

Mazingira Bora



TIST

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

English Version

An Environmental, Sustainable
Development and Community Forestry
Program.



TIST Master Trainers in a recent seminar.

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Time to prepare tree nurseries for next season planting.

Many Small Groups in TIST, after transplanting their trees during April – June rains, begin in July to prepare their nurseries for the next tree planting season in October - December rains. This helps them to make sure they have enough new trees to plant and to replace those that didn't survive in previous seasons. Many groups also sell surplus seedlings to neighbours and thereby increase their incomes. Here is how to prepare your seedbed, pots and nurseries:

Pot-bed Preparation

A. Use

When the seeds have germinated and show 3-4 leaves, they can be transplanted into plastic bags filled with soil (pots). The size of the pots varies according to the seed requirements and the resources you have.

B. Preparation

- Most seeds will use a 6"x4" or 8"x5" polythene bag. However, these can be expensive and so you can use:
 - Tin cans
 - Banana leaves
 - Plastic bags – cut the plastic to the size you require and seal using heat to melt the plastic to stick the sides together.
 - Used plastic water bottles
 - Other materials you have available—share your ideas in your cluster!
- Whichever pot you use, be sure to leave holes at the bottom so water can drain out .
- Cut the lengths of these pots to 5 or 6 inches and make sure there are some small holes in the bottom of the pot.
- Prepare the soil by mixing in the ratio of 5:2:1
 - 5 parts sieved forest topsoil
 - 2 parts sand
 - 1 part manure
- Sieve the topsoil to remove stones and coarse material. A sieve can be made by fitting mesh wire (1.5cm) to a 1m by 1m wooden frame.
- Mix the soil thoroughly.
- Moisten the soil to make it stick together.
- Fill the soil into the pot slowly, gently

compacting at each stage to avoid air pockets. You can use a funnel to make filling easier.

- Leave a space at the top where the seedling will be put.
- Transplant seedlings into the pots by making a hole and inserting the seedling without twisting the roots. Fill the hole in with soil again.
- The pots can be arranged in rows to form beds for easy maintenance and placed either in the sun or shade according to the seed requirements.
- Arrange the pots in lots of 100 seedlings each. Similar to the seedbeds, the beds are easier to manage if they are 1m wide and 5-10m long.
- Arrange the seedlings according to species so that it will be easier for Quantifiers to record data by species.

New best practice: Raised pot beds

TIST is encouraging farmers to try raised pot beds. Many farmers have found that this improves results. Try raised pot beds and report to your cluster what you observe, and whether this practice works better for you.

Figure 1 represents the common way of arranging pots, as described above.



Fig 1: Seedlings of *Moringa oleifera* arranged as a stack on the ground

This traditional system of arranging pots on the ground can produce seedlings with weak roots. This is because the roots coil up inside the plastic pot. At transplanting, the roots can be weak and therefore not easily establish in the ground. To avoid this, it is recommended to establish seedlings in **open bottom** tubes and place them on **raised beds** (Fig 2). A raised bed can easily be made from a wooden frame and wire mesh (see photo). Raised



beds allow automatic root pruning because when the roots reach the container bottom, they naturally drop off (called air root pruning). This means that roots do not get injured through normal root pruning methods. The roots then tend to strengthen without growing further. This produces a healthy root system and the seedling has a better chance to establish fast and well in the field. It also eliminates the need for the labour of root pruning, a practice that is often forgotten or done too late, causing serious damage to the roots. Weed control is also easier in raised beds.



Fig 2: Seedlings of various species arranged on a raised bed.

The raised beds might appear to raise the amount of water used in nurseries. However, nursery operators have devised innovations to deal with

water constraint. A good innovation from Tanzania is digging a trench, placing planks of wood or wire mesh across it and placing the seedlings on the planks or wire mesh. The seedlings thus appear to be on the ground level but the trench under them provides the space which aids air root pruning. The water is trapped in the trench and will keep seedlings moist through evaporation and so reduce the need for very frequent watering. A polythene sheet can also be placed in the trench to ensure water does not seep into the ground.

Questions to ask during Cluster Trainings

- a. **What materials have small groups successfully used for the pot bags? Share your best practices.**
- b. **How can small groups organize themselves to prepare their pot beds? How many people are needed to prepare the pots? When? How many people need to prepare the soil mixture? Where?**
- c. **Have any groups already tried raised pot beds?**
- d. **Do people have any other advice? Share any information at the next trainers' meeting.**

July-August is the perfect time to begin preparing your farm for Conservation Farming.

By Joseph Gituma

Many TIST Small Groups have reported that Conservation Farming best practices have helped them get better harvests, even in the very worst years when rainfall is little and unreliable. In good years, the harvest has been impressive. Some groups in dry areas have reported 2 to 5 times improvement in their crop yields!

In Conservation Farming, you add compost manure to holes where you grow your crops and leave crop residues on the field, and do not plow, which limits erosion and the loss of soil nutrients this causes. Crop seeds therefore get many more nutrients than if they were planted using conventional farming methods. The extra nutrients help the seeds to grow into stronger plants with greater yields.

The holes provide other benefits as well. The holes are very important when the rains come, because instead of washing the good soil and the seeds away, the water flows into the holes and helps the seeds grow better. The combination of the holes and the manure means that the water is held near the seeds for longer, so when the sun comes out again it does not become dry as fast. The holes protect the seeds and you can weed around the holes without hurting the plants.

Remember, when you harvest your crop you should not let the animals destroy or burn the remainder from your farm. The remains of crop will rot and return many good nutrients to the soil, preparing and enriching it for the next planting season.



Indigenous trees: What are they, and why are they important?

Farmers in TIST plant hundreds of species of trees, including fruit and nut trees, trees for fodder, trees that improve soil fertility, and species that can be harvested for timber. More and more farmers are choosing to plant indigenous tree species for their many benefits.

What is an indigenous tree?

An indigenous, or native, tree is one that is well adapted to an area because it has grown and reproduced naturally there over a long period of time. Not all species that are familiar to us are indigenous. Many have been introduced by people from areas far away. There are over 800 species of trees that are indigenous to Kenya.

Why are indigenous trees important?

Because indigenous trees have evolved with the local environment, animals, plants, and other organisms around them, they are well suited to the area. Often, this means that they can grow well without expensive additional inputs like pesticides or fertilizers. They often require less maintenance than exotic, introduced species. They diversify our farms, so that risks of pest outbreaks can be lower. They provide habitat and food for wildlife and diverse benefits for us from their fruits, timber, leaves, and traditional medicine. Introduced, or exotic species, can provide many benefits, but some can become weedy and crowd out other trees or crops.

When we plant indigenous trees on our farms, we are helping protect species that have been useful to our mothers and fathers, to our grandparents, and to the people and wildlife of Kenya for generations. We are still learning about the benefits of the many species around us. When we plant indigenous species, we can help ensure that the trees and their benefits are there for our children. In TIST, we have some additional incentives for planting indigenous tree species. Groups near rivers who follow TIST best practices for riparian areas and plant indigenous trees may qualify to receive an additional incentive through the TIST Riparian Initiative. TIST Small groups near protected forests who plant indigenous trees may be eligible to join CFAs to plant indigenous species and earn carbon income in these forests. Starting in this payment, you'll notice an additional Indigenous Tree Incentive

on your vouchers. Each indigenous tree quantified in your TIST grove qualifies for this new incentive of 1 shilling per indigenous tree per year. It is important to note that this incentive is available because of support from USAID. Unlike the tree payments, which are funded through carbon sales and so will last for at least 30 years, the incentive for indigenous trees is shorter-term, and dependent on outside funding. Currently, we have funding for the additional indigenous tree incentive through 2013. We will work to try to secure additional funding so that we may be able to extend the incentive for a longer time.

Which tree species are indigenous?

There are hundreds of indigenous tree species in Kenya, and many introduced species that also provide good benefits. Here are some examples of each:

Indigenous trees for Kenya

Cordia africana

Meru oak, muhuru, (*Vitex keniensis*)

Mugumo, Mirumba, (*Ficus thonningii*)

Podo, Muthengera (*Podocarpus falcatus*)

Mwiria, (*Prunus africana*)

Mutoo, mukeu, *Dombeya rotundifolia*

Murubati, Muuti, (*Erythrina abyssinica*)

Sesibania, (*Sesbania sesban*)

Muuuku (*Terminalia brownii*)

Mikongoro, (*Acacia albida*)

Mihogoro, (*Acacia abyssinica*)

Some other trees have been in Kenya for a long time, and are very useful, but are not indigenous. Some of these include mango, macadamia, casuarina, gravellia, bottlebrush, and Mexican green ash.

Try planting some indigenous trees in your shamba today! Look around and see what species grow in the forests near you. Ask your neighbors and cluster members what trees they grow, and which trees in forests provide important benefits for them. If we work together, we can protect this great resource of diverse forests for our children and generations to come. Please call Jeniffer Kithure for information on indigenous trees or the Riparian Initiative at 0726319539.



Election time – Elect your Group of Cluster Council members this month (July 2012).

Who is TIST? We are! We are diverse, with more than 150 clusters around Mt. Kenya, in Mbeere, in Mara and Mau. As we continue to grow, we want to make sure that our many different voices and ideas are heard. When women and men, old and young, from many places share their ideas, we can make TIST better and better to serve all TIST Kenya farmers.

The pioneer GOCC members' term is now expired. It is now time for them to rotate out and new members to be elected. It is therefore your chance as Cluster members to choose new representatives, 1 man and 1 woman, who can best share your voices as representatives to the Group of Clusters Council. A Group of Clusters is 2 to 5 clusters close enough to be able to share equipment and training capabilities. By July 30th, each Group of Clusters should elect two new representatives to their local GOC Council.

These representatives will not be cluster leaders, nor Quantifiers, nor auditors or current GOC members. Rather, they are elected representatives who will serve for the next six month period (August through the end of January). Each cluster will elect one man and one woman, and the 4 to 10 representatives will meet monthly.

After elections, outgoing GOCC members should train new elected members and hand over materials and stationery to them. Newly elected GOCC members will meet for the first time in the first week of August. At this meeting, each GOC Council will elect one man and one woman from different clusters to represent their geographic area at their local Regional Council.

Regional Councils will meet in the second week of August. Each RC have between 6 and 24 members depending on how many clusters and Groups of Clusters are in the Region. The Regional Councils will meet one time per month.

Each of the Regional Councils will elect one man and one woman to serve on the Leadership Council. The LC will meet monthly (3rd week of the month) with these “representative members” and operational members.

This structure is an important step to self governance, so that TIST Program issues that are raised at a cluster meeting can be carried through the chain of Councils quickly. At each step, issues can be discussed and recommendations made.

To be our best, we need our best volunteers. Discuss and elect in your clusters who you would like to serve as your Group of Clusters Council representatives. It's a great chance to learn and to make a difference for your cluster and all of TIST.



Stop soil erosion and degradation—save our soil!

By Joseph Gituma.

Soil is one of our most valuable resources, but through our action, we are losing it at an alarming rate. It can take 500 years or more for a one-inch layer of soil to form, but an inch or more can be lost in one heavy rainstorm or heavy winds!

What causes soil erosion and degradation?

- **Cultivated soil left uncovered.** Digging land loosens the soil and exposes it to erosion. Such soil is vulnerable to erosion unless it is covered by trees or plants.
- **Overgrazing.** When too many animals are allowed to use a place of land there is loss of vegetation and sub-sequent soil erosion.
- **Cultivating in erosion-prone areas or other poor agricultural practices.** Steep hills and riverbanks are more likely to have serious erosion problems when they are tilled since water can run fast in these areas and carry away a lot of soil. This problem can be made worse if the hills are cultivated with rows in the same direction of the hill slope instead of across the hill or in terraces. Growing the same crop in a field year after year can also damage the soil.

Consequences of erosion:

- **Food shortages:** Soil erosion reduces soil fertility and hence reduces crop yield and food availability.
- **Water impacts:** Soil entering water disrupts habitat, dirties the drinking water supply and carries chemicals used on the field into water supply, which can be very dangerous to people and animals.

- **Hazard risk:** Soil erosion can cause flooding. When the soil settles in the streams and rivers it raises water levels. It also provokes landslides, and makes landslides more dangerous.
- **Displacement:** When soil erosion degrades land to the extent that it can no longer support agriculture, people are forced to move to other lands.

What can I do to save my soil and prevent erosion?

1. **Provide soil cover-** Ensure that the soil is continually covered. Plant a cover crop. Intercrop—plant two or more crops together on the same land, and practice agroforestry (growing trees on the same land as crops). Tree roots are very good at holding soil, so planting a border around your farm, or rows within your field can limit erosion.
2. **Use Conservation Farming.** Since you do not till the soil, plants around the holes help hold soil and keep it from eroding. Holes also can catch some soil before it washes away.
3. **Careful design of land on slopes -** Contour tilling, terracing, digging soils traps to trap soil the base of slopes, can limit erosion or help capture soil that would wash away.
4. **Plant more trees!** Trees cover and bind the soil and are the most effective solution. Stop cultivating on steep hills and riverbanks, and plant trees, Napier grass, and other plants to protect these areas instead.

Let's not lose our valuable resource. Let's use these best practices to stop soil degradation.

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Ni igita ria kuthuranira minanda ya miti niuntu bwa mbura iji ijite.

Ikundi bibinini bibingi bia TIST, bakurikia kuthamiria miti yao muundene mburene ya mweri jwa inna gwita jwa itantatu, bakambiria mweri jwa mugwanja kuthuranira minanda yao niuntu bwa mbura iu ingi ya mweri jwa ikumi gwita jwa ikumi na iiri. Bubu nibutethagia kumenyeera ati barina miti imieru ing'ani ya kuanda na kuanda antune a iria itombire gutuura mbura nthiru. Ikundi bibingi kinya nibieendagia mbeu iria itigaraga kiri aturi na kwou bakongera mbeca iria boonaga.

Womba kuthuranira gitanda kia mbeu ciaku, mibuko na minanda na njira iji:

Kuthuranira gitanda kia mibuko ya mbegu ciaku.

A. Utumiri

Mbegu ciaku ciauma na cionania mabura jathatu kana janna, noithamirue mibukone ya mibira iujuritie na muthetu. Uraja bwa mibuko ni kulingana na uria mbeu iu yeendaga na biria urinabio.

B. Kuthuranira

- Mbeu iria nyingi citumagira mibuko ya mibira ya 6"x4" kana 8"x5". Indi-ri, mibuko iji yomba kwithirwa iri na goro na kwou no utumire:
 - Mikebe
 - Mabura
 - Mibuko ya plastiki kana ya mibira – Giita mubuko jou jukinye uraja buria ukwenda na uinge na mwanki kugwatithania ntere ciojiri.
 - Chuba cia ruuji iria citumiri
 - Into bingi biria birio ndene ya cluster yaku-gaana mathuganio jaku na cluster yaku!
- O mubuko juria ukagita igamba gutuumira, ririkana gutura makutho ruteere rwa nthi rwaju nikenda ruuji rumba kumara.
- Giita uraja bwa mibuko iji mwanka bukinye inchi ithano gwita ithanthatu na umenyeere ati kurina ikutho bibinini reteere rwa nthi rwa mubuko jou.
- Prepare the soil by mixing in the ratio of 5:2:1 Thuriranja muthetu nanjira ya kuthima na gicunci kia bitano, biiri na kimwe
 - Bicunci bitano muthetu jwa iguru jwa muthetu jucunki
 - Bicunci biiri muthanga
 - Gicunci kimwe mboleo
- Cunka muthetu jwa iguru nikenda wiita maiga na into bingi biria biumagari. Gicunki no kithithue na njira ya gutonyithia waya irina makutho (sentimita imwe na nucu) kiri frame

ya rubao rurina uraja bwa mita imwe na warie bwa mita imwe.

- Ungaania muthetu bwega.
- Ikira turuji tunini muthetune nikenda jugwatana.
- Ujuria muthetu mubukone mpaara, ukiinyairia mpara o wekira muthetu nikenda turita ruugo. No utumire mukebe jugiti nikenda juumba gutonyithia muthetu nauthu
- Tiga kaanya iguru aria muti jugatonyithua.
- Thaamiria miti mibukone na njira yagutura gikutho na gwikira muti utikuuna miri. Ujuria gikutho kiu na muthetu kairi
- Mibuko noibangwe ithingatene nikenda iumba kumenyeerwa ba uuthu na igeekwa riuene kana kirundune kuringana na uria mbeu iu yendaga.
- Banguania mibuko igana amwe. Umwe na itanda biria wikite mbeu, itanda bia mibuko biri uuthu kumenyeera riria biri na waarie bwa mita imwe na uraja bwa mita ithano gwita ikumi.
- Banguania miti ugiikaga miti ya muthemba jumwe amwe nikenda ithirwa iri na utu kiri Atari miti kuandika ni muthemba jwiku

Mwitire juria mwega buru jumweru: Guukiria minanda ya mibuko.

TIST nigwikira arimi moyo kugeria minanda ya mibuko iukirite. Arimi babaingi niboonete ati minanda iji nithongomagia maciara. Geria minanda ya mibuko iukiritue na ugaane na cluster yaku jariaukoona na kethira mwitire juju nijumwegankuruki kirigwe.

Mbicha ! nikwonanina njira imwe ya iria itumikaga mono kubanga mibuko, jaou kwiri au iguru



Miti iumithiue ya Muoringa Oleifera ibanganitue amwe nthiguru

Sw2Njira iji ya gintwire ya kubangania mibuko nthiguru niritaga miti irina miiri itina inya. Bubu niuntu miiri niciunangaga ndene ya mubuko jou jwa mubira kana plastiki. Riria jukuthamua , miiri no ithirwe itina inya na kwou ikaremwa kugwatanga nthiguru na uuthu. Kuebera bubu, ni kaba kuumithia miti ndene ya mibuko itikuniki nthi na umirikire



kiri minanda iukiritue (Mbicha 2). Munanda juukiritue no juthithue na uuthu ugitumagira framu ya mpao na waya irina makutho (Tega Mbicha). Minanda iukiritue nitumaga miiri ikaigiita yongwa niuntu riria miiri yakinya mubukone nthiguru, niunikaga yongwa (ikaunika yongwa yakinya ruugone). Miiri riu nigaga inya itigukura kairi. Untu bubu nibuthithagia miri irina thiria injega na miti irina kanya gakeega nkuruki ga kugwatanga na mpwi na bwega muundene. Kinya nibunyiagia ngugi ya kugiita miri, untu jaria maingi burairie kana bukathithua buchereri, na kwou miri ikagitara nainya. Kumenyeera iria ritiraume ni gukuuthu nkuruki kiri minanda iukiritue.



Miti iumithitue ya mithemba imingi ibangi amwe munandene juukiritue.

Minanda iukiritue no yonanie taka itumagira ruuji rurwingi nkuruki ya minanda ya kawaida. Indi-ri,

amenyeeri minanda nibathithitie njira cia kumenyeera utumiri ruuji. Njira imwe kuuma Tanzania ni kwinja mutaro, na kurikira miti kana waya kujugitania na kurikiira miti iu iguru ria miti iu kana waya. Miti iji iumithitue kwou nionanagia iri nthi indi mutaro juria juri rungu nijumiejaga kanya ga kuigita miiri. Ruuji nirugwatagwa mutarone na ruru nirwikaga miti ina ruuji gukurukira gukucua ni riu na kwou rukanyia ngugi ya gwikangira ruuji jamaingi.

Biuria bia kuuria igita ria mucemanio jwa cluster

- a. **Ni into biriku ikundi bibinini bitumirite tamibuko biathithia bwega? Gaana mitire yenu iria miega buru.**
- b. **Niatia ikundi bibinini biumba gucibangania nikenda bithithia minanda ya mibuko? Ni antu bang'ana bakwendeka kuthuranira mibuko? Rii? Ni antu bang'ana bagwitua kuthuranira muunganio jwa muthetu? Naa?**
- c. **Kuri ikundi bigeretie minanda ya mibuko ya guukirua?**
- d. **Kuri na antu barina kirira kingi? Gaana gintu kiria umbu kwithirwa wiji ndene ya mucemanio jou jungi jwa aritani.**

Mweri jwa mugwanja na jwa inana ni igita ririega mono ria kwambiria kuthuranira muunda jwaku niuntu bwaurimi bubwega.

Ni Joseph Gituma

Ikundi bibinini bia TIST nibigaene na bangi ati mitire ya urimi bubwega niibatethetie kwona maciara jamega nkuruki, kinya ndene ya miaka iria mithuku buru irina mbura inini kana mbura itigwitikua. Ndene ya miaka imithongi, maciara nijethirite jari jakugwiria. Ikundi bimwe ndene ya ntuura imbumo niciugite ati niconete maciara ja imera biao jaingiite maita jairi gwita jatano Kiri urimi bubwega, wongagira mboleo kiri marinya aria ukaanda imera biaku na ugatiga imera biria bikuite muundene, guti kurima, kwou ukamati bwa muthetu bukanyia na kuura kwa irio bia imera biria biri muthetune. Mbeu cia imera kwou niconaga irio bibingi nkuruki ria ciaandwa na urimi bubwega nkuruki ya urimi bwa kawaida. Irio bibi biongekete nibitethagia mbeu ikakura ikaa kimera kiri na inya

na iciara ririnene nkuruki.

Marinya nijaejanaga baita ingi inyingi . marinya jarina bata riria mbura yeeja, niuntu antua gukamatwa kwa muthetu jumwega na mbau, ruuji nirutonyaga marinyene na rugatethia mbeu gukuura bwega nkuruki. Marinya amwe na mboleo nitakuuga ruuji ruria rugwatagwa akui na mbeu nirukaraga igita riraja, nikenda riria riu riaumira kairi mbeu ruuji rutiumanga. Marinya nijamenyagiira mbeu na no ukurire irie akui na kirinya utikugitaria imera.

Rikana, waketha imera biaku utibati gutonyithia ndithia inyangia kana uithia matigari ja muunda jwaku. Matigari ja imera nijooraga na jagacokia irio bibiega muthetune, kwou jakajuthuranira na kujunoria niuntu bwa ianda riu ringi.



Miti ya gintwire: Ni miti iriku, na niki irina gitumi?

Arimu ndene ya TIST nibaandaga miti mithemba magana, amwe na mitunda, mikandi, miti ya iria ria ndithia, miti ya kunoria muunda na mithemba ya gwatura mpao. Arimu bangi na bangi nibataraga kuanda miti ya gintwire niuntu bwa baita ciao inyingi.

Muti jwa gintwire ni juriku?

Muti jwa gintwire, ni muti juria jumenyaniritie na antu anna niuntu nijukuririte au na jwaciarana jungwa igita riraja. Ti miti yonthe iria tumenyaniritie nayo iri ya gintwire. Imingi niretetwe ni antu ba kuuma kuraja. Kurina mithemba nkuruki ya Magana janana ya miti iria iriya gintwire ndene ya nthiguru ya Kenya.

Niki miti ya gintwire irina bata?

Niuntu miti ya gintwire nigarukite amwe na naria kumithiurukite, nyomoo, imera na nyomoo ingi akui nayo, niing'anirite aria iri. Jaria maingi guku nikuuga ati igakura bwega itina into bingi bia kwongera ja ndawa kana fertilizer. Jaria maingi niyeendaga kumenyerwa gukunini nkuruki ya miti ya kuletwa uria yeendaga. Niingiagia mithemba iria iri miundede yetu, nikenda tunyomoo tutikejange. Niejaga nyomoo cia kithaka gikaro na irio na kuingi ya baitakiritwi kuuma kiri matunda, mpao, mabura na ndawa cia tene. Miti iria iri imieru kana iria ireti no itue baita indi imwe nigwataga ta iria na ikathiria kana gukunikira miti kana imera bingi.

Riria twaanda miti ya gintwire miundene yetu, nitugutethia kumenyeera mithemba iria ithiritwe irina bata kiri bamami na bababa betu, kiri juju betu na kiri antu na nyomoo cia kithaka ndene ya Kenya kiri aana na aana na aana ba aana betu. No tukuthoma kwegie baita cia mithemba imingi iria iri akui natwi. Riria twaanda mithemba ya gintwire, tukoomba gutethia kumenyeera ati miti na baita ciayo cirio kiri aana betu.

Ndene ya TIST turina motisha ciongeri cia kuanda miti ya gintwire. Ikundi akui na nduuji biria bithingataga mitire iria miega buru ya TIST ndene ya miunda iria iri nterene cia ruuji na kuanda miti ya gintwire no bombe kuwera motisha ya kwongera gukurukira mubango jou jwa TIST jugwitwa Riparian Initiative. Ikundi bibinini bia TIST akui na miitu biria bikaanda mithemba ya gintwire no bombe gutonya kiri CFA nikenda baanda miti ya gintwire na boone mbeba kuumania na thoko ya ruugo ndene

ya miitu iji. Kwambiria mbeba iria ikwejanwa igita riri ukoona motisha ya miti ya gintwire kiri vocha cienu. O muti jwa gintwire juria jugatarwa ndene ya munda jwaku jwa TIST jugatonya mubangone jwa kuriwa shilingi imwe o mwaka o munti jumwe jwa gintwire. Burina bata kumenya ati motisha iji irio niuntu bwa utethio kuuma USAID. Mwanya na mbeba cia kuria miti, iria twonaga gukurukira kwendia ruugo na kwou iria igakara nkuruki ya miaka mirongo thatu, motisha iji ya miti ya gintwire niya igita ririkai na igakara kuringana na igita ria utetho bwa oome. Thaaaji, nitukuwera mbeba cia motisha ya miti ya gintwire mwaka mwaka jwa 2013. Tukarita ngugi nainya kugeria gucuu mbeba ingi iria igatutetheria kuejana motisha iji igita rirajankuruki.

Ni mithemba iriku ya miti iri ya gintwire?

Kurina mithemba ya gintwire Magana jamaingi ndene ya Kenya na ingi imingi iria ireti na iria kinyayo irina baita inyingi. Aja ni ming'uanano ya imwe ya yo:

Miti ya gintwire ndene ya Kenya

Cordia africana

Meru oak, muhuru, (*Vitex keniensis*)

Mugumo, Mirumba, (*Ficus thonningii*)

Podo, Muthengera (*Podocarpus falcatus*)

Mwiria, (*Prunus africana*)

Mutoo, mukeu, *Dombeya rotundifolia*

Murubati, Muuti, (*Erythrina abyssinica*)

Sesibania, (*Sesbania sesban*)

Muuuku (*Terminalia brownii*)

Mikongoro, (*Acacia albida*)

Mihogoro, (*Acacia abyssinica*)

Miti ingi nikarite Kenya igita ririraja, na nitumagirwa mono indi iti miti ya Kenya. Imwe ya iji ni miembe, mikandi, casuarinas, mikima, bottle-brush na Mexican green ash.

Geria kuanda miti imwe ya gintwire muundene jwaku narua! Tega akui nagwe nawone ni mithemba iriku ikuuma miitune iria iri akui nagwe. Uuria aturi na amemba ba cluster ni miti irku baandite na ni miti iriku iri baita cirina bata kiribo. Twarita ngugi amwe, twomba kumenyeera gitnu giki kinene tui kia miitu irina mithemba imingi ya miti kiri aana betu na bangibaria bakeeja. Ringira Jenniffer Kithure 0726319539 nikenda wirua nkuruki kwegie miti ya gintwire kana mubango jou jwa kumenyeera nteere cia ruuji.



Igita ria kuthuurana- thuureni muburungamiri kiri kiama kia gikundi gia cluster - GOCC (mweri jwa mugwanja, 2012).

TIST niu? Ni batwi! Turi bakuuma guntu mwanya mwanya, turina nkuruki ya cluster igana na mirongo itano kuthiuruka Mt Kenya na ndene ya Mbeere, Mara na Mau. O uria tugwita na mbele gukuura, nitukwenda kumenyeera ati sauti cietu mwanya na mathuganio jetu nijakwigikana. Riria aka na arume, babakuru na babanake, kuuma guntu mwanya mwanya bagaana mathuganio jao, notuthithie TIST ikathongoma nkuruki na nkuruki nikenda turitira arimi bonthe ba TIST ndene ya Kenya ngugi.

Aambilia ndene ya kiama kia GOCC nibarathiririe igita riao. Nandi ni igita riao ria kuuma utongeriene nikenda amemba bangi baberu bataarwa. Kwou ni kanya kenu ja amemba ba cluster gutaara arungamiri benu, ntomurume umwe, muka umwe, baria bakomba bwega nkuruki gukinyithia kanyua kenu kiri GOCC. Gikundi giki gia cluster kirina cluster ijiri gwita ithano iria cirri akui uria ciumba kugaana into bia ngugi na uritani. Tariki mirongo ithatu mweri jwa itantatu igikinya, o gikundi gia cluster nikibati kithuure arungamiri bairi kuumania na kiama kiao.

Arungamiri baba batithirwa bari atongerira ba cluster, kana Atari miti, kana ategi ngugi kana arungamiri baria bariku nandi ba kiama kia GOC. Antuabo, arungamiri baba athure baria bakarita ngugi mieri iria ijiite itantatu (Kuuma mweri jwa inana gwita jwa mbere mwaka jou jungi). O cluster igatara ntomurume umwe na muka umwe, na arungamiri bau banna gwita ikumi bagatirimana o

mweri

Gitarano kiarika, amemba ba GOCC baria baumite bakaritana amemba baberu na babanenkere into bia ngugi. Atare baberu ba GOCC bagatirimana riambere kiumia kia mbele kia mweri jwa inana. Mucemanione juju, o kiama gia GOC gikathuura ntomurume umwe na muka umwe kuuma cluster mwanya kubarungamira ndene ya ntuura inene kiri kiama kia Regio (RC).

RC igatirimana kiumia kia biiri kia mweri jwa mweri jwa inana. O RC irina amemba batantatu gwita mirongo iiri na banna kuringana na ni cluster ing'ana na ni ikundi bia cluster bing'ana biri ndene ya Region. RC igatirimaga rimwe o mweri.

O RC ikathuura ntomurume umwe na muka umwe kurita ngugi ndene ya LC (kiama gia atongerira). LC igatirimana rimwe mweri (kiumia kia bithatu kia mweri) na arungamiri baba na amemba bangi baria barina ngugi mwanya.

Mubango juju ni itagarira ririnene kwerekera guciatha, nikenda thina kana mathuganio ja TIST jaria jarirua ndene ya mucemanio jwa cluster jomba gwikangua nampwi gukurukira biama biu. Kiri o kiama, mantu jaja jakaarirua na njira cia kujarthiria ikagaanwa.

Nikenda tuthithia bwega nkuruki, nitukwenda airitiri baria beega buru. Gaaneni na butaare ndene ya cluster cienu nibau bwenda baburitira ngugi ndene ya gikundi gia cluster ja marungamiri. Ni kanya gakanene ga kuthoma na kuthithia mwanya ndene ya cluster yaku na TIST yonthe.



Tigithia gukamatwa na kuthukua kwa muthetu – onokia muthetu jwetu!

Ni Joseph Gituma

Muthetu ni gintu kimwe kia biria birina gtumi nkuruki kiritwi, indi gukurukira ithithio rietu twingwa, nitukujuta na mpwi iria ikurigaria mono. No ijukie miaka Magana jatano kana nkuruki nikenda inchi imwe ya muthetu ithithua, indi inchi imwe kana nkuruki no iure niuntu bwa ngai imwe indito kana ruugo rurwingi rwa rimwe!

Imbi itumaga muthetu jukamatwa kana juthuuka?

- **Muthetu jurimi jutigi jutikuniki.** Kurima munda nikurekanagia muthetu na gukajurugura kiri gukamatwa. Muthetu jajuju kurina uuthu mono gukamatwa tiga jugakunikwa na miti kana imera.
- **Kurithia nkuruki ya uria kubati.** Riria ndithia inyingi yetikirua gutuumira antu anna imera nibithukaua na kwou muthetu jugakamatwa.
- **Kurima antu aria kuumbikia kurugurira gukamatwa kwa muthetu kana gutumira mitire ya urimi iria itibui.** Ibari bibiraja kana nteere cia ruuji cirri uuthu mono kugia thiina cia ukamati bwa muthetu riria kwarimwa niuntu ruuji niruugiaga mono na nirukamataga muthetu jumwingi. Thiina iji noithukue nkuruki rkethira ibari biu biarimwa na mitaro inamanitie na ibari antu a kugiita kibari na ruteere kana na benji. Kuanda kimera kimwe nyuma na nyuma ndene ya muunda jumwe o mwaka o mwaka kinya ku nokuthukie muthetu.

Mantu jaria gukamatwa kwa ruuji gutumaga:

- Kunyia kwa irio: Gukamatwa kwa muthetu nikunyiagia unoru bwa muthetu na kwou kunyiyia iketha ria imera na irio.
- Kiri ruuji: Muthetu juria jutonyaga ruujine nijuthukagia ikaro, jugaaka ruuji rwa kunyua ruuko na jugakata ndawa iria citumagirwa muundene jugacitonyithia ruujine, untu buria buri bubuthuku mono kiri antu na nyomoo.

- Thiina inene: Ukamati bwa muthetu no butume ruuji rukaigara. Riria muthetu jukinyaga nthiguru nduujine inene na inini, nijwitithagia ruuji. Bubu nibutumaga ibari bikagua na bugatuma kugua guku gukatuma kugia mantu jamathuku jamanene.
- Kwinga antu: Riria gukamatwa kwa muthetu kuthukagia muunda mwanka jukaremwa gukuria into, antu nibengagwa bageeta miundene ingi

Niatia mpumba kuthithia nikenda mbonokia muthetu jwakwa na nthiria ukamati bwa muthetu?

1. Kunikira muthetu- Menyeera ati muthetu nijukunikiri rionthe. Uungani – anda imera biia mithemba iiri kana nkuruki muundene jumwe, na uunganie imera na miti. Miiri ya miti ni imiega mono kiri kugwata muthetu, kwou kuanda rwego ruthiurukite muunda jwaku kana kugitania muunda jwaku na miti no kunyiyie ukamati bwa muthetu.
2. Rima na urimi bubwega. Niuntu utirimaga muthetu, imera akui na marinya nibitethagia kugwata muthetu na kwou kujugwata jutakamatwe. Marinya kinya nijatethagia kugwata muthetu jumwe mbelee jukamatwa.
3. Kubangira munda juria juri kibarine bwega - Kurima na benji, gwikira bia kugwata muthetu, kwinja mitego ya kugwata muthetu nthiguru ya ibari, no gutethie kunyiyia gukamatwa kwa muthetu kana gugatethia kugwata muthetu juria juringi gukamatwa ni ruuji.
4. Anda miti ingi! Miti nikunikagira na kugwata muthetu na kwou ni njira imwe iria njega buru. Tiga kurima ibarine kana nterene cia nduui na antu a kurima uande miti, nyaki na imera bingi kumenyeera guntu guku.

Tukendeni guta gintu giki kirina goro mono. Tutumireni mitire imiega nikenda tutigithia kuthukua kwa muthetu.

Mazingira Bora



TIST

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

Kikuyu Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Athomithania anene a TIST mari kiungano-ini.

Thiini wa ngathiti:

Ni kahinda ga kuhariria tuta niundu wa kimera giukite. *Page 2*

Mweri wa August niwagiriire muno kuhariria mugunda niundu wa Kilimo Hai. *Page 3*

Miti ya ki-nduire: niiriku, na nikii iri ya bata? *Page 4*

Ni mahinda ma ithurano – cagura atongoria a kanju ya cluster mweri uyu (July 2012). *Page 5*

Nitutige guthukangia tiiri na urimi muuru. *Page 6*



Ni kahinda ga kuhariria tuta niundu wa kimera giukite.

Ikundi nyingi thiini wa TIST thutha wa kuhanda mimera migunda-ini yao mbura ya kuma April-June nimambiriirie kuhariria tuta niundu wa kimera giukite kia mbura mweri wa October-December. Njira ino niikumateithia gutigirira mari na miti miiganu ya gucokereria iria itagwatire kimera kiu kingi. Ikundi nyingi niciendagia miti iria yatigara kuri arimi angi.

Njira cia kuhariria itanda mikebe na tuta ciakuhurira mbegu.

Kuhariria mikebe.

A. Tumira.

Riria mbegu ciamera, na cionania mathangu 3-4 nocithamirio maratathiini mari na tiiri kana mikebe. Muigana wa mikebe uringanaga na mabata na indo iria uri nacio.

B. Hariria

- Mimera miingi itumagira maratathi ma **6"x4" kana 8"x5"**. No ona kuri o uguo maratathi maya nomakorwo mari na thogora wa iguru na nouhuthire
 - Mikebe
 - Magoto ma marigu
 - Maratathi ma plastic
 - cuba cia plastic
 - Kindu kingi o giothe uri nakio, tuiria aria angi thiini wa cluster yaku maratamira kii!
 - O mukebe uria watumira, tigurira niwatura irima na-thi.
- Tigirira uraihu wa mikebe ino ni 5 kana 6 inches na uture marima.
- Hariria tiiri na uutukanie na ratio ya 5:2:1
 - icunji 5 cia tiiri wa iguru kuma mutitu
 - icunji igiri cia muthanga
 - gicunji1 kia thumu

- Chunga tiiri wa mutitu niguo weherie mahiga na indo ingi njuru. Nouhuthire waya gucunga.
- Tukania tiiri wega.
- Gunyia tiiri niguo unyitane wega.
- Ikira tiiri mukebe-ni na uiyurie kahora na uthii ugikindagira niguo ndugatigie handu ha riera.
- Tigia handu hau iguru hakuhandira muti.
- Thamiria miti mikebe-ini na umihande ho na ndukahutie miri ucoke uiyurie mukebe na tiiri.
- Mikebe noibanguo wega niguo ihote gutungatirika wega na ucoke umiige handu riuu- ini kana kiiruru-ini kuringana na bata wa muthemba wa muti.
- Banga mimera kuringana na mithemba yayo niguo ikahota gutarika wega.

Mutaratara mweru:

Mikebe miigirire handu iguru.

TIST niirahinyiriria arimi magerie kuigirira mikebe iria mahandira miti handu iguru. Arimi aingi nimonete njira ino iri njega. Geria njira ino na wire aria angi uria wona na kana niyaguteithia.



Njira ino hituke ni mahinda ya kuiga maratathi ma miti thi noirute mimera iri na miri itari na hinya na nitondu miri ithiururukagiria thiini wa maratathi. Riria uramithamia, miri noikorwo itari na hinya na ikorwo itenyitiriire wega. Na niguo kugitira ugwati uyu, ikira mimera yaku maratathi matari matumanie na umaigirire handu iguru.



Gitanda giakuigirira miti ino nogithondekwo na mbau na waya. Itanda ici nichotithagoa miri gucehwo wega tondu noguceha urutitie na-rungu tondu yaneneha niicuhaga. Kwa uguo nikwonania ati miri ndithukangagio riria miti irakura na riria iracehwo. Njira ino niitumaga miri igie na hinya na igwate na-ihenya na ikanyihia wira uria ukoragwo maita maingi ukiriganira na noukorwo uri ugwati munene. Kurimira na kwehutia riia nigukoragwo kuri kuhuthi itanda-ini ici.



itanda ici njoe iguru nocioneke tacikwongerera uhei wa maai no arimi nimathundurite njira ya kuhurana na thina ucio. Njira iria yambiriirio Tanzania ni

kwenja mutaro, na ukaiga waya ukiranitie ugacoka ukaigirira maratathi maku ma miti. Miti haha yonekaga ta ihutitie thi no mutaro uria uri rungumiumiheaga mweke wa miri gukura. Maai maguikara mutaro thiini na mimera igakorwo na ugunyu hingo ciothe na ndurabatara kuhe miti ino maai o hindi. Iratathi ria nylon noriarwo thi kugiririria maai matikanyuo ni tiiri.

Ciuria ciakuria githomo-ini gia cluster.

- a. **Ni indo iriku ikundi ngi cihuthirite na cikagacira uhandi-ini wa miti mikebeini?**
- b. **Niatia ikundi cingicokanirira niguo ciharirie uhandi uyu wa miti? Ni andu aigana marabatarania uhandi-ini uyu wa miti? Niri? Niandu aigana marabatarania gutukania tiiri. Niku?**
- c. **Kuri ikundi cigeretie njira ino njeru?**
- d. **Andu mari na mataro mangi? Araniria na arimi angi thiini wa githomo kiu kingi.**

Mwari wa August niwagiriire muno kuhariria mugunda niundu wa Kilimo Hai.

Mwandiki Joseph Gituma.

Arimi aingi a TIST nimaugite ati mitaratara miega ya Kilimo Hai niimahotithitie kugia na mageha maingi, ona miaka iria gutakoretwo nambura. Miaka iria gukoretwo na mbura mageha nimakoretwo mari maingi na ikundi imwe iria iri kundu kumu niciandikithitie womgerereku wa mageha maita 2-5 magehini.

Thiini wa Kilimo Hai, wikagira thumu marima-ini ma mbembe na ugatiga mahuti kuu mugunda na ndukarime njira iria iteithagiriria gwikira tiiri hinya na kwongerera unoru. Mimera niikoragwo na unoru gukira riria warima mugunda ki-nduire.

Unoru ucio niuteithagiriria mimera gukura iri

na hinya na mageha makongerereka.

Marima nimakoragwo na bata ungi onamo, marima nimega riria kwaura tondu maai matikuaga tiiri wa iguru hamwe na mimera tondu maingagira irima thiini na ugunyu ugatigwo kuo. Ngwataniro ya marima na thumu nikwonania ati maai nimahotaga guikara irima-ini gwa kahinda kanene na riuu rioka ritihotaga mimera.

Ririkana riria wageha irio ciaku kugetikirie mahiu mathukangie mahuti kana ucine tondu mahuti macio nimega muno na mugunda niundu wa kimera kingi.



Miti ya ki-nduire: niiriku, na nikii iri ya bata?

Arimi thiini wa TIST nnimahandaga miti mithemba miingi muno, nginyagia miti ya matunda, irio cia mahiu na ingi ya kwongerera tiiri unoru na ingi yagwaturwo mbau na ingi miingi. Arimi aingi makiria nimrahanda miti ya ki-nduire.

Muti wa ki-nduire niuriku?

Muti wa ki-nduire ni iria ya kimerera iria ikurite ki-nduire gwa kahinda kanene. Ti mithemba yothe iria tuui l ya ki-nduire. Ingi niirehetwo kuma kundu kungi kuraihu. Kuri na miti makiria ma mithemba 800 iria ni ya ki-nduire thiini wa Kenya.

Miti ya kinduire ikoragwo na bata uriku?

Nigukorwo miti ya ki-nduire ikuraga na unduire, hamwe na nyamu na mimera ingi na indi ingi nyingi, niikoragwo yagiriire muno muno kundu kuu. Maita maingi, nikuga ati noikure itakubataria indo ciakumikuria. Ibataraga uramati utari munene. Niitumaga migunda iitu yaage tutambi.

Niiheanga nyamu na andu kundu kwegwa gwa guikara o hamwe na irio cia nyamu o hamwe na matunda makurio ni andu, mahuti nimakoragwo mari dawa. Miti yagugk muno niikoragwo na maundu maingi matari mega tondu niikuragirira miti iria ingi kana irio cia mugunda.

Rriria twahanda miti ya ki-nduire migunda-ini iitu, turateithiria kugitira mithemba ya miti iria ikoretwo igiteithia maithe maitu gwa kahinda kanene ngiya ruciaro ruria ruguka ohamwe na nyamu guku gwitu Kenya no turathii na-mbere tugithomaga mawega ma mithemba ino ya miti iturigiciirie. Riria twamihanda, notuteithirie gutigirira mawega ma miti ino nnimakinyira ciana ciitu..

Thiini wa TIST turi na mikahuro kuri aria mahanda miti ya ki-nduire. Ikundi iria iri hakuhi na njuui iria cirumagirira mitarataria miega ya TIST na aria maumite kuria kwaraga nomamukire mikahuro ino. Ikundi iria iri hakuhi na mititu ya thirikari na nicihandaga miti ino ya ki-nduire nimetikirikite

kuingira CFAs niguu mahande miti ino na mendie carbon. Kwambiriria marihi maya mokite nimukwona mikahuro ino yongereirwo maratathi-ini ma marihi. Muti wothe wa ki-nduire uria mwitikiriku nuhitukite kuherwo mukahuro wa Sh1 o mwaka. niwega kumenya ati mikahuro ino niironekana tondu wa uteithio na unyianiri wa USAID. Tiga marihi ma miti, maria maumanaga na wendia wa carbon na maria maguikara miaka 30, mikahuro ya miti ya ki-nduire ni ya kahinda kanini nginya mwaka wa 2013. nitukugeria gucaria uteithio makiria niguu twongeeere kahinda gaka.

Ni miti iriku ya ki-nduire?

Cordia africana

Meru oak, muhuru, (*Vitex keniensis*)

Mugumo, Mirumba, (*Ficus thonningii*)

Podo, Muthengera (*Podocarpus falcatus*)

Mwiria, (*Prunus africana*)

Mutoo, mukeu, *Dombeya rotundifolia*

Murubati, Muuti, (*Erythrina abyssinica*)

Sesibania, (*Sesbania sesban*)

Muuuku (*Terminalia brownii*)

Mikongoro, (*Acacia albida*)

Mihogoro, (*Acacia abyssinica*)

Miti ingi niikoretwo kuo Kenya gwa kahinda karaihu na niikoragwo na mabata no tiya ki-nduire. Miti ino nita maembe, macadamia, casurina gravellia, bottle brush na mexican green ash.

Geria kuhanda miti ino ya ki-nduire mugunda-ini gwaku umuthi! Cuthiria wone ni miti iriku ya ki-nduire ikuraga ithaka-ini iria ikurigiciirie. Uria arimi aria angii ona aria mari a cluster yaku miti iria makuragia na iria iri mutitu ikoragwo na mawega maingi kuri o. twarutithania wira, notugitire miti ino na njira nene niundu wa ciana ciitu na ruciaro ruoka. Araniria na Jeniffer Kithure niundu wa uhoro makiria wa miti ya ki-nduire na mikahuro ya kuria kwaraga. Kuhitukira thimu 0726319539.



Ni mahinda ma ithurano – cagura atongoria a kanju ya cluster mweri uyu(July 2012).

TIST nia? Ni ithui! Nitutheremete, turi na cluster makiria ma 150 gicigo-ini kia Mt. Kenya, thiini wa Mbeere, Mara na Mau. O tugithiaga na mbere na gukura, niturathii na mbere gutigirira ati migambo miingi na ngurani niaiguika na yathikiririo. Riria athuri na atumia ohamwe nambeu njithi kuma miena ngurani makurania hakiri, notutume TIST yagirire niguu tutumikire arimi othe a TIST Kenya.

Aria mambiriirie mari amemba a GOCC riu kahinda kao ka utongoroia nigthiru. Nikahinda kega riu ga guthiururukana na guthura angi eru. Ni kahinda gaku riu uri member wa cluster guthura murugamiriri waku mweru, muthuri I, mutumia I aria mangikurugamirira namarugamirire mugambo waku thiini wa kanju ino. Gikundi gia cluster githonekagwo ni cluster 2-5 aria makuhaniriirie niguu mahote gutungatirika wega. Tugikinyiria July 30th, o cluster niyagiriirwo ni guthuura amemba eru thiini wa kanju ya GOC.

Arugamiriri aya matigukorwo mari atongoria a cluster ano kana atari a miti kana auditor kana aria maratungata riu, no ni amemba aria magutungata gwa kahinda ka mieri 6. o cluster iguthura mutumia I muthuri I na maricemanagia o mweri rita I.

Thutha wa ithurano, arugamiriri aria mararikia wira nimaguthomithia aria marambiriria na maneane indo cia wira. Aria maguthurwo nimagacemania kiumia kiambere kia August. Mucemanio-inni uyu kanju ya GOC niigathura mutumia umwe na muthuri umwe kuma kuri cluster ngurani niguu marugamirire matuura mao.

Kanju ya matuura niigacemania kiumia gia 2 kia August. O RC ikoragwo na amemba 6-24 kuringana nacluster na ikundi cia cluster iria iri kuo gicigoini kiu. RC iricemanagia rita I o mweri.

O kanju ya matura niiguthura muthuri I na mutumia I atungate kanju-ini ya utongoria. LC niiricemanagia o mweri(kiumia gia 3 kia mweri) hamwe na amemba aya na arugamiriri.

Mubango uyu niurateithia utongoria wa kwirugamirira, na niguu maundu maria morio ma mutaratara wa TIST thiini wa cluster nimakunyitwo na mathuthurio wega kuitukira honghe ici ciothe cia urugamiriri.

Niguu twirutanirie, no muhaka twirutire. Aririria na uthuure thiini wa cluster yaku andu aria magiriirwo nigukurugamirira thiini wa ikundi cia cluster. Nikamweke kega ga guthoma na gwikira ugaruruku cluster na TIST iri yothe.



Nitutige guthukangia tiiri na urimi muuru.

Mwandiki Joseph Gituma.

Tiiri nikindu kimwe kia bata mino no ciiko ciitu niciratuma tuuthukangie na njira nana muno. Niguo tiiri inch imwe ithondeke nokuhuthire miaka makiria ma 500 no inch I ya tiiri noithii na maai kuhitukira mbura imwe kana ruhuho.

Nikii githukagia tiiri?

- Tiiri murime gutigwo utari muhumbire. Kurima mugunda nikuhuthagia tiiri na kuwanika kuri maai na noukuo kungiaga miti yakuuhumbira.
- Kuriithia mahiu muno mugunda-ini. Hingo iria mahiu marekererio mugunda mari maingi tiiri niuthukaga na mimera iknyiha.
- Kurima kuria kuri na ugati wa tiiri guthuka kana kuhuthira njira itari njega cia urimi. Kundu kuria kuinamu na ruteere-ini rwa ruui nikuo gukuhiriirie muno tiiri gukuuo ni maai tondu maai nimarateng'era. Ningi tiiri noukuo makiria angikorwo icigo ici nicirarimwo kana gukenjwo mitaro iikurukite. Gukuria irio cia muthemba umwe noguthukie tiiri.

Maciaro ma tiiri gukuo ni maai:

- Kunyiha kwa irio: nitondu wa kunyihia unoru wa tiiri, magetha nimanyihaga na irio cikaga.
- Thina wa maai: maai matukana muno na tiiri nimagiaga na chemicals citari njega iriitari njega kuri andu na nyamu.

- Mogwati: gukuuo gwa tiiri nokureha muiyuro. Riria tiiri waingira ruui, niutumaga maai mambatire na gukugia na muiyuro kana itwika ni ugwati munene muno.
- Andu guthamio: riria maai makua tiiri na tiiri wathuka nginya gwakina ndungihota kuhanda kindu kuo, andu nimathamaga magathii kundu kungi.

Niatia ingika niguo ngitire tiiri wakwa?

1. Humbira tiiri waku-tigirira tiiri nimuhumbire. Handa miti mugunda-ini. Miri ya miti nimiega na kunyitirira tiiri kwa uguo handa miti uthiururukiiirie mugunda waku.
2. Huthira urumi wa Kilimo Hai. Na tondu gucokereria tiiri, kuhanda mimera irimaini niguteithagiriria tiiri kugia hinya.
3. Thondeka mugunda waku wega – menyerera mugunda waku kuria kuinamu na wenje mitaro na utege tiiri ndugakuo ni maai.
4. Handa miti miingi – kuhanda miti miingi nikio kihonia kiega kia uhoro uyu woth. Tiga kurima kuria kuinamu na njuui-ini, handa thaara na indo ingi iginyitia tiiri.
5. Tutikareke tiiri uthii na maai, nitugerie o uria twahota kuugitira.

Mazingira Bora



TIST

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

Kikamba Version

An Environmental, Sustainable
Development and Community Forestry
Program.



TIST Master Trainers in a recent seminar.

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Ni ivinda ya kuseuvya ivuio kwondu wakuvanda miti mbua yukite.

Ikundi nini mbingi sya tist syamina kuthamiisya miti ila yi ivuioni miundani nthini wa mwai wa kana kuvika wathathatu nimambiiia kuseuvya ivuio ingi nundu wa mbua ila yukite mwa wa ikumi kuvika mwai wa sikuku. Kwika uu kuikiithasya kana mena miti myeu ya uvanda mbua yaua na ya kutungia kula miti ya mbua mbituku yumite. Ikundi mbingi nitesaa ila yaingiva kwi atui nakwoou kukwata ueti kuma mitini ino mivue.

Vaa ve nzia ya kuseuvya kikuvio na mbisu ivuioni.

Mbusu/yungu kivuioni

A. Utumiku

Yila ngii syamea na syambiia kwonany'a matu atatu kana ana, noithamiw'e mathanguni mausuitw'e muthanga kana mbisuni/mikeve. Unene wa mukeve/ithangu/mbisu uendaa kwianana na wendi wa muti ula uvaandwa nthini.

B. Kuseuvya.

- Mbeu mbingi ya miti utumiaa mathangu ma 6"x4" kana 8"x5". onavala mathangu nimatonya kwithiwa na vei mwingi kwoou nomutumie.
 - Mikeve/mbisu.
 - Matu ma maiu
 - Mathangu ma manila matilangitwe kwianana na vala mekwenda utumika
 - Suva sya plastic sya kiw'u
 - Na syindu ila ingi mutumiaa kwenyu na syi ukuvini - noututavye na kumanyisya angi.
- Kila ukutumia ta mbisu ya muti waku ikiithya kana kina maina ungu ma kumya kiw'u.
- Tila uasa wa mbusu isu withiwe na uasa wa inch 5 kana 6 na uyiikiithya vena tulima ungu.
- Seuvya muthanga kwa kuvulanya ilungu ithi 5:2:1
 - 5 Muthanga musunge wa iulu kuma mutituni
 - 2 Kithangathi
 - 1 Vuu/mbolea
- Sunga muthanga wa iulu kumya mavia na syindu ingi.
- kisungi nomuseuvye kya waya ula wakisungi (1.5cm) kuvika 1m framuni ya muti
- Vulany'a muthanga nesa
- Ngithya muthanga ukwatane
- Ususya muthanga mbisuni okavola uilatiila kuola nzeve kwithiwa yusuitye mbisu yaku.

- Tia mwanya vaaya iulu vala ukwikia mbeu
- Kua mbeu yaku umivande ingi mbisuni na mbee wa kumivanda seuvya yiima katikati wa muthanga ula weekia mbisuni nikana uvande mbeu ino ya muti vate kumithingithangya na kumithyuuanga.. Ususya yiima yiu na muthanga wamina kkwikia mbeu yaku.
- Mbisu/mathangu aya noumavange maatianie ta musoso/musitali iseuvye kitanda kya mbisu nundu wa kungithya na kusyaiisya kwa mituki na kwailu umivangite suani kana muunyini kwianana na wendi wa mbeu ya muti ula ukuvanda.
- Mivange na ikundi sya 100 kila muthemba wa muti wina kikundi kyaw'o. itanda ithi syithiawa laisi kusyaiisya ethiwa useuvitye syina uthathau wa itambya ma uasa wa matambya atano kana ikumi.
- Vanga mbeu yaku ya miti kwianana na muthemba wayo kutetheesya ala mavitukithasya/athiani kwosa uvoo na kwia lekoti syoo kwianana na mithamba ya miti.

Nzia nzau na nzeo ya itanda sya mbisu syi yiulu.

Tist ni yiendee na uthuthya aimi kutana kutumia nzia ya mbisu syi kitandani. Aimi aingi nimatatite na makona kana nzia ilu niyithiawa na ueti museo kwi kwia nthi. Tumia nzia ino na utunga usungio ki ngwatanio/kikundi kyanyu undu wonete na kana nithukumite nesa kwaku.

Visa I. Wionany'a nzia ila itumikaa kaingi kuvanga mbisu otondu tukwona vaa iulu.



Visa I. Mbeu ya Moringa Oleifera ivangitwe muthangani/nthi.

Nzia ino ya kitene ya kuvanga mbisu sya miti nthi nitonya kuete miti yina mii myonzu. mii ino yonzaw'a ni nundu yikunzia mbisuni kana ithanguni yila ivanditwe. Yila ukuthamya miti nitonya ukwatwa ni wonzu kwoou ukethia nditonya kwikwatila nthi nesa. Kumanwa na nthina uyu, nituuthuthaw'a kuvanda mbeu situ mbisuni ngunue itina na tuyiliila



itandani syi yiulu tondu tukona visani namba 2. Kitanda kiyiulu ni mituki kukiseuuya kuma vulemuni ya waya wa kisungi (ona visa). Itanda syi yiulu niunengae mwaya wa kusea mii nundu mii nivikaa mwiso wa mathangu/mbisu na iivituka. Kii kionany'a kana mii ya muti nditonya kuumia kumana na kusea kwa mii. Mii nayo nikwataa vinya na kuendee na kumea itekuazava. Nzia ino ietae kwithiwa na mii milumu na mbeu ino nitonya kuvandwa na iikwata kwa mituki yina vinya. Nzia ino niolaa wia mwingi wa kunzea mii na ikaola wia wa uthukumi na kaingi isewa kula kaingi nikulaa kana kukekwa kwi kuselee na nikuetae wanangiko munene kwa mii. Kuimia miti yi kivuioni kii nikwithiwa kwi laisi.



Visa 2. Mbeu ya miti mithemba kivathukany'o yiliilwe kivuioni kya kitanda.

kitanda kii kya miti kiyiusu kikooneka kikyongela utumiku wa kiw'u, onavala ala makuna wia uyu wa kuseuuya ivuio nimonekete mana nzia nzau ya kusuvia kiw'u. Nzia imwe nzeo kuma Tanzania ni kwinda mutau na kwiliila ilungu ya muti na kwikia waya wa neti naindi maiseuuya kitanda kya miti iulu wa mutau uyu. kwoo uynthia kivuio kii kioneka ta nthi indi ungu wa miti ino ve mutau mwanya uyu utiitwe kati wa mutau na miti ino yi mbisuni ukatetheesya kusea mii ya nzeve. Kiw'u nikisiiawa kuthi ni mutau uyu na kutuma miti ino yikala yinauthithu kila ivinda naingi kutwawa kwa kimeu ni nzeve nikuolekaa na kuola mavinda ala ma kungithya. Ithangu ya nailoni noyalanw'e mutauni uyu kusuvia kiw'u kung'ala.

Makulyo ma ukulw'a ivinda ya kuvundiwa

- Ni syindu myau ila tukundi tunini tutumiite ta mbisu sya kuvanda miti? neenanisyai nzia nzeo sya kwika uu.
- Nata tukundi tunini tutonya ukwatana na kuseuuya ivuio? Nandu meana ata ala maile useuuya kivuio kimwe? na ni indii? nandu meana ata ala maile uvulany'a muthanga? na va?
- Ve kikundi ona kimwe kyaatata kuseuuya kivuio kya kitanda?
- Andu mena umanyi mwau? nenanyai na amanyisya yila mumbanite

Ivinda iseo ya kuseuuya muunda waku nundu wa uimi wa kusuvia (CF) mwaini uyu wa muonza na wa nyaanya.

(na Joseph Gituma)

Aimi aingi ma TIST ma tukundi tunini nimatungie livoti iulu wa uimi wa kusuvia (CF) na masya niwamatetheesye kuete ngetha nzeo ona yila kutena mbua mbianu. Yila kwina mbua nzeo ngetha yithiwa yi nzeo muno. Ikundi imwe ila syi isioni ila mbumu nisyatungie livoti ya kana nimakwatie ngetha kundu kwili kana kutano kwa kila makwataa ngethani yoo.

Nthini wa nima ya kusuvia (CF) wiongela vuu maimani vala ukuvanda liu waku na uieka mavuti ala mauma mimeani ino na uilea kuima nikana usiie kukuwa kwa muthanga na kwaa kwa unou wa muthanga. Mbeu ya mimea kwoou nijetae unou mwingi muthangani yila ukutumia nzia ino ya uimi wa kusuvia na nzia ya kuvanda uikuany'a. Unou ula wakwatikana nundu wa kuima uikuanya kila

ukuvanda nikutumaa ukwata ngetha nenange.

Maima ala aya nimaetae vaita ingi mbingi ta kwithiwa yila mbua yaua nimatwiikanasya kiw'u nundu vandu va kiw'u kusemba na kukua muthanga nikyumbaniaa maimani aya na kietetheesya mbeu isu kumea na mituki. Kuvulana kwa maima aya na vuu ni kwasya kana kiw'u nikyeethiwa kivakuvi kwa mumea kwa ivinda iasa, na ingi yila sua yaa uyithia kuinoma muno. Ingi maima aya nimatetheesya onayila ukuimia mumea ukethia niwaima ute kuumisya mumea.

Lilikana kana yila uuketha ngetha yaku ndukaeke indo syanange kana uvivye mavuti ala matiala muundani anyee. Matialyo ma mimea nimekwoa na maitunga unou muundani na maiunosya nundu wa ivanda yingi.



Miti ya kiene: niyiva? Na niki yavata?

Aimi nthini wa TIST nimavandaa mithemba mingi ya miti ta miti ya matunda, miti ya mbindi, miti ya uthui/liu wa indo, na miti niseuvasya unou wa muthanga, miti ya kwatua mbwau. Aimi aingi nimaendee na usakua miti ya kiene/kienyeji kwa wingi nundu wa moseo mayo.

Muti wa kiene/kienyeji niwiva?

Miti ila yimiesya vandu kuma tene vate kuvandwa kana kuete mbeu kuma vandu vangi itekusuviwa na kwa ivinda iasa na niyikaa nesa. Miti imwe niyaetiwe ni andu kuma kuasa nayavika yeenthiwa ta imwe ya kiene. Mithemba ya miti mbee wa 800 niya kiene/kienyeji ya Kenya.

Miti ya kiene/kienyeji ni yavata?

Nundu miti yakiene niyasesisye na undu mawithyululuko na nzeve isesetye, nyamu, miti na tusamu tw’othe twikalaa mawithyululukoni aya nimekala nesa. Kaingi miti ino nimeaa vate ngalama nene ta ya ndawa ya kusiiia tusamu tula twanangaa miti ta iinyu, ngangaa ona ingi ndyendaa mbolea/vuu wa kuua. Kaimi miti ino ona ndyendaa kuimiwa ta miti ya kuetwe na kuvandwa kuma kundu kungi. Niyailasya miunda yitu na kusiiia uwau na tusamu tula twanangaa liu na mowau ala tuetae nthini wa mimea. Nitunengae liu na wikalo kwa nyamu sya kithekani, ikatune matunda na mbwau, miti, matu na ndawa. Miti ya kuetwe noitunenge vaita mwingi onakau imwe nitwikaa ikuthu na iithungya mimea kana miti ila ingi.

Yila twavanda miti ya kiene miundani yitu twi tetheesya kusuvia mithemba ya miti ya kiene ila yai yavata kwa aamae maitu na kwa nyamu na andu maitu ma Kenya na usyao ula ukoka. No tuendee na umanya vaita wa miti ino ya kiene ituthyululukite. Yila twavanda muti wa kiene tuikiithasya vaita wa muti uyu ukeethiwa vo kwa syawa syukite. Nthini wa TIST twina mothuthyo angi kwa ala meuvanda miti ino ya kiene. Ikundi ila syi vakuvi na mbusi na nimavandite miti ya nguthu(riparian) nguumoni sya usi na nimaatie mawalanyo maseo ma TIST ma uimi uyu ya nguumoni sya mbusi nimatonya uvitukithw’a kukwata ndivi ino ya uthuthio kuma kwa TIST. Tukundi tunini twa TIST tula twi vakuvi na mititu nimatonya kwithiwa malikana na CFAs na kuvanda miti ya kiene na maikwata ndivi ya nzeve itavisaa (Carbon income) kuma mutituni. Kwambiia ndivi

ino nikwonanw’a mathanguni(vouchers) sya ndivi syina wongeleku nundu wa miti ya kiene. Kila muti wa kiene wi mitini yenyu ila mivitukithye niwaile kuivwa silingi umwe wa uthuthio kila mwaka. Niwaile umanya kana ndivi ino ya uthuthyo ni USAID iukwatite mbau na ti undu umwe na ndivi ino ingi ila yumanite na kuta kwa nze itavisaa (Carbon sales) na nukwikala vandu va myaka ta 30. Uthuthyo wa miti ya kiene nowa kavinda nundu witengema utethyo wa kuma nza. Kwa yu utethyo ula wivo wa uvandi wa miti ya kiene wanthiwe kuendee nginya mwaka wa 2013. Nituuthukuma na kithito kumatha kana kwongeeelwa ivinda ya utethyo uyu.

Ni miti yiva niya kiene?

Miti ni mithemba mingi ya kiene nthini wa nthi yitu ya Kenya, na mingi na kuetwe ila yinthiawa namoseo angi onayo. Ngelekany’o

Miti ya kiene Kenya nita

Cardia Africana
Meru Oak, Muhuru (Vitex Keniensis)
Miumo, Mugumo, Mirumba (Ficus tgonningii)
Podo, Muthengera (Podocarpus falcatus)
Mwiria, (Prunus africana)
Mutoo, Mueku, Dombeya rotundifolia
Murubati, Muuti, (Erythrina abyssinica)
Sesibania, (Sesbania Sesban)
Muuuku (Terminalia brownii)
Mikongoro (Acacia albida)
Mihogoro, (Acacia abyssinica)

Miti imwe niyithiitwe kwa ivinda iasa yi Kenya na niyithiitwe yiya utethyo onakau tiya kiene. Miti ino nita lembe, Mikandania, Mivela, Casuarina, bottlebrush na Mexican green ash.

Tata kuvanda miti ya kiene umunthi muundani waku. Sisy mawithyululuko maku na mutitu ula wivakuvi wone ni mithemba yiva kana ukulwe atui kana amemba ma kikundi kyaku iulu wa miti yakiene ilamavandite na makona moseo mayo. Ethiwa nituuthukuma vamwe, tukasuvia mititu yitu na moseo mayo kwa usyao witu na usyao ula ungi ukoka. Kwandaia kunia Jeniffer Kithure ethiwa nukwenda umanya muno iulu wa miti ya kiene na ndivi ya uthuthio wa kumivanda. Namba yake ni 0726 319539.



Ivinda ya usakuani - nyuva mutongoi wa ngwatanio yenyu, mumemba wa kanzu mwaini uyu wa muonza (July 2012)

TIST nuu? Twi andu aingi ala ni ngwatanio mbee wa 150 kuma Mt. Kenya, Mbeere, Mara na Mau. Oundu tuendee na kwiana na kuete mawasya maitu kivathukany'o vamwe kwithukianisya iulu wa mawoni kivathukany'o na kwona nitweethukianisya. Yila iveti na aume, akuu na mayika kuma isioni kivathukany'o maete mawoni vamwe notwailye TIST na tukailya uthukumi witu kwa aimi onthe ma Kenya.

Ambiliilya thini wa Kanzu (GOCC) ivinda yoo nithelu. Nimaile na kuma yu vakalika andu ang'i ala meusakuwa. Kwoou ni ivuso yaku tamwene wa ngwatanio yaku kusakua munduume umwe na mundu muka umwe kwithiwa nzamani ino ya kanzu (GOCC). Ikundi sya ngwatanio ni kati wa 2 -5 ila ithengeanie kiasi kya kutumiania miio ya wia na kuvundiw'a vamwe. Tuivika matuku 30 ma mwai mwa muonza kila ngwatanio niyaile ithiwa iyuvite andu eli tama kumaungamia thini wa kanzu a ikundi (GOCC).

Ala mekunyuvwa ti atongoi ala ma ngwatanio kana ikundi kana avitukithya/athiani kana athuimi (auditors) na onamayaile ithiwa manai thini wa nzama ila ikuma ya GOCC. Nimaile ithiwa me andu mekutumika vandu va ivinda ya myai thanthatu (August kuvika January). Kila ngwatanio yisakua kivet'i na munduume umwe vala andu 4 - 10 makakomanaa kila mwai.

Itina wa unyuvani ala meii ma GOCC

nimekwamba kumanyisya andu aya eu mayuvwa mbee wa kumatiaia ovisi. Ala manyuvwa yambee nthini wa nzama ino ya GOCC makakomana yambee kyumwa kyambee kya mwai wa nyaanya (August). Nthini wa wumbano usu kila kanzu wa kikundi (GOC) ukanyuva andu elei kivet'i na munduume kuma ngwatanioni kivathukany'o kuungama ilioni sya Local Regional Council kwianana na isio syoo.

Regional Councils makakomana kyumwa kya keli kya mwai wa nyaanya.. Kila RC ikeethiawa na amemba katikati wa 6 na 24 kwianana na ngwatanio na ikundi sya isio. Nzama ino ya Region ikakomanaa imwe kwa wmwai.

Kila Kanzu ya kisio (region) ikasakuaa andu eli kivet'i na munduume kutongosya. Nzama ya LC ikakomanaa kila mwai kyumwa kya katatu mena ala maungeme ilioni syoo na amemba.

Muvangoo uu nimuseo kwa kwiyoungamia ene, nikana mvango wa TIST ula wavangwa ukakuwa kuma vaaya nthi kuvikia kanzu kwa mituki. Nthini wa kila itambya maundu kivathukany'o nomanenaaniw'e na matambya kwoswa. Kwithiwa twi aseu nonginya twithiwe na eyumya aseu. nenanany'ai nthini wa ngwatanio syenyu nuu mukwenda alike nthini wa kanzu vandu venyu. Ni ivuso iseo ya kwimanyisya iulu wa ngwatanio kivathukany'o syoonthe syi sya TIST.



Suvia kukuwa kwa muthanga na unou waw'o.

na Joseph Gituma

Muthanga ni kindu kimwe kya vata muno, lakini kwa mawiko maitu nituendee na kuwasya kwa kilio kiyiulu muno. Nitonya ukua mwaka maana atano kwa leya ikyi imwe ya muthanga kusevwa, lakini kwa muthanga usu kukuwa ni nzeve kana mbua no ivinda inini ta mbua imwe kana kiuutani kimwa.

Nikya kietae kukuwa kw amuthanga?

- **Muthanga wamina kuimwa na kutiwa utemuvwike.** Kuima kukilasya muthanga nakuitia utonya kukuwa na kaingi withiaa ethiwa vaina miti ivwikite kana mavuti ndulea ukuwa ni kiw'u kana nzeve.
- **Kuthya muno.** Yila indo mbingi syalekwa syaya syamina nyeki nasyakinyanga na mavungu muthanga wookila muthanga usu ndulea ukuwa ni nzeve kana kiwu nundu vai kindu kiuvwikite na nimukililu.
- **Kuima kundu kukuwa nikiw'u kana kutumia nzia nthuku sya kuima nikutumaa muthanga ukuwa.** Ngelengany'o ta kuima nguumoni sya usi kana itheoni/kula kuvangaluku iima nikutuma muthanga ukuwa muno nikiw'u. Nthina uyu no wongeleke ethiwa itiukooni kukaimwa na mitau itheanitye undu kiima kitheete, kila mundu waile ika ni kwinda mitau ikelene mitiukoni ino. Kuvanda muthemba umwe wa liu/mumea mbua kuthi ila ingi vandu vamwe onakw'o nikwosasya muthanga.

Mathina ma kukuwa kwa muthanga

- Yua/unyivu wa liu. muthanga wakuwa ila wiyiulu naniw'o withiawa na unou mwingi kaingi kila kyavandwa vau kiyikaa nesa na kwoou kuyithiwa na yua kana unyivu wa liu.
- Thina wa kiw'u: Muthanga walika kiw'uni niwanangaa mawikalo ma tusamu tula twikalaa kiw'uni na kuthokoany'a kiw'u naingi muthanga

uyu nutonya kwithiwa na sumu ula watumikie mimeani na sumu uyu walika kiw'uni nowithiwe wi muisyo kwa andu na nyamu.

- Muthanga noute thina wa kiw'u kulea uthi kaingi ethiwa niwalika na kutuumana usini kana mikaoni kwoou kiw'u uyithia kivaa iulu na kiyaiika vandu va kuthi. Ingi nokwithiwe na kutuuka kwa muthanga na kuete wasyo munene.
- Kulungya andu na nyamu, yila muthanga wakuwa weethia vandu nivatwika ingalata kana weu utekindu naweethia vai liu wuma vo andu nimathamaa ona nyamu.

Nata ndonya kwika kusiia kukuwa kwa muthanga?

1. Kuvwika muthanga - utonya kuvwika muthanga ata? kuvanda miti/mimea ila ivwika muthanga ta kuvanda mithemba ili ya mimea kwa vamwe na kuvanda miti muundani vala ukuvanda mimea ya liu (kuima kwa kusuvia). Miti nikwatanasya muthanga kwoou yila wamivanda kithyululu ni wasiia muthanga kukuwa.
2. Tumia nzia ya uimi wa kusuvia, tondu nduimaa mithanga mimea ila yamea utee wa maima nikwataa muthanga ndukakuwe, na maima nimasiiaa kiw'u kukuwa.
3. Kusisya miimile yaku itheoni ta kwisa mitau , kwisa maima kuuya nthi kusiia muthanga ula wakuwa na kuima kwa mitau ikelene.
4. Vanda miti mingi, Miti niwika na kukwata muthanga and niyo imwe kati wa nzia ila nzeo sya kusuvia muthanga. Ndukaime isyuukoni/itheoni/ivangalukoni ona kana nguumoni sya mbusi, vanda miti, nyeki na itwethya kunduni kuu vandu va kuima.

Tuikasye kindu kya vata ta muthanga. Tuusuvie kwa kuatua nzia nzeo na kuima na nzia ila syaile.

Mazingira Bora



TIST

The International Small Group & Tree Planting Program
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Kiswahili Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Wakufunzi wakuu wa TIST katika warsha ya hivi majuzi.

Ndani:

Wakati wa kuandaa vitalu vya miti kwa upandaji wa msimu hujao. Ukurasa wa 2

ulai-Agosti ndio wakati bora zaidi wa kuanza kutayarisha shamba lako la ukulima bora. Ukurasa wa 3

Miti ya kiasili: ni nini na mbona ni muhimu? Ukurasa wa 4

Wakati wa Uchaguzi- Chagua mwanachama wenu wa chama cha kikundi cha cluster (Julai 2012). Ukurasa wa 5

Acha mmomonyoko na uharibifu wa udongo- okoa udongo wetu! Ukurasa wa 5



Wakati wa kuandaa vitalu vya miti kwa upandaji wa msimu hujao.

Vikundi vingi vidogo katika TIST, baada ya kuipandikiza miche yao mvua wa Aprili kufika Juni, waanza mwezi wa Julai kuviandaa vitalu vyao ili kuvitumia msimu hujao wa mvua kati ya Octoba hadi Decemba. Jambo hili husaidia kuhakikisha kuwa vitalu vina miti mipya tosha ya kupanda na hata ya kupanda ilipokuwa miti ambayo haikuweza kuishi misimu iliyopita. Vikundi vingi pia huuza miche inayobaki kwa majirani na hivyo basi huongeza mapato yao.

Hapa ni jinsi ya kuandaa ambapo utaotesha miche yako, mifuko na vitalu:

Pot-bed Preparation Kutayarisha mifuko ya kuotesha

A. Matumizi

Miti ikishaota na kuonyesha majani matatu ama manne, inaweza kupandikizwa hadi mifukoni ya mipira pamoja na mchanga. Ukubwa wamifuko ni kulingana na mbegu aina hiyo itakavyo kwa ujumla pamoja na mifuko uliyonayo.

B. Maandalizi

- Mbegu nyingi hutumia mifuko ya mipira ya ukubwa wa 6"x4" au 8"x5". Hata hivyo, hii yaweza kuwa ghali na hivyo basi waweza kutumia :
 - Makopo ya bati
 - Majani ya ndizi
 - Mifuko ya plastiki –kata mfuko hadi ukubwa unaohitaji na ufunge kwa kutumia joto kuyeyusha plastiki ili kushikanisha pande pamoja..
 - Chupa za maji za plastiki zilizotumika.
 - Vitu vinginevyo ulivyonavyo- badilishana mawazo yako katika cluster yako
- Mfuko wowote utakaotumia, hakikisha umeacha mashimo chini ili maji yatiririke nje.
- Kata urefu wa mifuko hii hadi inchi tano kwenda sita na uhakikishe kuwa mashimo mengine madogo yapo upande wa chini wa mfuko.
- Tayarisha mchanga kwa kuchanganya kwa uwiano wa sehemu tano kwa mbili kwa moja
 - Sehemu tano mchanga wa juu wa msitu uliochekechwa kutoa mchanga mwingine
 - Sehemu mbili mchanga
 - Sehemu moja mbolea
- Chekecha mchanga wa juu kutoa mawe na vitu vigumu. Kichungi chaweza kutengenezwa kwa kuongeza waya wenye matundu (sentimeta moja na nusu) kwa mbao iliyo na urefu wa mita moja na upana wa mita moja.

- Changanya mchanga vizuri.
- Loanisha mchanga ili huweza kushikana
- Jaza mchanga mfukoni, ukiulaza vizuri kutoa nafasi za hewa zilizopo. Waweza kutumia mpare kujaza kwa urahisi.
- Acha nafasi mfukoni juu ambapo mche utawekwa
- Pandikiza miche katika mifuko kwa kuchimba shimo na kuingiza mche bila ya kuipindisha mizizi. Jaza shimo tena na mchanga.
- Mifuko yaweza kupangwa katika safu ili kuunda vitanda kwa ukarabati wa rahisi na yaweza kuwekwa chini ya jua au katika kivuli kulingana na mahitaji ya mbegu.
- Panga mifuko kwa vikundi vya miche mia moja kwa kila kikundi. Vivyo hivyo kwaviunga vyako, vitanda ni rahisi zaidi kuhudumia vinapokuwa na upana wa mita moja na urefu wa mita tano kwenda kumi.
- Panga miche yako kulingana na aina ya mbegu ili iwe rahisi kwa wahesabu miti kurekodi takwimu.

Njia mpya bora ya kutumia: Vitalu vya mifuko vilivyoinuliwa

TIST inawatia moyo wakulima kujaribu vitalu vya mifuko vilivyoinuliwa. Wakulima wengi wamegundua kuwa hivi huboresha matokeo. Jaribu hivi vitalu na uripoti kwa cluster yako utakayoona na kama njia hii ni bora kwako.

Kielelezo kifuatacho kinaonyesha njia moja ya kawaida inayotumika kupanga mifuko, kama ilivyoelezwa hapo juu.



Kielelezo I: Miche ya *Moringa oleifera* ikiwa imepangwa kwa pango kwa ardhi

Mfumo huu wa kawaida wa kupanga mifuko ardhini waweza kuzalisha miche yenye mizizi isiyo na nguvu. Hii ni kwa sababu mizizi hujisongomeza ndani ya mfuko wa plastiki. Wakati wa kupandikiza, mizizi yaweza kuwa isiyo na nguvu na hivyo basi si rahisi kuthibitika au kuimarika ardhini. Kujiepusha na haya, inashauriwa kuimarisha miche kwa viriba vilivyo



wazi chini na kuiwekelea kwa vitalu vilivyoinuliwa (Kielelezo 2) Kitalu kilichoinuka chaweza kwa urahisi kutengenezwa kwa kutumia mbao zilizopigiliwa pamoja(kiunzi) na waya wenye matundu (Angalia picha). Vitalu vilivyoinuliwa huruhusu kupogoa kwa mizizi kwa moja kwa moja. Mizizi nayo hupata nguvu bila kukua tena. Tendo ili huzalisha mfumo wa mizizi wenye afya na mche huna nafasi bora ya kujiimarisha haraka na vyema shambani. Pia tendo ili linamaliza haja ya kazi ya kupogoa mizizi, zoezi ambalo husahaulika ama kucheleweshwa, na kusababisha uharibifu mkubwa wa mizizi. Kuzuia kwake pia ni rahisi zaidi katika vitalu vilivyoinuliwa.



Kielelezo 2: Miche ya aina mbalimbali za miti iliyopangwa kwa kitalu kilichoinuliwa

Vitalu vilivyoinuliwa vyaweza kuongeza kiasi cha maji kinachotumika kitaluni. Lakini, waendeshaji wa vitalu

wamebuni njia mpya za kukabiliana na kikwazo cha maji. Njia moja nzuri iliyobuniwa Tanzania ni kuchimba mtaro, kuwekelea mbao au waya wenye matundu kuvuka huo mtaro. Miche hivyo basi huonekana kuwa ardhini lakini mtaro hulio chini hunaipa nafasi ambayo inasaidia kupogoa kwa mizizi kwa hewa. Maji hunaswa mtaroni na yataipa miche unyevu kupitia kunaswa kwa maji na jua na kwa hivyo yatapunguza haja ya kuipa miche kila wakati. Karatasi ya nailoni yaweza pia kuwekelewa mtaroni kuhakikisha kuwamaji hayapotelei mchangani

Maswali ya kuuliza katika mafunzo ya cluster

- Ni mifuko ya aina gani imetumika kwa mafanikiona vikundi vidogo kama mifuko ya miche? Gawana na wengine minendo yenu bora zaidi.**
- Vikundi vidogo vyawezaje kujipanga kutayarisha vitalu vyao? Ni watu wangapi wanahitajia kutayarisha mifuko? Lini? Ni watu wangapi wanahitajika kutengeneza mchanganyiko wa udongo? Wapi?**
- Kuna vikundi vidogo vyovyote vimeshajaribu vitalu vya kuinua?**
- Watu wana mawazo mengine? Gawana yote unayojua katika mkutano huo mwingine wa mafunzo**

Julai-Agosti ndio wakati bora zaidi wa kuanza kutayarisha shamba lako la ukulima bora.

Umeletewa na Joseph Gituma

Vikundi vingi vya TIST vimeripoti kuwa mienendo bora ya ukulima bora inawasaidia kupata mavuno bora, hata katika miaka ambayo inamvua kidogo na isiyoaminika. Katika miaka mizuri, vuno limekuwa la kufana. Vikundi vingine katika maeneo makavu yameripoti kuboreka mara mbili kufika tano kwa mavuno ya mimea yao!

Katika Ukulima Bora, unaongeza mbolea kwa mashimo ambamo unamea mimea yako na unaacha mabaki ya mimea shambani na haulimi, jambo ambalo linapunguza mmomomyoko wa udongo na upotevu wa nutrienti za udongo unaosababishwa na mmomonyoko wa udongo. Mbegu za mimea hivyo basi hupata nutrienti zaidi kuliko njia za ukulima wa kitamaduni zikitumika. Hizi nutrient zilioongezeka husaidia mbegu kumea na

kuwa mimea yenye nguvu na yenye mazao zaidi. Mashimo hutupa faida nyingine pia. Mashimo ni muhimu mvua inaponyesha, kwa sababu badala ya kubeba mchanga mzuri na mbegu, maji huingia mashimoni na kusaidia mbegu kumea vizuri zaidi. Mashimo pamoja na mbolea humaanisha kuwa maji hukaa karibu na mbegu muda mrefu zaidi, ili jua linapotokea tena hakuwi kukavu haraka sana. Mashimo hulinda mbegu na waweza kutoa magugu kuzunguka mashimo bila kuiharibu mimea.

Kumbuka ya kwamba, unapovuna zao lako hupaswa kuwaacha wanyama kuharibu ama kuchoma mabaki ya shamba lako. Mabaki ya mimea yako yataoza na yarudishe nutrienti nzuri udongoni, na hivyo basi kuutayarisha na kuuboresha kwa msimu huo mwingine wa kupanda.



Miti ya kiasili: ni nini na mbona ni muhimu?

Wakulima katika TIST hupanda Miti ya aina mingi pamoja na miti ya matunda na miti ya mbegu za mafuta, miti ya majani ya mifugo, miti ambayo huboresha rutuba ya udongo na aina ya miti ambayo yaweza kuvunwa mbao. Wakulima wengi wanachagua kupanda miti ya kiasili ili kupata faida zao nyingi.

Mti wa kiasili ni upi?

Mti wa kiasili, ni mti ambao humezoeana na eneo Fulani kwa sababu umemea na ukazaa wenyewe tena tena kwa wakati mrefu. Si aina zote tuzajua ni za kiasili. Aina nyingi zimeletwa na watu wa kutoka maeneo ya mbali. Kuna zaidi ya aina za miti mia nane ambazo ni za kiasili katika Kenya.

Ni kwa nini miti ya kiasili ni muhimu?

Kwa sababu miti ya kiasili imebadilika pamoja na mazingira yake, wanyama, mimea na wanyama wengine. Sana sana, hii ni kumaanisha kuwa miti hii yaweza kukua vyema bila ya kuongezewa vitu kama dawa za wadudu au mbolea ya kutengezwa na madawa. Miti hii mara mingi huhitaji kazi kidogo zaidi kuliko miti ya aina ya kigeni. Miti hii hufanya mashamba yetu kuwa na aina nyingi za miti, ili uwezekano wa wadudu kuingia shambani kupunguka. Miti hii huwapa wanyama pori makazi na chakula na faida mbali mbali kupitia matunda, mbao, majani na dawa za kienyeji. Miti ya kigeni yaweza kutupa faida nyingi, lakini mingi yaweza kuwa kama magugu na yaweza kuwa mingi sana hadi inafunika miti na mimea mingine.

Tunapopanda miti ya kiasili mashambani mwetu, tunasaidia kulinda aina za miti ambazo zimekuwa za kutumika kwa mama na baba zetu, kwa nyanya zetu na kwa watu wote na wanyama wa Kenya kwa miaka mingi. Bado tunasoma kuhusu faida za aina nyingi karibu na sisi. Tunapopanda miti ya kiasili, tunaweza kusaidia kuhakikisha kuwa miti na faida za hii miti zitakuwapo kwa watoto wetu.

Katika TIST, tuna motisha zilizoongezeka za kupanda miti ya kiasili. Vikundi karibu na mito ambavyo hufuatilia mienendo bora ya TIST iliyo. Katika mpango wa maeneo yaliyo karibu na mito na kupanda miti ya kiasili vyaweza kupata nyongeza ya motisha kupitia mpango huu wa TIST unaoitwa TIST Riparian Initiative. Vikundi vya TIST karibu na misitu ambavyo vitapanda miti ya kiasili vyaweza kuingia katika CFA ili kupanda miti ya kiasili na

kupata pesa kutokana na kuuza hewa safi kutokana na hii misitu. Kuanzia malipo ya wakati huu, utaona kuwa motisha nyongeza ya miti itakuwa kwa vocha yenu. Kila mti wa kiasili ambao utahesabiwa katika shamba lako la miti yako ya TIST unapewa hii motisha ya shilingi moja kwa kila mti kila mwaka. Ni muhimu kujua kuwa hii motisha imepatikana kupitia usaidizi wa USAID. Kama isivyo katika malipo ya miti, ambayo hutokana na kuuza hewa safi na kwa hivyo yatakaa muda wa zaidi ya miaka thelathini, motisha hii ya miti ya kiasili ni ya muda mfupi na ambayo yapatikana kutokana na pesa kutoka nje ya mradi. Kwa wakati wa sasa, tuna usaidizi wa kupeana hii motisha ya miti hadi mwaka wa 2013. Tutajikaza kujaribu kupata usaidizi mwingine ili tuweze kuwa nahii motisha kwa muda mrefu zaidi.

Ni miti ya aina gani ni ya kiasili?

Kuna miti ya kiasili mia na zaidi katika Kenya, na aina nyingi ambazo zimeletwa na ambazo pia huwa na faida nzuri. Hapa ni mifano ya miti hii :

Miti ya kiasili ya Kenya

Cordia africana

Meru oak, muhuru, (*Vitex keniensis*)

Mugumo, Mirumba, (*Ficus thonningii*)

Podo, Muthengera (*Podocarpus falcatus*)

Mwiria, (*Prunus africana*)

Mutoo, mukeu, *Dombeya rotundifolia*

Murubati, Muuti, (*Erythrina abyssinica*)

Sesibania, (*Sesbania sesban*)

Muuuku (*Terminalia brownii*)

Mikongoro, (*Acacia albida*)

Mihogoro, (*Acacia abyssinica*)

Miti mingine imekuwa nchini Kenya wakati mrefu na ni muhimu lakini si miti yakiasili. Miti hii ni kama miembe, macadamia, casuarinas, bottlebrush na Mexican green ash.

Jaribu kupanda miti ya kiasili shambani lako leo! Angalia na uone aina zilizo katika misitu iliyo karibu na wewe. Uliza majirani na wanacluster ni miti gani wanayopanda, na ni miti gani misituni huwa na faida za umuhimu kwao. Tukifanya kazi pamoja, twaweza kukulinda rasilimali hii kubwa ya misitu yenye miti ya aina mingi kwa watoto wetu na kwa wengine wajao. Pigia Jeniffer Kithure simu 0726319539 ili kupata mengi zaidi kuhusu miti ya kiasili na mpango wa kuyalinda mashamba yaliyo karibu na mito.



Wakati wa Uchaguzi- Chagua mwanachama wenu wa chama cha kikundi cha cluster (Julai 2012).

TIST ni kina nani? Ni sisi! Sisi ni watu tofauti, tukiwa na cluster zaidi ya mia tano hamsini kuzunguka Mt Kenya, katika Mbeere, Mara na Mau. Tunavyoendelea kukua twataka kuhakikisha kuwa sauti zetu tofauti na mawazo yasikika. Wakati wanawake na wanaume, wazee kwa wachanga, kutoka sehemu mbalimbali wanabadilishana mawazo, twaweza tukaboresha TIST na kufanyia wakulima wote wa TIST katika Kenya kazi nzuri.

Muda wa waanzishi katika chama cha GOCC umeisha. Sasa ni wakati wa kutoka na wanachama wapya kuchaguliwa. Kwa hivyo ni wakati wenu kama wanacluster kuwachagua wawakilishi wapya, mwanamke mmoja, mwanamume mmoja, ambao wataweza zaidi kuwasilisha sauti zenu kama wawakilishi katika chama cha GOCC. GOCC ni kikundi cha cluster mbili kufika tano ambazo zimekaribiana kuweza kutumia vifaa na mafunzo pamoja. Kabla Julai thelathini kufika, kila kikundi cha cluster chapaswa kuchagua watu wawili wakuwawakilisha katika chama cha GOC.

Hawa wawakilishi hawatakuwa viongozi wa cluster, au wahesabu miti, au wakaguzi wa kazi au waliopo katika GOC katika muda huu. Badala yake, watakuwa wawakilishi waliochaguliwa na ambao watawawakilisha kwa miezi sita ijayo (Agosti hadi mwisho wa Julai). Kila cluster itachagua mwanamke na mwanamume mmoja na wawakilishi hawa wane kufika kumi watakutana kila mwezi.

Baada ya uchaguzi, wawakilishi wanaotoka wanafaa kuwasomesha wachaguliwa wapya na

kuwapa vifaa na vitu vyote walivyonavyo. Wachaguliwa wapya katika GOCC watakutana mara ya kwanza wiki ya kwanza ya Agosti. Katika mkutano huu, kila chama cha GOC kitachagua mwanamke mmoja na mwanamume mmoja kutoka cluster tofauti kuwakilisha eneo lao kijiografia katika chama cha kikanda.

Chama cha RC(Kikanda) kitakutana wiki ya pili ya Agosti. Kila chama cha RC huwa na wanachama sita kufika ishirini na nne kulingana na ni cluster ngapi na vikundi vya cluster vingapi vilivyopo katika kanda hilo. Chama cha RC kitakutana mara moja kilamwezi.

Kila chama cha RC (kanda) kitachagua mwanamke mmoja na mwanamume mmoja kuwawakilisha katika chama cha uongozi. Chama cha Uongozi(LC) kitakutana kila mwezi (wiki ya tatu ya mwezi) na hawa wawakilishi na wanachama walio na kazi mbalimbali.

Mfumo huu ni muhimu kuelekea kujiongoza kwa cluster yenyewe, ili mambo ya mradi wa TIST yanayogawanwa katika mkutano wa cluster yanapita kupitia vyama hivi haraka haraka. Katika kila chama, mambo haya yatajadianwa na mapendekezo kupatikana.

Ili kuwa bora zaidi, twahitaji watu wakujiotea walio bora zaidi. Jadilianeni na mchague katika cluster yenu wale ambao mnetaka wawawakilishe katikakikundi cha GOCC. Ni wakati mzuri wa kusoma na kufanyia cluster yako na TIST yote mambo yenye tofauti na mengine



Acha mmomonyoko na uharibifu wa udongo- okoa udongo wetu!

Umeletewa na Joseph Gituma

Udongo ni rasilimali moja ya zilizo na umuhimu zaidi, lakini kupitia tendo letu, tunaipoteza kwa haraka ya kushtua sana. Inaweza chukua miaka mia tano au zaidi kwa safu moja la udongo kutengeneka, lakini inchi moja ama zaidi yaweza kupotezwa katika mvua nzito au upepo mwingi wa mara moja .

Nini husababisha mmomonyoko na uharibifu wa udongo?

- **Udongo uliotumika kulima ukiachwa bila ya kufunikia.** Kulima ardhi hutenganisha udongo na kuruhusu mmomonyoko wa udongo. Udongo kama huu ni rahisi kumomonyoka kama haujafunikwa na miti au mimea.
- **Ufugaji wa kupita kiasi.** Wakati wanyama wengi wanaruhusiwa kutumia sehemu ya ardhi hufanya kunakuwa na upotevu wa mimea na hivyo basi mmomonyoko wa udongo
- **Kulima au kutumia mienendo ya ukulima isiyo bora katika maeneo yaliyo rahisi kumomonyoka udongo** Milima iliyoinuka sana na kingo za mito huwa na uwezekano zaidi wa kupatwa na shida za mmomonyoko wa udongo kunapolimwa kwa sababu maji hushuka haraka katika maeneo haya na hubeba udongo mwingi. Shida hii yaweza kuongezeka zaidi milima inapolimwa kwa mitaro inayoelekea mlima unapoelekea badala ya kuuvuka mlima kutoka upande mmoja hadi mwingine au kujenga makinga maji. Kulima mmea wa aina moja mwaka baada ya mwaka kwaweza pia kuharibu udongo.

Mmomonyoko wa udongo husababisha :

- Uhaba wa chakula: mmomonyoko wa udongo hupunguza unono wa udongo na hivyo basi kupunguza vuno la mimea yako na kuwepo kwa chakula.
- Vizuizi vya maji : Udongo unaoingia majini huharibu malazi, huchafua maji ya kunywa na hubeba kemikali zinazotumika shambani hadi majini, jambo ambalo laweza kuwa bay asana kwa watu na wanyama.

- Athari ya hatari : Mmomonyoko wa udongo husababisha mafuriko. Udongo unapofika chini mitoni unainua mahali maji hufika. Pia inasabababisha maporomoko na unayafanya maporomoko kuwa yenye hatari zaidi.
- Uhamisho: Mmomonyoko wa udongo unapoharibu ardhi hadi ardhi inashindwa kupata mapato ya kilimo, watu wanasukumwa kuhamia sehemu zingine.

Naweza kufanya nini hili kuuokoa udongo wangu na kuzuia mmomonyoko wa udongo?

1. Funika udongo- Hakikisha kuwa udongo umefunikwa kila wakati. Panda mimea ya kufunika. Changanya- panda mimea aina mbili au zaidi pamoja katika sehemu moja ya ardhi na ujaribu kilimo mseto (kupanda miti na mimea pamoja). Mizizi ya miti ni mizuri sana katika kushikilia udongo, kwa hivyo kupanda miti ikizunguka shamba lako ama ikifuatana katika shamba lako kwaweza kupunguza mmomonyoko wa udongo.
2. Tumia Ukulima Bora. Kwa sababu hulimi ardhi, mimea iliyozunguka mashimo husaidia kushikilia udongo na kuuzuia usibebwe. Mashimo pia hushika udongo mwingine kabla hubebwe.
3. Pangia vizuri shamba lako lililoinuka – Kuchimba matuta, makinga maji, Kuchimba mitego ya udongo ya kushika maji chini ya miteremko, kwaweza kukomesha mmomonyoko wa udongo ama kusaidia kushika udongo ambao ungebebwa na maji.
4. Panda miti mingine! Miti hufunika na kushika udongo na hivyo basi uwa jibu lanalofaa. Wacha kulima vilimani na karibu na mito na badala yaku panda miti, nyasi na mimea mingine ambayo italinda maeneo hayo.

Tusipoteze rasilimali hii yetu iliyo ghali. Tutumieni mienendo bora tuache kuuharibu udongo.

Mazingira Bora



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TIST Master Trainers in a recent seminar.

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Kasarta kechop betishek chepo ketik asi keminen kosorwokik chon bwonen.

Che chang' en groupishek chemenkech en TIST, yon kakosibto ketik en robwek chebo arawet tab' ang'wan ak mut, konome en arawet tab' tisab, kochobchin ketik betishek chebo robwek ab arawet tab' taman agoi taman-ak-oen'g. Inoniton ko toreti icheket kohakikishan kole yomotin ketik che kemine ak chekiroren chon kikomeyo kosorwokik che kiko'bata. Kora gropishek checha'ng ko-aldechichin bik'ab kokwet ketik yon kacha'nga.

Che isibu ko ole kichobto betishek, pots ak nurseries:

Ole kichobto pot-bed:

A. Boishet nebo pot-bed

Yon kokorut keswek'ab ketik kotkoboru sokek 3 ann ko 4, kimuche kisibto koba ng'ung'unyek chemit paper-bags kikuren (pots). Woind'ab pots ko tyen-ke mahitaji chebo ketit ak mbolea chetinye.

B. Chobet 'ab pot-bed

- Che chang' en keswek'ab ketik koboishen polythene-bags che ten 6"x4" ana ko 8"x5" en woindo. Imuch koik ghali bags ichuton, ne koto bags ichuto iboishen :
 - Tin cans
 - Sokek'ab ndizinik.
 - Plastic bags –Til plastics ichuton kotiyen ke sizishek che imokchini ke ak kityo iboishen mat ituyen cornerishek.
 - Plastics chebo bek.
 - Tugun alak tugul che imuche i-itchini.
- Ibwat ibakach komoswek'ab koriswek en bot age tugul ne keboishen.
- Til pots ichuton koik inchishek 5 anan ko 6, ak ichob kong'wek che mengechen en ng'weny en pot.
- Tayarishan ng'ung'unyek iboishen bchewokik 5:2:1
 - Ng'ung'unyek 'chebo osnet- 5
 - Muchang'ek -2
 - Mbolea chobo tyong'ik -1.
- Chuk-chukan ng'ung'unyek'ab osnet asi-iste koiwek. Kimuche kechop kibchuk-chuket koboishen wire mesh (1.5cm) neteno 1m ak

1m framit'ab bokoyot.

- Mixen ng'ung'unyek choto komye.
- l'bis ak bek ng'ung'unyek asi konomchino ke komye.
- l'nyit ng'ung'unyek en pot mutyo, Chil ng'ung'unyek koito ke koristo en pot. Imuche iboishen funnelit inyiten ng'ung'unyek.
- l'tuch nafasi ne kiten en barak olebo ketit.
- l'sibten ketit kwo pot mutyo. Imuche ichob kering'et ne kiten ek kityo inde kolkeyat mutyo komoibar tikitik'ab ketit. Inyit keinget noto ak ng'ung'unyek.
- Kimuche ke arrangen pots en rowishek kochob beds asi konyumnyumit ole ke ribto. Yeityo kinde asista ana ko urwet, kotien ke magutik'ab ketit.
- Pang'an pots en groupishek chetinye ketik 100. Kou betishek, beds ko manyumnyum ribet nywai yon 1m boroinde ago 5-10 M koindo.
- Pangan ketik kotiyen ke aina asi konyumnyumit en Quantifiers kosir data chebo ketik choton.

Practice che mbya che kororon: Pot beds che ko ki-raisen.

l'yomise TIST temik koboishen raised pot beds. Temik che chang' ko koker kole inoniton kotese rurutik. Jaribunan raised pot beds akityo l'muitye observation alak tugul en cluster neng'ung'et., ak ng'ot kotese rurutik raised pot beds. Pichait ne isubu koboru ole ki'pangondo ketik kou ole kakiororundo en barak yuton:



Fig 1: Kolkeinik'ab ketik chebo Moringa oleifera che'pangonotin en nweny.

Oret niton, neki'pongoni ketik en ng'weny komuche koteter tikitik chepo ketit. Imukoksek inonton ang'amun chile ke tikitik en oritit'ab plastic bag. Tun yon kisibto, ko terter tikitik ago imuch koma nam ng'weny komye. Asi keter komayaak



inoniton, kemine keswek en **tubes che yototin en bottom** agityo kinde **raised beds** (Fig 2). Raised beds kimuche kechob ke boishen: bokoinik ak wire mesh(ko'u en pichait). Raised beds kokonu nafasi nepbo pruning en tikitik , ngamun yon kokoechekiton tikitik kotkoit ngweny en pot kometos ak kobutyo (kikuren inoniton air root pruning). Kopor kole ma'umiandos tikitik kou yon kakitil keboishen pruning nebo kawaida. Komakorutu tikitik komye. Inoniton koko'chin ketit, tikitik che kororon ak komuche kochob ketit tikitik che chang' ak korut komye. l'stoi kora mget 'ab bik che koto'yoee kasit nebo pruning, kasi ne sanasana ke utyen anan keyai kokakochelewan neyoe tikitik ko'meyo. Raised seed beds kora kobose saratik chiten en betishek.



Fig 2: Ketik che terterchin che miten en raised pot beds.

Imuch koboru kole boishen bek che chang' raised pot beds. Lakini, operators chebo beteshik kokoba ak nama ole kimuche kebos bek chekimokche. Namna neta nkararan nekibunu Tanzania ko ke'bal trenches ,akityo bokoinik ketit anan ko wire mesh barak, yeityo kitebsi seedlings barak en bokoinik choton anan ko wire mesh. Kotoku ketik kou yon kokitebsi ng'weny lakini trench chmiten ngweny en ketik ko'kochin ketik nafasi nebo air root pruning. Ng'tu bek en oritit 'ab trench kokochin ketik bek kobune evaporation , niton kobose mget nebo bek .Kimuche kora kinde polythene sheet en trench asi koter bek koma kul ng'weny.

Tebutik che kitebe en Cluster Trainings:

- a. **Materials** acho che kokoboishen groupishek en pot bags ako nyor rurutik. Mwaitechin groups alak.
- b. Imugto ano groups che'mech' kotuyo ke asi kochob pot beds? Kimogchin ke bik ata asi kochobok pots? ou? Bik ata che yoche ko'mixeni ng'ungunyek? Ano ole kitayorishonen?
- c. Miten groupit age tugul ne ki'ko'jaribunan raised pot beds?
- d. Tinye bik advice alak? obchei noiyet en tuyet neisubu.

July-August ko kasarta ne kararan en chobet 'ab mbaret nebo conservation farming.

Kosire inendet: Joseph Gituma

Che chang' en groupishek che meng'ech chebo TIST, kokoreborten kole conservation farming ko'kararan ako tese rurutik kwai , ogot yon yach kosorwek ako momiten robta emet kabisa. En kenysishek chemiten robta , kochang' rurutik ogot kosir . Groupishek alak chemiten en bugoshek ole momiten robta, ko'ko'reborten kole ko tesak rurutik konyil oeng' agoi mut!

En Conservation Farming, iteshini compost manure en keringoik chebo minutik akityo l'bakach residue chebo rurutik en imbar, amati kut , inonito ko'bose erosion en ng'ngunyek ak ibet 'ab mbolea chmiten en imbar. Keswek konyoru mbolea che chang' kosir yon kakimin keboishen minet nobo kawaida. Mbolea choto ko'toreti kolkeinik korut

komye akityo koechekiton, ako chang'a rurutik .

Keringoik kotese manufaa kora en chong'indo 'ab rurutik. Kering'oik choton kobo maana sana yon konyo robta. Angamun, nekoto iudo bek ng'ng'unyek che kororon ak keswek kobendi bek chuton keringoik kotoret keswek korut komye. Ingituyo keringoik ak mbolea safi ichukan koyoe bek kobur en ole rubeke ak kolkoinik kasarta ne'goi, basi komoi bek asista bek tugul koyamsi kolkeyat. Keringoik ko'toreti kolkeinik yon kistechin saratik.

Ibwat ile, yon kaributishen imbaret , koma'timetechi tyong'ik koweche rurutik che kong'et anan ko mat. Mabakio chebo rurutik konundos akityo koik mbolea en imbaret, niton kotese rurutik en kosorwokik chebwonen.



Ketik che Indegenous: Ne keti chuton, ako amune siko bo maana ?

Temik en TISTkome ketik che chang' che terterchin , konam lokoek ak ketik 'ab nut,ketik chebo fodder, Ketik ch tese mbolea en imbaret , ak ketik che kimuche kechoben bokoinik.Ch chang' en temik koko'lewen, komin ketik che indigenous amun en faida nenywanet .

Ne ketik chu indigenous?

Ketit ne indigenous, anan ko native, ko ketit ne kikorut en olda egeng'e koboch keny ago kikonaita .Mo ketik tugul che king'en ko indigenous .che chang ko ki'ibu en bitonin.Chang' kosir 8000, aina chebo ketik che indigenous en kenya.

Amune asiko bo maana ketik che indigenous?

Angamun kikorut keti chuton indegeous en emit ak tyongik , minutik alak ak tuguk alak che miten karibu, konome kea k emonoton yon kakimin.Inoni koboru kole keti chuton korut komye ako momogchin ke tuguk che chang'.Sanasana komo'moche ribet newon kosir che kokiibu en olda age.Wole tukuk che miten en imbarenik chok , asi kobosok mionwokik minutik . l'kochin tyong'ik menget ak kora koko'nech lokoek ,bokoinik ,sokek, ak kerichok chebo timin . Ketik chekokiibu en olda age komuche koib saratik en imbaret ak koreben amitwoki minutik alak che miten imbar..

Yon kakimin ketik che indigenous en imbrenik chok, ketoreti keribe ketik chekiboishen kamatik chok ak bomorishek ,ake toreti bik 'ab wild life Kenya.Tokinete kei akobo manufaa chebo aina aina en ketik chuton indegenous.Yon kakimin ketik chuton indegenous,kimuche ke-hakikishan ke bo manufaa ketik chuton en lokok chok.

Ketik achon che indigenous?

Miten bogolushek 'ab ketik che indigenous en Kenya,ak alak che kotakenomu che tinya manufaa .kou che isubu:

Ketik che Indigenous en Kenya ko:

Cordia africana

Meru oak, muhuru,cheborus (*Vitex keniensis*)

Mugumo, Mirumba, (*Ficus thonningii*)

Podo, Muthengera (*Podocarpus falcatus*)

Mwiria, (*Prunus africana*)

Mutoo, mukeu, *Dombeya rotundifolia*

Murubati, Muuti, (*Erythrina abyssinica*)

Sesibania, (*Sesbania sesban*)

Muuuku (*Terminalia brownii*)

Mikongoro, (*Acacia albida*)

Mihogoro, (*Acacia abyssinica*)

Alak en ketik chuton ko kikotebi en Kenya en kasarta nek'oi,ako bo maana sana, lakini mo-indigenous(mabo Kenya).Alak en chu ko cheu mango , macadamia, casuarina, gravellia, bottlebrush, ak Mexican green ash.

Yom imin ketik che indigenous en imbaret neng'unget raini! l'ro en osnet ne orubeke angot komiten ketik che indigenous .Teben bik 'ab kokwet an'got anan ko bik cebo cluster ing'ung ketik che mine ichek,ak ketik achon chebo osnet che konu faida newon.Angot keyai kasit kibageng'e, kimuche keribchi osnosyek chuton la'kok chechoket ak ibinwek alak che takobwanen .Kaikai birchin inendet Jeniffer Kithure simoit akobo ketik che indigenous anan ko en Riparian Initiative en nambarishek chuton 0726319539.



Kasarta nebo lewenishet – Lewen groupit neng’wong’et nebo Cluster Council members arawaniton (July 2012)

Tononchin ne TIST? Ehek ko ki TIST! Ki’terter terchin tugul, ktinye clusters che ite 150 en Mt. Kenya, en Mbeere, en Mara ak Mau. Koten kotagese ta ke’echekitu , kemoche kokas ng’wony kutuswek chok ak ng’ololutik chok. Yon koituyo metoek bik che yosen ak che mengechen boishek ak chepyosok , chepunu komoswek che terterchin , keyoe TIST koik ole kararn ak ketoret temik chebo Kenya TIST.

Kokobek term nebo pioneer GOCC. Ing’unon ko kasarta kosung’ungan kandonatet ak ke lewen membaek alak. Inguni ko kasarta neng’woret cluster members olewen kondoik alak , murenik –I ak kwonyik-I, che kazit nywai ko koik sautit ngwong’ en Group of Clusters Council. Groupit ‘ab clusters ko tinye 2-5 clusters che kirikchi ke asi komuch ko bchei tuguk ‘ab kasit ak konetishoshek. Koite July 30th, koleweni groupit ‘ab clusters age tugul kondoik che tononyin en local GOC Council.

Kondoik chuton ko moiku kondoik ‘ab clusters , anan ko Quantifiers, anan ko auditors anan ko GOC members chebo kasariton lakini, iku tononi en arowek lo’ chu miten ta (Augustagoi let en January). Cluster age tugul ko leweni kwony

ageng’e ak muren ageng’e, ako kondoichuton 4-10 ko tuitos kila arawet.

Yon ka’kobata lewenishet , membaek ‘ab GOCC che’mondo konyolu konet membaek che chuto’ ak kokoito materials ak tools chebo kasit . membaek che kokileweni koba GOCC kotoitos neta en arawet ‘ab sis’it .En tuyoniton ,agetugul en GOC Council koleweni kwony agenge ak boyot ageng’e koyob clusters che terterchin kotononchi komoswek che choton en local Regional Council.

Regional Councils kotuitos en weekit ‘ab oeng’ en araewt ‘ab sisit. Ageng’e tugul en RC kotinye 6-24 members kotyen ke nambarit ‘ab clusters ak groupishek che miten en komosoton . Regional Councils kotuitos kila arawet.

A’ke tugul en Regional Councils koleweni kwony ageng’e ak muren ageng’e chetononchin en Leadership Council (LC). LC kotuitos kila arawet (weekit nebo somok en arawe ‘ab sisit). Tuitos ak “representative members” ak operational members.

Bong’anani kotoret kotes kandoinate ‘ab ke, asi kong’et program nebo ngelk che kaking’alalen en toyoshek kisibto en councils ichuton en chokchinet. En stage age tugul ke ngololen ak kego kon majibu .



Ongeter ibet ‘ab ng’ung’unyek –koribok ng’ung’unyek chok !

Kosire inendet Joseph Gituma

Ng’ung’unyat ko kit nebo maana san en echek, Lakini en tuguk che ki keyai, kobete ng’ng’unyat ne kararan en haraka. Imuch kotar kenysishek 500 anan kosir ogot, asi kechob layerit aeng’e nebo ng’ung’unyek, lakini layer’it nato agenk’e kimuche kibet en robta anan ko en koriswek che echen ochei!

Ne ne ibu erosion ak degradation en ng’ung’unyek?

- **Imbarenik che kakemin ami kituch:** Temet ‘ab imbarenik ko‘tetere ng’ung’unyek neyoe bek kola. Ng’ung’unyek choton koyomeke ketuch ak ketik anan ko minutik alak tugul.
- **Yon koam tuga ng’weny soiti.** Imbaret neko kibokochi tug ache chang’ soiti koistoke minutik en barak,neyoe ng’ng’unyek kola bek anan ko koristo
- **Minset en komoswek che chang’ erosion anan ko minset ne makararan.** Tulonok ak tabandab oinoshek konyoru shida nebo erosion saidi yon kokitilden angamun rwae bek en yuton ,basi koibe ng’ung’unyek che chang’.taabt niton komuche kotesak yon ka’ kimin minutik kochorke en tulwet . Niton kochobchin bek oret ne’ iben ng’ung’unyek.Kora minet ‘ab kit agenke en imbaret kila kenyit koweche ng’ng’unyek.

Tuguk che yach che ibu Erosion:

- Rorunet ‘ab omitwokik:Erosion en ng’ng’unyek kobose mbolea chemiten ng’weny en let kobosok rurutik.
- Weche bek ‘ab ng’weny : Ng’ung’unyek che loe bek koweche habitat ak supply nebo bek chebo ka.Kora koibek ‘chemicals’ kochut bek chebo boishonik ‘ab ka, nito ko hatari en bik ak tyong’ik.

- Erosion komuche koib floodin en emet:Yon kakela ng’ung’unyek kobokotebie en oinoshek basi kotesak levelit ‘ab bek.Kora koibu landslides, akoyai landslides kochang’aekitun.
- Istoet ‘ab bik:Yon kakela ng’ng’unyek saidi en ole menye bik , kolazimishani bichoton koruto koba olda ake.

Ne, neamuche ayai asi orib ng’ung’unyek komala bek anan ko koristo?

1. A hakikishan kole tuchot ng’ung’unyat kasarta age tugul. Min minuik chetuche ng’ung’u nyek.Minet ‘ab minutik oeng’ anan ko che tako cha’ng en imbaret ,ak minet ‘ab ketik- agro forestry (Minet ‘ab ketik en oldo aeng’e ak minutik). Tikitik ‘ab ketik, ko kororon en r, ko kororon en r,ko kororon en ribet ‘ab bek so minet ‘ab ketik en tabonwokik ‘ab imbaret anan ko kwenushek en rowit kobose erosion.
2. Boishen Conservation Farming. Angamun meboti imbaret ,Minutik cherubeke ak keringoik koribe bek komokila.Imuche kora koter keringoik, ng’ung’unyek komakila koba ole lo.
3. Chobet ‘ab tulonok ak slobe nenywai- Contour tilling, terracing,tekset ‘tab soils traps asi ko ter ng’ung’unyek en tobonwokik ‘ab tulonok,kobose erosion akityo koter ng’ung’unyek che kotokiundo.
4. Min ketik che chang’!Ketik konomchindos ng’ung’unyek ako jibu nton ne kimong’u. Pakaten minset en ole rubeke ak tulonok , tobonwokik ‘ab oinoshek, akityo imin suswek, ketik anan ko minutik alak tugul en yoton.

Matin kibet kiiton bo maana san ,ng’ung’unyat. Ong’e boishen practice ichuton ke rib ng’ung’unyat.