



## MACADAMIA

### Muchui Women Group

Macadamia belongs to the proteaceat family of which over 1000 species are known but there are over two distinct types found edible and are widely cultivated in places like Australia, Hawaii, California, Costa Rica, South Africa, Israel, Malawi, Tanzania and Kenya.

Kenya produces 8% of the worlds' total production of Macademia nuts. The two edible types include macadamia tetraphylla and Macadamia intergrifolia.

Macadamia is a crop whose characteristics and true types depends entirely on vegetative propagation or what is commonly known as grafting.

The macadamia seedlings are raised from the seed nuts, which should be fresh, reliable, and disease free and are capable of producing healthy seedlings. To know if the seeds are fresh and reliable put the seeds in a container of water. Fresh and reliable seeds will sink while the damaged and non-reliable and immature ones will float.



## KIKUYU TRANSLATION

### MIKANDANIA

Gikundi gia Atumia A Muchui. Miti ya mikandania ikoragwo iri imwe ya mihiriga miingi , ikoragwo iri ta mithemba ngiri imwe. Nikuri mithemba iiri ya miti ya mikandania ikoragwo igitumirwo hari kuria na makiria ikuragio mabururi ta Australia, Hawaii, California, Costa Rica, South Africa, Israel, Malawi, Tanzania na Kenya.

Bururi wa Kenya urutaga maciaro ma inyanya hari igana(8%) hari Makandania maria makorogwo makigethwo thiini wa thi. Miti iria ikoragwo Kenya nita tetraphylla na intergrifolia.

Mimera ya Mikandania kaingi ikuragio na njira ya guciarithanio kana kuhethurwo.

Mimera ya Mikandania ihandagwo kuma kuri mbegu cia ngandania iria ciagiriirwo ni gukorwo iri njega na itari na mirimu. Nigetha ihote kuruta mimera iri na ugima mwegu.



The tree also absorbs carbon di-oxide to reduce pollution. The tree also attracts rain and helps conserve the environment.

The tree allows for intercropping with other types of food crops and other cash crops like coffee or tea.

It's a good idea for TIST small groups to plant this tree since its turning to be a major income earner. It is also a good tree for TIST's greenhouse gas business.



Muchui Women Group has realized the importance of this tree and also the importance of raising the tree seedlings and grafting them.

This group is making good income from the sale of grafted macadamia seedlings. This group urges other TIST Small Groups to also plant these trees and reap the benefits. The seeds are raised in sand and flat or raised beds could be used.

It takes ordinary macadamia seedlings 8-12 years to bear crops but with the technology of grafting it takes less than 3-5 years. To keep the trees healthy it should be pruned. The advantage of this tree is that it is planted as a cash crop and gives the farmers money through the sale of nuts that are of high demand at present

## KIMERU TRANSLATION

Ungienda kumenya kana mbegu cia mikandania ni njega, ciikire mukembe wina na maai na iria ikurika ni njega na iria igutherera ni njoru kana ti nguru. Mbegu ikomagiririo muthanga-ini handu haraganu kana giito-inikiri iguru.

Miti ino ya Mikandamia iikaraga kahinda ka miaka inana nginya mika ikumi na iiri (8-12) nigetha ya mbirire kugia na maciaro. No riu kuuma na ubumburi wa njira ya guciarithania, igiaga na maciaro thutha wa miaka itatu kinya itano.

Nigetha miti ino iikarage irigima, niyagiriirwo ni guchewo kaingi. Uguni na wega wa miti ino niati niuheaga murimi mbeba na njira ya kwendia ngandania iria ikoretwo iri na ubatari munene kahinda-ini gaka. Miti ino niikoretwo igiteithiriria haria gutheria riera. Hamwe na uguo, niguchagia mbura na kumenyerera riera. Miti ino no ikuranirio hamwe na irio iria ingi mugunda ona kana kahua-ini kana machanini.

Niundu mwega hari ikundi nini cia TIST ikorwo ikihanda miti ino tondu niirarehe mbeba. Ningi ni miti miega hari biashara ya wendia wa gutheria riera, (TIST's greenhouse gas business.)

Atumia a gikundi giki gia Muchui nimamenyete wega wa miti ino ya Mikandamia. Makoretwo makimihanda hamwe na kumicirithania.

Gikundi giki nigikoretwo githukuma mbeba hari wendia wa miti ino ya guciarithanio. Gikundi giki nikiraringiria ikundi nini cia TIST cihande miti ino nigetha onacio cigie na umithio wa miti ino.



**Jonathan Muriuki; World Agroforestry Centre (ICRAF), Meru. Raised Seedbed**

When a farmer goes to a tree nursery to buy seedlings for planting in his field, one thing is in his mind, the products and/or services he expects to get from the trees. The earlier he can get these products/services the better it is for her. This implies that she must buy the seedlings with the highest chance to provide these products/services early. With this expected scenario then, the nursery operator must ensure he produces tree seedlings of high quality able to satisfy the customer. But what is meant by seedling quality?



Seedlings of Moringa oleifera arranged as a stack on the ground

Tree seedling quality is the ability of the seedling to establish quickly in the field and to bring out a tree which gives the desired products and services early. To establish well in the field, a seedling needs a strong root system comprising of roots that are not damaged (injured) or weak (coiled). The most common nursery production system in the tropics is raising seedlings on polythene tubes with a closed bottom and laying them on the ground in well arranged stacks (Fig 1). Watering and other nursery practices are then conducted when seedlings are in that state until they are ready for transplanting. It is cost effective to the nursery operator and majority of common tree species do not take a long time in the nursery hence the production system is sufficient. Some species, however, take a long time in the nursery either because the seedlings take long to establish (such as tropical indigenous species) or value

**KIMERU TRANSLATION Jonathan Muriuki -World Agro forestry Centre (ICRAF),Meru.**

Riria Murimi aguthia giitoini kia miti kugura mimera ya kuhanda gwake, undu umwe akoragwo nago meciria-ini ni bata kana maciaro ma muti ucio. Maciaro kana bata wa miti iyo ingihinga gwa kahinda kanini niko gikeno giake. Uu ni kuga ati, Murimi niagiriirwo nikugura mbegu iria cirri na mieke ya kurehe maciaro na ihenya. Kuguo mukomereria wa miti giito-ini niagiriirwo ni gutigiririra mbeu ciake ni njega nigetha agakenia aguri ake. Na atiri, mbeu iria njega ni iriku? Mbeu iria njega cia miti ni iria ikuraga na ihenya, igatuika muti na ikaheana maciaro maria magiriire gwa kahinda kanini. Nigetha mbeu ihoote gutherema wega mgunda, niyagiriirwo nigukorwo na mirita ina hinya na itari na ironda.

Njira iria ikoretwo ikihuthika muno hari ukomereria gichigo-ini giki ni iria ya kuhanda mbegu thiini wa mihuko ya minyore mitume na thi na ikabangwo wega tiri-ini. Uitiriria wa maai na uhariria ungi wa mbeu ici giito-ini wikagirwo haha nginya riria igakinya kuhandwo mugunda-ini. Ni njira itari ya goro kuri muhariria wa giito, na ni ihuthikaga muno makiria hari miti ya mithemba mingi tondu ndiikaraga giito-ini kwa ihinda iraihu. Kwa uguo ni njira njagiriru. Mithemba imwe ya miti ni iikaraga kahinda karaihu giito-ini tondu ni iikaraga kahinda kanene igigatherema ( Miti ya unduire) kana iria ya guciarithanio niyendaga guikara kwa ihinda inene. Miti ya mithemba ino ya gukura kahora niya bata muno hari mibango ya gutheria riera ta iria TIST ikoragwo nayo.

improving practices such as grafting are carried out which require staying in the nursery for longer. Such slow growing species are of high value to carbon credit schemes such as TIST.

The ordinary polythene sheet has smooth sides around which roots tend to coil. At transplanting, the roots are so weak and can not easily anchor in the ground. Roots also tend to coil around or penetrate the container bottom which requires root pruning, easily injuring the roots. To avoid these disadvantages it is recommended to establish seedlings in open bottom tubes and place them on raised beds (Fig 2). These allow automatic root pruning without injury of the roots since when the roots get to the container bottom they get air pruned and tend to strengthen without further elongation.

This produces a vigorous root system and the seedling has higher chances to establish faster in the field. It also eliminates the need for labour to do root pruning, a practice that is often forgotten or done late with grievous damage on the roots. Weed control under the beds is also easier.

The raised beds might appear to raise the amount of water spent in nurseries which might be a constraint to nurseries in arid and semi arid areas. Nursery operators have however devised innovations to deal with this constraint. A good innovation observed in Tanzania is digging a trench, placing planks of wood or wire mesh on it and placing the seedlings on the planks or wire mesh. The seedlings thus appear to be on the ground level but the trench under them provides the space which aids air root pruning

## KIKUYU TRANSLATION.

Tuminyore twa kawainda nitukoragwo turi tunyoroku mienaini nanitutumaga mirita ikoragwo igikunja. Hindi ya kuhanda mimera ino mugundaini, mirita yayo niikoragwo itarii na hinya na ikaremwo n guthrema wega tiri-ini. Mirita iyo nikoragwo ikigeria gutura tumenyore tuu na thi na ko guo igakorwo ikibatara kurengwo na njira ino igathukia mirita.

Hari kugiriria kuoneka kwa thina ta uu, nikwagiriire hindi iria mbeu irakomererio , tuminyore tuu tugakorwo turi tuture na thi na

tukaigwo giito kiri handu iguru. Njira ino ni ihuthagia kurenga kwa mirita na hatari guthukia mirita tondu mirita iyo yakinya kuumira na thi wa tuminyore, ni irengagwo ni riera na igakorwo ina hinya ona hatari kumithukia makiria. Hari njira

ino, mirita ni ikoragwo iri michanjamuku na igakorwo na mieke minene hari kuringura na ihenya riria yahandwo mugunda. Hamwe na uguo, njira ino niuhuthagia wira wa kurenga kana gucheha mirita, wira ukoragwo ukiriganinara kaingi kuri andu aingi kana ugachererwo na koguo ugathukia mirita na muno makiria. Makiria ma uguo, njira niiteithagiriria hari kugitira gukura kwa riya.

Ciito iri ikoragwo cioetwo na iguru no ikorwo igituma uhuthiri wa mai ukorwo uri muingi, na makiria ichigo-ini iria ikoragwo ikiara makiria. Akomereria a mbeu ciito-ini, nimakoretwo magiuka na njira cia kugiriria mathina maya. Njira imwe hari icio ikoretwo ikihuthika bururi wa Tanzania ni ya kwenja mitaro iria Mukomereriria wa mbeu acokaga akaagirira waya kana icunji cia mbao iguru wa mutaro ucio.



Seedlings of various species arranged in stacks on a raised bed



The water is trapped in the trench and through evaporation will moisturize the seedlings and reduce the need for very frequent watering. A polythene sheet can also be placed in the trench to ensure water does not seep into the ground. Such innovations also reduce the cost that may appear to increase with the use of raised seedling beds.

### LAMURIA OFFICE

Our office is based in Laikipia East covering Lamuria, Tigithi, Marura and Nanyuki locations. We have new trainers on board who are giving us additional capacity to train the Small Groups in our area.

We have established nodes in sweetwaters, Labua and parts of Mirera. This month we are hoping to setup nodes in Matanya, Sirima, Ngari nyiro and Mwiyo.

We are now receiving heavy rains and our Small Groups have to plant more trees and practice Conservation farming so that they can get more yields.

So far we have around 150 registered groups in our office area.

### CHUGU OFFICE

Chugu office is currently serving Small Groups in six divisions in Meru Central. Small Groups in our office are happy with the TIST program because of the benefits they are receiving from the program and also the cash incentives for their trees. Groups are expecting that TIST pays them at least twice a year.

### KIKUYU TRANSLATION.

Mimera kana mbeu icio icokaga ikaigirirwo iguru ria mbao icio kana waya na kwa njira ino igatuma mirita itueka ya kurengwo kana guchehwo ni riera. Maai maria mahuthikaga hari gutiriria mimera ino nimatuikaga makunyitwo ni mutaro na magatuika ma uguni hindi iria makugucio ni riera na makagunya mimera na njira ino igatuma uitiriria wa maai ugakorwo uri munini. Karatathi ka munyore nikahuthikaga na kwaro thiini wa mutaro nigetha ga kagiriria maai kunyuo ni tiri. Njira ino niikoretwo ikinyihia thogora ta uria ungikorwo ukihuthika hari gwaka citio cia kuoyo na iguru.

### WABICHI YA LAMURIA.

Wabichi itu ikoragwo gichigo-ini kia Laikipia ya irathiro iria ikuragwo inyitite matura ta Lamuria, Tigithi, Marura na Nanyuki. Twina arutani eru aria makoretwo makiruta ikundi nini gichigo-ini giki. Nitukoretwo tugithondeka ichemanio hari matura ta Sweetwaters, Labua na mien a imwe ya Mirera. Mweri uyu twina mwihoko nitukwambiriria nodes thiinii wa matura ta Matanya, Sirima, Ngari Nyiro na Mwiyo. Gwa kahinda gaka

nigukoretwo kwina mbura nene na ikundi nini niciagiriirwo ihande miti kwa uingi na makorwo na urimi wa Urimi mwega nigetha magie na machiaro maingi. Nginyagia riu, nitwandikithitie ikundi igana rimwe ria mirongo itano thiini wa matura maria marigichiirie wabichi iitu.

### WABICHI YA CHUGU.

Wabichi ya Chugu gwa kahinda gaka ikoretwo igitungatira ichigo ithathatu thiinii wa Meru ya gatagati. Ikundi nini thiinii wa wabichi itu niikenetio ni TIST niundu wa kugia na



Chugu office is looking forward to holding a TIST day at the Chugu Chief's camp where the land has been dedicated for TIST trees to be maintained by the Field office members.

The Small group members in our office area are grateful for the training they have received on Conservation Farming which has given great yields for the seasons they have been practicing it. We have extended the TIST program to Meru South district where we have 67 registered groups in Chogoria, Chuka, Igwanjau, Muthambi and Kiurani and so far we have quantified 14 groups of which 8 groups have received payment.



### **NAROMORU OFFICE.**

Naromoru office has been able to establish links with other organizations which deal with not only environmental conservation but in human health as well since that is also one of the TIST program's core components. The office members attended a Red Cross course on 20th to 22nd October in Nyeri and they were able to learn and be certified in first aid skills.

With the help of TIST the program has established a sub branch of Kenya Red Cross and will open a physical office in Naromoru near the DO's office. The office is in the process of resuscitating nodes and we have realized the objective of a cluster and we are looking forward to accommodating all our groups in different clusters.

### **KIKUYU TRANSLATION**

umithio hari o hamwe na kugia na mbeca kumanagia na miti iria mahandite. Ikundi ici ciri nameririria ati Tist nirikoragwo ikimariha maita mere hari mwaka. Wabichi ya Chugu iri na itanya ria gukorwo na muthenya wa mwanya wa TIST kambi-ini ya Chibu, haria maragiire na mugunda wa kuhanda miti iria irikoragwo igitungatwo ni amemba a wabichi. Ikundi nini thiinii wa gichigo gitu mena ngatho ni githomo kiria makoretwo makiamukira gikonie urimi mwege na gikamateithia kugia na magetha maingi kuma mambiriria utungati wa urimi uyu.

Nitutheremetie TIST nginya Meru ya muhuro kuria twandikithitie ikundi mirongo itandatu na mugwanja(37) thiini wa chogoria, Chuka, Igwanjau, Muthambi, na Kiuran na nginyagia riu ikundi ikumi(14) na inya ni ndarire miti na inyanya(8) ciachio ikamukira marihi.

### **WABICHI YA NAROMORU.**

Wabichi ya Narumoro ni ikoretwo ikinyitanira na ciama iria ingi itakoragwo ikirumbuiya maundu maria maturigichiirie na igakorwo ikirumbuiya uguma wa miiri ya aandu – mibango onayo TIST ikoragwo ikirumbuiya wira-ini wayo. Amemba a wabichi nimathire githimo gia Mutharaba mutune kuria Nyeri na magithomithio njira cia gwiteithia riria mundu agia na ugwati. Nimaheirwo thatibikiti ya githomo kiu.

Kumana na uteithio wa Tist, nigukugia na wabichi nini ya Mutharaba Mutune iria igukurwo hakuhi na wabichi ya DO Narumoro.



This being the rainy season, our office is focusing its efforts on training Small Groups on transplanting their seedlings. We are asking Small Group members to take advantage of the rains and transplant seedling at the right time. We are also providing training on good tree species to plant.

### KIKUYU TRANSLATION.

Wabichi iri na mutaratara-ini wa guthondeka kiunganao gia ikundi nini nyingi tondu tukuranite umithio wa kiungano na niturathie na mbere tukiamukiraga ikundi thiinii wa chiungano mithemba itiganite. Tondu riu ni mahinda ma mbura wabichi itu niikoretwo



### BEST SMALL GROUP SEMINARS

During the Best Small Group (BSG) seminars in August, the BSGs reported their achievements on the 40-day action plan developed during the June BSG seminars. All groups reported that they had recruited and trained new groups that were within walking distance of each other. Nine out of the twenty BSGs reported that they had formed a cluster in their area that has at least 40 small groups that are all within walking distance of each other.

igithomithia ikundi nini uria ciagiriirwo nigukorwo igithamia miti yao kuma ciitoni na kuhunda miti iyo mugundaini. Nituroria ikundi nini cihuthire mweke uyu wa mbura na ihande miti ya ihindaini riri. Ningi niturathomothania mithemba ya miti iria yagiriirwo ni kuhandwo.

### GITHOMO KIA IKUNDI NINI NJEGA. CIA TIST

Hindi iri kwari na githomo gia ikundi nini iri njega mwerini we nana ,ikundi ici njega niciaugire maundu mari cihotete kuhingia kumanagia na mabango wa matuku mirongo ina(40) uria mathomithitio githomo ini kiu kingi mweri we tandatu.



At the time of the June seminar in Meru, there were 1,587 registered small groups in Kenya. At the time of writing this newsletter, there are 2,189 registered small groups in Kenya. In a period of about 4 months, 602 new Small Groups have been registered. This rapid recruitment of new Small Groups was made possible by the efforts of the BSGs. By doing the recruitment within walking distance to form clusters we can ensure that the TIST program is operated in a cost effective manner while continuing to expand the program.

The next follow-up BSG Seminar will be held in Meru from November 13th to November 18th. For this seminar we are inviting not just the existing 20 BSGs, but we are also inviting other Small Groups that have qualified to be BSGs. In October the TIST field offices were asked to distribute the BSG application forms so that groups that thought they qualified could apply to become BSGs. The following criteria are to be met for your Small Group to qualify as a BSG:

- Number of TIST trees planted by your group that are alive should be 1,200 or more
- Number of TIST Eucalyptus trees planted by your group that are alive should be less than 33% of total live trees
- All of your group members should be practicing Conservation Farming
- Your group should have in its nurseries more than 2,000 seedlings.
- Number of Eucalyptus seedlings your group has in its nurseries should be less than 33% of total live seedlings.
- Your group should have control of enough land to plant 8,000 trees in 8 years. This can include land currently under control and land that your group members can get permission to plant trees in.
- Your group should have signed GHG contract

## KIMERU TRANSLATION.

Ikundi ciothe ni ciaugire ati nihotete kwandikithia na guthomithia ikundi ingi njeru kuma icigo cikuhaniiriie. Ikundi kenda hari mirongo iri ya ikundi iri njega ni cihotete thondeka gikundi kimwe kinene gichigoni kiri na ikundi itanyihire mirongo ina(40) gichigoni kimwe handu mundu angithie na maguru.

Ihindaini riria kwari na githomo Meru mwerini we tandatu, ni kwari na ikundi nini ngiri imwe na magana matano mamirongo inana na mugwaja (1587) guku Kenya. Riu kahindaini gaka turandika ngathiti ino kuri na ikundi nini ngiri igiri na igana rimwe ria mirongo inana na kenda (2189) iri ciandikithitie guku Kenya. Gwa kahinda ka mieri ina kuri na ikundi nini magana matandatu na igiri(602) cikoretwo ciandikithitie. Wiandikithia uyu wanaihenya uhotithitio ni ikundi iria nini njega. Hari kwa ndikithia ikundi ici hakuhe niguteithagia hari guthondeka kiongano kimwe na igatethia mubango uyu wa TIST gukurwo uteri wa goro no hahwe ugateithirie gutherema kwa guo.

Githomo kiu kingi gia kurumiriria ikundi nini iri njega gigakorwo Meru mwerini wa ikumi no umwe kwabiriria mweri ikumi na ithatu kinya mweri ikumi na inyanya (13/11/2006-18/11/2006) .Thiini wa githomo giki to induki iri njega mirongo iri ciititwo no kinya ikundi ingi nini iria ikoretwo cigika wega ni ciititwo. Kuri mweri-ini wa ikumi wabichi ciothe cha TIST ni cioririo ciheane fomu kuri ikundi nini ciothe nigetha kumenyeke ni ikundi iriku ihingitie maundu maria mabataranagia nigetha gikundi kirwo ni kiega. Maya nimo maundu mari mabataranagia nigetha gikundi gituike kiega/kiagiruru:

- Miti iri ihanditwo nigikundi kianyu na iri muoyo no kinya ingikorwo iri makiria ma ngiri imwe na magana meri (1200).
- Miti ya mibau iri mihande ni gikundi kinyu ndigakorwo ikiriti mirongo itatu hari igana (33%).



- Group should have proof that its members have been meeting regularly and rotating their leadership.
- Group member should be fully aware of TIST values and should abide by those values.

If your group has met all of the above criteria, then please request for a BSG application form from your field office and fill out the same and return to the field office. Your group will then be visited by TIST auditors who will verify if your group has met all the above criteria and if you have provided accurate information on your BSG application form. Once audited successfully your group will be qualified as a BSG and will be invited to the next BSG seminar.

### KIKUYI TRANSLATION.

- Arumiriri a ikundi kianyu othe magiriirwo gukorwo makirima urimi wa uramatiri.
- Gikundi kianyu kia giriirwo ni gukorwo na miti ya kuhanda makiria ma ngiri igiri (2000) giitoini.
- Miti ya mibau iria iri giitoini ndigakorwo iri miingi gukira mirongo itatau hari igana (33%).
- Gikundi kianyu gikorwo na migunda ya kuigana kuhanda miti ngiri inyanya (8000) kwa ihinda ria miaka inana (8yrs). Ino ni hamwe na migunda iria iyanyu na iri ingi wehetwo rutha rwa kuhanda miti kwo.
- Gikundi kianyu no kinya kingikorwo kihuritie maratathi ma gwitikaniria gwa kuendi riera.
- Gikundi nokinya gikorwo kionanitie ati nigicemanagia kaingi na utongoria ni uchenjanagio hari amemba othe.
- Amemba othe agikundi no kinya makorwo moi wega maundu maria TIST ikagirira muno amemba ayo makorwo makihingia.

Angikorwo gikundi kianyu ni kihingitie maundu maya mothe no kiurie fomu ya wiririria wa gukorwo kiri kimwe gia ikundi iri njega kuma wabichi -ini ya gichigo kianyu. Gikundi kihurie fomu iyo na kimichokie wafishi-ini ya gichigo kianyu. Thutha ucio ni kuri na murori uguka kuma wabichi nene ya TIST nigetha atigirire ati maundu mari muhuritie fomu-ini iyo yakuria matuike a gikundi kinini kiega nima ma. Murori angiona ati maundu mari muhuritie nima ma na nimaringanite na maria TIST ikagirira nimatuikaga agikundi kinini kiega na nimugetwo muke githomo gia ikundi nini iria njega.

