because a plant was not present when European Settlers arrived does not mean its something bad. Approximately 98% of everything we eat comes from exotics/non-natives. According to the University of Florida, *E. grandis* has been grown in Florida since the 1800s; *E. amplifolia* (a more freeze resistant tree to *E. grandis*) has been grown in Florida since at least the 1950s. For approximately 30 years, Lykes Corporation has been growing *E. grandis* trees to produce landscaping mulch. In fact, if you go to any garden centre in the U.S. (like Home Depot) and buy *Eucalyptus* mulch, it most probably came from Florida.

Today, Lykes has approximately 20,000 acres of *Eucalyptus* tree plantations near Lake Okeechobee (one of the most environmentally sensitive areas in Florida) – with no evidence of the trees being invasive or detrimental ♣

*Extracts from Energy Crop Tree Farm-USA and a release by CIFOR.*

## INSIDE

- ♣ Editorial 2
- ♣ Engaging CEOs 4
- ♣ Pest threat 6
- ♣ Testing trees 8

## STOP PRESS

**Clonal Tree Centre has been opened at Sossiani River, Eldoret Town**

## Editor's Note

Benson Kanyi



# Our trees are not genetically modified

We are pleased to release the second issue of this newsletter. But we apologize for the delay in releasing it, which was due to necessary editorial changes that needed to be made to enable us to give you an improved product. We needed to refine the newsletter, enrich its editorial content to include additional information, and to enhance its aesthetic appeal. Since our mission is to serve you better I encourage you to take advantage of this newsletter to share your views, opinions and experiences not only with us at the Tree Biotechnology Project (TBP) but also with other stakeholders who are its ardent readers.

TBP has continued to improve tree planting stocks through hard work innovation, partnership and collaboration in order to fulfill its mandate of providing farmers with the best tree technology. The demand for our products continues to increase exponentially. Throughout the country, more and more farmers are adopting our improved varieties of *Eucalyptus* species and hybrid clones propagated by our Karura-based Clonal Tree Nursery. The interest in our trees are overwhelming judging by the volume of inquiries about the project, and requests for information on how, where and what varieties to grow in various parts of Kenya. We undertake to answer some of those queries in this issue by publishing articles on *Eucalyptus* growing. We hasten to mention here that our *Eucalyptus* clones are not genetically modified organisms (GMOs) as some of the queries we receive seem to suggest. By definition GMOs are organisms engineered with

techniques that alter molecular or cell biology of an organism by means that are not possible under natural conditions or processes. Genetic engineering (GE) includes recombinant DNA and RNA techniques, cell fusion, Micro- and macro- encapsulation, gene deletion and doubling, introducing a foreign gene and changing the positions of genes. GE does not include breeding, conjugation, fermentation, hybridization, in-vitro fertilization and tissue culture. In our case, the clones are products of selection, breeding, hybridization and tissue culture to produce elite varieties with fast growth, drought and disease tolerance and improved wood quality.

It has come to our attention that there are some unscrupulous people selling substandard seeds and seedlings to farmers. We therefore wish to alert our tree farmers, especially those growing the *Eucalyptus* hybrids, to exercise caution in sourcing seeds and seedlings to avoid fraudulent sources selling unimproved varieties. We advise those who may be in doubt to contact TBP, the nearest office of the Kenya Forestry Research Institute (KEFRI) or Forest Department for verification of the information.

In an effort to improve biodiversity conservation, the Project is working in partnership with relevant organizations on adoption of indigenous species such as *Mellia volkensii* for application of clonal propagation. In addition, we advise tree growers to ensure compliance with relevant conventions and laws on wetlands, riverine ecosystems and water catchments' conservation. They should also leave natural strips of indigenous vegetation to serve as *biodiversity corridors* within

woodlots and plantations.

We promise to continue with diffusion downstream to the grassroots through workshops for field extension officers, and establishment of distribution centers countrywide. We wish to emphasize to our tree growers to prepare early for the coming long rains of April 2004, and assure them of availability of adequate stocks of *Eucalyptus* clones, improved seedlings, select *Grevillea robusta*, and some popular indigenous species. But we regret to inform you that this year the Project has limited quantities of orchard grade seedlings of *Eucalyptus dunii* and *Eucalyptus nitens* ready for planting.

Please note that the East African regional clonal forestry technology transfer program has been completed with both Uganda and Tanzania having established their nurseries. We conclude by encouraging more farmers in the region to grow more trees to create wealth and employment as part of personal and national development ♣

## Editorial Team

Phanuel Obara - KEFRI  
Linus Mwangi - KEFRI  
Rose Makena I. - TBP  
Benson Kanyi - TBP

## Contact

The Project Manager, TBP  
Box 64159 - 00620, Nairobi

Telephone: 254 20 3767700/3767028  
Email: info@tree-biotech.com

## Your Letters

### Thank you for biotech trees

*I wish to express my gratitude to you for the assistance you have given me and for making this project available for it will bring lots of benefits for many farmers like me not to mention improving our ecosystems. I have in the past purchased from you and planted 11,000 *Camaldulensis* and 1000 *Grandis* seedlings. All these are doing well and both varieties had very high survival rates. Their growth rate is about three times faster than local traditional varieties. My farm is situated within Naivasha Municipality, about 4 Kilometers from the main turnoff on the road to North Kinangop.*

David Muraya  
Nairobi

### Our forests, our future

*I am so proud of my teachers for changing my perception and attitude towards forests. I had the wrong notion that forests are limitless and inexhaustible. Now that I know better, I wonder why we have been so destructive of forests. The benefits of forests are numerous but we stand to lose all that if we continue with our destructive behaviors. I request all Kenyans to stop deforestation, care for our forests and plant more. As young people, we would like to see our government applying heavy sanctions on forest offenders. Bravo Tree Biotechnology Project for providing us with quality planting materials.*

Simon Muthama  
Kegonge High School

### Will we drink sand?

*Despite knowing that without water we will perish, we still continue to destroy our forests without blinking an eye. Destroying the forests also destroys the water catchments. Are we ready to drink soil instead of water as the Nation TV advertisement about Aberdares clearly depicts. The ad likens destruction of water catchments with water being slowly drained out of a glass and replaced by sand. Our government must immediately use any means necessary to stop illegal logging and cultivation of forest lands. I thank The Tree Biotechnology Project for offering alternatives to meet our wood needs and helping in preserving our forests to ensure continuous flow.*

Victor Kariuki  
Kegonge High School

# Responding to concerns over Eucalyptus

## From Page 1

ing of scientific information and perceptions of various stakeholders is critical for the wise use of a potentially useful species in a region which has undergone a dramatic decline in forest cover and facing a growing deficit in wood energy and production.

### Forum

RELMA (Regional Land Management Unit of Sida) organized a forum on June 5, 2003 to share experiences on eucalypts from researchers, extension agents, environmentalists and policy makers from South Africa, Ethiopia and Kenya. The group reviewed the scientific evidence on the water use and ecological impacts of eucalypts, including the potentials of the new hybrids. This report is based on the recommendations of the participants for its rational use.

### Contrasting experiences

Ethiopia and South Africa have 250,000 ha and 477,000 ha under eucalyptus plantations respectively compared to only 6,000 ha in Kenya. Therefore, their long experience is highly relevant for Kenya. In Ethiopia, eucalyptus plays a vital role in supplying wood, poles and fuel wood needs of the country. In the wet zones, there is no apparent conflict between income generation and ecological functions. Income generation from eucalyptus is 2-3 times higher than from cropping. Furthermore, there is growing evidence that biodiversity has increased under the eucalyptus plantations in some situations. Consequently, there is a strong interest to introduce the new hybrids to Ethiopia.

In South Africa, which is a relatively dry country and is particularly dependent on limited areas of high rainfall mountain catchments as reliable sources of streams and rivers, the experience is quite different. Despite the importance of the forestry industry to the national economy of South Africa, plantation forests continue to attract criticism for alleged excessive use of the precious water resources of the country. The change in land use from grasslands to evergreen forest plantations has brought about declines in stream flow over some parts of the country.



Tree biotech project workers put their best to give Kenyans clean planting materials

Therefore, South Africa has developed new strategies aimed at increasing the sustainability of catchment's water yields and reducing the impacts of afforestation such as:

- ☞ Removal of plantations from riparian zones, encourage native grasslands and forests in these zones.

- ☞ Supporting removal of invasive alien trees by unemployed people.

- ☞ Increasing

the use of clonal species with higher drought resistance and increased water use efficiency.

### Relevance

The Ethiopian experience is highly relevant to Kenya in terms of the biodiversity and economic importance of eucalyptus in the high potential areas. However, Ethiopia has a limited experience in terms of impacts of afforestation on catchment water yields and virtually no experience with clonal eucalyptus. In terms of biodiversity, there is very encouraging evidence in Ethiopia, also supported by Kenya Forestry Research Institute's (KEFRI) observations, that regeneration of native species is promoted in wet zones (beyond 1400mm). In contrast, the South African experience with both catchment water studies and clonal eucalyptus are extremely useful because the Kenyan environment and water resources are quite similar to that of South Africa where the rivers originate from limited areas of high rainfall mountain catchments or 'water towers'.

The close collaboration among the Tree Biotechnology Project (TBP), Forest Department (FD), KEFRI of Kenya and South Africa's

Mondi and CSIR is particularly valuable and should be strengthened to cover both new clones for increased drought resistance and for assessing the impacts of commercial afforestation on water resources. South Africa has a long and distinguished history in catchment hydrology, which will be beneficial to Kenya. KEFRI is identifying and promoting highly productive indigenous species



This is how it is done: Mr. Kanyi (left) seems to be telling the visitors.

for the Arid and Semi-Arid Lands (ASALs), such as *Melia volkensii*, which should benefit from the clonal technology currently being used for eucalyptus by the TBP under the Forestry Department. Another species, which deserves the attention of the clonal technology, is *Grevillea robusta* and *Prunus Africana*.

### Recommendations

Several obstacles still remain which prevent the full utilization of the new eucalyptus materials in Kenya despite their enormous potential for income generation for small and large land users. They include:

- ☞ Commercial production of eucalyptus is a great opportunity for income generation for small holders but there is no proper economic information yet.

- ☞ A full economic evaluation of the cost and benefit of the new clonal materials should be available to extension agents and farmers for poles and timber as woodlots.

- ☞ Eucalyptus has a negative image because of its perceived high water consumption but there is no clear explanation from scientists on what to do about it and the appropriate places to plant it. KEFRI and FD should provide maps showing suitable areas.

- ☞ Concerns about the negative impacts of eucalyptus on biodiversity appear to be unfounded in wet zones.

- ☞ Although there are many productive native tree species many farmers are not aware of them. Therefore, there is a need to look for better alternatives such as *Grevillea robusta*, *Prunus africana*, *Melia volkensii*.

- ☞ The tradeoffs between income generation and water use of eucalyptus should be assessed for each area, using the approach used in South Africa.

- ☞ Investments in tree planting should be promoted by providing low cost loans because of high investment and long period before harvest.

Extracts from RELMA Workshop Proceedings - 2003

# Sustainable Cooking En

By Chales Kirubi and Rose Makena

**T**ree planting initiative in Kenyan schools is an important step towards increasing forest cover in the country not to mention helping them save tens of hundreds of shillings in fuel wood consumption.

The Sustainable Energy Cooking Solution for Schools (SECSS), as it is called, is a joint partnership of Renewable Energy Technology Assistance Programme (RETAP), Rural Technology Enterprises LTD, United Nations Environment Programme–Global Environment Facility’s Small Grants Programme (UNEP-GEF/SGP), Ashden Trust (UK) and Tree Biotechnology Project.

Through the SECSS, Kenyans are only begin-

⌘ Regrettably, over 70 percent of schools in Kenya are still using traditional and highly inefficient open-fire cooking systems—thus incurring huge fuel wood costs and contributing to massive deforestation in Kenya.

Perhaps the most important logic of the energy solution is the fact that it is designed to address both the demand and supply dimensions of energy in schools. The solution package has three components:

⌘ *The stoves component:* for energy demand

---

## Schools spend nearly 35 million on fuel wood, at the expense of other essential learning facilities

---

ning to appreciate the economic and environmental impacts of fuel wood use in Kenya by schools. And the reality is socking:

⌘ Over 95 percent of all schools in Kenya rely totally on fuel wood for cooking and heating water.

⌘ In 1989, the total fuel wood demand by all institutions/schools in Kenya was estimated at 500,000 tones (UNEP, 1989). In the last five years, demand has nearly doubled, thanks to increase in population and construction of more schools, particularly with boarding facilities.

⌘ Typical boarding school consumes about 200-300 tones of fuel wood per year and at an average cost of Kshs 800 per tone, the school would spend Kshs 70,000 to Kshs 105,000 per year on fuel wood. In some schools, expenditure

on fuel wood account for 20-30 percent of the total school’s kitchen budget. Nationally, schools are spending nearly 35 million on fuel wood, at the expense of other essential learning facilities such as books, laboratory equipment, computers, etc.

⌘ The precise ecological damage of harvesting 1 million tones of wood for use as fuel wood is equivalent to degrading over 400 hectares of forest cover annually. The damage is much worse considering that wood is harvested in bulk (ie logging mature trees) including the indigenous and threatened species such as camphor, *Olea Africana*, *Ficus Thonnigi*, *Vitex keniansis*, not to mention the loss in other forms of biodiversity. These are hardwood species preferred for their high calorific value.



Hon. Kate Kamba, MP EA with 2 1/2 yrs old GC clone at Karura

### Example 1

## Wanguru Girls High School

**T**he school, situated in Mwea town, Kirinyaga district, is a double-streamed boarding school with an enrolment of 300 students. The school installed improved stoves in January 2002 and has so far established a woodlot with 2000 improved *Eucalyptus* seedlings raised by Tree Biotechnology Project. By 2004, they will have planted a total of 5000 seedlings in their woodlot. Prior to installation of stoves, the school was using the open-fire cooking system and the fuel wood demand was 3-4 lorry loads per term and the three catering staff were employed at the kitchen. At a cost of Shs 7000 per lorry load, the school was spending Shs 21, 000 to 30,000 a term (Shs 60, 000 to 90,000 per year) on fuel wood and about Shs 15,000 per month (Shs 150,000 per year) on salaries for the catering staff.

After the installation of the three stoves, the fuel wood demand reduced by 75 percent to one lorry load per term, and only two cooks are now needed, thanks to the efficiency and ease of operation of the stoves. Thus the resultant financial savings on fuel wood and labor to the schools is approximately Kshs 120,000 per year. On account of these savings, the school will be self-sufficient in fuel wood supply, thanks to woodlot project, thus saving 100 percent on the fuel wood budget



# Energy Solution for Schools

## Example 2

# Murinduko Secondary School



*Kirigara girls watering their woodlot aimed at providing them with sustainable energy*

With an enrolment of about 300 students and boarding facilities, the school, also in Kirinyaga district, is now a useful model on energy efficiency and environmental conservation in the Mt. Kenya region, thanks to the total energy solution. Being a typical Harambee school, serving a very poor community, the school suffers from severe cash flow problems because parents are not able to meet their financial obligations in full and or in time. Prior to total energy solution package, the school could barely meet its kitchen and boarding costs, let alone consider switching from open-fire cooking system to improved stoves. At a cost of Shs 8,000 per lorry of fuel wood, the school was spending about Shs 40,000 on 4-5



lorry loads per term, or Shs 120,000 per year.

However, in March 2002, they managed to install two improved stoves. And currently, the school spends less than Shs 16,000 per term or Shs 48,000 per year on approximately two lorry loads per term. This represents 60 percent savings on both the volume of wood and finances

needed. From these savings, the school has also completed repaying their credit on stoves. In future, other factors equal, the school intends to pass on the benefits to parents by reducing the boarding fee. On the woodlot front, the school has vast tract of idle land where they have so far planted 6,000 seedlings with a target for 10,000 by the end of the project in 2004. Inspired by this project, the school Environment Club organized a talk on energy efficiency and environmental conservation during the Science Congress Competitions in 2002 and made it to the provincial level ♣

*Kirubi is the Programme Coordinator, RETAP and Makena is the TBP Marketing and Extension Manager*

management and conservation using improved institutional stoves designed to reduce fuel wood demand by 60-70 percent. Stoves installed on credit and repayable installments over 2 years.

✂ *The woodlot component:* supporting schools to plant eucalyptus trees such that in 4-5 years, schools are self-sufficient in the supply of fuel wood from their woodlots. To qualify, a school must plant a minimum of 5000 seedlings in 2 years.

✂ *The training component:* designing and delivering tailor-made and hands-on training to the schools' management, catering staff and students on energy efficiency, tree planting and

woodlot management.

However, the high cost of efficiency stoves, costing between Kenya Shillings 80,000 to 120,000, is the single most important barrier to the adoption of stoves by most schools. Therefore waiver of Value Added Tax on stoves, specifically for public schools, would lower the cost by 16 percent thus increasing the rate of adoption and forest conservation. What can the government do to support more Eco-schools?

And to further drive the point home let's take a closer look at a few examples of schools with total energy solution package ♣



*Teachers from Mt. Kenya region participate in a sustainable energy solution training programme for secondary schools*

*Efficient energy needed in schools*

# Blue gum chalcid a potential pest threat



Galls on lateral growing twigs and deformed shoots

By K. E. Muitu and Mukirae K.

The Forest Department (FD) grows about 15,000 hectares and private users grow over 35,000 hectare of which small holders account for about 35 percent.

In addition the country also imports fast-growing clones of eucalyptus from Mondi Forest, South Africa. The clones are preferred because they can be matched to a site in relation to soil and climatic conditions.

However, pests and diseases threaten the performance of eucalyptus in the country. The first threat on eucalyptus was noted in 1920s when snout beetle, *Gonipterus scutellantus* was observed in Kenya. And 20 years later, a biological control agent, *Anaphes nitens*, an egg parasitoid wasp, was introduced and managed to wipe out the threat, leaving only very few sporadic infestation in the country.

Last year another eucalyptus pest species was reported. The insect pest was identified as the gall-forming *Hymenoptera* (the wasp family). The insect belongs to new genus and species

which are beneficial. The adult blue gum is small and dark in color.

They measure about 1-1.5mm long. Larvae are small, legless grubs which are found within galls on host plants. It pupates within the galls and adults emerge through a hole that cut at the surface. Adult insects lay their eggs immediately after emergence. The eggs are laid in twigs, petiole, leaves midribs, or a few centimeters from the tip of the growing shoot.

This insect pest reproduces by parthenogenesis. Each insect is capable of laying eight to one hundred eggs during its short life span. The eggs is placed shallowly beneath the epidemic, it is Ovid, white and semi-transparent, with one end produced into a blunt stalk—like protuberance.

The insect is active and has considerable power of flight and can easily infest very large areas within a

of the family *Eulophidae* and sub-family *Tetrastichinae*.

The insect attacks all species of eucalyptus.

It has been recorded in the same species host trees in Morocco, Iran, Israel and Italy. Members of this family are small wasp insects, most of

very short time. Blue gum chalcid causes formation of galls on twigs and foliage of the host trees. Galls are also found on the leaf petiole. Repeated attacks on growing tips (shoots) lead to a gnarled or twisted appearance. This causes the tree to lack terminal leader shoot, leading to umbrella-shaped canopy instead of conical.

In Kenya, the area infested with this pest is restricted to Western Kenya region, particularly Kisumu, Vihiga, Busia and Teso districts are heavily infested. The invasion is suspected to have come from eastern Uganda.

The pest management options

- ☞ Pest alert leaflets should be released to all foresters countrywide.

- ☞ Quarantine measures on movement of seedling should be put in place in all the districts affected.

- ☞ Cultural control methods should be encouraged

- ☞ No affected seedlings should be sold to farmers to avoid the spread of the pest.

- ☞ KEFRI should immediately initiate a biological control program as a permanent solution 🍀



Adult blue gum chalcid

## What benefits are there in growing *Eucalyptus*?

### Direct Economic benefits

Firewood, Charcoal, withes, Fencing post, shuttle poles, telephone and power transmission poles, *Eucalyptus menthol*, pulpwood and timber.

### Value adding economic benefit

- ☞ Place beehives within the woodlot for *Eucalyptus* honey harvesting
- ☞ Intercrop with food crops in the first year of woodlot establishment (low cover crops such as beans, Irish or sweet potatoes are preferred).

### Environmental contribution

- ☞ Control soil erosion
- ☞ Rainfall interception
- ☞ Climate stabilization
- ☞ Release of oxygen to the atmosphere

By Rose Makena I.

- ☞ Rainfall infiltration
- ☞ Carbon sink
- ☞ Ground water regulation

- ☞ Shade

*Eucalyptus* will coppice after harvesting. To promote vigorous coppice use a saw and not an axe for felling in order to achieve a clean sloping cut to avoid rotting

### *Eucalyptus* species offered by TBP

SPECIES	ALTITUDE	RAINFALL (Annual Ave.)
<i>E. grandis</i>	1,200 – 2,000 metres above sea level.	Not < 900 mm per year.
<i>E. saligna</i>	1,200 – 2,000 metres above sea level.	Not < 900 mm per year.
<i>E. camaldulensis</i>	0 – 1,200 metres above sea level.	450 - 900 mm per year.
<i>E. tereticornis</i>	0 – 1,200 metres above sea level.	450 - 900 mm per year.
<i>E. urophylla</i>	0 – 1,800 metres above sea level.	Not < 900 mm per year.
<i>E. nitens</i>	1,500 – 2,200 metres above sea level.	Not < 900 mm per year.
<i>E. dunii</i>	1,000 – 2,000 metres above sea level.	Not < 700 mm per year.
<i>E. GC (Hybrid)</i>	0 – 1,600 metres above sea level.	Not < 600 mm per year.

# Tree farmers of Kamuchege

Control over assets gives people the independence to resist oppression, pursue productive livelihoods, and confront injustice. Even when they own few tangible goods or financial resources, people possess intrinsic resources such as knowledge, creativity, diligence, and inner strength. These strengths and attributes also have been called assets by the proponents of people-centered and community-based development like Benson Kanyi, the project manager of Karura Tree Biotechnology Project.

The resource-poor farmers of Kamuchege sub-location are now a happy lot. After years of hard labor in their tiny coffee farms with no returns, they can now sit back and smile, full of great expectations, as their newfound cash crops (clonal eucalyptus) perform incredibly well promising to give them handsome returns in the quickest time possible. Kamuchege has a population of 6000 people, who are mainly small-scale farmers. Due to population pressure, land and tree cover have grown more and more scarce. However, due to the new tree farming initiative, which came as a result of a workshop organized by the International Center for Research in Agro-forestry (ICRAF) in January 2002 on market oriented agro forestry, the area is becoming green again. As a result of aggressive awareness campaign by some community leaders and the Tree Biotechnology Project (TBP) marketing team, lead by Rose Makena, about 40 farmers have adopted the trees and have planted about 8,000 trees. Recently, TBP and International Service for the Acquisition of Agri-biotech Applications (ISAAA) lead a team of stakeholders in forest research to the sub-location where the farmers narrated their experiences. During the visits several constraints were identified:

- ⌘ Conflicts between tree farmers and non-tree farmers whose lands are adjacent to each other often disagree, sometimes on flimsy issues.
- ⌘ Lack of training of farmers on basic tree farming techniques and services.
- ⌘ Lack of access to micro-credit facility to enable farmers, especially women, to plant more trees.
- ⌘ Blue gum tree is stigmatized in the area, therefore most farmers fear planting them. There is need to de-stigmatize the tree through awareness training and video shows.
- ⌘ Lack of promotion of the benefits of tree planting also contributes to slow adoption of the technology.
- ⌘ Lack of training of the rural farmers in management, marketing and community development.

The constraints aside, the Kamuchege community development initiative has a very high potential and should be closely studied with a view to replicating it all over Kenya.



*Minister for Environment, Natural Resources and Wildlife, Dr. Newton Kulundu receives a warm welcome from Dr. Margarete Karembu of ISAAA at a recent seminar*

## Engaging CEOs in tree matters

*By Pradeep Paurana*

In November last year EA Business Summit Environment Committee members and other stakeholders hosted the Minister for Environment, Natural Resources and Wildlife, Hon. Dr. Newton Kulundu, at the Tree Biotechnology Project at Karura to discuss the future of forestry in the region. The meeting recommended:

- ⌘ That a Full text of the communiqué from the meeting be sent to the Presidents of Kenya, Uganda and Tanzania, all Committee Members, all participants, chief executives of the Nation Media Group, Federation of Kenya Employers, Kenya Association of Manufacturers, KEPSA, KARA and KFWG.
- ⌘ That the communiqué should contain comprehensive information about the Tree Biotechnology Project and its products.
- ⌘ That the communiqué should appeal to all to start nurseries and spread the word to business colleagues and or political leaders.
- ⌘ That the Communiqué should be to be given to the Minister and Hon. Rose Waruhiu to give to the presidents and to make follow ups in Arusha, Tanzania
- ⌘ That the communiqué should list names and addresses of all people who have volunteered to join the Committee
- ⌘ That follow ups should be made with Del Monte and Safaricom - both ready to start nurseries.

⌘ That people should be encouraged to plant/interplant eucalyptus with indigenous trees, especially along streams, dry river water courses, rivers, old quarry and mining sites, spring sources etc.

⌘ That people with money and those with land should be encouraged to team up in tree planting business.

⌘ That FKE, KAM, etc should sensitize the entire private sector to start tree planting programs.

⌘ That seedling for arid and semi-arid areas should be developed to encourage tree planting in such areas.

⌘ That there should be deliberate efforts to rehabilitate mining and quarrying sites led by National Environment Management Authority (NEMA).

⌘ That committee should not only facilitate but also partner with NEMA - especially in the EIA process

⌘ That committee should start and maintain an up to date inventory of all tree planting projects started by members and provide progress report on how they are doing on a regularly basis.

⌘ That this initiative should result into planting of about 20 million trees by November 2004 as Kenya's contribution to the EA Business initiative 🍀

*The writer is the MD, Athi Rivers Mining Co. & coordinator of EABS Afforestation Committee*



Participants at a recent regional ISAAA/TBP forestry workshop held in Nairobi

# Testing Eucalypts in Athi River

By Peter Davey

All riches begin in the form of thought. This saying perfectly describes Peter and Grete Davey's Kwa Kiko Farm in Arthi River, near Nairobi.

Just two years ago, a large part of it was lying idle until they decided in November 2001 to plant it with eucalyptus clones on a trial basis. They sought help from Mr. Benson Kanyi, the Project Manager of Tree Biotechnology Project, based in Karura forest, Nairobi; and Mr. Errol Duncan, of Mondi Forests, South Africa, to basically assess the viability of the hybrid clones in harsh conditions. Today, the farm holds hundreds of vigorously growing trees.

Recent reports from the farm revealed that the land selected was an open plain, with no indigenous trees, and prone to seasonal strong winds. The land was prepared for planting by the use of a single tined, tractor drawn ripper, and penetrating approx 30-40cms, along the rows, and

then crossed ripped. The trees were planted at the junction of the rip-lines, at a spacing of 2.5m in blocks of 20, interspersing Clonal varieties with standard species, and the whole surrounded by 3 lines of *E.camaldulensis*, as "guard rows". 360 Hybrid Clones, comprising 60 each of GC12, GC785, GC584, GC796, GC167,

*camaldulensis* (7.5 percent), but standard species averaged 30 percent loss.

In spite of tough conditions, growth rates were remarkable. GC12, GC 785 and *E.camaldulensis* averaged 95cms (planting height 15 cm) on April 30, 2002 and by December that year, they averaged 2m in height, which is phenomenal, given the unfavorable conditions and a rough start. In July 2003, an assessor from Kenya Forestry

Research Institute (KEFRI) visited the farm and found that they were five meters tall.

The trees are expected to be even taller now given the region unexpectedly received high rains (103mm) in August last year. According to records going back to 1915, the average rains for August is only 11mm. To be able to grow trees for fuel, building and timber, among others, in such a short time, in such harsh conditions, bodes very well for the future of this country ♣

The late Peter Davey with his wife, Grete, in their Kwa Kiko Farm in Arthi River



GC581 were planted. At the same time 240 Standard Species of *E. grandis*(80), *E.urophylla* (80) and *E.tereticornis* (80) were also planted. 408 *E. camaldulensis* were also planted as "guard rows", making a total of 1008 trees.

Seedlings supplied by TBP, were planted in Dec.2001, and received only 11mm rain for that month. Each tree was given 30 g TSP + Regent at planting. All were heavily mulched to conserve moisture. Because slight rains were expected in the first quarter of 2002 (Jan, Feb, Mar, April 102mm, 20mm, 90mm and 190mm respectively), serious losses were expected.

Consequently, careful counting was done on first of May and losses were found to be minimal, especially in the Hybrids and *E*



## Obituary

We regret the passing on of Peter Davey that occurred on October 10, 2003 just about one month after he had prepared this excellent report for a trial he so personally cherished. We at TBP wish to express our deepest sympathy to his dear wife Grete and the family. We assure you of our commitment to the success of the project. May God rest his soul in eternal peace