

Mazingira Bora



TIST

The International Small Group & Tree Planting Program

www.tist.org

English Version

TIST is an innovative, time - tested, afforestation program led by the participants.



Kianyaga TIST Cluster during their monthly meeting last month.

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TIST VALUES: The Foundation and Strength of TIST.

Most TIST Small Groups appreciate and practice TIST Values. The success of TIST is based on the integrity and effort of individual members. Our achievements are largely guided by each one of us keenly abiding by these Values.

In many of our activities, from tree planting, practicing Conservation Farming, improving biodiversity, building or buying improved stoves, teaching and practicing important health issues,

protecting our lands against soil erosion and other degradation causes, fighting climate changes and deforestation, protecting our rivers for clean and adequate water and many other activities including income generating, TIST Values play a central role.

In TIST, We Are. We are Honest; We are Accurate; We are Transparent; We are Servant to each other; We are Mutually Accountable; We are Role Models; We are Volunteers.

Strength in diversity: TIST protects biodiversity.

Biodiversity—the richness and variety of nature—is essential to a healthy environment. Variety is especially important for responding to change and challenges, like drought, pests, or climate change. Since biodiversity is so important, you might think that people everywhere are working to make sure we protect and preserve this natural richness. However, each day, because of our human actions, we are losing species and genetic diversity as forests are cut, wetlands are drained, and resources are over-exploited. We see this loss every day. Think of how many kinds of plants, birds, and animals that you saw often when you or your parents were young but that are rare or gone today? There are nine million different species of organisms on our planet, and when we destroy them, it is a permanent loss for each of the seven billion people who share this planet, for our children, and for their children.

TIST farmers are making a difference, working to preserve this rich diversity. Each tree

we plant is an important renewable resource. Each tree we plant reduces pressure on natural, diverse forest since we can use it instead of cutting forests for fuel wood, timber, and other products. When we plant indigenous trees, as many groups have in riparian buffer groves and thousands of TIST farmers have on their farms, we directly protect biodiversity. These diverse indigenous trees also provide habitat and food for insects, birds, and animals, many of which are important for pollinating our crops, eating pests, or keeping our soil healthy.

TIST farmers are also sharing their knowledge about biodiversity. Farmers are being interviewed in clusters in a pilot project to share information about biodiversity in their areas. When we learn more about the plants and animals around us, the changes in these areas, and the threats to this diversity, we can take action to preserve this amazing resource. Let's all come together, and share our knowledge, and plant indigenous trees to make a better world for all.

TIST: Getting Your Suggestions, Ideas, Concerns, Complaints Shared and Heard.

TIST Values requires us to be honest, accurate, transparent, mutually accountable, and servant to each other. TIST is a family. We want everyone to feel involved and participate fully. Any suggestion, idea, concern or complaint should be heard and addressed.

In order to accomplish the above, Small Groups are encouraged to talk to each other, hear their members out, share ideas and Best Practices. In Cluster meetings, open discussion and participation should be encouraged. Issues that need clarity or need support or questions should be documented and passed to Group of Clusters

Council (GOCC) or to the Leadership Council. Cluster Leaders and Cluster Servants should ensure such information is effectively communicated to GOCC and LC.

On the other hand, GOCC and LC should communicate back to Clusters or Small Groups giving honest, accurate and transparent feedback. GOCC should communicate issues that need clarification or support to LC.

Let's listen to each other. Let's be servant to each other. Let's help each other. Let's share best practices and best ideas. To accomplish big results with low budget.



TIST: Your Legal Questions Answered.

1. What is the process for succession of family owned land?

Where a registered proprietor owns land, such land can wholly devolve to his beneficiaries upon his death in accordance with either (a) his will, or (b) the intestacy procedure set out in the Law of Succession Act (the **Succession Act**) if the proprietor dies without a will.

The devolution of the estate of a deceased person will follow the procedure laid down in

the Succession Act. Where there is a will, the Court will generally not interfere with the deceased's wishes, except in specific circumstances. Such circumstances include for instance where the validity of the will is challenged or a dependant of the deceased claims that they have not been reasonably provided for under the will.

Upon the death of a person, the succession process generally involves:

If there is a will	If there is no will
<ol style="list-style-type: none"> 1. Application to court for grant of probate. 2. Court determination on objections and disputes (if any). 3. Application for confirmation of grant six (6) months (or such shorter period as the court may direct), from the date of the grant. 4. Distribution of the estate as per the will. 	<ol style="list-style-type: none"> 1. Application to court for grant of letters of administration. 2. Court determination on objections and disputes (if any). 3. Application for confirmation of grant six (6) months (or such shorter period as the court may direct), from the date of the grant. 4. The intestacy rules in the Succession Act apply and guide the court in determining the share of the deceased's estate among the spouse(s) and children. 5. Distribution of the estate as per the court order.

Other considerations in the succession process include:

- how the land is held, whether in joint tenancy or as tenants in common. Where land is held under a joint tenancy between a husband and wife, when one spouse dies, the land will vest absolutely in the surviving spouse. Where land is held by persons as tenants in common, each tenant may bequeath their share by will. If a tenant dies without a will, their share may be devolved to their beneficiaries along with the rest of their estate;
 - in some instances, a customary trust may exist. This is where a registered proprietor of land holds the land on behalf of his wider family. A customary trust is an overriding interest in land meaning it need not be registered on the title document. Where a customary trust exists, only the portion belonging to the registered proprietor will devolve to his beneficiaries upon his death, and the remaining portion remains in the possession of the other family members; and
 - while a testator has freedom when making a will, instances of discrimination of children on the basis of gender and marital status may be successfully challenged in line with the non-discrimination provisions of the Constitution of Kenya.
2. **TIST farmers have been planting trees on public land, can Bowmans help us have a legal, binding agreement on the ownership of the same?**

The agreement between the Kenya Forest Service, the Lower Imenti Community Forest Association and Clean Air Action Corporation dated 15 November 2012 (the **KFS Agreement**) provides that the ownership of the Lower Imenti forest and the trees planted are vested in the Kenya Forest Service. (TIST team: *Please confirm whether the KFS Agreement was renewed – the initial term was five years, renewable upon mutual agreement of the parties*). Pursuant to the Constitution and the Forest Conservation and Management Act, all public forests in Kenya vest in the Kenya Forest Service. Under the TIST program and the KFS Agreement, the members of the community do not gain any rights of ownership over the land or over the trees that they planted. However, the members of TIST that are also members of the Lower Imenti Community Forest Association are allowed to enter the forest, plant trees, take other beneficial environmental actions, receive carbon rights and receive revenue for the sale of associated credits.

It would not be possible for TIST to acquire ownership of the land or the trees by way of contract, given this is public land. However, TIST may amend the carbon credit sale agreement to include the transfer of carbon credits from trees grown by TIST members in the forest, pursuant to the rights granted to them under the KFS Agreement.



Sustainable Agriculture: Agroforestry.



An important topic for sustainable agriculture is agroforestry.

Definition: Growing trees and shrubs together with agricultural crops or livestock.

The overall aim of agroforestry is to increase the productivity of the land through the use of trees. Trees have many benefits for the farmer:

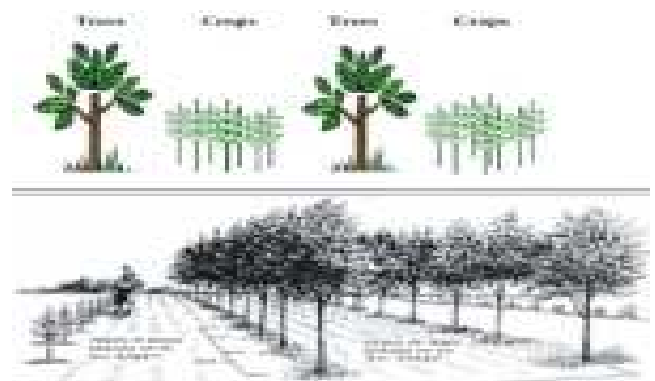
- Building material
- Fuel wood
- Fruits and other food
- Fodder
- Soil stabilization
- Soil fertility
- Moisture retention
- Wind shelter
- Marking of boundaries
- Medicine
- Cash income
- Reduced erosion (if a layer of litter/mulch is kept)

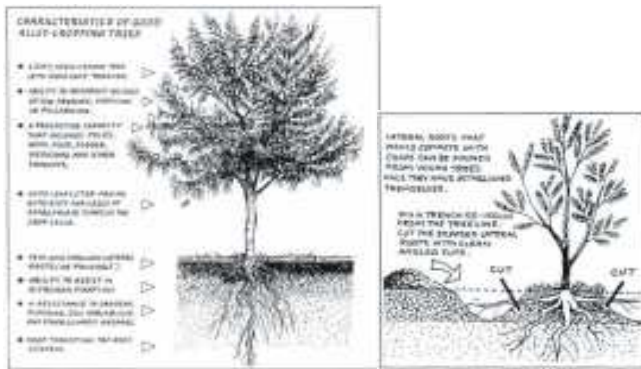
Agroforestry practices: There are many different techniques and new methods are being discovered all the time. Some techniques are successful in one place and a disaster in others. People need to try different techniques and share the best practices in the training meetings. The following are some common methods of agroforestry:

1. Hedges: This involves selecting a tree species which can be placed in a line and which have benefits for the land. Hedges require little space, control erosion, and can produce leaves for fodder or mulch. An example of hedging is to plant a row of trees around the field boundary. Recommended spacing is around 1.5 - 2m. The best design includes a mixture of tall and short trees. e.g. *Croton megalocarpus* planted with *Euphorbia tirucalli* and/or *Lantana camara*.



2. Alley cropping: This involves establishing trees at very narrow spacing (0.5-2m) in rows along fields. There may be a tree row, then two or three rows of crops, then another tree row, then crops etc. An example of this is planting alternating rows of maize with leucaena, or coffee and bananas. The most suitable trees are leguminous ones (ones that fix nitrogen for the soil). Spacing between rows of trees should not be more than 5-8m. The tree rows need to be weeded and pruned regularly. The trees cannot grow too tall otherwise they will compete with the crops for soil nutrients and light. The pruned leaves can be added to the soil to improve the soil fertility. So these trees will not be suitable for TIST payments, as they have to be kept short, but they will improve the agricultural land and provide many other benefits to the farmer. Some good alley cropping trees have the ability to re-grow after they have been cut. This means they can be cut every crop season so that they do not grow too big and compete too much with the crops. This practice is called coppicing, and only works with some species. Some commonly coppiced species are *Calliandra calothyrsus*, *Cassia siamea*, *Cassia spectabilis*, *Eucalyptus spp.*, *Leucaena leucocephala*, *Markhamia lutea*. Some species coppice well when they are young but may not coppice when they are mature e.g. *Casuarina spp.*, *Grevillea robusta*, *Sesbania sesban* and some *Albizia spp.*

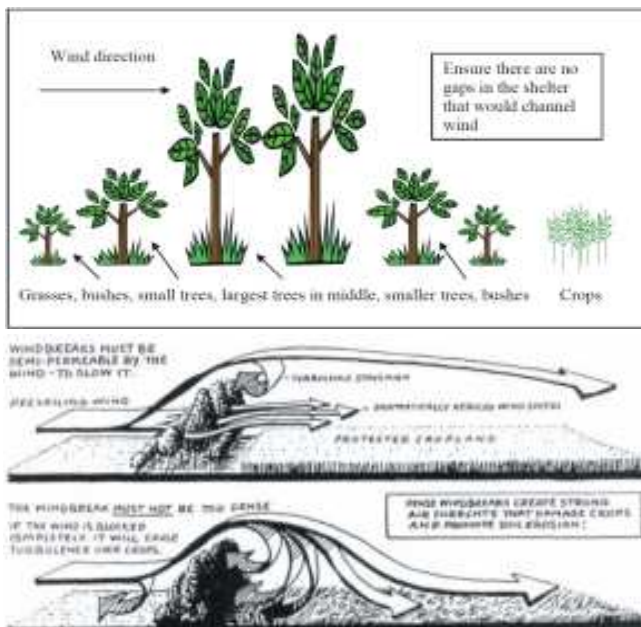




Have any farmers used this method of planting trees and crops together? If so, what were suitable combinations? Ask them to share their experiences and bring the information to the next training session.

Maybe farmers could try just a few rows of trees in their fields. Then they can see the results. If the results are good the number of tree rows can be increased next season.

3. Windbreak: Planting wide strips of trees to provide a windbreak. This then protects crops from the oncoming wind. Plant large trees in the center, smaller trees for the next two rows and low shrubs, bushes and grasses on the outside. Plant at right angles to the prevailing wind. Spacing within the lines of trees can be 4-5 m with 2-4 m between the lines.



The advantage of windbreaks is that the farmer does not have to sacrifice an entire plot of land for trees. It only takes a strip of land, and the benefits can improve yields by 30% in some areas. Note that poorly planned windbreaks can damage crops more because it can channel the wind through gaps. Find someone experienced in this to help you design your windbreak.

4. Fallow cropping: This is where farmers stop growing crops on a piece of land and let trees take over to help restore soil fertility. Mostly nitrogen-fixing shrubs are chosen e.g. *Sesbania* spp. and *Gliricidia sepium*.

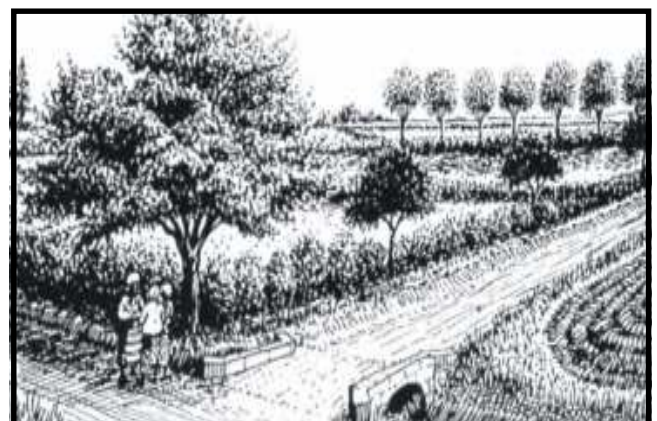
5. Inter-cropping: This involves wide and even spacing of trees among food crops. Good trees are those that have light canopies and fix nitrogen. More on this in the next unit.

6. Grazing area improvement: Managing trees on grazing land to provide wood and fodder. For example, in arid and semi-arid lands, consider *Acacia tortilis* or some of the following: *Salvadora persica*, *Cordia sinensis*, *Acacia eliator*, *Ziziphus mauritiana*, *Acacia albida*, *Acacia nubica*, *Acacia Senegal*, *Hyphaene compressa*.

In higher potential areas, depending on the altitude, consider *Leucaena leucocephala*, *Sesbania sesban*, *Calliandra calothyrsus* and *Leucaena diversifolia*. Consider supplementary feeding using leaves (15-20% of the feed) during the dry season for your animals.

7. Woodlots: Small woodlots can be grown on unused or unproductive land, e.g. woodlots planted on stony outcrops or in gullies. Woodlots can also be planted on cropland to serve as a windbreak, or they can be planted on fallow land.

8. Marking boundaries e.g. *Croton megalocarpus* and *Commiphora zimmermannii* subsp.



Trainers, note that TIST trees have to be correctly spaced in order to grow fully and remain in the ground long-term. Some of the above agro-forestry methods are best practices for agriculture, but may not qualify for TIST tree payments.

**Other ideas to consider for certain ecological zones in Kenya.**

Higher altitude slopes with acidic soils (e.g. areas where tea grows well)

Consider *Calliandra calothyrsus* and *Morus alba* for fodder production.

Consider boundary planting and windbreaks with *Croton megalocarpus*, *Grevillea robusta*, *Casuarina cunninghamiana*, *Milletia dura*, *Hakea saligna*.

Consider orchards for temperate fruits (e.g. plums, peaches, pears).

Lower altitude slopes (e.g. where coffee grows well)
Consider *Jacaranda mimosifolia* for boundary planting.

Consider *Syzygium spp.* for windbreaks and planting along water courses.

Consider fruit trees such as *Cyphomandra betacea* (tree tomato), *Persea americana* (avocado), *Macadamia tetraphylla* (macadamia), *Passiflora edulis* (passion fruit), *Casimiroa*.

Edulis (white sapota), *Annona senegalensis* (custard apple), *Psidium guajava* (guava), *Eriobotrya japonica* (loquat).

Calliandra, *Morus alba*, *Grevillea* and *Markhamia lutea* are good options for planting on areas you want to control for soil erosion (soil conservation structures).

Grevillea is a good shade tree for coffee.

High altitude plains, with gentle sloping land and scarce numbers of trees:

Consider windbreaks to protect crops, boundary planting and live fences e.g. *Acacia mearnsii*, *Grevillea robusta*, *Hakea saligna*, *Croton macrostachyus*, *Dombeya spp.*, *Dodonaea angustifolia*, *Casuarina cunninghamiana*, and *Dovyalis caffra*. Some temperate fruit trees may do well.

Rift valley maize and dairy system.

Since maize does not do well in shade, consider small woodlots or windbreaks, or trees planted on soil conservation structures e.g. *Grevillea robusta*, *Sesbania spp.*, *Croton macrostachyus*, *Croton*

megalocarpus, *Acacia abyssinica*, *Eucalyptus spp.*, *Acacia mearnsii*, *Casuarina cunninghamiana*, *Dovyalis caffra*, *Markhamia lutea*, *Cordia abyssinica*.

Reminder

Do remember that whilst planting trees brings many benefits you need to research the best types for your specific land type. Remember that trees compete with crops for water, and some crops do not like a lot of shade, for example. Get information from your nearby small groups and your extension workers.

- Particularly get advice on suitable trees with deep roots and fewer surface roots (these trees are beneficial in agroforestry since surface roots compete with crops). *Casuarina spp.*, *Leucaena leucocephala*, *Cupressus lusitanica*, and *Sesbania sesban* have shallow root systems and may be better for stabilising soil on conservation areas. *Eucalyptus spp.* and *Gmelina arborea* can produce compounds which inhibit crop growth.
- Intercropping may not work very well in areas receiving less than 800mm rainfall annually.

Resources:

There is a very useful website giving details on suitable trees for agroforestry in Kenya. You can search for details on specific trees. Available here: <http://agroforesttrees.cisat.jmu.edu/>

Videos

'**Grevillea agroforestry**' (6:26) introduces the many benefits of *Grevillea* within farming systems. It explains some of the management procedures such as pollarding and coppicing. <http://www.accessagriculture.org/node/895/en>

8. References

CARE-International (1989) *Agroforestry Extension Training Sourcebook. Module 6: Agroforestry Design.* Educational Resources Development Unit, Nairobi.

NEMA (1998) *Caring for our environment: A handbook for local leaders.* National Environment Management Authority, Kampala.

Tengnäs B (1994) *Agroforestry Extension Manual for Kenya.* International Centre for Research in Agroforestry: Nairobi.

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TIST

The International Small Group & Tree Planting Program
W W W . t i s t . o r g

Kimereu Version

**TIST is an innovative, time - tested,
afforestation program led by the
participants.**



TIST Cluster ya Kianyaga bari mucemanio jwao jwa mweri mwituku.

Inside:

Jaria TIST ikirite: Musingi na inya ya TIST. Page 2

Inya ndene ya mithemba imingi ya imera na nyomoo gukaranira: TIST niikaragia wingi bubu bwa imera na nyomoo amwe. Page 2

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Jaria TIST ikirite: Musingi na inya ya TIST.

Ikundi bibinini biria bingi bia TIST nibigwiragirua na kuthingatira jaria TIST ikirite. Kuumbana gwa TIST ni kuringanaga na uumma na ngugi ya o mumemba. Jaria tuthithagia nijathingatanaga na o umwe wetu kuthingatira jaria TIST ikirite.

Ndene ya mantu jamaingi jaria tuthithagia, kuuma kiri uandi miti, urimi bubwega, kuthongomia gukaranira kwa imera na nyomoo, gwaka kana kugura mariko ja nkuu inkai, kuritana na kuthingatira mantu ja thiria, kumenyeera miunda yetu kuumania

na gukamatwa kwa muthetu na jaria jangi jajuthukagia, kurua na kugaruka kwa rera na kugita miti, kumenyeera miuro yetu nikenda tuona ruuji rurutheru na rurwingi na mantu jangi jamaingi jaria jaretaga mbeba, jaria TIST ikirite nijendekaga mono.

Ndene ya TIST Turi. Turi ba mma; Turi ba jaria jario jongwa; Turi ba weru; Turi nthumba gati gati getu; Turi ba Kumenyanira; Turi ba gutegwa; Turi aciritiri.

Inya ndene ya mithemba imingi ya imera na nyomoo gukaranira: TIST niikaragia wingi bubu bwa imera na nyomoo amwe.

Gukaranira guku na utonga bubu bwa imera na nyomoo cia mithemba imingi mwanya—kurina bata kiri gwika aria gututhiurukite kuri na thiria. Wingi bubu bwa mithemba burina bata mono kiri kurua na kugaruka na thina iria tutirimanaga nacio ta uumo, tunyomoo turia tuthukagia imera, na kugaruka kwa rera. Niuntu gukaranira kwa mithembaimingi ya imerana nyomoo kurina bata mono, no uthuganie antu bonthe kuunthe nibakurita ngugi kumenyeera ati nitugukaria na gwika utonga bubu bwijite buungwa. Indi, o ntuku, niuntu bwa mathithio ja antu, nituguta mithemba imingi na nja inyingi o uria miitu ikugitwa, nduuji ikathirua na into biria biro bigatumirwa nkuruki ya uria bibati. Nitwonaga gutaukirwa guku ntuku cionthe. Thuugania ni imera, nyoni na nyomoo mithemba ing'ana iria wonaga riria ugwe kana aciari baku banyii na nandi ni imikai kana itio narua? Kurina mithemba ya imera na nyomoo milioni kenda ndene ya nthiguru yonthe, ni gutaukirwa kwa igita riraja kiri o umwe kiri antu bilioni mugwanja baria bari nthigurune iji, kiri aana betu na kiri aana bao.

Arimi ba TIST nibakuthithia mwanya, bakiritaga ngugi gwika wingi bubu bwa mithemba. O muti juria tuandaga ni gintu kiumba kuthithua kairi kiria kiria na bata mono. O mut juria tuandaga

nijunyiagia murigo kir mwitu jura juumite juungwa na jurina mithemba imingi niuntu no tujutimire antu a kugiita miitu niuntu bwa nkuu, mpao na into bing. Riria twaanda miti ya gintwire, ta uria ikundi bibingi biria birina miunda akui na nduuji na ngiri cia arimi ba TIST bathithitie ndene ya miunda yao, nitukaragia wingi bwa mithemba. Mithemba iji imingi ya miti kinya niretaga ikaro na irio kiri tunyomoo, nyoni na nyomoo, iria nyingi ciacio cirna bata kiri guciarithia mera bietu kuria tunyomoo turia turijaga imera bietu kana gwika muthetu jwetu jurina thiria.

Arimi ba TIST kinya nibakugaana umenyo buria barinabu kwegie gukaranira kwa mithemba imingi mwanya ya nyomoo na imera. Arimi nibakuurua buria ndene ya cluster ndene ya mubango juria jukwambiria jwa kugaana mantu kwegie gukaranira kwa mithemba imingi mwanya ya imera na nyomoo ndene ya ntuura ciao. Riria tumenyaga mantu jangi kwegie imera na nyomoo iria ciri akui natwi, mantu jaria jagarukaga ndene ya ntuura cietu na mantu jaria jeendaga kugitaria gukaranira guku kwa imera na nyomoo mianya, no tujukie itagaria gwika gintu giki gia kurigaria. Twijeni twinthe amwe na tugaane umenyo bwetu na tuande miti ya gintwire kuthithia nthiguru injega nkuruki kiri bonthe.

TIST : Kijukia Mathuganio Jenu, Mateta Kuthikirua Na Kwiranua.

TIST nijukagia na urito maritani jayo ja witikua, gwika mantu werune na umenyeri bwa mantu kuma kiri muriti ngugi umwe gwita kiri ungi. TIST ni ja Nja. Turienda oumwe wetu aigue ari ndene ya mubango juju na kurita ngugi uria kubwirite. Mathuganio jenu, njira injeru iria tumba gutumira, kiuria kana mateta nijabwiri kuthikirwa na kuritirwa ngugi.

Kenda tumba kithithia mantu jaja jonthe, ikundi biniini nibikurua biaranairie, bathikanire, berane njira injeru iria obaria bari nacio. Kiri micemanio ya Cluster, kwaranira werune nikugwati mbaru. Mantu jaria jakwenda kumurikwa

kana jakwenda utethio kana biuria nijabwiri kwandikwa najagaikua kiri ikundi bia Council ya Cluster (GOCC) kana kiri Council ya atongereria. Atongereria na ariti ngugi ba Cluster nibabwiri gutigira ati ntento iu igukinyira GOCC na LC

Njarene ingi, GOCC na LC nibabwiri gwikia macokio kiri Clusters kana Ikundi biniini bakiejanaga ntento cia uma na iri werune. GOCC nibwiri kwaria ntento iria ikwenda kugwatwa mbaru na gutaaurana.

Nituthikanire, nitwe ariti ngugi oba muntu ungi, nituthethanie, nitwirane njira iria njega buru. Niturite ngugi injega buru na mbeba iniini .



TIST iri na macokio ja biuria biigio watho.

1. Ni njira iriku ingitumirwa kiri kugwata munda jwa famili riria muntu akua?

Riria mwene munda wi andikithitie akua,munda ja juju no jugaanue kiri antu bawe riria akua kuthingatirite: a) wendi bwa mututigi b) kana kuthingatira mibango wa kunenkanira miunda jaku watho wa succession Act aria mututigi ata tiga wendi bwawe.

Ugai ja bubu buthingatagira njira cia Succession Act.Aria mututigi ethagwa atigite wendi bwawe, Koti niu ithingataga tiga aki aria mututigi onaniritie ungwa uria akwenda. Ja kionereria aria mututigi wendi wae wareganwa na uu ni antu bawe kana bakauga batitegeri bwega ndene ya wendi wamututigi.

Riria Muntu akua,jaja nijo jathingatagirua:

Aria kwina wendi wa mututigi	Aria gutina wendi wa mututigi
<ol style="list-style-type: none"> 1. Nonkinya baruga yandikirwe koti kuomba kujukia munda. 2. Koti irite wendi wayo wegie kurega kana magamba kethirwa kwi jo. 3. Iromba ria gwitikirwa kugwata munda ria mieri (6) kana kagita kunini oo uria koti ingiuga kuuma tariki ya kuegwa. 4. Kugaukania kwa munda kulingana na wendi wa mututigi. 	<ol style="list-style-type: none"> 1. Iromba kiri koti kuegwa barua. 2. Itua ria koti riegie kurega kana magamba kethirua kwijo. 3. Iromba ria kuegwa munda ria mieri (6) kan a ri nini kulingana na uria koti inkiona kuuma tariki iri baerwe munda. 4. Mawatho ja succession Act nijatumikaga gutethia koti kiri ugai wa munda kiri antu ba mututigi. 5. Kugaa munda kulingana na watho wa koti.

Njira ciingi itegagirua kiri ugai bwa miunda ni ja iji:

- Uria miunda igwatikaga,riria buri na ngwataniro ya antu nkuruki ya bairi. Riria munda jugwatithenue mukuru na mwekuru,umwe wao akeja gukua uria watigwa niwe aejaga mwene. Aria muunda jugwatene na antu ba baingi,o muntu agwataga gacunji kawe kuringana na barua ya wendi ene munda. Riria umwe wa amemba ene munda akua na guti na wendi wa ene munda,gicunji kiao kinenkagirwa antu bawe.
 - Ringi no utuikie munda jwa kunenkanirua.guku ni aria mu memba umwe anakagiwa munda akaugwatira kanyani ka bau bangi. Njira ino itandikagwa kiri tito ya muunda na uria wandiki kiri tito antu bamwe batethekaga aki na gicunji kiria kiri kiawe no icunji jiingi igekara na amemba bangi ba famili.
 - Aria kugijaga na muntu ungi wa kurungamira wendi wa mututigi,naria kwina wendaniri kulingana na genda kana itumi jiingi o jionde,bubu no buregwe niuntu bwa watho wa Kenya aria o muntu wonthe ena kana ga kagaa munda.
2. **Arimi aTist ni baandaga miti kiri miunda ya mwingi, Bowmans no itethie arimi kugwata barua ikwonania uu kulingana na watho?**

Barua ya kwonania gwitikaniria gatagati ga Kenya Forest Service, Lower Imenti Community Forest Association na nkinya Clean Air Action Corporation ya 15th Novemba 2012 (**the KFS Agreement**) yonanagia ati The Lower Imenti forest na miti iria iandi iri ndene ya watho wa Kenya Forest Service. (A TIST:Tegerani kethirwa barua iji ni cieruitue ringi niuntu gwitikaniria guku kwari kwa miaka ithano na kueruwe betikaniria bo bairi.)

Baria bathingatagira watho na Forest conservation and Management Act na miitu yonthe ya Kenya iri ndene ya Kenya Forest Service. Ndeene ya muradi wa Tist na KFS ,amemba a ntura iu batigwataga watho wa kuuga miunda kana miti ni yao. No ri,amemba a Tist aria e amemba ba Lower Imenti Community Association ni betikiritue kuthungira muthitu,kuanda miti,kuthithia ngugi ingi ikumenyera riera,kugwata mbeba cia ruugo na nkinya kugwata mbeba kuumania na wendia bunthe bwa ruugo.

Gutikiumbika TIST kwithirwa ina miunda kana miti na njira ya kugwata contract ni untu miunda iji ni ya mwingi.kunari ugu TIST no itegere gwitikaniria kwa wendia wa ruugo niguo gwitikiria wendia wa ruugo kuuma kiri miti iria iandi ni amemba a TIST ndene ya miitu na gwtikikaniria kuria kuri ndeene ya KFS Agreement.



Urimi bwa Kungania miiti na Imera Bingi.



Nteto cia gitumi iguru ria urimi bwa gitegemea bwa kungania miti na imera.

Maana: Gukuria miti amwe na imera bingi bia muunda.

Mworoto jwa kwaanda miti amwe na imera bingi ni gutetheria maciaro ja miunda jongerekete niuntu bwa gutumira miiti. Miiti iji iri na gitumi gikinene kiri murimi. Itumi bimwe ni:

- Mbao cia gwaka nyomba
- Nku
- Matunda na biakuria bingi
- Iria ria ndithia
- Kurigiria muthetu jutigetithue ni ruuji
- Kwongera unoru bwa muthetu
- Kwongera ruuji muthetune
- Kurigiria ruuo rurwingi
- Gwita mianka ya miunda
- Ndawa cia mithemba imingi
- Kureta Mbeca
- Kirugiria muthetu gwita na ruuji

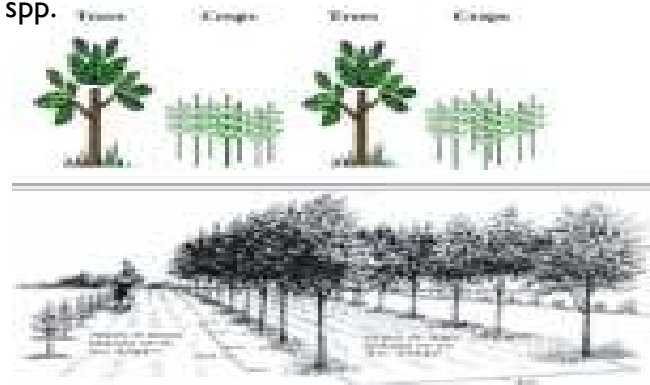
Kurima gwa kungania Imera na miiti: Kuri na njira inyingi na ingi injeru iria ikwenderea kumenyekana o igita na igita. Njira imwe ni injega gitumirwa na ingi ni inthuku. Antu ni babwiri kugeria njira mwanya mwanya na kwirana iria njega nkuruki ya iria ingi igita ria micemano ya kuritanwa.. Aja nandi ni njira iria itumagirwa mono mono kiri urimi bwa kungania imera na miiti.

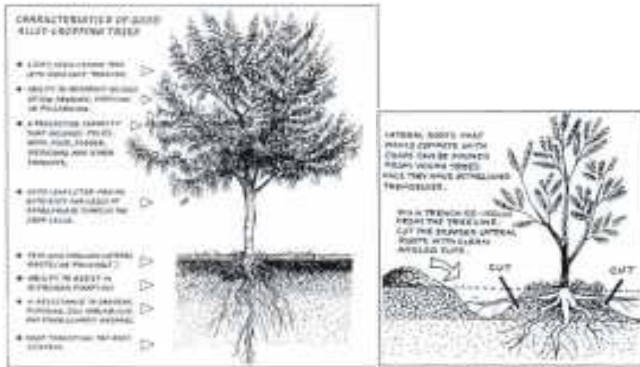
1. Mianka ya miti: Iji ni njira ya kwaanda miti itaari na muraini. Mianka iji itiendaga kaanya gakanene gati gati ka miiti na ni itethagiria kurigiria mono muthetu gukamatwa ni ruuji. Miti iji ni imiega ya gutwira iria ria ndithia kana mati ja gukunikira imeera bia kumiithia. Kionekaria gikiega ni kwaanda miiti ithiurukirite mwanka jwa muunda kana kieni. Watho bwa kwaanda ni mita imwe na nusu mwanka ijiri (1.5M – 2m). Mwaandire juria mwega ni



kuungania miiti imiraja na imikui Croton megalocarpus yaandaniritue na Euphoria tirucalli amwe na kana na Lantana camara

2. Kwaanda na Mistari: Iji ni njira ya kwaanda miti na twaanya tutuceke mono. Twanya ja twa nusu mita (0.5 – 2M) na mistari gati gati ka mistaari iri kana ithatu ya imera na gwita na mbeere muundeene junthe. Biria bibujanagira mono na njira iji ni imera ja mpempe amwe na Leucaena kana kauwa na marigu. Miiti iria miega mono ya urimi bubu ni iria iretaga riera ririega mithetune. Mianya gatigati ga mistaari iji ni kuuma mita ithano mwanka inyanya (5-8) na igakurikia kithimi kiu. Miiti iji nibwiri kurimirwa na gwitwa sakasi ogita na igita. Miiti iji itibwiri kurekerua irea mono nontu igashindana na imera bingi na bitikura bwega ikwaga biakuria muthetune na weru bwa kungana. Mabura jaria jaiti sakasi nijatethagia kwongera unoru muthetune. Niuntu bwa untu bubu, miti iji itiumba kuriwa ni TIST niuntu no mwanka igitwe ikare iri imikui. Amwe na buu miti iji ni itenthagiria kunoria mithetu ya muunda na kwongera mantu jangi jamega kiri murimi. Miti imwe iria itumagirwa kiri urimi bubu ni kuraga bwega kinya nyuma ya gutemwa. Guku ni ja kuuga no mwanka igitwe o nyuma ya iketha rionthe kurigiria itakanenee mono yambiria gushindanira irio na weru na imera bingi. Urimi bubu bubujaa na miti imitare. Imwe ya miti iji ni Calliandra calothyrsus, Cassia Siamea, Cassia Spectabilis, Eucalyptus ssp, Grevillea robusta, Sesbania Sesban na miti imwe ya Mwiriga jwa Albiza spp.

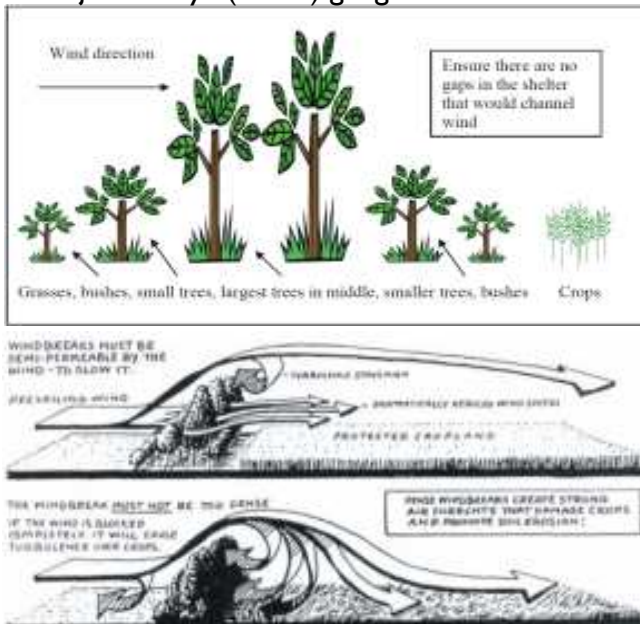




Ni Arimi babaingi bagutumira njira iji ya urimi ya kungania miti na imera amwe? Kethira niu ri, ibakwona urimi bubu bukibatethia? Borie berane uria bakwona urimi bubu bukari na beeje na ntento nkuruki mucamanione juu jungi jwa kuritanwa mantu nkuruki.

Arimi bamwe ibabwiri kugeria kwaanda mistari imikai ya miti miundene yao maanda jaja boone uria maketha jakethirwa jakari. Boona jabui no bongere mistari ingi ya miti maandene jau jangi

3. Miti ya kurigiria Ruuo: Kwaanda miiti na mistari itaraniritie ni itethagiria kurigiria kurutwa mono ni ruuo. Miiti iji ni irigagiria imera kurutwa ni ruuo rurwingi nkuruki. Anda miti imenene gatigati, na iminiini mistarine iu ingi iiri na tumiti tungi tutukui ruteere. Miiti iji ibwiri kwaandwa itegene na naria ruuo rukuma. Twanya twa kwaanda miti iji ni gatigati ka mita inya na ithano (4 -5) na mita ijiiri na inya (2 - 4) gatigati ka mistari



Weega bwa miti Iji ya kurigiria ruuo ni ati murimi atiendeka gutumira muunda jumunene kwaanda miiti Iji. Miiti iji ijukagia kamunda kaniini aki na mawega ja miiti iji nijamaingi niuntu nijatethagiria kwongera maciara ja munda na kiwango gia mirongo ithatu kiri igana(30%) guntu kumwe na kumwe. ni bwega kumenya ati miti imwe ya kurigiria ruuo ikarega kwaandwa bwega ni ithukagia imera nkuruki nontu ni itemere ruuo njira

kwethirwa gutigi na twanya tutwingi nkuruki ya turia tubwirite. Ni bwega kuuria muntu uria uri na umenyo guguthenteria kubangangania kwaanda muunda jwaku.

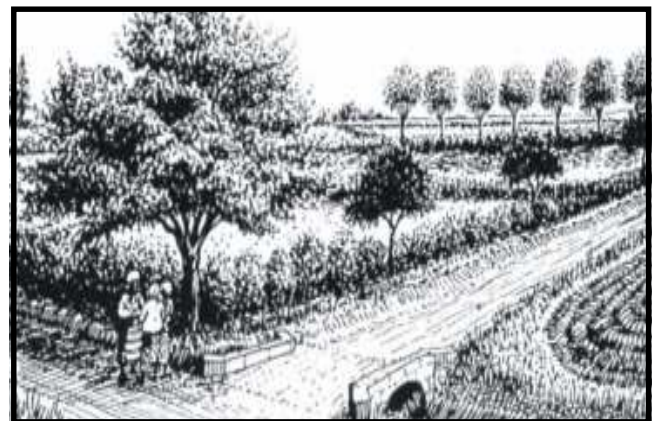
4. Kwaanda Miti Yonka: Urimi bubu ni buria mirimi andaaga miti yonka guti kimera kinya kimwe muundene jwawe. Urimi bubu ni butethagiria muthetu gucokia unoru. Ni bwega mono mono kwaanda tumiti turia twongagiria riera riria mithetu yendaaga mono (nitrogen) ja *Sebania spp* na *Gliricidia sepium*

5. Urimi bwa Kungania: Kwanadaniria miti amwe na imera ukiejaga miti twanya gatigati ka imera biaku. Mithemba imiega ni iria iri na mugunya munini na iyongagira riera ririega muthetune. Tukabwira ntento nkuruki au mbere.

6. Kubwithia antu akurithiria: Iji ni njira ya kubangania miti muundene jwa kurithia kenda miiti iji Yuma nku na iria ria ndithia ciaku. Ja kethirwa kuri guntu Rwanda nibwega kwaanda ja *Acaciatorilis* kana ingi ja *Salvadora persica*, *cordial sinensis*, *Acasia eliator*, *ziziphus mauritiana*, *Acacia albida*, *Acacia nubica*, *Acacia Senegal*, *Hyphaene compressa*.

Kuri guntu kuria kuumba gukura miiti nkuruki kuringana na riera ria ku ri thugania kwaanda miiti ja *Leucaena Leucocephala*, *Sesbania sesban*, *Calliandra calothyrsus* na *leucaena diversifolia*. Miiti iji no ikwee gancunci ga mirongo iri kiri igana(20%) ga iria ria ndithia ciaku.

7. Urimi bubu ni bwa kwaanda miiti rutere rwa muunda jwaku naria gutikuraa imera bwega. Ja kwaanda miti rurete rwa muunda naria kwina maiga kana mitaro imenene. Miiti iji no yaandwe mundeene amwe na imera na gutumirwa kurigiiria ruuo rurwingi kana kinya kwaandwa ja urimi buria twariririe au mbeere bwa namba inya



8. Gwita mianka. Ja *Croton Megalocarpus* na *Commiphora zimmermannii* subsp. Aritani, menyeni ati miiti ya TIST no mwanka yaandwe bwega na ikejagwa twanya turia tubwiri kenda ikura bwega na ituura muthetune igita ririraja. Njiira Imwe iria twarikia kwariria ya kwaanda miti na imera ni njira injega mono cia uriimi Indi nibwega kumenya ati no ti mwanka iriwe ni TIST.

**Njira ingi cia urimi cia nteere imwe cia Kenya iria cirimaga na njira cia kumenyera mithetu.**

Nteere Iria iria iri mpio mono na muthetu ya acidi (Ja nteere iria ciandagwa majani)

Ni bwega kwaanda *Calliandra calothyrsus* na *Morus alba*. Iji niejanaga iria ria ndithia.

Gwita mianka ya miunda no waande *Croton megalocarpus*, *Grevillea robusta*, *Casuarina cunninghamiana*, *Millettia dura*, *Hakea saligna*.

Thugania kwaanda Plum na pear ja matunda nterene iu.

Nteere iria iti na mpio mono. Ja naria kauwa gakuraa bwega anda miti ja misakaranda (*Jacaranda mimosifolia*) gwita mianka

Thugania kwaanda *Syzygium* spp. Kurigiria ruo rurwingi na nteere cia miuro ya ruuji.

Matunda najo ni ja *Cyphomandra betacea* (Ntunda cia ndamu), *Persea americana* (mibokado)

Macadamia tetraphylla (macadamia), *Passiflora edulis* (ntuunda cia muugu), *Casimiroa*. *Edulis* (white sapota), *Annona senegalensis* (custard apple), *Psidium guajava* (Mbeera), *Eriobotrya japonica* (ndukuati).

Calliandra, *Morus alba*, *ngirivillea* and *Markhamia lutea* iji ni miiti imiega mono ya kurigiria mithetu gukamatwa ni ruuji.

Ngirivillea ni muti jumwega jwa kwaa kauwa mugunya jumwega.

Nteere cia mpio na guntu guti na rigiri mono na naria guti na miiti:

Thugania kwaanda miti ja *Acacia mearnsii*, *ngiriverea robusta*, *Hakea saligna*, *Croton macrostachyus*, *Dombeya* spp., *Dodonaea angustifolia*, *Casuarina cunninghamiana*, and *Dovyalis caffra*. Na kinya miiti imwe ya matunda, ni ikuraa bwega mono nteere Iji.

Mpempe cia Rift Valley na ndairi. Nontu pempe citukuraga bwega rungu rwa kirundu, thugania kwaanda miiti miniini kana miti ya kurigiria ruo kana ya kurigiria mithetu gwitithua ni ruuji jayo *Ngiriverea robusta*, *Sesbania* spp., *Croton macrostachyus*, *Croton megalocarpus*, *Acacia*

abyssinica, *Eucalyptus* spp., *Acacia mearnsii*, *Casuarina cunninghamiana*, *Dovyalis caffra*, *Markhamia lutea*, *Cordia abyssinica*.

Kirikania

Rikana ati ukianda miti ati kinya kethira nikuretagira mantu jamaingi jamega, ni bwega kithithia ucunkuni bwaku kenda umenya munda jwaku bwega na uumba gutaara miti iria igakara bwega mundeene jwaku. rikana ati miri na imera ibicindanagira ruuji na imera, na Imera bingi nabio bitienda mugunya. No urie ntento nkuruki kuuma kiri ikundi biria biri akui na aritani baria bariungaga na miunda.

- Mono mono, uria nkuagaya iguru ria miiti iria iri na miiri iria yorokagagira mono na Iria iri na miiri imikai Itiorokagira (ntento iji no igutenthia mono nontu miiri iria itiorokagira nio ishindanagira ruuji na irio na imera bingi) *Casuarina* spp., *Leucaena leucocephala*, *cupressus lisutanica* na *Sesbania sesbania* iiri miiri itorokagira nthe mono na ibui mono ya gucokanaria mithetu *Eucalyptus* spp. na *Gmelina arborea* ni ciitaga kimiko Irigagiria imera bikura bwega.

- *Kungania* imera na miti no irege kubwa nterene iria cionaga ngai yarungu rwa milimita magana 800mm) o mwaka

Utethio

Kuri na mutandao jwa intaneti juejanite ntento inyingi iguru ria urimi bubu bwa kuungania imera na miti aja Kenya. Weenda ntento nkuruki, Thingata andersi iji <http://agroforesttrees.cisat.jmu.edu/>

Mitambo ya video

'Grevillea agroforestry' (6:26) ni Ikwejana ntento Inyingi nkuruki iguru ria miti ya Ngriveria. Video iji ni kwariria mantu jamaingi uria umbu kubangania miti iji kiri urimi bwaku <http://www.accessagriculture.org/node/895/en>

8. Ntento Nkuruki

CARE-International (1989) *Agroforestry Extension Training Sourcebook*. Module 6: Agroforestry Design. Educational Resources Development Unit, Nairobi.

NEMA (1998) *Caring for our environment: A handbook for local leaders*. National Environment Management Authority, Kampala.

Mazingira Bora



TIST

The International Small Group & Tree Planting Program
www.tist.org

Kikuyu Version

**TIST is an innovative, time - tested,
afforestation program led by the
participants.**



Kianyaga TIST Cluster mari mucemano-ini wa o mweri, mweri ucuio urathirire.

Thiini:

VALUES cia TIST: Muthingi na hinya wa TIST. *Page 2*

TIST: Arimi a TIST kwirutira kugitira Biodiversity. *Page 2*

TIST: Gutiriria riendikithia riaku, mawoni maku, mateta kana mecurania nimathikirio. *Page 2*

TIST: Ciuria ciaku ciigie watho. *Page 3*

Uhandi wa miti migunda-ini ya irio. *Page 4*



VALUES cia TIST: Muthingi na hinya wa TIST.

Ikundi nyingi cia TIST nicikeneire na kurumirira values cia TIST. Kugacira kwa TIST urugamitio iguru ria uigiririki na uhoti wa amemba. Maria tuhotete nitondu o umwe witu niarumagirira values ici na gucikenera.

Thiini wa maundu maitu, kuma uhandi wa miti, kurima Kilimo Hai, kuongerera biodiversity, guthondeka na kwendia mariko ma TIST, guthomithania na kurumirira githomo kia ugima wa mwiri, kugitira mignda iitu kumana na tiiri gukuuo

ni maai na mathina mangi maingi maria marehagwo ni ugaruruku wa riera na temi wa miti, kugitira njuui niguu maai makorwo mari matheru na maiganu na maundu mangi maingi ta ma kwambirira mitaratara ya kwonaa mbeba, values cia TIST nicikoragwo na mawega maingi.

Thiini wa TIST, ithui turi. Turi ehokeku; Turi akinyaniru; tuhuthagira utheri; nitutungatanagira; nituigiririkaga; turi cionereria na nitwirutagira.

TIST: Arimi a TIST kwirutira kugitira Biodiversity.

Biodiversity, wega utonga na unduire wayo nimwega kuri ugima mwega wa maria maturigicirie. Warii wayo niwabaa niguu kuhurana na mogaruruku ma riera ta riuu inene, tutambi, gucenja kwa riera. Na tondu biodiversity niya bata, nowiciria andu othe mari haria mari nimaragitira na makamimenyerera. No, o muthenya, niundu wa ciiko cia andu, niturathukia mithemba miingi ya na warii wa mititu riria yatemwo, kuria kugunyu gukoma, na indo cia bata cikora.

Turagirwo ni indo ici cia bata o muthenya. Wicirie uria mithemba miingi ya nyoni mimera na nyamu iria wonaga tene riria wee kana aciari aku mari anini no riuu citationekaga, ciathire ku? Kuri na makiria ma mithemba ya indo 9million thiini wa thin a riria twacithukia ni thina munene kuri andu othe 7billion aria makoragwo thi – kuri ciana ciao na ciitu.

Arimi a TIST ninimaronania mogaruruku hari kugitira biodiversity. Hari o muti twahanda ni kindu kimwe kia bata makiria. Muti o wothe

twahanda niunyihagia thina wa kinduire, ugatheremia mutitu tondu notuuhuthire handu ha gutema muti ungi niundu wa ngu kana mbau na indo ingi. Riria twahanda miti yak i-nduire kuria kwaraga ta uria arimi aingi a TIST mekite migunda-ini yao, nitugitagira biodiversity. Miti ino ya mithemba miingi ya ni cikaro cia nyamu, tutambi na irio ci mucii. Miingi yayo niya bata hari guteithiriria guciarithia mimera, kuingata tutambi na guthondeka tiiri.

Arimi a TIST ningi nimarathomithania maundu ma biodiversity. Arimi nimarorio ciuria thiini wa micemano ya cluster na njira ya kugeria niguu maheane uhoro wigii biodiversity miena yao. Riria twathoma makiria uhoro wigii mimera na nyamu iria citurigicirie, mogaruruku maria mahanikite miena yao na mogwati kuri biodiversity, notwoe makinya kugitira indo ici cia bata. Nitunyanire ithuothe na tuthomithanie na tuhunde miti yaki-nduire niguu tugie na thi njega kuri ithuothe.

TIST: Gutiriria riendikithia riaku, mawoni maku, mateta kana mecurania nimathikirio.

Tukirumirira TIST Values nitwendekaga tukoro turi ehokeku, andu a utheri, aigiririki ma atungataniri. TIST tuuri nyumba imwe. Nitukwenda oo mundu wothe aigue endekete na akorwo akinyitanira na murandi. Riendekethia riothe, mawoni, mateta nonginya mathikiririo na maiguo.

Nigetha tukinyanirie uguo, ikundi nini ni ikurio maranagirie, magathikaniria, magakurania meciria na njira iria ngaciru cia ukuria. Muri mucemano wa Cluster, kwaniria na njira njaramu nikwagiriire. Maundu maria makwenda macookio kana gutaririo

wega nimagiriirwo ni kwandikwo na makinyirio GOCC kana LC. Atongoria a Cluster yaaku nimagiriirwo nigutigira manundu macio nimakinyara GOCC kana LC .

Nao GOCC na LC nimagiriirwo ni kuheana macokio mari na wihokeku na utheri kuuri Clusters na Ikundi nini. GOCC niyagiriirwo nikumenyithia LC ciuria o ciothe mangikorwo nacio.

Rekei tuthikaniririe. Rekei tutanganire. Rekei tukuranie meciria na njira iria ngaciru. Nigethe tuone umithuo munene na gharama nini.



TIST: Ciuria ciaku ciigie watho.

1. Ni mitaratara iriku ihuthikaka ya ugai wa mugunda wa famiri?

Riria mundu wina mugunda wandikithio kiwatho, mugunda ta ucio nougairwo andu aria mamukonie kuringana na (a) wendi wa wake (will) kana (b) kuringana na watho wa bururi wa magari (the succession Act) angikorwo mukui ndaratigite will.

Ugai wa indo cia mutigairi kana mwendo ni iri urumagirira mitaratara iri iri thiinie wa watho wa sucession. Angikorwo kwina will, igoti rirumagirira wendi wa mukui, tiga hangikorwo will iyo niithitangitwo kana mundu umwe niathiite igoti na kuuga igai riake ti ria kihooto.

Riria mundu akua, mitaratara ya magari ithiaga ta uu:

Riria kwina will	Riria gutari na will
<ol style="list-style-type: none"> 1. Ihoya igoti-ini riakwenda ugai 2. Igoti kurora kana kwina ngucanio oo yothe 3. Igoti gwitikira ihoya ria igai kwa ihinda ria mieri itandandatu (kana kahinda gakuhi kuringina na riendekethia ria igoti) kuuma muthenya uria ihoya rietikirirwo. 4. Ugai wa indo cia mutigairi kuringana na will yake. 	<ol style="list-style-type: none"> 1. Ihoya ria igoti hari kuheo marua ma igai (letters of administration) 2. Igoti kurora kana kwina ngucanio oo yothe 3. Igoti gwitikira ihoya ria igai kwa ihinda ria mieri itandandatu (kana kahinda gakuhi kuringina na riendekethia ria igoti) kuuma muthenya uria ihoya rietikirirwo. 4. Watho wa ugai gutumika na ukahuthirwo ni igoti hari kugaya utonga wa mukui kuri ciana na atumia aake. 5. Ugai wa indo cia mutigairi kuringana na will yake.

Maundu maangi maroragwo hari mutaratara wa igai:

- Kuringana na uria mugunda utarii, angikorwo mugunda ni wa gukombora unyitaniirwo ni mundu na mutumia wake, kana ukomboretwo ni andu mari aingi. Angikirow ni wa gukombora unyitaniirwo ni muthuri na mutumia, umwe wao angikua, uria watigwo, Oyaga igai ria mugunda ucio na agathi na mbere na gukombora. Angikorwo ni andu aingi manyitaniire, o mundu no auge nuu ugagikirwo ithenyani riake. Angikorwo ndari na will kuuga nuu ugakorwo ithenyani riake, share yake no igaiirwo andu a nyumba yake.
 - Angikorwo ni mugunda wa muhiriga, na mukui niwe urari na uramati wa mugunda ucio wa muhiriga handuini ya family kana muhiriga, igai riake hari gicunji kia mugunda ucio nokio kiheagwo andu aake, na mugunda ucio ungi ugathi na mbere gukorwo uri wa muhiriga.
 - Riria mundu arandika will yake, angikirwo na muthukukanio wa ciana niundu wa ngurani cia umbire (anake na airitu) kana aria mahikite na aria matari ahiku, will iyo no itwarwo igotini na kwamurwo na watho wa katiba ya Kenya wigie kwaga muthutukanio.
3. **Arimi a TIST nimakoretwo makihanda miti mugundaini wa muingi, kambuni ya Bowmans no ituteithie kugia na ngirimiti numu ya kiwatho?**

TIST niikoretwo na ngirimiti na Kenya Forest Service, na Lower Imenti Community Forest Association na Clean Air Action Corporation iria yekirirwo kirore mwei 15 November 2012 (the **KFS Agreement**) iria itariirie maundu makonie mugunda wa Lower Imenti forest na miti iria mihande.

Kuringanana katiba ya Kenya, na watho wigie mititu ya bururi (Forest Conservation and Management Act), mititu yoothe ya thirikari iramatagwo ni Kenya Forest Service. Ngirimiti ya TIST na KFS yugiite muingi ndungiramatira mugunda wa mutitu kana miti iria ii mutitu. No armi a TIST ni memba a Lower Imenti Community Forest Association na nimekiritio kuingira forest, kuhanda miti, na kwamukira mbeba cia kaboni.

No gutingihoteteka TIST ituike niiguitika niyo nyene mugunda wa forest kana miti ona angikorwo kwina ngirimiti. No TIST no yendie carbon kuuma miti iyo handu-ini ha members rungu rwa ngirimiti iria iriho.



Uhandi wa miti migunda-ini ya irio.



Gutariria: Guku ni kuhanda miti hamwe na irio cia mugunda na kuriithia mahiu mugunda-ini umwe.

Gitumi kinene kia urimi uyu ni kwongerera magetha kuhitukira uhandi wa miti.

Miti niikoragwo na mawega maingi kuri arimi.

- Indo cia gwaka.
- Ngu cia riiko.
- Matunda na mangi maingi.
- Irio cia mahiu.
- Kwagirithia tiiri.
- Kwongerera unoru tiiri-ini.
- Kuiga tiiri uri mugunyu.
- Kunyihia ruhuho.
- Kuonania mihaka ya mugunda.
- Dawa cia urigitani.
- Kurehe mbeca.
- Kunyihia tiiri gukuuo ni maai.

Urimi wa agroforestry: kuri na njira nyingi na ingi cirathundurwo. Njira ingi nicikoretwo na umithio kundu kumwe no cigakorwo citakwagirira kuria kungi. Andu nimagiriirwo nikugeria njira ngurani na mathomithanie micemano-ini. Ici ni imwe cia njira cia agro-forestry.

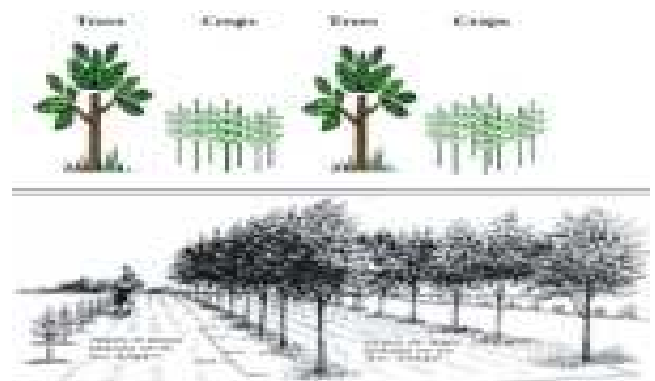
1. Hedges: ino ni njira imwe kuria ucaguraga miti iria ukuhanda na muhari na iri na umithio kuri mugunda. Hedges ibataraga mugunda munini, niugiragiriria tiiri gukuuo ni maai na nourute irio cia mahiu na mahuti ma kuiga ugungu. Muhiano wa hedges ni kuhanda muhari wa miti migunda-ini na utaganu uria mwitikiriku ni 1.5-2M. Njira njega nigutukania miti miraihu n amikuhi. Kwa muhiano *Croton megalocarpus* ihandaniirio na *Euphorbia tirucalli* na *lantana camara*.

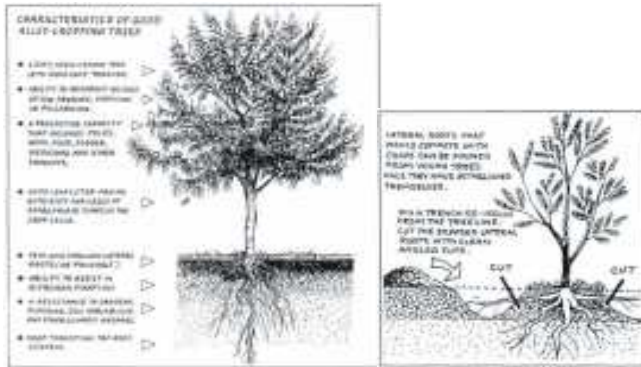
2. Alley cropping: ino ni njira ya guchagura miti ini na utaganu munini wa (0.5-2m) thiini wa muhari



mugunda-ini. Nogukorwo na muhari wa miti urumiriirwo ni mihari 2 kana 3 ya irio cia mugunda. Muhiano wa njira ino ni kuhanda mihari ya mbembe utukanitie na ya leucena kana kahuwa na marigu. Miti iria miega na alley ni iria ithondekaga tiiri. Utaganu wagiriirwo nigukorwo uri wa 5-8M. Miti thiini wa mihari niyagiriirwo nikurimirwo maita maingi kana miti yage kuraiha muno. Ningi, noicindanire irio na riia ohamwe na utheri. Mahuti maria macehwo nomarekio thi niguo mongerere unoru no miti ndingitikirika marihi-ini ma TIST tondu timiraihu , no niiguteithia migunda na njira ingi nyingi. Miti imwe miega na alley niikoragwo na uhoti wa gukura ringi ona thutha wa gutemwo. Uu nikuga ati noitemwe thutha wa kimera niguo ikure iri minene na ihote gukuranira na irio. Njira ino itagwo coppicing, na irutaga wiro na mithemba imwe. Mithemba iria ihuthikaga muno ni *Calliandra calothyrsus*, *Cassia siamea*, *Cassia spectabilis*, *Eucalyptus spp.*, *Leucaena leucocephala*, *Markhamia lutea*. Mithemba imwe niyagagirira riria iri minini, muhiano, *Casuarina spp.*, *Grevillea robusta*, *Sesbania sesban* ana ingi ta *Albizia spp.*

Nikuri murimi uhuthirite urimi uyu wa kuhandaniria miti na irio cia mugunda? Angikorwo nikuri, ni mitukanio iriko yakwagiriire? Morie mamwone na

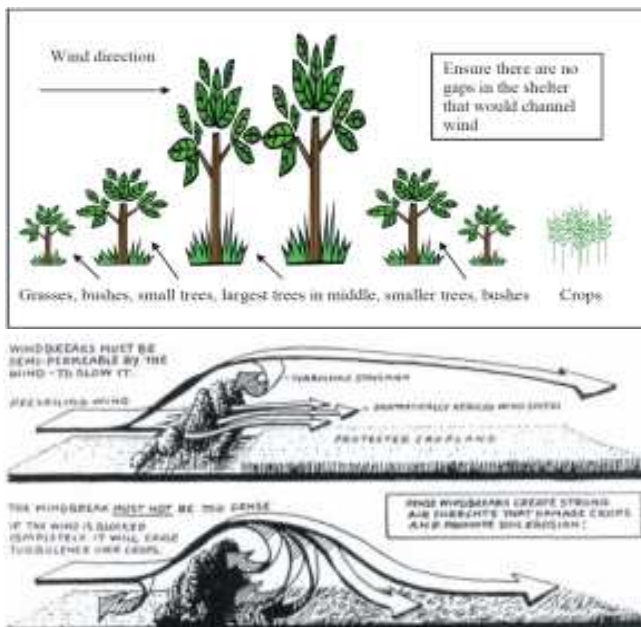




mamuthomithie mucemano-ini. Ringi arimi nomagerie mihari minini ya miti migunda-ini. Niguo macoke mone maciaro. Angikorwo nikuri na umithio, wongerere kimeara kingi.

3. Windbreak: kuhanda miti miingi niguo kunyihia ruhuho niguteithagia irio. Niwega makiria kuhanda miti minene gatagati-ini ka mugunda, mini mininanini mihari-ini iri irumiriire, ithaka na nyeki nja ya mugunda. Na ningi, niiteithagiriria kuhanda miti na njira njega niguo inyihie ruhuho. Gutagania mihari-ini ni gwa 4-5m na 2-4 mihari-ini.

Nikuri na mawega ma kuhuthira windbreaks tondu murimi to muhaka ahuthire gicunji kinene kia mugunda niguo ahande miti. Ihuthagira muconjo umwe na noyongerere maciaro na gicunji kia 30%



miena ingi. Ririkana ati, uhandi utabangitwo wega wa windbreak nouthukie irio makiria tondu nouhitukie ruhuho mianya-ini. Caria mundu uui uhoro uyu niguo akwonererie wega.

4. Fallow Cropping: njira ino ni riria murimi atiga kuhanda irio mugunda-ini na arekereria miti ikure niguo gucokereria unoru wa tiiri. Muno

makiria miti iria ikiraga unoru tiiriini niuhuthikaga ta *Sesbania spp* na *Gilricidia sepium*.

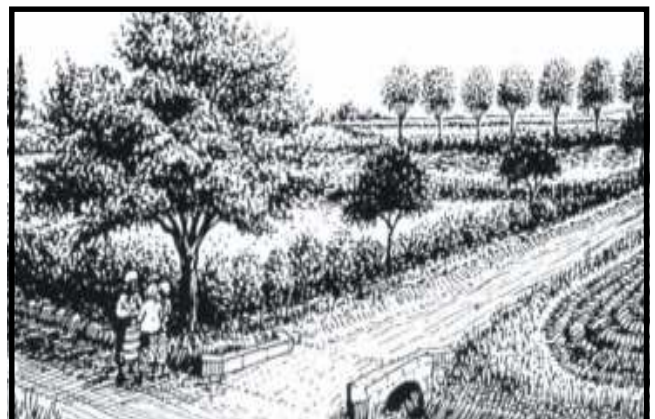
5. Inter-cropping: kuhuthira utaganu munene wa miti gatagati-ini ka irio na kuhanda miti iri na gacumbiri kahuthu na kunoria tiiri. Makiria urimi-ini uyu niuguthomitahnio mahinda mokite.

6. Grazing Area Improvement: rira wamenyerera miti yaku mugunda-ini wa kuriithia niguo ugie na ngu hamwe na irio cia mahiu. Kuri kuria kumaga, handa miti ya *Acacia nubica*, *Acacia Senegal*, *Hyphaene compressa*.

Kuri kuria kuri na maciaro mega, kuringana na riera, handa *Leucaena leucocephala*, *Sesbania sesban*, *Calliandra calothyrsus* and *Leucaena diversifolia*. Huthira mahuti kuhe mahiu(gicunji kia 15-20%) kimera kia riuwa kuri mahiu.

7. Woodlots: woodlots nini nocikurio mugunda-ini utarahuthika na utari munoru, na uria uri na mahiga maingi, woodlots nouhandwo mugunda-ini niguo unyihie ruhuho kana mugunda muinamu

8. Marking Bounderies: athomithania nimagiriirwo ni kuririkana ati miti ya TIST niyagiriirwo nigutaganio niguo ikure wega na iikare kahinda kanene. Imwe cia njira irianjega kuri urimi, no citingihuthika thiini wa TIST ta *roton megalocarpus* and *Commiphora zimmermannii subsp.*



Rora maundu maya niundu wa kundu kungi thiini wa Kenya:

Kundu kuri na riera riega(kuria miti ikuraga wega)

Calliandra calothyrsus and *Morus alba* niundu wa irio cia mahiu.



Handa miti muhaka-ini niguu unyihie ruhuho na *Croton megalocarpus*, *Grevillea robusta*, *Casuarina cunninghamiana*, *Milletia dura*, *Hakea saligna*

Huthira orchards kuri miti ya matunda ta prumd, peaches na pears.

Riera ria thi kundu kuinamu kuria kahuwa gakuraga wega.

Huthira jacaranda mimosifolia mihaka-ini

Huthira *Syzygium* spp niguu kunyihia ruhuho na kuhanda njuui-ini.

Handa matunda ta *Cyphomandra betacea* (tree tomato), *Persea Americana* (avocado), *Macadamia tetraphylla* (macadamia), *Passiflora edulis* (passion fruit), *Casimiroa Edulis* (white sapota), *Annona senegalensis* (custard apple), *Psidium guajava* (guava), *Eriobotrya japonica* (loquat)

Calliandra, *Morus alba*, *Grevillea* and *Markhamia lutea*. Nimiega kuhanda niguu kugiririria tiiri. *Grevillea* nimiega ningi niundu wa kiiruru gia kahuwa

Kuria riera riri iguru na kuinamu hanini na miti mitaganu

Huthira windbreaks kugitira irio, mihakana rugiri ta *Acacia mearnsii*, *Grevillea robusta*, *Hakea saligna*, *Croton macrostachyus*, *Dombeya* spp., *Dodonaea angustifolia*, *Casuarina cunninghamiana*, and *Dovyalis caffra*. miti ingi ya matunda noikorwo iri miega

Ruhonge rwa urimi wa mbembe na uriithi wa mahiu Riftvalley.

Tondu mbembe nicikuraga wega handu hari na kiiruru, huthira woodlots kana windbreaks kana miti iria ikuragio kuria tiiri uramenyererwo ta *Grevillea robusta*, *Sesbania* spp., *Croton macrostachyus*, *Croton megalocarpus*, *Acacia abyssinica*, *Eucalyptus* spp., *Acacia mearnsii*, *Casuarina cunninghamiana*, *Dovyalis caffra*, *Markhamia lutea*, *Cordia abyssinica*.

Kiririkania – ona uhandi wa miti ukirehaga mawega maguo, niwagiriirwo nikuhanda miti iria miega kuri migunda. Ririkania ati miti niicindanagira maai na irio na irio cikaga gukura wega. Caria uhoro kuma ikundi-ini na aruti wira angi.

- Makiria caria utaaro wa miti iria miega iri na miri mirumu (miti ino niikoragwo iri miega na agroforestry tondu miri yayo icindanaga na irio) *Casuarina* spp., *Leucaena leucocephala*, *Cupressus lusitanica*, and *Sesbania sesban* have shallow niikoragwo na miri miega na nimiega hari guthondeka tiiri. *Eucalyptus* spp. na *Gmelina arborea* niithondekaga indo njega ciagukuria irio. Kuhandaniria miti na irio nokwage gukorwo kuru kwegu miena iria itamukagira mbura nyingi.
- Resources: rurenda rweka muno ruria ruraheana uhoro wa miti iria miega thiini wa Kenya kuria unguicaria uhoro uyu ni <http://agroforesttrees.cisat.jmu.edu/>

Video:

‘Grevillea Agroforestry’ (6:26) niwonanagia mawega maingi ma urimi . Niwonanagia imwe cia njira ici ta pollardinf na coppicing <http://www.accessagriculture.org/node/895/en>

References for #8: CARE-International Agroforestry Extension Training Sourcebook. Module 6: Agroforestry Design (1989) Educational Resources Development Unit, Nairobi.

NEMA (1998) Caring For Our Environment: A handbook for local leaders National Environment Management Authority, Kampala.

Tengnäs B (1994) Agroforestry Extension Manual for Kenya International Centre for Research in Agroforestry: Nairobi.

Mazingira Bora



TIST

The International Small Group & Tree Planting Program
www.tist.org

Kiswahili Version

**TIST is an innovative, time - tested,
afforestation program led by the
participants.**



Kianyaga TIST Cluster wakiwa kwa mkutani wao wa kila mwezi, mweri uliopita.

Ndani:

Maadili ya TIST: Nguzo na nguvu ya TIST Umeletewa. Uk. 2

Nguvu katika utofauti: Wakulima katika TIST hulinda bionuwai. Uk. 2

TIST: Kupata Mapendekezo yako, Mawazo, Wasiwasi, Malalamiko ya pamoja na ya Kusikika. Uk. 2

TIST: Maswali yako ya Kisheria Yajibiwa. Uk. 3

Kilimo Endelevu: Kilimo Mseto. Uk. 4



Maadili ya TIST: Nguzo na nguvu ya TIST Umeletewa.

Vikundi vingi vidogo vya TIST hufahamu na kufuatilia maadili ya TIST. Mafanikio yetu huongozwa na uadilifu na juhudi za kila mmojawetu. Mafanikio yetu yanaongozwa kwa urahis na kufuatilia kwa maadili haya na kila mmoja wetu

Katika shughuli zetu nyingi, kutoka upandaji miti, kilimo hai, kuboresha bionuwai, kujenga au kununua meko bora, kufunza na kufuatilia masuala muhimu ya kiafya, kulinda mashamba yetu dhidi ya

mmomonyoko wa udongo na uharibifu wa sababu nyingine, kukumbana na mabadiliko ya tabianchi na ukataji miti, kulinda mito yetu ili kupata maji safi na tosha na shughuli nyinginezo zinazoleta pesa, maadili ya TIST yana jukumu kubwa.

Katika TIST, Tuko. Sisi ni waaminifu; Sisi ni wenye usahihi; Sisi ni wenye Uwazi; Sisi utumikiana; Sisi huwajibika; Sisi ni mifano ya kuigwa; Sisi hujitolea.

Nguvu katika utofauti: Wakulima katika TIST hulinda bionuwai.

Bionuwai— utajiri na aina mbalimbali za viumbe hai—ni muhimu kwa mazingira yenye afya. Wingi wa aina ni muhimu hasa katika kukabiliana na mabadiliko na changamoto kama ukame, wadudu au kubadilika kwa hali ya anga. Kwa sababu bionuwai ni muhimu sana, waweza kufikiri kuwa watu kila mahali wanafanya kazi kuhakikisha kuwa tunalinda na kuhifadhi utajiri huu wa kiasili. Hata hivyo, kila siku, kwa sababu ya matendo yetu ya kibinadamu, tunapoteza aina na tofauti za kimaumbile jinsi miti inavyokatwa, maeneo oevu kukaushwa na rasilimali kutumika zaidi ya inavyofaa. Tunaona hasara hii kila siku. Fikiri ni aina ngapi za mimea, ndege na wanyama ambao uliona sana wakati wewe au wazazi wako walikuwa wachanga lakini ambazo zinaonekana kwa nadra au hazipo tena? Kuna aina milioni tisa mbalimbali za viumbe hai katika sayari yetu na tunapoziharibu, ni hasara ya kudumu kwa kila mmoja wa watu bilioni saba wanaoishi katika sayari hii, kwa watoto wetu na kwa watoto wao.

Wakulima wa TIST wanaleta mabadiliko, wakifanya kazi ili kuhifadhi utofauti huu wenye utajiri. Kila mti tunaopanda ni rasili mali muhimu

inayoweza kutumika tena. Kila mti tunaopanda hupunguza shinikizo kwa msitu ulio na utofauti na wa kiasili kwani tunaweza kuutumia badala ya kukata misitu kwa sababu ya kuni, mbao na bidhaa nyinginezo. Tunapopanda miti ya kiasili, kama vikundi vidogo vingi vilivyofanya katika mashamba ya miti yaliyo karibu na mji na melfu ya wakulima katika TIST waliyo nayo katika mashamba yao, tunalinda bionuwai kwa njia ya moja kwa moja. Aina hizi nyingi za miti ya kiasili pia huwapa wadudu, ndege na wanyama makazi, wengi ambao ni muhimu kwa uchavushaji wa mimea, kula wadudu na kuweka udongo wetu ukiwa wenye rutuba.

Wakulima katika TIST pia hugawana ujuzi au maarifa kuhusu bionuwai. Wakulima wanahojiwa katika cluster katika mpango wa kwanza wa kugawana taarifa kuhusu bionuwai katika maeneo yao. Tunpojua mengi kuhusu mimea na wanyama walio karibu nasi, mabadiliko katika maeneno haya na hatari kwa utofuti huu, tunaweza kuchukua hatua ili kuhifadhi rasilimali hii ya kushangaza. Tujeni sote pamoja na tugawane ujuzi wetu na tupande miti ya kiasili ili kufanya dunia kuwa bora kwetu sote.

TIST: Kupata Mapendekezo yako, Mawazo,

Wasiwasi, Malalamiko ya pamoja na ya Kusikika.

Maadili ya TIST yanatuhitaji tuwe waaminifu, sahihi, wazi, tuwajibike, na tuwe watumishi wa kila mmoja. TIST ni familia. Tunataka kila mtu kujisikia kuhusika na kushiriki kikamilifu. Mapendekezo yoyote, mawazo, wasiwasi au malalamiko yanapaswa kusikika na kushughulikiwa.

Ili kuyakamilisha yaliyotajwa hapo juu, vikundi vidogo vinasisitizwa kuzungumza na kila mmoja wa wanachama wao, kuwasikia ili kubadilishana mawazo na njia bora za utendakazi. Katika mikutano ya Cluster, majadiliano ya wazi na ushiriki ni lazim. Masuala ambayo yanahitaji ufafanuzi au yanahitaji msaada au maswali lazima yawe katika kumbukumbu nayapitishwe kwa Vikundi vya Clusters Council almaarufu GOCC au katika Baraza

la Uongozi. Viongozi wa Cluster na Cluster Servants wanatakiwa kuhakikisha habari hizo ni zimewasilishwa kwa ufanisi kwa GOCC na Baraza la Uongozi.

Kwa upande mwingine, GOCC na Baraza la Uongozi yanapaswa kuwasiliana na Clusters au vikundi vidogo ili kutoa maoni maaminifu, sahihi na wazi. Vikundi vya Clusters Council (GOCC) vinapaswa kuyawasilisha masuala ambayo yanahitaji ufafanuzi au msaada kwa Baraza la Uongozi.

Tunafaa kumsikiliza kila mmoja. Tuwe watumishi wa kila mmoja. Tusaidiane na tushiriki kusaidiana na mawazo na utendakazi bora ili kukamilisha matokeo makubwa kwa bajeti ya chini.



TIST: Maswali yako ya Kisheria Yajibiwa.

1. Nini mchakato wa mfululizo wa ardhi inayomilikiwa na familia?

Ambapo mmiliki aliyesajiliwa anamiliki ardhi, ardhi hiyo inaweza kumiliki kabisa wamiliki wake juu ya kifo chake kwa mujibu wa (a) wasia yake, au (b) utaratibu wa utumbo uliowekwa katika sheria ya Sheria ya Sucession (Sucession Act) ikiwa mmiliki hufa bila wasia.

Uamuzi wa mali ya mtu aliyekufa utafuata

utaratibu uliowekwa katika Sheria ya sucession. Ambapo kuna wasia, Mahakama haipaswi kuingilia kati ya matakwa ya marehemu, isipokuwa katika mazingira maalum. Hali kama hizo ni pamoja na mfano ambapo uhalali wa wasia ni changamoto au mtegemezi wa madai ya marehemu kwamba hawajawahi kutolewa kwa chini ya wasia.

Juu ya kifo cha mtu, mchakato wa mfululizo unahusisha:

Ikiwa kuna wasia	Kama hakuna wasia
1. Maombi ya mahakamani kwa ruzuku ya kutathmini.	1. Maombi ya mahakamani kwa ruzuku ya barua za utawala.
2. Uamuzi wa Mahakama juu ya vikwazo na migogoro (kama ipo).	2. Uamuzi wa Mahakama juu ya vikwazo na migogoro (kama ipo).
3. Maombi ya uthibitisho wa ruzuku ya miezi sita (au miezi mifupi ambayo mahakama inaweza kuongozwa), tangu tarehe ya ruzuku.	3. Maombi ya uthibitisho wa ruzuku ya miezi sita (au miezi mifupi ambayo mahakama inaweza kuongozwa), tangu tarehe ya ruzuku.
4. Sheria ya utumbo katika Sheria ya Mafanikio hutumika na kuongoza mahakama kuamua sehemu ya mali ya marehemu kati ya mke na watoto.	4. Maombi ya mahakamani kwa ruzuku ya kutathmini.
5. Usambazaji wa mali kulingana na mapenzi	5. Uamuzi wa Mahakama juu ya vikwazo na migogoro (kama ipo).

Mambo mengine katika mchakato wa mfululizo ni pamoja na:

- Jinsi ardhi inavyoshikilia, ikiwa ni pamoja na wapangaji au wapangaji wa kawaida. Ambapo ardhi inafanyika chini ya mshikamano kati ya mume na mke, wakati mke mmoja akifa, ardhi itampa mke aliyeshi. Ambapo ardhi inashikiliwa na watu kama wapangaji wa kawaida, kila mpangaji anaweza kugawanya sehemu yao kwa wasia. Ikiwa mpangaji atakufa bila wasia, sehemu yao inaweza kuwa kwa walengwa wao pamoja na mali zao zote;
- Katika matukio mengine, imani ya kimila inaweza kuwepo. Hii ndio ambapo mmiliki aliyesajiliwa wa ardhi anamiliki ardhi kwa niaba ya familia yake pana. Uaminifu wa kimila ni maslahi makubwa zaidi katika ardhi maana haifai kusajiliwa hati ya hati. Ambapo uaminifu wa kimila ulipo, sehemu tu ya mmiliki aliyesajiliwa itawapa wamiliki wake juu ya kifo chake, na sehemu iliyobaki inabaki katika milki ya familia nyingine; na
- Wakati testator ana uhuru wakati wa kufanya wasia, matukio ya ubaguzi wa watoto kwa misingi ya jinsia na hali ya ndoa inaweza kuwa changamoto kwa ufanisi kulingana na masharti yasiyo ya ubaguzi wa Katiba ya Kenya.

2. Wakulima wa TIST wamekuwa wakiandaa miti kwenye ardhi ya umma, wanaweza Bowmans kutusaidia kuwa na makubaliano ya kisheria, ya kisheria juu ya umiliki huo?

Mkataba kati ya Huduma ya Misitu ya Kenya, Shirikisho la Misitu ya Jumuiya ya chini ya Imenti na Shirika la Hifadhi ya Air Clean tarehe 15 Novemba 2012 (Mkataba wa KFS) hutoa kwamba umiliki wa misitu ya chini ya Imenti na miti iliyopandwa hutolewa katika Huduma ya Misitu ya Kenya. Timu ya TIST: Tafadhali thibitisha ikiwa Mkataba wa KFS ulipya upya - muda wa awali ulikuwa miaka mitano, upya kwa makubaliano ya pande zote).

Kwa mujibu wa Katiba na Sheria ya Uhifadhi na Usimamizi wa Msitu, misitu yote ya umma katika jamba la Kenya katika Huduma ya Misitu ya Kenya. Chini ya Mpango wa TIST na Mkataba wa KFS, wanachama wa jamii hawana haki yoyote ya umiliki juu ya ardhi au juu ya miti waliyopanda. Hata hivyo, wanachama wa TIST ambao pia ni wajumbe wa Chama cha Misitu ya Jumuiya ya Chini ya Imenti wanaruhusiwa kuingia msitu, kupanda mimea, kuchukua hatua nyingine za manufaa za mazingira, kupokea haki za kaboni na kupata mapato kwa ajili ya uuzaji wa sifa zinazohusiana.

Haiwezekani TIST kupata umiliki wa ardhi au miti kwa njia ya mkataba, kutokana na hili ni ardhi ya umma. Hata hivyo, TIST inaweza kurekebisha makubaliano ya uuzaji wa mikopo ya kaboni kuhusisha uhamisho wa mikopo ya kaboni kutoka kwa miti iliyopandwa na wanachama wa TIST katika msitu, kulingana na haki zilizopewa kwao chini ya mkataba wa KFS.



Kilimo Endelevu: Kilimo Mseto.



Mada muhimu kwa kilimo endelevu ni Kilimo mseto.

Ufafanuzi: Kupanda miti na vichaka pamoja na mimea ya chakula au mifugo.

Lengo la kijumla la klimo mseto ni kuongeza uzalishaji wa ardhi kupitia matumizi ya miti. Miti ina faida nyingi kwa mkulima:

- Vitu vya ujenzi
- Kuni
- Matunda na chakula kinginecho
- Chakula cha mifugo
- Kutuliza udongo
- Rutuba ya udongo
- Kuweka unyevu
- Wind shelter
- Kiashiria cha mipaka
- Dawa
- Mapato ya kifedha
- Kupungua kwa mmomonyoko wa udongo (iwapo safu ya taka au mimea itatandazwa)

Mitindo katika kilimo mseto:

Kuna mbinu mbalimbali na zingine mpya zinazogunduliwa kila wakati. Baadhi ya mbinu hufanikiwa mahali pamoja na kuwa na maafa kwingine. Watu wanahitajika kujaribu mbinu mbalimbali na kugawana mitindo iliyo bora zaidi katika mikutano ya mafunzo. Zifuatazo ni baadhi ya mbinu zinazotumika sana sana katika kilimo mseto:

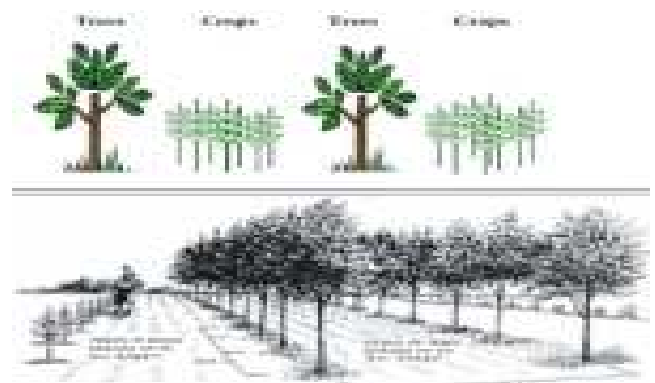
1. Nyua: Hili huhusisha kuchagua aina ya mti utakaopandwa kwa mstari na ambao una faida kwa ardhi. Nyua huhitaji nafasi ndogo, huzuia mmomonyoko wa udongo na hutengeneza majani kwa ajili ya chakula cha mifugo na matandazo. Mfano wa kutengeza ua ni kupanda miti kwa mstari ikizunguka mpaka wa shamba.

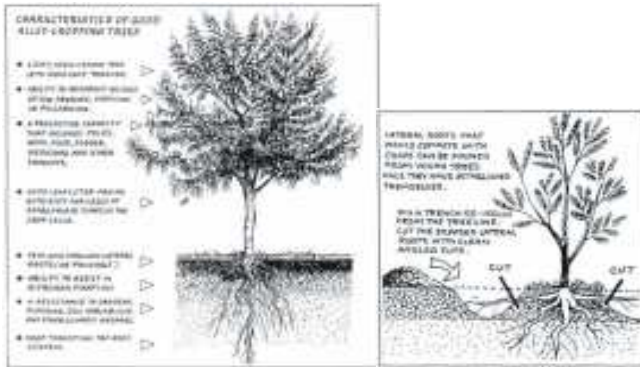
Nafasi kati ya miti inayopendekezwa ni kati ya mita moja na nusu na mita mbili. Njia bora zaidi ni kuchanganya miti mirefu na mifupi.

Kwa mfano *Croton megalocarpus* wawezwa pandwa pamoja na *Euphorbia tirucalli* pamoja na *Iau Lantana camara*.



2. Kilimo mseto kwa mistari: Hili huhusisha kupanda miti iliyo na nafasi ndogo sana (nusu mita kufika mita mbili) iliopandwa kwa mistari shamba lilivyo. Kwaweza kuwa na mstari wa miti halafu mistari miwili au mitatu ya mimea, halafu mstari mwingine wa miti, halafu mimea, na kadhalika. Mfano wa hili ni kupanda mistari ya mahindi iliyoandana na *Leucaena* au kahawa na ndizi. Miti iliyo bora zaidi ni ile ya familia ya kunde (inayoweka naitrojeni udongoni). Nafasi kati ya mistari ya miti yafaa kuwa mita tano kufika nane. Mistari hiyo ya miti yafaa kupaliliwa na kupunguzwa majani mara kwa mara. Miti hiyo isiwe mirefu au itanza kupigana na mimea ili kupata virutubisho na mwangaza. Majani yaliyokatwa yaweza kuongezwa kwa udongo ili kuongeza rutuba ya udongo. Kwa hivyo miti hii haitaweza kupata malipo ya TIST, kwani inafaa kuwekwa ikiwa mifupi, lakini itaboresha ardhi kwa kilimo na kumpa mkulima faida zingine nyingi. Baadhi ya mimea mizuri ya kupanda pamoja na mimea huweza kukua tena inapokatwa. Kumaanisha inaweza kukatwa kila msimu wa mimea ili isiwe mikubwa sana isije ikapigana sana na mimea. Mtindo huu unaitwa 'copicing' na hufanikiwa kwa baadhi ya mimea. Aina za miti hii ni *Calliandra calothyrsus*, *Cassia siamea*, *Cassia spectabilis*, *Eucalyptus spp.*, *Leucaena leucocephala*, *Markhamia lutea*. Baadhi ya miti humea tena vizuri inapokuwa change lakini haime tena inapokomaa kwa mfano *Casuarina spp.*, *Grevillea robusta*, *Sesbania sesban* na baadhi ya *Albizia spp.*

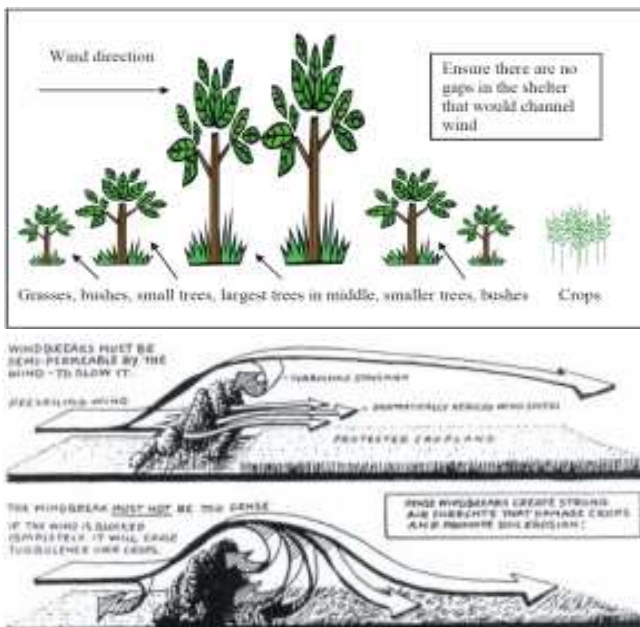




Je, wakulima wametumia jinsi hii ya kupanda miti na kulima? Kama ndivyo ni njia gani mwafaka ya kuchanganya? Wauleze wajandiliene na wakuje na majibu kwenye mkutano ujaio.

Pengine wakulima wanaweze jaribu mistari kadhaa kwenye mashamba zao. Wangalie majibu. Kama majibu iko sawa waongeze mistari mingine musimu ujaio

3. Kizuia upepo: Kupanda miti iliyofuatana ili kutengeneza kizuia upepo. Miti hii hulinda mimea kutokana na upepo unaokuja. Panda miti mikubwa kati kati, midogo zaidi mistari miwili inayofuata na miti mifupi, vichaka na nyasi nje. Panda ikiwa dhidi ya upepo unaokuja. Nafasi kati ya miti iwe mita nne au tano na mbili kufika nne kati ya mistari.



Faida ya viziua upepo ni kuwa mkulima si lazima hatoe shamba lote ili kupanda miti. Inachukua kipande cha ardhi na faida zaweza ongeza mazao kwa asilimia thelathini katika baadhi ya maeneo. Kumbuka kuwa viziua upepo visivyopangiwa vizuri vyaweza kuharibu mimea kwani vinaweza kupitisha upepokupitia nafasi. Tafuta mtu aliye na ujuzi kukusaidia kupanga kizuia upepo.

4. Kupumzisha ardhi:

Hapa ni ambapo wakulima huacha kupanda mimea kwa kipande cha ardhi na kuiacha miti kumea ili kusaidia kurejesha rutuba ya udongo. Ni miti mifupi inayoweka naitrojini udongoni inayochaguliwa mara nyingi kwa mfano *Sesbania* spp. na *Gliricidia* *sepium*.

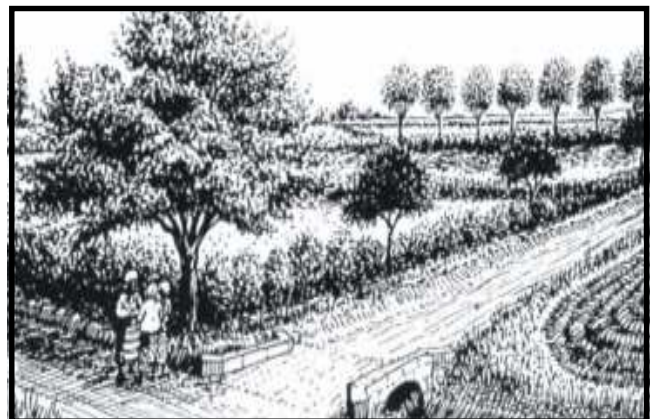
5. Kuchanganya mimea na miti: Hili huhusisha kupanda miti yenye nafasi kubwa kati kati ya mimea. Miti mizuri ni isiyo na matawi mengi na inayoweka naitrojini udongoni.

6. Kuboresha pahali pa kulisha mifugo: kuchunga miti iliyo katika ardhi ya kulisha mifugo ili kukupa kuni na chakula cha mifugo. Kwa mfano, katika maeneo kame fikiria kupanda *Acacia tortilis* ama baadhi ya miti ifuatayo: *Salvadora persica*, *Cordia sinensis*, *Acacia eliator*, *Ziziphus mauritiana*, *Acacia albida*, *Acacia nubica*, *Acacia Senegal*, *Hyphaene compressa*.

Katika maeneo mazuri zaidi, kulingana na urefu juu ya ziwa, panda *Leucaena leucocephala*, *Sesbania sesban*, *Calliandra calothyrsus* na *Leucaena diversifolia*. Fikiria kuhusu malisho ya nyongeza kutumia majani (asili mia kumi na tano kufika ishirini ya malisho) wakati wa ukame ya mifugo wako.

7. Misitu midogo wa miti:

Miti mifupi yaweza kupandwa katika maeneo yasiyotumika au yasiyozalisha, kwa mfano miti ilipondwa katika eneo lenye mawe yaliyojitokeza juu na katika mitaro. Miti mifupi pia yaweza kupandwa katika ardhi yenye mimea kufanya kazi ya kizuia upepo, ama yaweza kupandwa katika ardhi iliyopumzishwa.



8. Kuashiria mipaka e.g. *Croton megalocarpus* na *Commiphora zimmermannii* subsp.

Wanaofunza, jua kuwa miti ya TIST inapewa nafasi nzuri ili ikue inavyofaa na ikae ardhini kwa muda mrefu. Baadhi ya mbinu za kilimo mseto zilizo hapo juuni mitindo bora zaid ya kilimo lakini miti haitaweza kupata malipo ya TIST.

**Fikira zingine za kujaribu katika baadhi ya maeneo ya kiasiri Kenya.**

Miteremko iliyo katika maeneo ya urefu mkubwa yenye udongo wenye acidi (kwa mfano ambapo majani chai hukua vizuri).

Fikiria kupanda *Calliandra calothyrsus* na *Morus alba* kupata chakula cha mifugo.

Kupanda mipaka na viziua upepo fikiria miti kama *Croton megalocarpus*, *Grevillea robusta*,

Casuarina cunninghamiana, *Millettia dura*, *Hakea saligna*.

Kwa matunda fikiria miti ya bustani (kama plums, peaches, pears).

Miteremko iliyo maeneo yenye urefu mdogo (kwa mfano ambapo kahawa hukua vizuri)

Fikiria kupanda *Jacaranda mimosifolia* kama mti wa kutengeza mipaka

Unweza panda *Syzygium* spp. Ili kuziua upepo au kando ya mikondo ya maji.

Fikiria kupanda miti ya matunda kama *Cyphomandra betacea* (tree tomato), *Persea americana* (avocado), *Macadamia tetraphylla* (macadamia), *Passiflora edulis* (passion fruit), *Casimiroa edulis* (white sapota), *Annona senegalensis* (custard apple), *Psidium guajava* (guava), *Eriobotrya japonica* (loquat).

Calliandra, *Morus alba*, *Grevillea* na *Markhamia lutea* ni miti mizuri ya kupanda katika maeneo unayotaka kudhibiti mmomonyoko wa udongo (miundo ya kuhifadhi udongo).

Grevillea ni mti mzuri wa kuipa mimea ya kahawa kivuli

Maeneo tambarare yaliyo na urefu mkubwa, yenye ardhi iliyo na mteremko mdogo na miti michache:

Kama viziua upepo ili kulinda mimea yako, miti ya mipaka na nyua zilizo hai fikiria miti kama *Acacia mearnsii*, *Grevillea robusta*, *Hakea saligna*, *Croton macrostachyus*, *Dombeya* spp., *Dodonaea angustifolia*, *Casuarina cunninghamiana*, and *Dovyalis caffra*. Baadhi ya miti ya matunda inayokua mahali penye joto la kawaida yaweza kukua vizuri. Mfumo wa mahindi na maziwa katika bonde la ufa kwa sababu miti haikui vizuri chini ya kivuli, fikiria miti mifupi ama viziua upepo au miti inayopandwa

katika mifumo ya kuhifadhi udongo kwa mfano *Grevillea robusta*, *Sesbania* spp., *Croton macrostachyus*, *Croton megalocarpus*, *Acacia abyssinica*, *Eucalyptus* spp., *Acacia mearnsii*, *Casuarina cunninghamiana*, *Dovyalis caffra*, *Markhamia lutea*, *Cordia abyssinica*.

Kumbuka

Kumbuka kuwa ingawa kupanda miti huleta faida nyingi unahitajika kutafiti kuhusu aina bora zaidi kwa aina maalum ya ardhi yako. Kumbuka kuwa miti hushindana na mimea kupata maji na mimea mingine haipendi kivuli kingi, kwa mfano. Pata taarifa kutokana na vikundi vidogo vilivyo karibu nawe na wafanyikazi katika sekta ya kilimo.

- Pata ushauri sana sana kuhusu aina ya miti inayofaa iliyo na mizizi inayofika chini zaidi na yenye mizizi ya juu michache (miti hii ina faida katika kilimo mseto kwa sababu mizizi ya juu hushindana na mimea). Mizizi ya *Casuarina* spp., *Leucaena leucocephala*, *Cupressus lusitanica*, na *Sesbania sesban* have shallow yaweza kuwa bora kwani inatuliza udongo katika maeneo yanayohifadhiwa. *Eucalyptus* spp. na *Gmelina arborea* hutengeneza misombo inayozuia mimea kukua.
- Kupanda mimea pamoja na miti haifanikiwi sana asana katika maeneo yanayopata mvua isiyozidi milimita mia nane kila mwaka.

Marejeo:

Kuna tovuti inayosaidia sana iliyo na maelezo kuhusu miti mwafaka kwa kilimo mseto katika Kenya. Waweza kutafuta maelezo kuhusu miti maalum. Ipo hapa:
<http://agroforesttrees.cisat.jmu.edu/>

Video

'Grevillea agroforestry' (6:26) hukupa utangulizi kuhusu faida kadhaa za *Grevillea* katika miseto ya ukulima. Inaeleza baadhi ya taratibu katika usimamizi kama kukata vichwa na kukata miti kabisa.
<http://www.accessagriculture.org/node/895/en>

8. Marejeo

CARE-International (1989) *Agroforestry Extension Training Sourcebook*. Module 6: *Agroforestry Design*. Educational Resources Development Unit, Nairobi.

NEMA (1998) *Caring for our environment: A handbook for local leaders*. National Environment Management Authority, Kampala.

Tengnäs B (1994) *Agroforestry Extension Manual for Kenya*. International Centre for Research in Agroforestry: Nairobi.

Mazingira Bora



TIST

The International Small Group & Tree Planting Program
www.tist.org

Kikamba Version

*TIST is an innovative, time - tested,
afforestation program led by the
participants.*



Ngwataniro ya TIST Kianyaga ivindani ya wumbano woo wa kila mwai, mwai muthelu.

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Mawalany'o ma TIST: Musingi na ulumu wa TIST.

Tukundi twingi twa TIST ni tututaniaa na nituatiaa mawalany'o ma TIST. Kuthaiia kwa TIST ni kuetetwe ni vinya kwa kila memba na kwithiwa na ukiikiku. Kuvikia monene ala tuvikiite ni undu wa kila umwe kikala mawalany'oni ma TIST.

Nthini wa mawiko maitu maingi, kuma kuvanda miti, kuima kwa kusuvia, kwaiya kithio, kuua kana kwaka maiko ma usuvia mwaki, kumanyiany'a na maundu ma uima wa mwii, kusuvia muthanga witu

na kukutana na uvinduku na moalyuku ma nzeve, kukitana na kunyaiika kwa mang'alata na weu, kusuvi mbusi kwondu wa kiw'u kitheu na maundu angi maingi ona la matueteae mbesa, mawalany'o ma TIST nimatethasya vanene tamo muti wa muongo.

Nthini wa TIST, twivo. Twi akiikiku, twina uw'o, twithiawa kyenini, twi athukumi umwe kwa ungi, nitumasya utalo wa mwikalo, twi ngelekany'o, nitwiyumasya vate ndivi.

TIST: Aimi ma TIST kuthukuma kusuvia mila na uvathukanu wa isio na mikalo.

Mwikalo na mila ni uthwii wa kuma kumbwani na ni wavata kwa uima wa mawithyululuko. Ingi ni museo kwa kumianisya na uvindu wa nzeve ta yua, mitutu na tusamu tula twanangaa, kana nzeve kusesya.

Onakau uvathukanu uu niwavata nowisilye kila mundu nduniani nikwenda kuusuvia uthwii uyu wa mumbo. Onakau mawiko ma mundu ma kila muthenya nimatumite twasya muno kuma mithemba ya miti, syanda, mititu ya tene na uu uetetwe ni meko ma mundu ma kutema miti kwa ivinda itekuvandwa ingi kana kunengwa ivinda ikasyaana.

Nitwonaa wasyo uyu kila muthenya. Isilye ni mithemba yiana ata ya nyunyi, miti na nyamu woonaa yila wai munini na usianisya na umunthi wonaa siana ata? Kwi mithemba mingi ya nyamu na syindu kivathukany'o ta milioni kenda ila syoombiwe na yila twasyananga na kuiveta iulu wanthi iyonekaa ingi na niwasyo kwa andu mbilion muonza ila syi nduniani kwoondu wa syana situ na syana syasyo.

Aimi ma TIST nimathukumite maetete

kivathukany'o kusuvia uvathukanu uu wa wumbe. Kila muti twavanda ni uvathukanu tasuvia. Kila muti twavanda nuolaa utumiku wa muti ungi vandu na kusuvia muvai waw'o kwithiwa vo uni, nundu nitutonya utumia muti usu vandu va kuthi na kutemanga mititu.

Ingi miti ya kiene nii liu na misyi/ mawikaloma syindu kivathukany'o ta nyamu, tusamu, tususni na mimea kivathukany'o, ingi ila niyavata kwa kunyaiikya mbeu na kwongela unou wa muthanga.

Aimi ma TIST nimaiaa na kumanyisya andi iulu wa undu uu. Aimi nimaendee na ukulw'a makulyo undu wa uvathukanu uu na undu wina ueti kwa isio kivathukanyo. Yila twamanya undu wa miti kivathukany'o na isio syayo na nyamu ila syi isionu isu nitutonya kuete kivathukany'o isioni isu na kwithiwa tutonya usuvia kwa nzia ila yaile. Ekai tuke vamwe na kumayianya iulu wa miti kivathukany'o ila yimeasya isioni situ na tuivanda miti isu kuseuvya na kwailya nthi yonthe kwoondu witu ithyoonthe.

TIST: Kukwata mawoni maku, kila ukwenda kithinikiwe, kieleelo na kila kina uthinia ukwenda kimanyike na kwiw'ika ni kila umwe.

Mwwalanio ma TIST matuvundiasya kwithiwa twi akiikiku, utalo mwianiu, mekaa maundu kyenini, na matilika kwa masavu moo na muthukumi wakila ungi. Musyi wa TIST. Nitukwenda kila umwe ew'e aitumika na emwianie. Ethiwa wina woni, kana undu ukwenda kana malalamiko maile kwiw'ika na kutethw'a.

Nikana uvikie, tukundi tunini na kututhuthia kwa uneenania, kwithukianisya na kutethania na ndeto na utuika museo. Thini wa mbumbani sya ngwatanio ni useo kuneenanisya kila undu na kuthuthania iulu wa maundu ala memba waete maneenanaw'e kana ukwiw'a ena thina muna. Mwa uneenanisya na mausungio mauma amebani

nimaile uandikwa nthini wa livoti ikavikia Atongoi ma kanzu ya ngwatanio (Group of Clusters Council GOCC). Atongoi ma ngwatanio na athukumi ma ngwatanio nimaile uikiithya kana uvoo niwavika kwa nzia ila yaile kwa GOCC na LC.

Kwa ngaliko ila ingo GOCC na LC nimaile uneenania ingi na tukundi tunini kwa kunengane uvoo waw'o, muikiikiku na wi kyenini. Na ethiwa ve undu ukwenda uthesyo GOCC nimaile unengane uthesyo usu kwa LC na kumakwata mbau.

Twithukianisye umwe kwa ula ungi. Twithiwe muthukumi umwe kwa ula ungi. Tutethanie. Tuthuthanie iulu wa mawalanio maseo na mawoni. Kuvikia mosungio manene kwa utumiu munini wa mbesa.



TIST: Ikulyo yaku ya kimiao kusungiwa.

1. Ni nzia myau ya kuantia kuvindua kithaka kya musyi?

Vala mundu uuite kithaka, kithaka kiiu nikitonya oswa ni andu make kwa nzia ya (a) utiwa wina watho ula utite andiikite kana kwa nzia ya (b)kuatia miao ya koti na nthi iulu wa utiwa (The **Succession Act**) ethiwa mwende niwakw'a ataandikite watho.

Undu kithaka kiiu kitonya utwika kya andu make ni nzia mbalany'e nthini wa miao ya

utiwa. Vala vena undu utanio muandike wa undu ukwenda kithaka kyake kiawe koti ndilikiliilaa kwenda kwake, ateo vala andu make mekuleana na kila kiandike na maithi kotini mena itumi syi kwonana kana ayiaa syindu syake vaina thina kana aaie undu vataile thini wa watho wake.

Itina wa mundu ukw'a nzia ya kuatia ya kithaka na mali yake nita uu:-

Ethiwa ve watho wake muandike	Ethiwa vaina watho muandike
1. Kwikya valua kotini wa kwitya ivinda ya grant	1. Kwikya mavalua kotini na kwitya valua wa grant wa ala maile kuungamia mali isu.
2. Koti kuamua ethiwa vena itumi kana kulea kueleanwa	2. Koti kuamua iulu wa itumi ila itonya umila na kilea kueleanwa ethwa kwivo
3. Valua wa kuikiithya grant itina wa myai thathatu (6moths) kana kwianana na ivinda yila koti iunengane kwianana na matuku ma grant.	3. Valua wa kuikiithya grant itina wa myai thathatu (6moths) kana kwianana na ivinda yila koti unengane kwianana na matuku ma grant.
4. Kuaiwa kwianana na watho wa mwende.	4. Mwiao wa nthi iulu wa utiwa kuatiwa kutongoesya koti kuamua undu kithaka kana mali ya mututia ikuaanwa kwa muka(aamuka) na syana
	5. Kuaanwa kwa mali kwianana na mwiao wa koti

Syindu ingi isiwa nthini wa kuatia utiwa nita:

- Undu kithaka kimeaniw'e kana ala me nthini wakyo. Vala kithaka kimeaniw'e nikiveti na muume, umwe ateo ula ungi niwe woseleela. Vala kithaka kina isyitwa ya umwe indi mekalaa vo na andu make kila umwe wikalaa vo nutonya kwitya kilungu kyake ethiwa vana watho wa utanio. Ethiwa mwikali niwakw'a vate watho muandike nonginya ala maile ukwata utiwa usu manewe.
- Ethiwa kwa ngelekany'o kwa nzia ya kithio umwe niwe ukwatiie kithaka vandu va musyi w'otho. Kithio nikivitukite Title nandike. Vala vailye uu, kila kitonya kuaiwa ala ma ula muandike thini wa Title ni kila kitialaa itina wa ala ma musyi angi mamina kuaiwa.
- Ona kutwika mundu ena uthasyo wa kuandika watho wa undu ukwenda syindu syake iaanwe, vala utonya kwithiwa avathite syana imwe kwianana na muvai kana mutwaano wake nitonya kutwawa kotini na kusitakwa na kwonany'a manthina ala mena watho usu kwianana na miao ya nthi ya Kenya.

2. Aimi ma TIST nimethiitwe maivanda miti nthini wa itheka sya silikali, Bowmans nutonya ututetheesya tukethiwa na mwiao na wiw'ano wa kwithiwa twi ene ma miti isu?

Wiw'ano kati wa muvea wa mititu wa kenya (Kenya Forest Service), Lower Imenti Community Forest Association and Clean Air Action Corporation wa matuku 15/11/2012 (The **KFS Agreement**) wiasya kana mwene kithaka kwa miti la Lower Imenti Forest ila ya vandiwe kenya ungu wa Kenya Forest Service (andu ma Tist Kwandaia ikiithya wiw'ano uyu kati wa KFS niweeuwva - kuma mbeeni wai wiw'ano wa myaka itano ila itonya kuandikanwa ingi weu)

Kwinana na miao ya usuvii wa mititu (Forest conservation and Management Act) isio syothe sya mititu Kenya yi ungu wa Kenya Forest service. Ungu wa walanio TIST na wiw'ano wa KFS, amemba ma isio inthi ingi maina aki ya kumesya itheka isu kana miti ila yivo ila mavanda. Onavala a memba ma TIST ala mena amwe moo mavandite miti thini wa Lower Iment Community Forest Association nimanengetwe mwanya wa ulika mutituni, kuvanda miti na kwika maundu angi ma vaita kwa mawithyululuko, kukwata ndivi sya nzeve



Uimi kana ndilikasa ya kuendeeza.



Nima ya miti la liu Kilungu kya vata kya uimi na ndilikasa ni nima ya liu na miti.

Ualyulo: Kuvanda miti, ikuthu vamwe na liu kana mimea na kana ndithya ya indo Mwolooto wa nima ya miti na liu yithiawa na mwelekelo umwe ula ni kwongela w’umi wa kitheka kwa nzia ya kutumia miti.

Miti yithiawa ya vaita mwingi kwa muimi ta:-

- Miti ya kwaka
- Ngu
- Matunda na liu
- Uithyo / Wovo
- Kulumya mbithanga
- Kwongela muthanga unou
- Kwikalya kimeu
- Kusii kiseve
- Kwikia muvaka
- Ndawa
- Kuete mbesa
- Kuola kukuwa kwa muthanga.

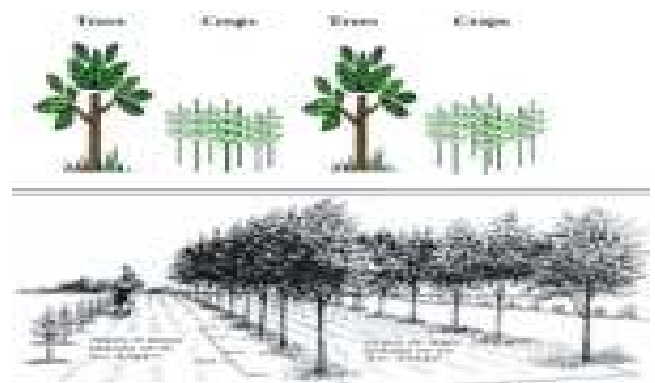
Nzia sya uvandi na uimi wa miti na liu; Kwi nzia mbingi ila iatiawa na kwi ona ingi nzau. Nzia imwe ni nzeo kwa isio imwe na nithuku kwa isio ingi. Andu nimendaa kutata nzia kwiana na kisio kila mai na kuete ona nzia ingi nzau na kwona nisyiva syaile kisio kyoo, ingi nimaile kwonasya ala ang yila mena mbumbano undu wa nzia ithi. Vaa ve nzia imwe ila itumiawa kaingi nthini wa nima ino:-

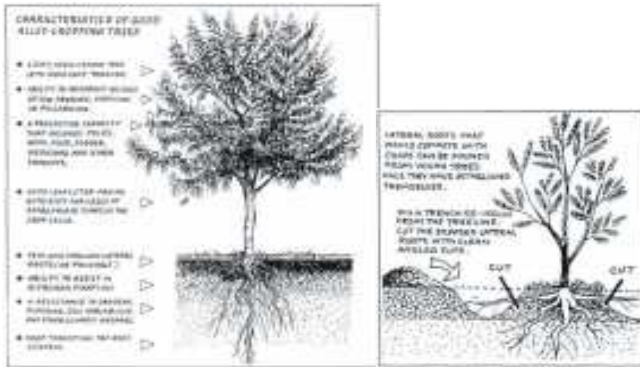
I.Wiio: Nzia ino yendaa ukamba usakua muthemba wa miti ula wavandwa lainini wika nesa na unengae muthanga vaita. Wiio wendaa kisio kinini, nusii muthanga kukuwa, niwumasya matu ma liu wa indo na kuvwika muthanga. Ngelekany’o ni kuvanda miti ithyululukitwe kiwanza ta muvaka. Miti ino niyaille uvandwa na utaaniu wa 1.5 - 2m. Kingi wiio withiawa museo yila wavanda miti miasa na mikuvi ivulene ngelekany’o Mithulu na ndau kana mutavisi.



2. Kuvanda mitauni:- Nzia no yendaa kuvanda kwa misitali ithengeanie tanyusu itambya kuvika matambya eli. No uvande mutau wa miti, mitau ili kana itatu ya liu ngelekany’o mutau wa mbemba mutau wa lusina kana maiu na kaawa. Miti ila miseo ya uvandaniw’a na liu ni ila inengae muthanga nzeve ya nitrogen. Utaaniu wa miti waile matmbya 5 - 8(m). Utaaniu niwaile kwika uyiimwa na iisewa nikana ndikasindane na liu undu wa unou na kyeni. Matu ala masewa no mavulanwe namuthanaga kuete unou kana makanengwa indo ta liu. Kwoou miti ino nundu

niseawa ndikaasave muno ndithiawa yaile kwondu wa nima ya ndivi nthini wa TIST onakau nimiseu niseuvasya mawithyululuko undu wa nima nzeo na kwithiwa yi ya vaita kwa muimi. Miti imwe ila ivanda mitauni yithiawa nzeo nundu nithongooa nesa na kwoou noyithiwe itemwe kila mbua nikana inenge mimea/liu nzeve nesa. Nzia ino yithiwa nzeo na mithemba imwe ya miti ta Cassia siamea, Cassia Spectabilis, musanduku, Lusina, Kyoo miti imwe niyithiawa miseo ila mini no yeananga withiaa ndivandaniw’a na kindu nayo nita Mvinje, mukima /muvaliti, munyongo na Albzia spp.

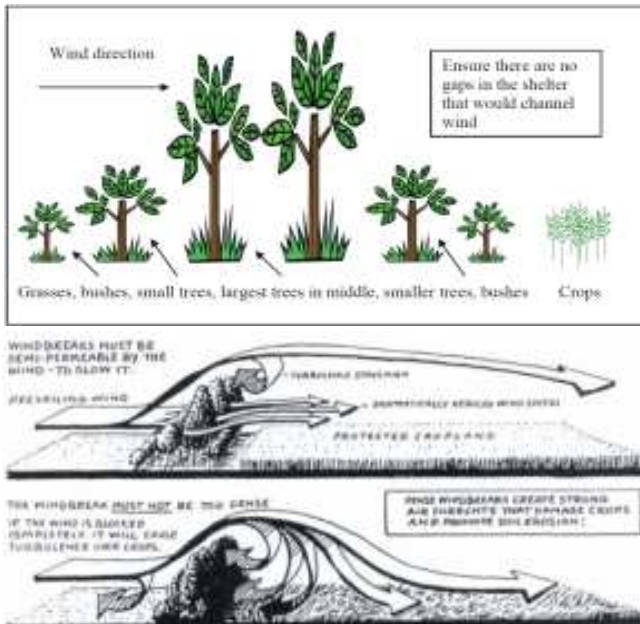




Ve muimi waatumia nzia ino ya kuvanda miti na liu vamwe? ethiwa evo, ni miti na liu wiva syeekie nesa syavandaniw'a? Makulye mamunenge uvoou iulu wa kila mamanyie kumanana na mbanda ino na muyuka na umanyi uyu ila ingi kukwithiwa na mauvundisyo.

Imwe aimi no matate kwa kuvanda mitau o minini niundani yoo na kwona kana vena kivathukany'o na mbua ila ingi.

3. Kusiia kiseve: Kuvanda miti laini itaanie nisiiaa kiseve. Uu naw'o nusiiaa mimea/liu kumana na kukomwa ni kiseve na kwanangika, Vanda miti ila minene kati, miti ila mini iatiioe lainini usu ungi, na ikuthu na nyeki iyatiia. Vanda isiie kiseve. utaanu wa laini sya miti waile ithiwa wi 4-5m na 2.4m



katikati wa miti ila yi lainini. Useo wa kuvanda miti ya kusiia nzeve nundu muimi ndeithiawa ayumya kisio kinene kya muunda kuvanda miti no viata wa miti ino niwonekaa na ukatuma withiwa na ngetha nzeo nundu kiseve kila kitonya kwananga liu nikisiie. Ingi miti ya kusiia nzeve yavandwa nai nitonya utuma liu wangika nundu ethiwa nzeve yeelekelw'a ngali ila itaile kana

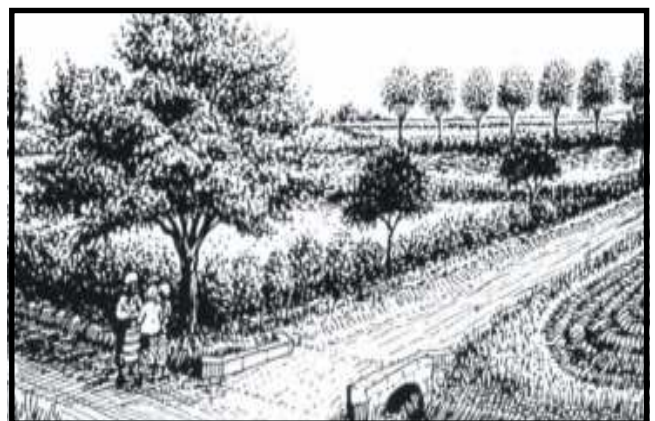
mwina mwanya nzeve itonya ulikila nitonya kwananga mimea. Sisy mundu wisi undu miti ya kusiia nzeve ivandawa autetheesye ethiwa wienda uvanda miti ya kusiia nzeve.

4. Kutiia uvanda:- Vaa ni vala muimi wambaa ukilila mbia siana una ate kuima kisio kina kya muunda na ayieka ikuthu iimeea nikana muthanga utunge unou. Kana nutonya uvanda ikuthu ila syongelaa muthanga nitrogen ta munyongo na wuti.

5. Nima ya Kuvulany'a: vaa ni vala muimi uvandaa miti na liu vamwe indi miti uyithia ivanditwe mataila. Miti miseo ya nima ino ni miti ila ietae muunyi na kwongela unou wa muthanga. Uvoou mbeange kilunguni kingi.

6. Kwailya kisio kya ndithya: Kusuvia miti kisioni kya ndithya nikana wongele uithyo/ wovo na ngu. Kwa ngelekany'o kundu kula kumu miti ya imwea na isemei kana imwele, ivoa, muthiia, kyaiki, mulaa, kilului nimiseo nundu matu mayo ni maseo kwa kwa liu wa indo yila kwi thano.

7. Kuvanda miti ta tukuthu:- Kuu ni kuvanda miti mingi vandu vamwe tusio tusio tula twavandwa liu tutekaa nesa na no ivandaniw'e na liu ngelekany'o kuvanda muundani vala vakue ni kiw'u na kuu utee uivanda liu. ingi miti ino nisiiaa nzeve. Miti ino no ivandwe vandu vamosu kuseuvya muthanga wavo.



8. Kwikia muvaka: ngelekany'o Mithulu kana commiphora zimmermannii subsp.

Amanyisya, lilikanai kana miti ya TIST niyaile ithiwa itaanw'e undu vaile nikana yiane na kwikala kwa ivinda yila yaile. Nzia imwe kati wa ila ineenewe vaa iulu ni nzeo kwa nima ya uvandi wa miti na liu kana ndithya yoka na iitonya utumika kwa nima ya TIST ya ndivi.

**Mawoni angu ma kuisya nundu wa mbua isioni imwe sya Kenya.**

Isio ila syi iimani syithiawa na muthanga wina asiti mbingi (kula maiani mekaa nesa)

Sisya kuvanda Calliandra Calothyrsus na Morus alba kwa uithyo wa indo.

Kwa muvaka na kusii kiseve vanda Mithulu, Mikuvulya, Casuarina Cunninghamiana, Millettia dura kana Hakea saligna.

Kwundu wa matunda vanda miti ite uthui ta Ndunda, Ndula kana mapeasi.

Isio ila syinthe (ta kula kaawa kekaa nesa)

Sisya uvande jacaranda Mimosifolia mivakani Kwa kusii nzeve na w'umo wa kiw'u vanda mumba-aume/kisambalau.

Kwundu wa matunda vanda kitanda, kiluma, kivakato, kikandania, kikundi, casimiroa. Edulis (white sapota), Annona senegalensis (custard apple), ivela, na Eriobotrya japonica

Vala ukwenda usiia kukuwa kwa muthnga no uvande Calliandra, Morus alba, Grevillea na Markhamia.

Mukima ni muti museo kwa muunyi wa kaawa.

Kundu kula kwiiulu muno na kwikitheo kite kinene na miti ni minini.

Vanda miti ya usiia kiseve na wiio ila nita Imwea, Mikima, Hakea saligna, Mithulu, Dombeya Spp., Dodoneae angustifolia, Casuarina cunninghamiana, Dovyalis caffra. Na mithemba imwe ya miti ya mitunda noyikaa nesa kuu

Memba na ndithya ya ngombe syeia nthini wa Rift Valley.

Nundu mbemba iyikaa nesa vando ve muunyi sisya uvande na isio sya miti ithengeanie (wood lots) kana miti ya usiia nzeve undu wa kusuvia muthanga ta mikima, Sesbania Spp., Mithulu, mutundu, imwea, ndau, mithiia, ming'olola, casuarina cunninghamiana, Dovyalis Caffra, Markhamia lutea, cordia abyssinica. kililikany'o

Lilikana

Kila miti ietae na uyika ukunikili umanye muthemba ula museo kwa kisio kyaku. Lilikana miti niyuaniia kiw'u, liu na mimea na mithemba ingi ya miemea ndyendete muunyi. Osa uvoo na utao mbeange kuma kwa tukundi twaku kana kwa athukumi maitu ma TIST.

- Kwa ngelekany'o kulya muti ula withiawa na mii miliku na mii minini vaa yiulu kwondu wa uimi wa miti na liu/mimea. Casuarina Spp. Leucaena leucocephala, Cupressus lusitanica na Sesbania sesban syithiawa na mii yi vaa iulu na noyithiwe miseo kwa kusuvia muthanga kukw'a. Ndau (eucalyptus spp na Gmelina arborea niyumasya sumu ula wuaa mimea ila ingi kana ukethia ndimea.
- Nima ya kuvulanya ndikaa nesa kwa isio ila ikwataa mbua yi itheo wa 800mm kwa mwaka.

Vala utonya ukwata umanyi:

Vewna uvoo wa vata unenganitwe iulu wa nima ya miti na mimea kuma website ya Kenya foest na no wisyaisye kwisila ([http:// agroforeststress.cisat.jmu.edu/](http://agroforeststress.cisat.jmu.edu/))

Videos

"Grevillea Agroforestry" (mutalakwe) (6:26) Ninenganite vaita mbingi sya mutalakwe kwa muimi na nthini wa uimi. ni ieleetye undu wa kusuvia na undu utonya uvandaniw'a na liu/mimea. Wenda sisya <http://www.accessagriculture.org/node/895/en>

8. Mavuku /Kundu kwa usisya na masyitwa mamu

CARE-International (1989) Agroforestry extension Training Source book. Module 6. Agroforestry Design. Educational Resources Development unit, Nairobi

NEMA (1998) Kusuvia mawithyululuko- A kavuku ka kw'oko na atongoi ma nduani. National Environment Management Authority, Kampala.

Tengnas B (1994) Agroforestry Extension Manual for Kenya. International Centre for Research in Agroforestry: Nairobi

Mazingira Bora



TIST

The International Small Group & Tree Planting Program
www.tist.org

Kipsigis Version

**TIST is an innovative, time - tested,
afforestation program led by the
participants.**



Kianyaga TIST Cluster during their monthly meeting last month.

Inside:

TIST VALUES: The Foundation and Strength of TIST. Page 2

Strength in diversity: TIST protects biodiversity. Page 2

TIST: Getting Your Suggestions, Ideas, Concerns, Complaints Shared and Heard. Page 2

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Values chebo TIST: Foundation ak Strength nebo TIST.

Chechang' en Groupishek 'ab TIST koyoni ak koyoe kou en TIST Values. Borotet netinye TIST kotiyenge integrity ak effort nebo membayat agetugul. Borotenyon kotiyenge chi agetugul ne membayat ak kisubi Values ichuton komye.

En activities chechoget chechang' , konam minet 'ab ketik , keyai kasit 'ab Conservation Farming, Ribet 'ab biodiversity, teg'et aka let 'ab improved stoves, kanetishet ak practicing nebo ng'alek chetinyege ak borto, Ribet 'ab

imbarenikchok komabar erosion nebo ng'ng'unyek ak tugun alak che imuche kowech ng'ung'unyek, keyom keisten climate changes ak tilet 'ab osnoshek, ribet 'ab oinoshekchok asi kenyorun bek che yomech ago tililen ak tuguk alk chechang' agot generating income, TIST Values koche nomu kwenet en chu tugul.

En TIST, We Are. Ko ketononchini imanit; ki accurate; ki Transparent; Ki cheyochin ge kasishek ; Ki Mutually Accountable; Ki Role Models; ago kiVolunteers.

Temikab TIST kebosie timwek.

Timwek kogonech mogornote ak koribok olto ak kenyoru tilindo en ole kimenye kararan niton amun tere tuguk chebitu kou kement.

Susurik, anan ko burgeyetaf emet, onger timwe amun toreti biik chechang ak kogonech mogornotet.

Miten walet en nguni ak kasarta negibo sisig chebo tai kou mengenyoru toritik, tiongik

kokigoba kochangat mengotosiek, ak mengomiten ketik chechang, chemoginge biik chang, tinya anyun temikab tist boroinde korib timwek, ketage tugul ne kagimin keyome kewegun indondab emet.

Tinya temikab TIST bcheetaf ngomnotet agobo timwek asi kewegun ketik ak tiongik chelegiten, ogeibu konguwot asi kimuch kewal akenyoru mogor notosiekaf emet, mising ketikaf kipkaa.

TIST: Konyoru mogutikuk, kobwotutikuk, kerengung, bcheetaf kewelnatosiek ak kaset.

Tolochkab TIST komokwech kemiten kochekiyonotin, che lititen, che kitogu, che kiityinigei ak chegiboisyiechinigei echek tugul. TIST ko kabchi kimoginii chitugul kotinye ako miten kogesunotgei amun ingot itinye mogutik, keret, kobwotutyo, maget konyolu kemwa ak kekas.

Asi kobit kosulta niton ko nyolchin bikab kurubit koteb ngwony ak koger niton ak konde boisionik. Asie kageger en tuiyetaf kilasta kisibto kwo council (GOCC) anan ko leader council ko

kagechigil ak kesir. Bunei eunekab kilasta che kondoik ak kiboitiyotaf kilasta ngolyon aketugul ne miten asikwo GOCC ak LC.

Nyolchin ak ichek GOCC ak LC kowech ngalekwak tugul kobwa kilasta anan ko kurubit nebo ngalechoton en oret nebo che kiyonotin ak che lititen. Ongekosisgei echek tugul ogeigun kiboitinik, ogeigun boisiet ak kabwatet ne kararan.

Asi keityin kenyorunen kelunoik che miten barak en tetet ne miten ngwony.





Tononetab minutik: Minetab ketik ak minutik.



Ororunet: minetab ketik ak bugonok koboto minutikab imbar anan ko baetab kiyakik en kayumetab niton kotogingei minetab ketik ak rurutik asi kotes rurutik chebo emet ye kiboisien ketik.

Tinye temik kelulenoik chechak en ketik.

- Kitekseen, logoek ak omitwogik alak.
- Kinyorunen kwenik, omitwogikab tuga.
- Ngungunyek chegororon, ngetunen beek ngungunyek, tere koristo, toreti kiwotosiek.
- Kerichek, konu rabinik, tere ngungunye komoib beek.

Koborunetab minutik ak ketik.

Miten kobotutik cheterchin chechang ak ortinuwek chelelachen chekinyoru en kasarta age tugul, kobowotutik alak kinyorunen kelut en komosto age ak kewelnatet en orage, kimoche biik koboisien kobotutik cheter ak kobchei en tuyosiek, cheisibu ko ortinuwek chebo.

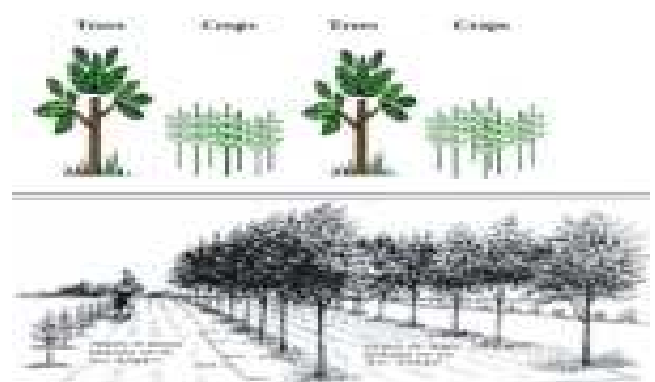
Koletab minutik ak ketik;

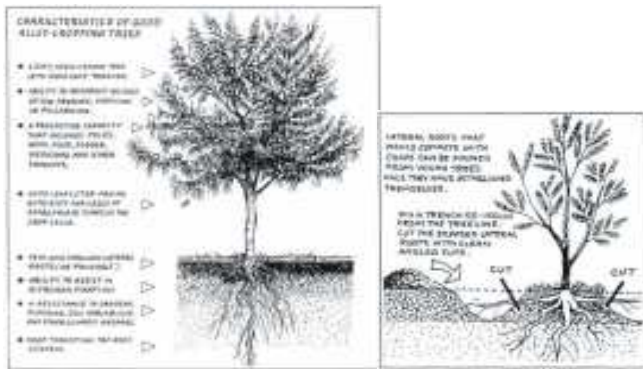
I. Ngotuet: Niton kotinyegei ak lewenet nebo ketik cheichome asi imin koik ngotuet an chetoreti imbaret, ketichuton kemin komoginge kokwoutik che mengech asi komuch koter ngungunyek ak



kogonon beek ak kinyorunen omitwogikab tuga, koborunent nebo ketichu kemine en kiwoto komuti moche anyun kokwoutik kongeten 1.5-2m niton ko koborunet ne kararan komiten ketik chemengech ak chenuongen kou kelelwet ak lantana camara

2. Ketik chetinye boronik: Niton kotinyegei ak kakwoutik chemengech (0.5-2m) en tebesindo imuchi kolainitab ketik ko oeng konebo minutik agichek ko somok kounoton en imbar korogunet ko kou bandaek ak indabibit ana ko gawek ak ndisinik, ketik anyun chegororo ko cheteche omitwogik en ngungunyek, en kokwoutik chebo ketik komosire (5-8m) en ketichun konyolu anyun kechoror en abogora asi komoegitun asi kobor chigei omitwogik ak loboiyet, sogek anyun kogochin konyor okwoiyet ngungunyek en abogora ketichon anyun komoliboni TIST amun ibe kasarta ne mingin toreti temik en tugul alak chechang, chechang en ketichu ko ingetil kongotos, niton kogochin ko moegitun koba barak, chenootin

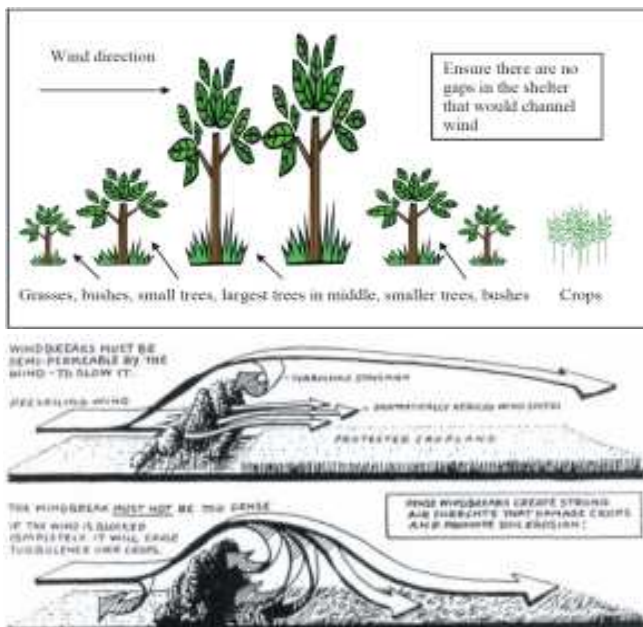




mising ko kou, calliandra, cassi siameo, cassia spectabilus, eucalyptus spp, leucaena, markhamia alak kogororon yon mengechen kou chesarur, sebesebe, sesbania sesban

Ara anyu miten temik che kogotiem koyai kouniton agot kogotiem konee ne kararan, ongebchei en tuiyosiek yon kitinye en abogora, asi kesuen walet

3. Tere koristo: kemin ketik chetinye kimnotet asi komuchi koter minutik en kasarta nemiten koristo ko kararan ingeminchin kwenetab imbar, kosib ketik chemengech en lainisiek oeng ak



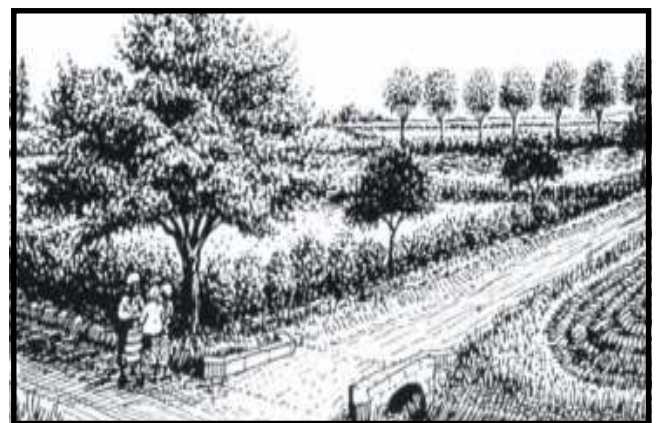
bugonok, ak susuek en komosta age, ibe kokwoutik (4-5) kongen ketit kot koit ak kokwouk (2-4m) en lainit, toret mising temik amun nyurenen ketik chechang, toronito bo koristo komoche biik cheigen amun imuch kogon asenet agot komanai ole keminte

4. Keter imbaret amakikol: Niton komu che timik kobat imbaret ak kebagach koma kigol minutik alak tugul asi korut ketik kowegik okwoiyet ngungunyet, choton cheteche ngungunyek ko kou sesbania spp and gliricidia sepium

5. koyometar minutik ak ketik: Nito koibe kokwoutik cheboroen en minutik ak ketik asi kengalalen en kasarta ne nyone

6. Kiyagen kiyakik kotoreti: Yeimuch irib ketik en imbar inyoru ibai tuga amun inyoru kwenik ak omitwokikab tuga en komosto ne momiten robta kekole ketik kou chepnyolilok, sertuwet, chebitet, nikiruwet, chepkomon en emet ne miten robta komuche koboisien kou; callianda calothyru, sesbania, sesban ak leucaena, diversifolia, kiboisien sogek cheyomiotin keboen tugaana ko lego

7. Kimin kosibiny: En minaniton kemine ketik kosibiny en ole morutunen kii anan ole miten koik anan ko chepnyesut, toreti koter kosito ana ketem agebagach ko magigol



8. Kiyoen kinotosiek: Toretikab TIST kongen kole en minetab ketik chebo TIST kotinye kokwouting asi konyor ketik koengitun ago cheibe kasarta negoi, kararan niton baten monyoru chekondok chebo TIST kou; kelelwet, ak commiphora zimermnii susp

**Kerchinel kabwatan ak kebeberuwek chemiten en kenya;**

- Korotinuwek chemiten barak ago tororen ago birir ngungunyat (kemine ketitab chaiyat)
- Kerchinen callianda calothyru ak morus aiba en bayetab tuga
- Kerchinen kiwotosiek ak koristo kou; kelewet, sebesebe, chesarur, milletia dura ak hakea saliga
- Kerchinen ketikab logoek kou; plums, peaches and pears
- Ole burgei ago chortaat ole rure kawek komie
- Kerchinen jacaranda ole kagiminen en kiwotosiek
- Kerchinen lamaiyat ye kagimin kosim oinet ak kotoreti koristo
- Kerchinen ketikab logoek kou; tree tomoto, perseia american (avocado) macadamia teraphylla, passiflora aduilus (kirintila) psidium guajara (maberiat) eriobotrya japonica (lakwat)
- Miten ketik chegororon en teretab ngungunyek kou; calliandra, morus alba, sebesebe ak markhamia lutea sebesebe ko kararan en uronok en kapchain ana en kawek

Koret nemi barak amaleike ako miten ketik che ngerin

Kerchinen ketik chetoreti minutik chemiten kiyotosiek ak ketik kou; chebitoik, sebesebe, hakea saliga, kelewet silibwet, chesarur ak logoek koyoe komie

Baetak kiyakik ak minetab bandek en rift valley.

En bandek komorure en olemiten uronok chebo ketik kou olekagiminen ketik chechang, olemiten che tere koristo, olemiten chetere ngungunyek ketik kou; grevillea robusta, sesbania spp, croton macrostachyus, kelewet, chepnyaliliet, eucayptus ssp ak corchia abbyssnica

Kibwat: yon kimine ketik ko konech kelunoik chechang ko nyolu ilewen komie chebo oleimenye, alage kogororon en minutik alak komomoche keurto onyoru konetisiek koyob kurubit anan ko en kiboitnikwok

Ketik chetinye tigitik che koen ko kororon amun motinye en baragunyin chechak nomegei niton ak minutik miten che mogororon en minutik kou; eucalyptbhus spp ak gmelina arborea

Tukuk chekonech konetisiet; Miten kou website kenyorunen ketik chegimu che kegol ak minutik en emenyon kinyorunen <http://agroforesttrees.cisat.jmu.edu/>

Videos: Gravillea aggravillea agroferesty.

(6: 26) ororu mising agobo ketik ak minutik en <http://www.accessagriculture.or/node/8951/>

Ibuwotun en**8: Care:-international.**

Agroforesty extension training source book module 6: agroforesty design (1989) educational resources development unit Nairobi