

Mazingira Bora



TIST

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

English Version

An Environmental, Sustainable
Development and Community Forestry
Program.



A New TIST Cluster, Ngandu in Mathira West, receive Ashley Pettus, a TIST Visitor in March 2016.

Inside:

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

TIST: Pest Management. *Page 2*

TIST: TIST Farmers Work to Protect Biodiversity. *Page 4*

Muriru TIST Cluster: Steady Growth in 2016. *Page 4*

Time to plant! Try these good indigenous trees. *Page 5*



TIST VALUES: The Foundation and Strength of TIST.

By Joseph Gituma

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

In many of our activities, from tree planting, practicing Conservation Farming, improving biodiversity, Building or buying improved stoves,

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

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

TIST: Pest Management.

Every farmer knows how difficult it can be to keep crops and trees free from pests and diseases. There are many different types of pests that can damage your fields including rodents, insects, birds, fungi, bacteria and viruses. Weeds are unwanted plants that reduce productivity by competing with your trees and crops for nutrients, water, space and light.

It is not possible in this article to cover all the different crop types, pests and appropriate control strategies that TIST small groups need information on. It is important for trainers to research with their small groups what the most common problems are.

Then trainers can access solutions through checking the resources provided in this article. Sometimes being a good trainer is not knowing all the answers at once, but knowing where to look for further information!

General pest management strategies.

Through using the best practices from conservation agriculture you will also be helping to protect your fields from pests and diseases. The following are some key points to consider:

Fertile soil: having soil rich with nutrients gives your crops the best chance of growing well and stronger crops will be more resistant to diseases.

Crop rotation: certain pests depend on a specific food source. If you grow the same crop in a field year after year it increases the risk of pests being able to survive and thrive in that area. Changing the crop through rotation practices means that pest cycles can be disrupted and damage to your crops minimized.

Intercropping: increases the diversity of plant life in the plant, and can help prevent one type of pest dominating. Certain pests also get confused by intercropping and do not spread as quickly as in a field with just one crop. Try intercropping with plants, which repel some pests through their odor (such as onion, leek, mint, garlic, sweet basil, oregano, marigold).

Cover crops and mulching: are not just good for increasing soil fertility and water content, but can also reduce weeds by increasing shade. Do not



use plant material that has flowered and seeded as your mulch, however, as this may accidentally spread diseases.

Use resistant crop varieties where possible: remember that indigenous seeds may be the most resistant of all in some cases and it is not always necessary to buy imported strains. However, the context varies and you should get local knowledge from other small groups.

Removal of diseased plants or plant parts: diseased plants need to be properly disposed of so that they do not spread the infection to other healthy plants. Sometimes it is clear that the whole plant is not affected and can be controlled through pruning of specific branches.

Plant seeds that are disease-free and appropriate: to the local conditions to give your crops the best chance of survival.

If you are applying **nitrogenous fertilizer:** make sure you are using the correct amounts, as over-fertilizing a field may increase the risk of certain pests.

Attract natural enemies/farmer's friends: these include predators (those that eat the pests), parasitoids (they lay eggs in certain insects that are killed when the larvae hatch) and pathogens (infectious agents causing disease in pests). Examples include conserving ladybirds, spiders and hoverfly larvae, which feed on aphids, caterpillars and other pests. Hedges and mulch can provide good habitats for many natural enemies, as can certain flowering plants such as fennel and celery. However, it is important to be able to tell the differences between which are your farmer's friends and which are pests! Resources in the second part

of this article will help you identify natural enemies at different stages of their life cycle, and which ones are most useful for the specific crops you are growing.

If you have tried the above suggestions and still have pest problems, you may need to **consider pesticides**. Some pesticides you can make yourself using natural ingredients and others you can buy from shops. Both types need to be used very carefully. The correct use of them can kill the pests and weeds, and increase crop yields. However, inappropriate use can kill beneficial organisms such as pollinators (e.g. bees) and natural predators which feed on pests. Pesticides can lead to resistance in pests, and can be harmful to human health if not applied in the right concentrations. If you do use pesticides, ensure you carefully follow the correct storage, usage and disposal guidelines. Get the right dilution, ensure you know whether to spray down on the plant or up from underneath (or both) to find the pests, choose pesticides which are specific to the pest you have a problem with, and choose ones with as low toxicity as possible. Using broad spectrum pesticides in high concentrations which kill everything may actually be worse for your crops and the ecosystem, so take the time to educate yourself on which products are most appropriate to the problem you are facing.

Weeding: Although it is hard work, it is worth keeping your fields as clean as possible. Remember that some weeds can be beneficial – some types fix nitrogen, some can be used for fodder, some have medicinal properties and some produce flowers useful for producing nectar for bees.

Please discuss in your cluster meetings some of the best practices you have developed and discovered in fighting pests and diseases. We will be happy to receive proven practices that have worked in your farmers in this newsletter.



Muriru TIST Cluster: Steady Growth in 2016.

We, the Muriru TIST Cluster, are happy for the rains this season. We are working together again, to plant more trees and prepare more tree nurseries.

So far we have 42 Small Groups and since September 2014, we have been working on a strategy to build a strong cluster. We started with a tree nursery fund of Ksh 100.00 per group, which is added to the monthly Cluster Budget to buy seeds and poly tubes.

Like in the previous rainy season, we are sharing again, among ourselves the tree seedlings that are ready for planting. The cluster members are determined to enlarge the tree nursery so that they can also get income from the sale of tree seedlings.



TIST Farmers from Muriru Cluster working in their tree nursery.

TIST: TIST Farmers Work to Protect Biodiversity.

Biodiversity, the richness and variety in nature, is essential to a healthy environment. Variety is especially important for responding to change and challenges like drought, pest, or climate change. Since biodiversity is so important, you might think people everywhere are working to make sure we protect and preserve this natural richness. However, each day, because of human actions, we are losing species and genetic diversity as forests are cut, wetlands are drained, and resources are over exploited.

We see this loss every day. Think of how many kinds of birds, plants and animals you saw often when you or your parents were young but are rare or gone today? There are nine million different species of organisms on our planet and when we destroy them, it is a permanent loss for each of the seven billion people who share this planet - for our children and their children.

TIST farmers are making a difference

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

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



Time to plant! Try these good indigenous trees.

Indigenous trees are tree species that have developed in Africa and are well suited to the environment they developed in. They may improve soil and attract birds and helpful insects. Different trees will grow better in different places.

From TIST Seminars and Cluster meetings, TIST participants have identified types of indigenous trees that are very good and beneficial in their areas. Some of these are described below, and we thank the World Agroforestry Centre for this information on benefits and seed collection and preparation for success. Please consider some of them in your next planting season, and let us know some of the best kinds in your area!

a. *Prunus africana* (Kikuyu: Muiiri, Kimeru: Mweria)

This indigenous tree is mainly found in forest reserves. Seeds are available in forests during the dry season. Collect only dark brown, ripe fruits from the crown of the tree or the ground.

Remove the pulp by soaking for 24 hours, then wash over a wire mesh. Spread in a thin layer in an airy, shaded place to dry – but for 4 hours only. The seed does not store so use the fresh seed.

Wrapping moist leaves around the seed minimizes moisture loss during temporary transport and storage. Sow directly into the seedbed or pots. Germination takes 6-8 weeks.

Uses:

- **Pest repellent:** Can repel some pests e.g. aphids, nematodes (those which attack crops) by its smell. Flowers have sufficient nectar and pollen for good bee forage. Produces high quality firewood.
- **Medicine:** Liquid extracts from bark are used in the treatment of prostate enlargement. Leaves are used as an inhalant for fever or are

drunk as an infusion to improve appetite. Water is added to pounded bark, and the red liquid is used as a remedy for stomachache; bark extract may be used as a purgative for cattle.

- **Erosion control:** Trees can be grown along contour ridges and terraces, provides useful shade and acts as a windbreak. Soil improver: Leaves can be used as mulch and green manure.
- **Ornamental:** It makes an attractive garden shade tree.

b. Peacock Flower (*Albizia gummifera*, Kikuyu: Mukurwe)

This tree is commonly found in lowland and upland rainforest and in open habitats near forests.

Fresh seeds need no pre-treatment. Stored seeds are soaked in warm water and left to cool to room temperature. The seed coat may be nicked at the cotyledon end to hasten germination. Seed germination is good, 70-80%, within 10 days. Seeds should be collected while still on the tree to minimize insect damage. Seed can be stored for at least a year if kept dry and insect free through addition of ash.

Uses:

- **Bee-forage, fuel wood, timber, gum, tannin, medicine** (extracts from the crushed pods are taken for stomach pains and the bark decoction for malaria), erosion control (the root system holds soil and prevents gulley erosion),
- **Shade**, nitrogen fixing (improves the soil), known as a good mulch tree as leaf litter is abundant during the leaf shedding season,



- **Ornamental** (planted in town avenues for its beauty),
- **Boundary planting**, the leaves quicken the ripening process in bananas.

c. *Olea africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)

This tree is found in a variety of habitats, usually near water, on stream banks, and also in open woodland. It is resistant to both frost and drought

Fresh seeds are used for sowing. Old seeds can be soaked in cold water for 48 hours. Seeds are often pre-treated by cracking with a hand vice or by rolling a stone over seeds. This is because removing the endocarp can enhance germination.

The seeds can be stored at dry room temperature for a few years.

Uses:

- **Food:** the main olive products are olive oil and edible olives. Fodder: The plants are much browsed on by livestock. Also used for fuel, timber, charcoal, toothbrushes and ornaments.
- **Reclamation:** The high drought tolerance suggests that it is a good candidate for reforestation in semi-arid zones of Africa.
- **Ornamental:** Olive trees have the capacity to beautify the landscape.

d. Waterberry (*Syzygium guineense*, Kikuyu: Mukoe, Kimeru: Muriru)

This tree usually occurs in lowland rain forest and mountain rain forests. It commonly grows in moist conditions, sometimes even in water, and is usually found along streams.

Seeds need no pre-sowing treatment, as germination rates are good and uniform.

Rates of 80-90% are attained after 20 to 50 days. Direct sowing into pots is recommended. Fruits are perishable, hence should be picked from the ground soon after falling. They may also be collected by shaking the branches with hooks. After collection, the fruits should be sown out immediately as seeds will lose viability if they are dried. If this is not possible, fruit can be stored for a few days in moist sawdust and open containers in well-ventilated rooms.

Uses:

- Bee forage, Timber, Fuel wood, Shade, Medicine
Note: the poisonous bark has been reported to cause human deaths, so advice should be sought from people experienced in using the products for medicine from this tree.

e. *Melia* (*Melia volkensii*)

This termite-resistant tree provides good fodder at the end of the dry season when other fodder may be scarce, and so can be valuable for TIST farmers. The trees, open-crowned, with gray bark, may grow to a height of 6 to 20 meters. *Melia* is common in in acacia-commiphora bushland with rainfall of 300-800 mm. It sometimes borders seasonal rivers or wetlands or appears on rock outcrops. It sheds its leaves twice a year, and can be a good choice to plant along with crops.

Melia is often started from wildlings or root cuttings, though root cuttings may produce an unstable tree. If grown from seed, the seed should be scarified using fire (fast fires or dry grass dung) or the seed coat nicked and then seeds soaked in water for 6 hours before planting.

Uses:

- Excellent fodder for goats and cattle; timber; beehives.
- Leaf preparations are used as flea and fly repellents and are said to be particularly effective on goat kids.
- Good agroforestry tree.

Mazingira Bora



TIST

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

Kimereu Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Cluster injeru ya TIST, Ngandu, Mathira East bakigwata ugeni Ashley Pettus, mugeni wa TIST Mweri jwa ithatu 2016.

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

TIST: Kuniyia tunyomoo turia tuthukagia imera. Page 2

Cluster ya Muriru: Kuthegea na kuriba mwakene jwa 2016. Page 4

Inya ndene ya mithemba imingi ya imera na nyomoo gukaranira: TIST niikaragia wingi bubu bwa imera na nyomoo amwe. Page 4

Igita ria Kuanda! Geria miti iji imiega ya gintwire. Page 5



Jaria TIST ikirite: Musingi na inya ya TIST.

Ni Joseph Gituma

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

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

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

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

TIST: Kunyiyia tunyomoo turia tuthukagia imera.

Omurimi naji uria kuri inya gwika imera na miti itirumi ni tunyomoo na itigwati ni mirimo. Kurina tunyomoo twa mithemba mwanya turia tuumba kuthukia miunda yaku amwe na mbiti ta mbea, nyoni, na tunyomoo turia turetaga mirimo. Iria ni imera biria bitikwendeka biria binyiagia uciari bwa imera gukukurira gushindana na miti na imera biaku niuntu bwa irio, ruuji, guntu gwa gukara na weru

Mantu jaja jariritue ndene ya icunci biiri – gicunci kia mbele kiriejana kirira gikiarie kwegie njira cia kumenyeera iria ciumba kunyiyia ugwati bwa tunyomoo na mirimo. Njira iji cia urungamiri itumagiira mitire iria miega buru ya urimi bubwega.

Gicunci kia biiri kiriuthurania mathuganio jamwe ja jaria mega buru kuuma kiri internet kwegie o kanyomoo, murimo na njira ya urungamiri. Tutiumba kwariria mantu jonthe kwegie mithemba yonthe mwanya ya imera, tunyomoo na njira iria njega cia kunyiyia iria ikundi bibinini bia TIST bikwenda umenyo kwegie. Burina bata aritani kuuria na gucua umenyokwegie thina iria boonangaga barina ikundi biao. Riu aritani nobacue njira cia gukabana na mantu jaja gukukurira gucwaa guntu kuria baathiria bacue aja nthi. Magitene jwamwe kua muritani umwega ni kwithirwa utiji macokio o rimwe, indi ukamenya naria umba gucua umenyo nkuruki!

Njira cia urungamiri bwa tunyomoo.

Gukukurira gutumira mitire ya urimi bubwega ukoomba kinya gutethia kumenyeera miunda yaku kuumania na tunyoo na mirimo. Jaja jathingatite ni mantu jamwe ja bata mono ja kuthuganiria:

Muthetu jumunoru: Kwithira urina muthetu jumunoru na irio nikuejaga imera biaku kanya gakanene ga gukura bwega na imeraa birina inya nkuruki bikoomba gukabana na mirimo bwega

Kugarurania imera: Tunyomoo tumwe turijaga irio kuuma kimera muthemba munna aki. Ukaanda kimera kia muthemba jumwe muundene mwaka nyuma ya mwaka nwrongagira kanya ka tunyomoo kuumba gutuura na gukura bwega antu au. Kugarura kimera na njira ya kuthiurukia ni kuuga guciarana kwa tunyomoo tutu gukagitarua na magitaria ja imera biaku jakanyia.

Kuandaniria imera bia mithemba mwanya: Nikwongagira wingi bwa imera biria bigukaraniria na nogutethe kuthiria kwathana kwa muthemba jumwe jwa tunyomoo. Tunyomoo tumwe kinya nitwangeratanagua ni uandi bwa imera mithemba mwanya na tutiumbaga gutamba na mpwi ja ndene ya munda jurina muthemba jumwe aki jwa kimera. Geria kuandaniria mithemba ya imera iria ingaga tunyomoo gukukurira miruki yabio (ja matunguru, leek, mint, garlic, sweet basil, oregano, marigold).



Cover crops and mulching Kuanda imera bia guukunikira muthetu na gukunikira muthetu na imera bigitwi: Mantu jaja jatibui aki niutntu bwa kwongera unoru bwa muthetu na ruuji ndene ya muthetu, indi kinyanjanyagi iria gukukurira kwongera kirundu. Ugatumira imera biria birina maua kana birina mpindi gukunikira mutheti, nontu jaja nojatambie mirimo.

Tumira mithemba ya imera iria itigwatangagwa ni tunyomoo na mirimo riria gukuumbika: Rikana ati mpindi cia gintwire nicio ciumba kwithirwa ciumbaga gukabana na mantu jamaingi nkuruki ya ingi naamwe na rionthe ti mwanka ujure mpindi cia mithemba ya kuretwa. Indiri, bubu iburinganaga na nubati kwamba gucu umenyo kumania na ikundi bibinini bingi.

Kurita kwa imera kana icunci bia imera biria birina mirimo: Imera birina mirimo nibibati gutewa bwega nikenda bitigatambie mirimo iji kiri imera biria biri thiria. Rimwe nikwonekaga ati kimera kionthe gititongi ni murimo na murimo nojuthirue gukukurira kugita bingi bimwe.

Anda mbeu iria itina mirimo na ikabua antu au: Kuringana na rera na uria antu au akari nikenya ua imera biaku kanya gakanene nkuruki ga gutuura.. Kethira nugwikira fertilizer ya nitrogen ya nduka: menyeera nugutumira ithimi biria ubati niuntu gwikira inyingi nkuruki muundene nikwongagira kumbikua kwa tunyomoo twa mithemba imwe kwongereka.

Thithia mantu ja gukucia anthu ba tunyomoo/ acore ba arimi: Anthu baba ni nyomoo iria cirijaga tunyomoo tutu, tunyomoo turia tuciaragira nkara kiri tunyomoo tutu tungi na gutuuraga nkara ciakomoka na tunyomoo turia turetaga mirimo ndene ya tunyomoo tutu ukwenda kwinga. Ming'uanano ni amwe na kumenyeera ladybird, mbwibwi natwana twa hoverfly turia turijaga mang'ingo na tunyomoo tungi. Ndwego na imera bia gukunikira muthetu ni antu aega a gukarwa ni antu baba ba tunyomoo tutu, na kinya imera bimwe biria biri maua ja fennel na celery. Indiri, burina bata kuumba kuathurana gatigati ka anthu

ba tunyomoo baria bari acore ba murimi kumania na tunyomoo tutu tuthuku! Aja nthiguru ndene ya gicunci kia biiri nikuandiki mantu jaria jomba gugutethia kumenya anthu ba tunyomoo riria bari kiri igita mwanya ria ukuru, na ni mithemba iriku igatethia nkuruki kiri imera biria ukuanda.

Kethira nugeretie mantu jaja na no urina thina cia tunyomoo, nubati kuthugania gutumira ndawa. Ndawa imwe womba kuthithia wengwa ugitumagira into bia gintwire na ingi nougure kuuma ndukene. Mithemba iu yoiiri nibati gutumirwa umenyerete. Utumiri bubwega bwacio nobuurage tunyomoo na iria na bukoongera maciara kumania na imera. Indi, utumiri bubuthuku noburage nyomoo cia bata ja iria itethagiria kiri gutambia mbeu (ja njuki) na anthu baria barijaga tunyomoo. Ndawa nocitume tunyomoo tukagia njira cia gukabana nacio na nocigatarie thiria ya muntu ciarega gutumirwa na ithimi biria bibati. Watumira ndwa, menyeera ati nukuthingata antu aria wiri wike, utumiri na guta uria wiri ute, ongera ruuji ruria ubati, menyeera nwiji kethira ubati kuugira kimera na bwanthi kana na ntere cioijiri nikenda uugira aria kurina tunyomoo, taara ndawa iria cibati gutumirwa kiri tunyomoo tungwa turia wina thina natu na utumire iria iina sumu inkai uria kuumbika. Gutumira ndawa iria cithithitue ciri cia tunyomoo twa mithemba imingi na wingi iria iuraaga into bionthe nokwithirwe kuri gukuthuku nkuruki kiri imera biaku na kinya imera na nyomoo cionthe iria ciri antu au, kwou jukia kanya ucithomithie kwegie ndawa iria ciri injega buru kiri thina iria urinayo.

Gukurira iria: Kinya kethira ni ngugi injumu, kurina bata gwika munda jwaku jutheri uria kuumbikika. Rikana ati iria rimwe riri baita – mithemba imwe nitonyithagia ruugo rwa nitrogen muthetune, imwe no iriwe ni ndithia, imwe iri ndawa na imwe niraaga maua jaria jatumagirwa kuthithia naicu ni njuki.

Aririeni ndene ya micemanio ya Cluster cienu mantu jamwe jaria jari jamega mono jaria bubwiri kuthithia na jamenyekene kiri kurwa na mirimo na tunyomoo tungi turia turetaga mirimo na kwinyangia imera bietu. Tukagwirua mono kwamukuria njira iria itumikaga kuraga tunyomoo tutu kenda tumba kwira arimi bangi kiri baruga iji ya nteto.



Cluster ya Muriru: Kuthegea na kuriba mwakene jwa 2016.

Batwi Cluster ya Muriru turi na kugwirua niuntu bwa mbura ya sisoni iji. Turiritaniria ngugi amwe kairi kwaanda miti ingi imingi na kuthuranira nasari cia miti.

Mwanka nandi, turi na tukundi tuniini twa miringo ina na twiri(42) na kuuma mweri jwa mugwanja , nitwithiritwe tukirita ngugi na mutaratara jwa gwaka cluster iri na inya. Nitwambiritie na mbeca cia nasari igana rimwe riria rikongerwa kiri mathabu ja o mweri kugura mbegu na maratasi ja kuandira.

Oja kiri sisoni ya mbura iria irikitie gukuruka, nitukugaa kairi o kiri batwi ,mbegu iria iri tayari kuandwa. Amemba ba Cluster bari na wiru mono gukuria nasari kenda bona mbeca kuumania na wendia bwa mbegu iji.



Arimi ba TIST kuuma Cluster ya bakiritira ngugu nasari yao.

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

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

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

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

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



Igita ria Kuanda! Geria miti iji imiega ya gintwire.

Miti ya gintwire ni mithemba ya miti iria ikuririte ndene ya Africa na iria ikubuirwa ni naria kumithiurukirite na ikuririte. No ithongomie muthetu na gukucia nyoni na tunyomoo turia tutethagia. Miti mwanya igakuura bwega nkuruki guntu mwanya.

Kuumania na semina cia TIST na micemanio ya cluster, arimi ba TIST nibamenyete mithemba ya miti ya gintwire iria iri imiega mono na iria irina baita kiri ntuura. Miti imwe ya iji niariritue aja nthiguru, na nitugucokeria nkatho kambuni ya World Agroforestry Centre niuntu bwa umenyo bubu kwegie baita na kuuthurania mbegu na kuthuranira niuntu bwa uumbani. Thuganiria imwe igitene riu ringi ria kuanda na utwire miti imwe iria miega nkuruki ndene ya ntuura yaku!

a. *Prunus africana* (Kikyuyu: Muiri, Kimeru: Mweria)

Muti juju jwa gintwire jwonekaga mono ndene ya miitu. Mpindi niciithagirwa cirri miitune igita riria kuumi. Oja ntunda iria aki cigarukite rangi ciairua na iria cigundi kuuma kiri muti kana nthiguru.

Rita kiu kithiurukite mpindi na njira ya kurinda tunda mathaa mirongo iri na jannari unyarie iguru ria wire. Ara utirikanirite antu ari na ruugo na kirundu nikenda ciama- indi ugakurukia mathaa janna. Mpindi itiumbaga gwikwa kwou tumira woja orio. Gukunikira mbegu na mabura jarina ruuji nikunyiagia kuura kwa ruuji igitene ririkai ria gukamata na gwika. Anda munandene kana maratasine. Kuuma kwijaga nyuma ya biumia bitantatu gwita banna.

Utumiri:

- **Kwinga tunyomoo turia tugitaragia:** No juinge tunyomoo tumwe turia tugitaragia imera niuntu bwa mununko jwaju. Maua jarina sukari ya kung'ana kuthithia naicu. Jurina nkuu injega mono.
- **Ndawa:** Ruuji kuuma gicaune nirutumagirwa kworia kunenea kwa prostate. Mathangu nijatumagirwa gukucia niuntu bwa gwitia kwa mwanki jwa mwiri kana jakanyuwa jakimenuue nikenda muntu omba kwenda kuria irio. Ruuji

nirwongagirwa kiri gicau gikimenuue, na ruuji ruru rutune nirutumagirwa kworia kiu; gicau no gitumirwe kiri ndithia

- **Kunyiya ukamati bwa muthetu:** Miti noiandwe nterene cia mitaro na naria kwini, niejanaga kirundu kiri na baita na ninyiagia ruugo. Nijuthongomagia muthetu: Mathangu no jatumirwe gukunikira muthetu na ta mboleo imbithi
- **Kuthongomia:** Nijuejaga muti jumuthongi jwa kuanda kienine jwa kuejana kirundu.

b. Peacock Flower (*Albizia gummifera*, Kikyuyu: Mukurwe)

Muti juju mono nijwonekaga naria gutina ibari na miitune iria iri guntu kwa mbura na ndene ya mathaka jaria jatirimagwa akui na miitu

Mpindi cioji orio itiendaga uthuraniri. Mpindi (mbegu) iria ikarite cieki nicirindagwa ruujine rwa murutira na rugatigwa kwora mwanka mwanki jwa nyomba. Gikonde kia mpindi no gikunywe aria mpindi yumagira nikenda yumba kuumanga. Mpindi niu mangaga, na ntuku ikumi. Mbeu niibati gutua cirri mutine nikenda tunyomoo tutikacigitarie. Mpindi no ciikwe nkuruki ya mwaka aki ciekwa antu gukuumo na aria gutina tunyomoo na njira ya kwongera muju jwa riiko.

Utumiri:

- **Nijutumagirwa ni njuki kuthithia naicu, nkuu, mpao, gum, tannin, ndawa** -kuumania na mpindi cikimitwe nicinyunyagwa kworia thina cia kiu na ruuji kuumania na gikonde kia muti rugatumirwa kworia rwagi, Kunyiyia ukamati bwa muthetu (uria miri iri nigutethagia kugwata muthetu na kunyiyia ukamati bwa ruuji ni ngai),
- **Kirundu,** gwikira ruugo rwa Nitrogen muthetune (kuthongomia muthetu), kuria kujukagua kuri njira inthongi ya gukunikira muthetu niuntu mathangu nijaguaga jamaingi igitene riajo riakugua,
- **Kuthongomia** (Nijuandagwa njirene ya town niuntu bwa uthongi bwaju),
- **Kuanda mianka,** Mathangu nijatumaga marigu jakagundanga.

**c. *Olea africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)**

Muti juju nijwonekaga guntu gukwingi mono akui na nduui na nterene cia miuro iminini n kinya ndene ya miitu ya mpao iminene. Jutigitaragua ni mpio inyingi kana uumo.

Mpindi ciumite muundene orio nicitumagirwa kuanda. Mpindi inkuru no cirindwe ruujine rwa mpio ntuku ijiri. Mpindi niciambagwa kuthuranirwa na njira ya kuuna gikonde na gantu ga kugwata na njara kana kwingiritiria iiga iguru ria mpindi iu. Bubu nibuthithagua niuntu kurita gikonde giki nigutumaga muti jukaumanga. Mpindi iji no ciikwa atu gukuumo miaka imikai.

Utumiri:

- **Irio:** Biria muti juju juejanaga na wingi ni maguta na ntunda cia kuria. Imera bibi nibirijagwa ni ndithia mono. Kinya nijutumagirwa ta nkuu, mpao, makara, mirashi ya maigo na kuthongomia.
- ***Gucokia uria munda jwari:*** Uumbi bwaju bwa gutuura kinya igita ria uumo nibutumaga jukaa muti jumwega jwa kuanjia miitu kairi guntune gukuumo ndene ya Africa.
- ***Kuthongomia:*** Muti juju nijuumbaga kuthongomia uria muunda jukari

d. *Waterberry* (*Syzygium guineense*, Kikuyu: Mukoe, Kimeru: Muriru)

Muti juju nijwonekaga ndene ya miitu ya mbura iria iti irimene na kinya iria iri irimene. Mono niumaga guntu kurina ruuji rionthe, mono kinya ndene ya ruuji, na niithagirwa mono nterene cia nduui inini.

Mbegu itiendaga kuthuranirwa mbele ya kuandwa, niuntu kuuma nikwijangaga na kwambagiria o rimwe.

Nijukurangaga niuntu nijwithagirwa jukunenea mono ndene ya ntuku mirongo iiri gwita mirongo itano. Kuanda o rimwe turatasine nigwiikagirwa.

Matunda nijathukangaga na kwou nijabati kwojangwa nthi jarikia kugua orio.

Kinya nojojwe warikia kwinainia muti na

rwogoro. Joojwa, matunda jaja nijabati kuandwa orio niuntu nijathukangaga jooma. Kethira bubu butiumbika, itunda noriikwe ntuku inkai jaumbiki kiri sawdust na jari mikebene itikuniki nyomba iri na ruugo rurwega

Utumiri:

- ***Kuthithia naicu, Mpao, Nkuu, Kirundu, Ndawa***

Menyeera: gicau kiu kiri sumu na kairi no gitume muntu akue, kwou nubati kwamba kuuria baria batumirite gikonde kia muti juju kiri kuthithia ndawa

- e. ***Melia* (*Melia volkensii*)**

Muti juju jutirijagwa ni muthwa ni irio bibiega mono muthiene jwa igita ria uumo riria irio bingi bitikwoneka, na nojwithire jurina bata mono kiri arimi ba TIST. Miti iji, iikunurite iguru, irina gicau kia rangi ya gray, noyume inenee mwaka uraja bwa meter ithanthatu gwita mirongo iiri. Muti juju nijwonekaga mono miitune ya miti ya acacia-commiphora iria irina ngai ya milimita magana jathatu gwita magana janana. Rimwe nithagirwa yankanite na nduui cia igita ria mbura kana irimbene kana ikauma maigene jaria jaumirite nthiguru. Nijugwithagia mathangu jairi mwaka, na ni jumwega jwa kuandaniria na imera.

Melia jwaandagwa kuumania na iria yuumite yongwa kana miiri igitwi, kinyethira miiri igitwi no iume muti jutikurungama jungwa. Jwaumithua kuumania na mpindi, mpindi yomba kuritwa kirema na mwanki (mianki ya ntuti kana ya nyaki injumu) kana gicau kia mpindi kiomba guturwa riu mpindi ikarindwa ruujine mathaa jantatu mbele ya kuanda.

Utumiri:

- Irio bibiega mono bia mburi na ng'ombe; mpao; mauki.
- Mathangu jathithitue nijatumagirwa kwinga ndaa na ngii na nijaritaga ngugi mono kiri twana twa mburi.
- Muti jumwega jwa kuandaniria na imera.

Mazingira Bora



TIST

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

Kikuyu Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Gikundi kieru kia TIST Cluster ya Ngandu, Mathira West, matungite Ashley Pettus, mugeni wa TIST mweri wa gata tu 2016.

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

TIST: Kurua na tutambi. Page 2

Muriru TIST Cluster: Nituthiete na mbere na gutherema mwaka uyu wa 2016. Page 4

TIST: Arimi a TIST kwirutira kugitira Biodiversity. Page 4

Ni ihinda ria kuhanda miti! Geria miti ino miega ya ki-nduire. Page 5



VALUES cia TIST: Muthingi na hinya wa TIST.

Mwandiki: Joseph Gituma

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

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

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

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

TIST: Kurua na tutambi.

Murimi o wothe nioi mauritu maria makoragwo ho kuiga mimera itakurio ni tutambi na mirimu. Kuri na mithemba miingi ya tutambi turia tungithukangia mimera ta mbia, tutambi, nyoni, fungi, bacteria na virus. Riia ni mahuti mariamanyihagia magetha niundu wa gucindanira na miti na irio cia mugunda indo iria njega ta maai, unoru na utheri wa riua.

Gutingihoteteka thiini wa gicunji giki kuhutia mithemba yothe ya mimera, tutambi na maundu ma kugitira maria ikundi cia TIST irabatara uhoro kuma. Niwega aria marathomithania gwika utuiria mari hamwe na arimi mathina maria mahuanaine. Ningi athomithania nomahote kuona uhoro ucio kuhitukira mathomo. Maita maingi riria watuika murutani tigutuika ukoragwo uui maundu mothe o rimwe, no nikumenya kuria ungiruta uhoro.

Maundu ma kugitira tutambi.

Kuhitukira kuhuthira mitaratara iria yagiriire hariurimi niugukorwo ugiteithia kugitira mugunda kumana na tutambi na mirimu. Maya nimo maundu mamwe maria ungirora.

Tiiri munoru: Riria wagia na tiiri munoru niuheaga

mumera mweke wa gukura wega na uri na hinya na ugiteithia mirimu.

Urimi wa guthiururukania: Tutambi tungi tutegemeagiira muthemba umwe wa mimera. Riria wakuria muthemba umwe wa mumera mugunda-ini mwaka-ini umwe niwongagirira ugwati wa tutambi na ugatuhotithia guciarana. Riria wacenjia mimera kuhitukira guthiururukania nikuuga niwarenga muturire watuo.

Kuhandaniria irio: Nikwongagirira gutherema kwa miti na gukura kwayo na noguteithie kugitira kumana na muthemba umwe wa tutambi kugumira mugunda. Tutambi tungi nitutukanagirwo riria wahandaniria irio mugundaini. Geria kuhandaniria na mimera, iria itanyitagwo ni tutambi ta itunguru, leek, mint, garlic, sweet basil, Oregon, marigold na ingi.

Kuhumbira mimera na mahuti: njira ino nditeithagia o kunoria tiiri na kwongerera maai tiiri-ini no niinyihagia riia na kwongerera kiiruru. Ndukahuthire mithemba iria ikoragwo na mahua na mbegu hari kuhumbira tiiri, no, nitondu niitheremagia mirimu.



Huthira mimer a iregitira: Ririkana ati mbe gu cia kinduire nocikorwo cirri cio ciregitira muno kwa mahinda maingi na timuhaka ugre mbe gu cia kuma nja. No ningi, maundu maya nimaringanaga na urie wega.

Kwehuria mimer a irwarite : Mimer a irwarite yagiriirwo nikwehutio na guteo. Mahinda maingi nikuuikaine ati mumer a wothe timuhutie wothe na noucehwo na uhone.

Kuhanda miti iria itanyitagwo ni mirimu: Kuri maundu ma kinduire niguu kuhe mimer a kahinda keega ga gukura.

Angikorwo niurekira fertilizer iri na nitrogen: Ririkana kuhuthira githimi kiria kiagiriire tondu wakiria niukuguciiiriria tutambi.

Guciriria thu cia tutambi na mirimu: Ici ni indo ta preditors, parasitoids(iria cirekagia matumbi kuri tutambi na tugakua riria matumbi maturika) na pathogens(indo iria cirehaga mirimu kuri tutambi). Muhiano ni nyoni, mbumbui na ciihuruta imwe, rira ciriaga aphids, caterpillars na tutambi tungi. Mahuti na hefges nocikorwo na maundu mega ma kinduire ma kurehe thu cia tutambi ota indo ingi. No ona kuri o uguo niwega kuheana ngurani ya iria iri araata a arimi na ni tutambi! Maundu maria mari thiini wa gicunji gia keeri nimegukuonia uria maundu ngurani na maria mahuthikaga kuri gukura kwa irio. Angikorwo niugeretie maundu maya na nourathii nambere na kugumirwo ni mirimu na tutambi niwagiriirwo ni kuhuthira dawa cia kunina tutambi. Dawa imwe nicikoragwo cirri cia kinduire na ingi nougure kuma dukaini. Mithemba yotr h yagiriirwo nikuhuthirwo na umenyere ri munene. Riria

wahuthira muigan uria wagiriire niukuraga tutambi na riria na wongerere mage tha. No, riria wahuthira githimi gitakinyaniire nourage nginya mimer a yaku kana indo ta njuki iria citeithagiri ria guciarithania. Dawa ici nicitumaga mimer a iremwo ni kwigitirana nicikorwo cirri ugwati kuri andu riria ciahuthirwo uuru. Riria wahuthira dawa, tigriria niwarumirira maundu maria magiriire na uthambie indo ocio wega. Tigriria niwahuhira wega handu hothe mumeraini. Riria wahuthira dawa cirri na hinya muingi na waga gutukania wega nourage mimer a yaku na uthukie maundu. Kwa uguo oya kahinda guthomithia indo iria iri njega na mathina maria uri namo.

Kurimira: Ona gukorwo ni wira muingi, niwega kuiga mugunda waku uri mutheru. Ririkana ati riria rimwe nirikoragwo na kiguni – mithemba imwe niikiraga nitrogen, ingi niithuthikaga ta irio cia mahiu na ingi ta dawa cia kiimerera na ingi ikahuthika guthondeka uuki.

Kuria ungenicaria ugoro mukinyaniru.

Maundu maria maheanitwo gicunji-ini kia mbere nimaguguteithia mugundaini niguu ukorwo uri mwega na guguthomithia mitarata miega iria ikunyahia tutambi na yongerere mage tha. No ona kuri o uguo, mahinda mangi ikundi nicicemanagia na mathina ma tutambi. Riria wathuura njira iria njega na dawa iria ciagiriire kuringanaga na ni tutumbi turiku turehete murimu. Maundu maya mari haha nimaguguteithia kumenya ugoro makiria.

Ndamuthaitha aririria mucemanio-ini wa Cluster maundu mamwe maria mubumburite kuhurana na tutambi na mirimu. Ni tugukena twamukira maundu maria mwikite migunda-ini yanyu na kugayana na arimi ang ngathiti-ini ino.



Muriru TIST Cluster: Nituthiete na mbere na gutherema mwaka uyu wa 2016.

Ithui arimi a TIST kuuma Muriru Cluster twina ngatho ni undu wa mbura kimera giiki. Niturarutithania wira hamwe kuona nitwongerera miti na kuhariria ciito makiria

Nginyagia riu, twina tukundi tunini 42, na kuuma mweri wa septemba 2014, nitwambiriirie kurutithia wira kioneki giitu guthondeka Cluster ngaciru. Nitwambiriirie kigina kia nathari ya miiti kiria o gikundi kiaruta shilingi igana rimwe, na tukonganiriria na mbeba iria itumagwo o mweri cia budget ya Cluster. Kigina kiu kiari gia gututeithia kugura mbegu na maratathi ma miiti.

Ta hindi ya kimera kihituku, nituragayanire miti ya kuhanda mbura ino. Amemba aitu nimehotereite guthii na mbere na gutheremina nathari iitu nigetha ona tuhoote kendi miiti iria igutigara thutha wakuhanda migunda-ini itu.



Arimi a TIST kuuma Muriru Cluster makiruta wira nathari-ini yao.

TIST: Arimi a TIST kwirutira kugitira Biodiversity.

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

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

Arimi a TIST ninimaronania mogaruruku hari kugitira biodiversity. Hari o muti twahanda ni

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

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



Ni ihinda ria kuhanda miti! Geria miti ino miega ya ki-nduire.

Miti ya ki-nduire ni miti iria ikoretwo kuo thiini wa Africa na itwaranaga na riera riakuo. Niwagirithagia tiiri na ukaguciriria nyoni na ugakuria tutambi. Miti ngurani niikuraga kundu ngurani.

Kuma semina ya TIST na micemanio ya cluster, Arimi a TIST nimonete miti ya ki-nduire iria ingikura kwao. Miti ta ino igwetetwo haha, na nituracokeria World Agroforestry Center niundu wa gutuhe uhoro uyu wa kungania kwa mbegu na gucihariria niguu tugie na umithio. Geria imwe yayo ukihanda na utwire iria yakwagirira!

a. *Prunus africana* (Kikuyu: Muiiri, Kimeru: Mweria)

Muti uyu wonekaga mititu-ini. Mbegu niconnekaga mititu-ini riria kuri na riuu. Ungania mbegu iria nguru kana matunda maguo.

Rida maai-ini niguu ngothi ya iguru yume wega gwa kahinda ka 24hrs na uthambirie iguru ria mesh wire. Aragania wega handu kiruru-ini niguu ciime gwa kahinda ka mathaa mana tu. Mbegu citikaraga na kwa uguo huthira iria njiugu na citaikarite muno.

Oha na mahuti niguu ndugate ugunyu uria ungikorwo ho. Handa thiini wa tuta kana mikrbe-ini.

Cimeraga thutha wa 6-8 weeks.

Mahuthiro:

Niuingataga tutambi: no uingate tutambi ta aphids, nematodes kuhitukira munungo waguu. Mahua maguo nimakoragwo na mahungo ma uuki maigi.niukoragwo na ngu njega.

Dawa: Maai maguo nimahuthagirwo guthondeka kunenehia undurume. Mahuti nimathondekaga homa na kwongerera wendi wa kuria. Maai nimongagirirwo kuri mutu wa makoni na maai macio matune nimathondekaga nda na guthondeka mahiu.

Kugitira tiiri: niukuraga kuria kuinamu na ugakorwo na kiiruru kiega na ukanyihia ruhuho.

Kwagirithia Tiiri: mahuti maguo nimahuthagirwo guthondeka thumu.

Uthaka: niuthondekaga mugunda ugathakara muno.

b. *Peacock Flower (Albizia gummifera, Kikuyu: Mukurwe)*

Muti uyu wonekaga kundu kwaraganu na kwambatiru kuria kuri na mititu .

Mbegu ciaguo citirabatara guthondekwo mbere ya kuhandwo na cirindagwo maai-ini mararu na cigatigwo. Makoni ma mbegu nomoragwo niguu cimere na-ihenya. Mbegu nicimeraga wega, na gicunji kia 70-80% na cikamera thutha wa thiku 10. mbegu ciagiriirwo kunganio ciri miti-ini niguu citigathukio ni tutambi. Mbegu nocigwo gwa kahinda ka mwaka 1 cingikorwo ciri nyumu wega na niwega wikire muhu.

Mahuthiro:

Mahungo ma uuki, ngu, mbau, nganu na dawa(makoni nimahonagia ruuo rwa nda hamwe na Malaria), niugitagira gukuuo gwa tiiri (miri yaguo niinyitaga tiiri wega),



Kiiruru:, kwagirithia unoru wa tiiri, mahuti nimathondekaga thumu mwega muno.

Uthaka: uhanditwo town nimuthaka muno.

Mihaka, mahuti maguo nimeruithagia marigu na-ihenya.

c. *Olea africana* (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)

Muti uyu niwonekaga kundu kuingi muno na makiria njuui-ini na migunda-ini. Niwiritiragia riuu.

Mbegu nichuthagirwo kuhandwo. Mbegu njithi nicirindagwo maai-ini mahehu gwa kahinda ka 48hrs.

Mbegu nicithondekagwo na njira ya gwaturwo na ihiga. Uu nitondu kuruta gikoni niuhotithagia kumera.

Mbegu nocigwo handu homu kwa miaka miingi.

Mahuthiro:

Irio: indo nyingi cia maguta niconekaga. Irio cia mahiu: mahuti maguo nimendetwo muno ni mahiu. Niukoragwo na nbau na ngu njega ohamwe na makara na mikinyi na ciuma.

d. *Waterberry* (*Syzygium guineense*, Kikuyu: Mukoe, Kimeru: Muriru)

Muti uyu makiria wonekaga kuria kwaraganu na irima-ini. Ikuraga kundu kugunyu na maita maingi maai-ini na njuui-ini.

Mbegu citibataraga guthondekwo mbere ya kuhandwo tondu nicimeraga na njira njega. Cimeraga na gicunji kia 80-90% na ni thutha wa 20-50 days.

Kuhanda mugunda-ini nikwega. Matunda maguo nimathukaga na-ihenya na kwa uguo nimagiriirwo gutuo na kunganio na ihenya, handa mbegu orio niguo citigakorwo ciathuka. Angikorwo uu gutingihoteteka, matunda nomaigwa gwa kahinda hanu hagunyu hari na muura kundu kuri na riera riiganu.

Mahuthiro:

Mahungo ma uuki, mbau, ngu, kiiruru na dawa.

Ririkana: makoni nimari poison na nomorage mundu, uririria uria ukuhuthira dawa kuma muti-ini uyu.

Melia (*Melia volkensii*)

Muti uyu uria wiritiragia muthua niukoragwo na irio njega cia mahiu kimera kia riuu riria miti iria ingi yothe iitite mahuti na noukorwo uri wa bata muno kuri arimi a TIST. Muti uyu uria ukoragwo na makoni ma grey miukuraga na uraihu wa 6-20 meters. Muti uyu muno wonekaga kuria kuri na mbura githimi kia 300-800 mm. Muno niukoragwo ruteere-ini ra njuui kana itomboya-ini. Uitaga mhuti maita 2 hari mwaka na ni muti mwega kuhandaniria na irio mugunda.

Melia wambiriirie na miri kuma githaka onagutuika miri noikorwo itari na hinya muiganu. Ungikurio kuuma mbegu-ini, mbegu ciagiriirwo gucinwo kana ciaturwo na ihiga mbere ya kuhandu.

Mahuthiro:

Mahuti na irio cia mahiu, mbau, njuki.

Mahuti nimaigataga tutambi tuothe na nimega kuri twana tunini.

Nimwega kuhandaniria na irio mugunda-ini.

Mazingira Bora



TIST

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

Kiswahili Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Kikundi kipya cha TIST Cluster, Ngandu kutoka Mathira West, wakipokea Ashley Pettus, mgeni wa TIST mwezi Machi 2016.

Ndani: Maadili ya TIST: Nguzo na nguvu ya TIST Umeletewa. *Ukurasa 2*

TIST: Kudhibiti wadudu. *Ukurasa 2*

TIST: Cluster ya Muriru wamekua 2016. *Ukurasa 4*

Nguvu katika utofauti: Wakulima katika TIST hulinda bionuwai. *Ukurasa 4*

Wakati wa Kupanda! Jaribu miti hii mizuri ya Kiasili. *Ukurasa 5*



Maadili ya TIST: Nguzo na nguvu ya TIST Umeletewa.

na Joseph Gituma

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

Katika shughuli zetu nyingi, kutoka upandaji miti, kilimo hai, kuboresha bionuwai, kujenga au kununua meko bora, kufunza na kufuatilia masuala

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

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

TIST: Kudhibiti wadudu.

Kila mkulima anajua jinsi inavyoweza kuwa vigumu kulinda mimea na miti yako dhidi ya wadudu na magonjwa. Kuna aina nyingi mbalimbali za wadudu ambazo zaweza kuharibu mashamba yako zikiwa ni pamoja na panya, wadudu, ndege, fungi, bakteria na virusi. Magugu ni mimea isiyotakikana inayopunguza uzalishaji kwa kushindana na miti na mimea yako ili kupata virutubisho, nafasi na mwanga.

Haiwezekani katika makala haya kuleta aina zote mbalimbali za mimea, wadudu na mikakati ya kudhibiti inayofaa ambayo vikundi vidogo vinahitaji habari kuhusu. Ni muhimu kwa walimu kupeleleza shida wanazopata sana pamoja na vikundi vidogo vyao. Halafu walimu pia wanaweza kupata majibu kupitia kuangalia walipoelekezwa katika makala haya. Mara nyingine, kuwa mwalimu mzuri ni kutojua majibu yote mara moja, lakini kuwa na ujuzi wa pahali pa kutafuta habari zaidi!

Mikakati ya usimamizi wa wadudu ya kijumla.

Kupitia kutumia mbinu bora zaidi kutokana na Kilimo hai, pia utaweza kusaidia kukinga ardhi yako dhidi ya wadudu na magonjwa. Zifuatazo ni pointi muhimu za kufikiria:

Udongo wenye rutuba: Kuwa na udongo ulio tajirika kwa virutubisho huipa mimea yako nafasi kubwa ya kuweza kukua vizuri na mimea yenye nguvu itakuwa sugu zaidi dhidi ya magonjwa.

Kuzungusha mimea: wadudu wengine huwa na chanzo maalum ya chakula. Ukikuza mmea aina moja

katika ardhi yako mwaka baada ya mwaka unaongeza hatari ya uwezekano wa wadudu kuweza kuishi na kuongezeka katika eneo hilo. Kubadilisha mmea kupitia mbinu za kuzungusha humaanisha msafara wa mdudu huyo utavurugwa na uharibifu wa mimea yako hutapungua.

Kupanda mimea ya aina mbalimbali pamoja:

Huongeza wingi wa aina za mimea na husaidia kuzuia kutawala kwa mdudu wa aina moja. Wadudu wa aina zingine pia husawazishwa na kilimo cha mimea aina nyingi pamoja na haitambai kwa haraka kama katika shamba lililo na mmea wa aina moja. Jaribu kuchanganya mimea yako pamoja na inayofukuza wadudu kupitia harufu (kama vitunguu, tangawizi, sweet basil, oregano, marigold.

Kupanda mimea ya kufunika udongo na kufunika udongo kwa mimea iliyokatwa:

Si nzuri tu katika kuongeza rutuba ya udongo na maji udongoni, bali pia kwaweza kupunguza magugu kwa kuongeza kivuli. Lakini, Usitumie mimea iliyo na maua au na mbegu kufunika ardhi yako kwani jambo hili laweza kutambaza magonjwa kwa bahati mbaya.

Tumia aina zilizo sugu iwezekanavyo:

Kumbuka mbegu za kiasili zaweza kuwa sugu zaidi baadhi ya wakati na si lazima kila wakati kununua mbegu za kigeni. Hata hivyo, muktadha hutofautiana na unafaa kupata ujuzi kutokana na vikundi vidogo vingine.



Kukata mimea au sehemu za mimea zilizo na ugonjwa: Mimea iliyo na ugonjwa yafaa kutupwa inavyofaa ili isije ikatambaza maambukizi kwa mimea yenye afya nzuri. Mara nyingine inaonekana kuwa mmea wote hauna ugonjwa na ugonjwa waweza kudhibitiwa kwa kupuguza matawi maalum.

Panda mbegu zisizo na magonjwa na zinazofaa mazingira yalivyo ili kuioa mimea yako nafasi bora zaidi ya kuishi.

Iwapo unaongeza mboleo ya naitrojeni: Hakikisha unatumia kiwango kinachofaa, kwani kuweka mbolea hii nyingi kuliko ya inavyofaa kwaweza kuongeza uwezekano wa wadudu wengine.

Vuta maadui kiasilia/marafiki wa mkulima: Hawa ni pamoja na wawindaji (wanaokula wadudu), wanaoishi, wanaotaga mayai katika wadudu kadhaa wanaouliwa na vijidudu vinavyoambukiza baadhi ya wadudu magonjwa. Mifano ni kama kulinda viwavi,, buibui na wadudu wengineo wanaowala wadudu wanaoharibu mimea. Kupanda nyua na kufunikia udongo kwaweza kuwapa adui wa kiasili kikao na pia mimea ingine inayokuwa na maua kama fennel na celery. Hata hivyo, ni muhimu kuweza kujua tofauti kati ya marafiki wa mkulima na wadudu waharibifu! Maelekezo katika sehemu ya pili ya makala haya yatakusaidia kujua maadui kiasilia wakiwa katika hatua mbalimbali za maisha yao nan i wapi ni muhimu zaidi kwa mimea maalum unayokuza.

Ikiwa umeyajaribu mawazo yaliyo hapa juu nab ado una shida ya wadudu hawa waharibifu, unaweza hitaji kufikiria kutumia dawa za wadudu. Dawa zingine waweza kutengeneza mwenyewe ukitumia

vitu vya kiasilia na zingine waweza kununua kutoka madukani. Aina zote mbili wahitaji kuzitumia kwa uangalifu. Matumizi yanayofaa yaweza kukusaidia kuwau wadudu na magugu na kuongeza mazao yako. Hata hivyo, matumizi yasiyofaa yaweza kuwaua viumbe muhimu kama wanaosaidia kuzalisha (kama nyuki) na wawindaji kiasilia wanaowala wadudu. Dawa za wadudu zaweza kuwafanya wadudu kuwa sugu na zaweza kuwa haribifu kwa afya ya binadamu zisipotumika kwa viwango vinavyofaa. Unapotumia dawa, hakikisha umefuatilia kwa uangalifu mwongozo unaokupa unapofaa kuweka, unavyofaa kutumia na unavyofaa kutupa baada ya matumizi. Ongeza maji unayofaa, hakikisha unajua ikiwa wafaa kunyunyizia kutoka juu ya mimea au kutoka chini (au kutoka juu na chini) ili kupata wadudu, chagua dawa zilizo maalum kwa mdudu unaye shida naye, na uchague zilizo na sumu kidogo iwezekanavyo. Kutumia dawa zilizotengenezwa kufanya kazi mbalimbali kwa wingi ambazo uua kila kitu kwaweza kwa ukweli kuwa jambo mbaya zaidi kwa mimea na kwa wanyama na mimea wanaoishi hapo kwa jumla, kwa hivyo chukua wakati kujelimisha kuhusu ni bidhaa zipi zinazofaa zaidi kwa shida uliyonayo.

Kutoa magugu: Ingawa ni kazi ngumu, inalipa kuweka ardhi yako ikiwa safi iwezekanavyo. Kumbuka kuwa magugu mengine yaweza kuwa na faida – aina zingine huweka naitrojeni udongoni, zingine zaweza kutumika kama lishe ya mifugo, zingine zina dawa na zingine huwa na maua ambayo ni muhimu katika kutengeneza asali kwa nyuki.

Tafadhali tafakalini kwa mikutano ya Cluster mambo ambayo mmefumbua kuhusu wadudu na magonjwa. Tutafurahi kupata mambo ambayo mumejanya mashamba yenu ili tufundishe wakulima wengine katika gazeti hili.



TIST: Cluster ya Muriru wamekua 2016.

Sisi Muriru TIST Cluster tumefurahi kwa mvua msimu huu. Tunafanya kazi pamoja tena, kupanda miti mingi na kutayarisha miche ya miti.

Kwa sasa tuna vikundi ndogo ndogo arubanini na mbili tangu mwezi wa kumi na moja 2014. Tumejipanga kuwa na Cluster iliyo na nguvu. Tulianza na Tree Nursery Fund ya Kshs. 100 kwa kila kikundi ambayo inaongezwa na Monthly Cluster Budget kununua mbegu na mipira.

Kama vile msimu wa mvua uliyotangulia tunasaidiana sisi wenyewe na mbegu za miti na miche iliyo karibu kupandwa. Wanachama wa Cluster wana hamu ya kuongeza miche ili kupata kipato kwa kuuza miche.



Wakulima waTIST kutoka Muriru Cluster wakifanya kazi kwa miche ya miti.

Nguvu katika utofauti: Wakulima katika TIST hulinda bionuwai.

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

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

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

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



Wakati wa Kupanda! Jaribu miti hii mizuri ya Kiasili.

Miti ya kiasili ni aina ya miti ambayo imekua ndani ya Africa na inayofaana na mazingira ambayo imekulia. Yaweza kuboresha udongo na kukuvutia ndege na wadudu wenye manufaa. Miti tofauti humea vizuri zaidi katika maeneo tofauti.

Kutokana na Semina za TIST na mikutano ya cluster, wahusika wa TIST wamebainisha aina nyingi za miti ya kiasili ambazo ni nzuri sana na zenye faida katika maeneo yao. Baadhi ya aina hizi zimeelezwa hapaa chini, na tunashukuru Kituo cha dunia mzima cha kilimo cha Mseto (World Agroforestry Centre) kwa sababu ya maelezo kuhusu faida na ukusanyaji na maandalizi ya mbegu ili kufanikiwa. Tafadhali fikiria kupanda baadhi ya aina hizi msimu ujao wa kupanda, na utuambie baadhi ya aina bora zaidi katika eneo lako!

a. *Prunus africana* (Kikuyu: Muiiri, Kimeru: Mweria)

Mti huu wa kiasili unapatikana sana katika hifadhi za misitu. Mbegu zipo misituni wakati wa kiangazi. Kusanya tu matunda yaliyoiva ya hudhurungi kutoka taji la mti ama ardhini.

Toa rojo kwa kulowesha masaa ishirini na nne, kisha uoshe juu ya waya wenye matundu. Eneza kwa safu nyembamba katika eneo lililo na hewa na lililo na kivuli ili kukauka- lakini kwa masaa nne pekee. Mbegu haikai kwa hivyo tumia mbegu mpya.

Kufungia majani yakizunguka mbegu hupunguza upotevu wa unyevu wakati wa kusafirisha na kuweka.

Panda kitaluni au mifukoni moja kwa moja. Kuota huchukua wiki sita kufika nane.

Matumizi:

- **Dawa ya kukimbiza wadudu waharibifu:** yaweza kukimbiza wadudu waharibifu kama chawa, viwavi (ambao hushambulia mimea) kwa harufu yake. Maua yana nta na poleni tosha ya kulisha nyuki. Ina kuni bora.

- **Dawa:** Rojo kutoka kwa gome hutumiwa kutibu uvimbe wa kibofu. Majani hutumiwa kuvuta ili kutibu homa ama kunywa kama njia ya kuboresha hamu ya kula. Maji huongezwa kwa gome lililopondwa na maji hayo mekundu kutumiwa kutibu maumivu ya tumbo; dondoo la gome kutumiwa kulisha ng'ombe.
- **Kuzuia mmomonyoko wa udongo:** Miti yaweza kupandwa matutani, huwa na kivuli chenye manufaa na huzuia upepo. Huboresha udongo. Majani yaweza kutumiwa kufunika udongo ama kama mbolea.
- **Urembo:** Huwa mti mzuri wa kivuli unaovutia katika bustani.

b. Peacock Flower (*Albizia gummifera*, Kikuyu: Mukurwe)

Mti huu hupatikana sanasana katika misitu ya mvua iliyo mahali tambarare au nyanda za juu na katika makazi wazi karibu na misitu. Mbegu safi hazihitaji kutibiwa kwanza. Mbegu zilizowekwa huloweshwa katima maji yenye joto na kuachwa kupata baridi kwenye joto la kawaida. Gome la mbegu laweza kuvunjwa ili kuharakisha kuota. Mbegu huota vizuri, asilimia sabini kufika themanini katika siku kumi. Mbegu zafaa kukusanywa zikiwa bado mtini ili kupunguza uharibifu wa wadudu. Mbegu yaweza kuwekwa kwa muda wa mwaka mmoja ikiwekwa ikiwa kavu na mbali na wadudu kwa njia ya kuongeza majivu.

Matumizi:

- **Chakula cha nyuki, kuni, mbao, gundi, tanini, dawa** (dondoo kutokana na kuponda maganda hutumiwa kumaliza uchungu wa tumbo na maji ya gome kutibu malaria), kuzuia mmomonyoko wa udongo (mizizi hushika udongo na kuzuia mmonyoko wa udongo kupitia mitaro).
- **Kivuli,** kuweka naitrojeni (huboresha udongo), hujulikana kama mti mzuri wa kufunika udongo kwa sababu majani yanayoanguka ni mengi wakati wa msimu wa kuangusha majani,



- **Urembo** (Hupandwa katika miji kwa sababu ya urembo wake).
- **Kupanda mipaka**, matawi huharakisha kuiva kwa ndizi.
- c. **Olea africana** (African wild olive, Kikyuyu: Mutamaiyu, Kimeru: Muthata)
Mti huu hupatikana maeneo mengi, sana sana karibu na maji, mito na ata maporini. Ni sugu kwa baridi na kwa ukavu.

Mbegu kutoka kwa matunda hutumika kuotesha. Mbegu nzee yaweza kuloweshwa kwa maji baridi kwa masaa arobaini na nane.

Mbegu sanasana hutibiwa kwa kuvunja na kifaa au kwa kuachilia jiwe juu ya mbegu. Hii ni kwa sababu kutoa ngozi ya ndani ya mbegu husaidia kuota haraka. Mbegu huwekwa mahali pakavu na penye joto la kawaida kwa miaka michache.

Matumizi:

Chakula: Bidhaa kuu ya mzeituni ni mafuta na matunda yanayoliwa.

Lishe: mimea hii huliwa na mifugo. Hutumika pia kama kuni, mbao, makaa, miswaki ya meno na kurembesha.

Kuimarisha: kuwa sugu kwa ukavu inapendekeza kuwa mti huu waweza kutumika kuimarisha maeneo Africa yenye ukame.

Kurembesha: mzeituni huweza kurembesha ardhi/mazingira.

- d. **Waterberry (Syzygium guineense, Kikyuyu: Mukoe, Kimeru: Muriru)**
Mti huu sana sana hupatikana misitu iliyo kwa tambarare na iliyo milimani. Hukua sana mahali penye unyevu, mara nyingine ndani ya maji na hupatikana kando ya mito.

Mbegu hazihitaji kutibiwa, kwani huota haraka na vizuri. Huota kwa asilimia themanini kufika tisini kwa siku za kwanza ishirini hadi hamsini. Kuotesha mifukoni hupendekezwa. Matunda huharibika kwa yanafaa kuokotwa mara moja

yakishaanguka. Yanaweza pia kwa kutikisa matawi. Ukishakusanya, matunda yanafaa kuoteshwa mara moja kwani yanaweza kupoteza uwezo wake wa kuota yakikauka; kama ili haliwezekani, matunda yanaweza kuwekwa kwa siku chache kwa machujo ya mbao na ndani ya mikebe kwa chumba chenye kuingiza hewa tosha.

Matumizi: Chakula (Matunda), lishe ya nyuki, mbao, kuni/makaa, kivuli, dawa (tunda utumika kutibu ugonjwa wa kuhara damu, maji ya gome nayo hutumika kuzuia ugonjwa wa kuhara).

Kumbuka gome ili lenye sumu limeripotiwa kuuu watu, kwa hivyo tafuta ujumbe tosha kwa watu wenye uzoefu wa kutumia bidhaa za huu mti.

- e. **Melia (Melia volkensii)**

Mti huu usioliwa na mchwa ni chakula kizuri cha mifugo mwishoni mwa msimu wa kiangazi wakati vyakula vingine vinapopatikana kwa ugumu na kwa hivyo ni wenye umuhimu kwa wakulima wa TIST. Miti hii, ina taji lililofunguka, iliyo na gome la kijivu, yaweza kukua hadi urefu wa mita sita kufika ishirini. Melia ni mti unaoonekana sanasana katika vichaka vya acacia-commiphora iliyo na mvua wa milimita mia tatu kufika mia nane. Wakati mwingine inapakana na mito ya kimsimu ama mahali majimaji au kuonekana juu ya mawe yaliyotokea juu ya ardhi. Mti huu huangusha majani mara mbili kwa mwaka na waweza kuwa chaguo nzuri la kupanda pamoja na mimea.

Melia sana sana hukuzwa kutokana na miche iliyomea yenyewe au mizizi ikiwa imekatwa, ata kama mizizi iliyokatwa yaweza kukuza miti isiyo na nguvu. Ikikuzwa kutokana na mbegu, mbegu yafaa kuchomwa (moto wa kasi au wa nyasi iliyokauka) ama gome la mbegu linatobolewa halafu mbegu inaloweshwa majini kwa muda wa masaa sita kabla ya kupanda.

Matumizi:

- Chakula kizuri kwa mbuzi na ng'ombe; mbao; mizinga.
- Majani hutengenezwa na kutumiwa kuwafukuza chawa na nzi na husemekana kuwa nzuri zaidi kwa watoto wa mbuzi.
- Mti mzuri wa kutumika katika kilimo mseto.

Mazingira Bora



TIST

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

Kikamba Version

An Environmental, Sustainable
Development and Community Forestry
Program.



Ngwatanio nzau ya TIST Ngandu kuma Mathira West, Kuthokewa ni mueni Ashley Pettus mueni wa TIST maini wa katatu 2016.

Thiini:

Mawalany'o ma TIST: Musingi na ulumu wa TIST. Page 2

TIST: Kusiia na kuungamya tusamu tula twanangaa. Page 2

Ngwatanio ya TIST ya Muriru: Kuendeea kwiana mwakani uu wa 2016. Page 4

TIST: Aimi ma TIST kuthukuma kusuvia mila na uvathukanu wa isio na mikalo. Page 4

Ni ivinda ya kuvanda! Tata kuvanda imwe kati wa miti ino ya kiene ila ni miseo. Page 5



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

(na Joseph Gituma)

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

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

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

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

TIST: Kusiia na kuungamya tusamu tula twanangaa.

Kila muimi ni wisi undu ve vinya kuiana liu na tusamu tula twanangaa. Tusamu tuu ni mithemba mingi twambiia na mbia, ngulu, kimbalutya, iinyu, nyunyi, fungi, bacteria na viruses. Yia ni mimea itendekaa na isindanaa na mimie ya liu kutumia unou wa muthanga, mwanya na kyeni.

Tuitonya uandika iulu wa kila mumea nthini wa ithangu yii. TIST nikuandika iulu wa kwisuvianana na mitutu imwe na mowau amwe ma mimea ila kaingi ivandawa ni aimi tukundini tunini twa TIST. Ni useo kwa kila kakundu kwithiwa na ala meumavundisya mayika ukunikili kwianana na mathina ma uwau wa mimea kulingana na kakundi koo. Kwithiwa wi mumanyisya museo ti kwithiwa wisi usungio wa kila nthina, indi kwithiwa wisi vala utonya ukwata usngio!.

Nzia sya Kusunga tusamu tula twanangaa mimea kwa vamwe.

Kwa kutumia nzia nzeo sya nima ta Nima ya kusuvia ila ukethiwa ona usiia muunda waku kukwatwa ni mauwau na tusamu. Vaa ve syindu imwe waile umanya iulu wasyo:-

Unou wa Muthanga: Muthanga munou nutumaa

mimea ila yamea yithiwa yina vinya na itonya kwisiia mauwau.

Nima ya kusesany'a/kukuania: Mithemba imwe na tusamu ni iisaa mithemba imwe ya mimea. Ethiwa niwavanda muthemba umwe wa liu mbua imwe kuthi ila ingi nikutumaa tusamu na uwau ula ukwataa muthemba usu wa mumea umesya mii na kwithiwa wi vinya kuthela. Kwoou yila wakuanya mimea niwatuma muthemba wa tusamu na uwau ula wiimumeani ula unavandite ukosa liu na kwoou kukw'a na kuoleka.

Kuvandanisya: Yila wavandanisya mithemba ya mimea nitumaa withia tusamu na uwau ula ukwataa muthemba umwe wa mumea ndiithiwa na vinya ta uvandite mumea usu wi w'oka na ingi uwau kana tusamu tuu tuiyaiikaa muno nundu kwi mimea imwe ilungasya tusamu na muuke wayo. Ta itunguu, leek, kaluma, saumu, sweet basil, oregano na marigold).

Mimea ya uvwika na kwikia muunyi wa mavuti: ii ninzia imwe nzeo sya kwongela unou wa muthanga na kiw'u kwikala muthangani kwa kuola



yiia na kuvwika ungu wa mimea ila ingi nayo kana kuvanda mimea ila itambaa na kuvwika muthanga. Ndukatumie yiia ilauku na isyau kuvwika muthanga nundu kii niutuma uwau na yiia yii yongeleka.

Tumia mimea ila itonya kukitana na mauwau vatonyeka: Lilkanana mithemba ya mbeu sya kiene imwe yithiawa itonya kukitana na mauwau na tusamu nesa kwi mimea ya kuka. Onakau niwaile umanya kivathukany'o kwisila ikundini syenyu mbee.

Kumya ilungu na liu ula utonya kwithiwa na uwau na kuuvetana na ula ungi: Yila waveta ni useo kuvivya kana kwisia vaasa nikana usiie kunyaiika kwa uwau uyu. Ingi nutonya kwina ni ngava na ti mumea w'o the muwau kwaau veta kaukava kala kawau kwa kusea.

Vanda mbeu theu itena uwau na ila yaile: Nikana withie mimea yaku no yike nesa na kwikana niwaile usisya mbeu ila yikaa nesa kisioni kyaku na iyithiwa itena uwau.

Ethiwa witumia vuu wa nitrogen ikiithya watumia kithimo kila kyaile nundu weekia vuu mwingi noutume tusamu sumwe twambiia kwongeleka.

Kunenga we amaitha / Nthu na anyanya ma muimi: li ni vamwe na tusamu tula tuisaa tungi ngelekany'o ta matumbi ma mbuambui, kang'athu, maki nimaisaa iinyu maalikw'a na tusamu tungi. kwikia uthui na muunyi nikuetae tusamu twingi muthangani tumwe twi nthu na tungi anyanya. Nthini wa ithangu ya mwai wukite tukakuelesya undu wa umanya amaitha na anyanya ma muimi na undu utonya usakua kwianana na uthayo ula mime yaku ikukwata kuma tusamuni tuu tukaa na kwendeewa kwithiwa muthangani muvwike.

Ethiwa nutatite nzia ithi syivaa yiulu na wiona nthina wa tusamu niwaile kwisilya utumia ndawa sya kuaa tusamu tuu. Ndawa imwe no useuvye uitumia ndawa sya miti ya kiene kana ukaua kuma ndukani. Mithemba yothe ya ndawa niyendaa utumiwa nesa. Utumiaa ndawa ino nikana wuae

tusamu na yiia yila yanangaa mimea na uyithiwa utonya ukwata liu mwingi. Kutumia ndawa ithi undu vataile no itume wuaa tusamu twa vata ta nzuki na tungi twingi ta tula tutetheesya muthanga kwithiwa na nzeve. Ingi utumii muthuku no utume tusamu tuu tumayia ukethia tuikwiw'a ndawa. Ingi ndawa ithi nisyithiawa ite nzeo kwa mungu na niutuma uima wake uthuka syatumiwa nai ta kwikiwa mbingi ukethia ona mumea waiwa ni mundu niwatwika sumu.

Ethiwa nuutumi ndawa sya kuaa mitutu ikiithya niwaia na nzia ila yaile wamina utumia. Ethiwa ve mthemba muna wa ndawa wisi niw'o utonya kuaa tusamu tula ukwenda tumia ndawa ila ite na sumu mwingi niwkoonda wa kusuvia mawithyululuko na nundu ndawa imwe syithiawa itonya kuaa kila kindu.

Kuimia: Onakau ni wia muto ni useo kwikalya miunda yaku yi mitheu. Lilikana yiia yimbe niyithiawa ya vata muundani nundu niyongelkaa nitrogen, yingi ni liu wa indo na yiia yimwe ni muiito na yingi yina malaa maseo kwa nzuki kuseuvya uki.

Vala utonya ukwata uvoo muna.

Maundu aa manenganitwe kilunguni kya A makeethiwa ma utethyo lwa miunda ethiwa tukatumia nzia nzeo sya nima na kuola tusamu tulatwanangaa na kwithiwa na ngetha nzeo. Onakau tukundi tumwe nituukwatwa ni thina wa tusamu na kwitiwa mayenda uiiti umwe. Kusakua kwa ndawa kana kila kiuya kiingi nikyendaa usakuwa nesa na ethiwa ni ndawa niyaile umanyika nesa niyva na nthina ula wina mumea niwaile ithiwa wisikie. Vaa ve ikwatany'o imwe ila iukutetheesya kwosa uvoo ula waile na kuuvikya kakundini kenytu.

Kwandaia yila mwina umbano wa ngwatanio yenyu mwai uu neenanisyai nzia nzau na ila mwithiwa mwisi sya kukitana na uwau wa miti na mimea vamwe na tusamu tula twanangaa liu miundani. Nitukwithiwa na utanu kukwata nzia imwe mutumiite na ikathukuma kumanyithya aimi ala angi nthini wa valua wa mwai ukite.



Ngwatanio ya TIST ya Muriru: Kuendee kwiana mwakani uu wa 2016.

Ithyi, ngwatanio ya TIST ya Muriru twina utanu mbua ino. Nituendee na uthukuma vamwe kuvanda miti na kuseuvya ivuio.

Kuvika vu twina tukundi 42 kuma mwai wa kenda 2014, twithitwe tuisisya ni nzia yiva tutonya kwaka ngwatanio ndumu. Nitwambiie na kivuio kila kya kuie silingi 100.00kwa kila kikundi ila yavikie kwa mbang’eti ya ngwatanio ya kila mwai kwa kuua mbeu na mathangu ma niloni.

Ota mbua ila mbituku, nituutana ingi kuaana mbeu ila mbikiku mbua ino ila syi sya kuvandwa kithekani kana muundani. Ene ngwatanio ino nimeyumitye kuthathasya kivuio nikana tukwate vaita kumana na kuta miti ila twavua.



Aimi ma TIST kuma ngwatanioni ya Muriru maithukuma kivuioni kyoo.

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

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

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

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

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

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

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



Ni ivinda ya kuvanda! Tata kuvanda imwe kati wa miti ino ya kiene ila ni miseo.

Miti ya kiene ni mithemba yi kivathukany’o ila imeaa ilembetani ya Africa na niyithiawa yaile isioni ithi yianiaa. Niseuvasya muthanga na kuthengeesya tusuni tula natw’o tuilaa iinyu ila syanangaa. Miti mithemba kivathukany’o nimeaa na kwika nesa isioni kivathukany’o.

Kuma semina ya TIST, ala mavikite nimaneene miti kivathukany’o ila yikaa nesa isioni kivathukany’o na ya kwendeesya na ila yithiawa na vaita kivathukany’o isioni kivathukany’o. Imwe kati wayo nituumineenea vaa itheo, nituutungia ngwatanio ya World Agroforestry centre muvea nundu wa kututetheesya kukwata uvo u u vamwe na kututetheesya kukolany’a mbeu sya miti kivathukany’o na kuiseuvya kwoondu wa kuvanda. Kwandaia sisya uvande mithemba imwe yila uuvanda mbua ingi nundu nimiseo na ututethya kwa kutunenga uvo wa miti ingi miseo kisioni kyenyu/kyaku ila yukaa nesa.

a. **Prunus Africana (Kikuyu: Muiri, Kimeru: Mweria)**

Muti uyu kaingi wonee mitituni yoka na ngii syaw’o syonekaa mitituni ivindani ya sua. Kolany’a ngii ila syina langi wa muthanga mukwatu kuma ungu wa muti kana mbindi ila mbiu kuma mutini iulu. Inda vandu va masaa 24, thambya noyanika kisungini kya waya muunyini vandu va masa ana. Itina wavau vanda nutonya kwia kwa kumikundikia matuni ma maiiu nikana ndikany’ae ethiwa wimitwaa vandu vaasa. Ethywa nduutwa vandu vaasa wamina kwanika vanda kivuioni na nikumea itina wa sumwa 6 - 8.

Utumiku

Kulungya tusamu: Muti uyu nutumikaa kulungyatusamu tula twanangaa liu ta iinyu na syingolondo kwa muuke waw’o. Malaa nimanengae nzuki liu ula itumiaa kuseuvya uki, Ngu syaw’o ninzeo muno.

Ni Muiito:- kiw’u kyaw’o kuma ikoleni/ ikondenii yaw’o kithiawa muiito wa mee kuneneva. Matu maw’o nimanyungiawa kuola ikua kana mundu anywa/kumatayuka

nikunengae mundu mea ma liu. Kiw’u kyaw’o kuma makoleni na matuni kyavulanywa nikitumiawa ta ndawa ya ivu na ingi kiw’u kuma ikoleni ni ndawa ya indo.

Kusuvia muthanga: Nisuviaa muthanga yavandwa iatianie nthini wa mitau. Matu nomatumiwe ta vuu na niyanakavasya muunda na noitumiwe ta muunyi wa muthanga na kusiiia kiseve kukua muthanga muundani.

Kwanakavya:- Niseuvasya muuthyi wa kwendeesya muundani.

b. **Peacock Flower (Albizia gummifera, kikuyu mukurwe)**

Muti uyu kaingi withiawa ivauukoni na kula kwi mititu ya mbua na vakuvi na mititu.

Ngii syaw’o noiindwe kana ikalea kuindwa mbee wa kuvandwa munamuno ila syauma ukethwa iyenda kuindwa. Ngii ila siitwe syendaa kuindwa kiw’uni kimuutia nakiyekwa kivoe. Noutile muthya wa mbindi ithi kuitetheesya kumea na mituki. Ngii ithi imeaa nesa kilio kya 70-80% na ikuaa ivinda ya mithenya ikumi. Ngii ithi nisyendaa kukethwa syiomutini kusiiia kwanangwa nitusamu ta ngulu. Ngii/mbindi ithi nitonya kwiwa vandu va ivinda ya mwaka umwe kethiwa nisyongeletwe muu kuisiia kulikwa ni ngulu na syimbalutya.

Utumiku wa muti uyu

Malaa nimatumiawa ta liu wa nzuki, niwunawa ngu, ukatuwa mbwau, ukaiita ithuma, ukaumwa ngamu kana nguluu, muiito vamwe nakwithiwa ngiisyaw’o syakimwa/syathiwa nitumiawa ta muiito wa ivu na makonde na muiito wa ndetema. Ingi nisuviaa kukuwa kwa muthanga nundu mii yayo nilumasya muthanga,

Nitumiawa kwa kuete muunyi, kuseuvya nzeve ya muthanga ila yitawa “Nitrogen”, Nunoasya muthanga nundu niwitaa matu waw’o kaingi,



Kwanakavya: nitumiawa kwanakavya ona kundu kwingi nuvanda nthini wa misyi minene (mataoni),

Nuvandawa mivakani naingi matu maw’o nitumiawa kuinda maiu nundu nimakalaataa kwiw’a kwamo.

c Mukuyu (olea africana, African wild olivu, Kikuyu: Mutamaiyu, Kimeru: Muthata)

Muti uyu numeaa kundu kwi kivathukany’o ta vakuvi na kiw’u, nguumoni sya mbusi, kundu kutekuthungu. Niwumiiasya sua na mbaa. Ngii nzau nitumiawa kuvandwa naethiwa ningii nguuni ndawa kiw’uni kithithu vandu va masaa ta 48. Ingi ngii isu nitonya kwatuwa na kw’oko kana ivia yikavingilitw’a iulu nikana syatuke ila itetheasya kwatua ikonde nikana ikamea na mituki syavandwa. Ngii sya muti uyu nusiwe vandu va myaka kauta.

Utumiku:

Ni liu - niinenganae mauta ala matumiawa ta liu na ta mauta, niliu wa indo nitumiawa ta ngu, kwatua mbwau, makaa, muswaki na nitumiawa kwanakavya.

Nundu wakwithiwa ni yumiiasya sua niwithiawa wimuseo wa kuvandwa kundu kula kumu na kusevya mititu ya kundu kwingi kwa Africa.

Miti ino niyitiawa itonya kwanakavya withyululuko.

d Waterberry (Syzygium guineense, kikuyu: mukoe, Kimeru: Muriru)

Muti uyu kaingi numeaa kula kwi mbua ya weu na mbua ya iima. Kaingi imeaa kula kwi kiw’u na kuthithu kwina kimeu kaingi nguumoni sya tulusi na syandani.

Ngii syaw’o iyendaa kuiitwa mbee wa kuvandwa na nimeaa nesa itekwaa na kilio kya 80-90% nthini wa mithenya kati wa 20 na 50. Kuvanda imwe mikeveni mbee wa kuvua nikwithiawa kwaile. Matunda maw’o moaa na

mituki na nimendaa ukolanw’a mavaluka oou kuma mutini. Ingi nouthingithye muti nikana mavalukange ukolany’e, na itunda yii yivandawa yumite mutini nikana yiikasye vinya wa kumea(yiyaile kwanikwa yikany’aa) Matunda aya nomaiwe kikoni kya musumeno kusiaa kwasya kiw’u vandu va mithenya minini.

Utumiku:

Nitumiawa ta liu wa nzuki, kwatua mbwau, ngu, muunyi, Ndawa (matunda nimaiitaa munyili nayo ikonde yaw’o niyitaa wituuo).

Manya/ukany’o: Makavo maw’o nimaetae kikw’u kwa mundu kwoou uutumia ta muiito/ndawa nonginya wonw’e undu utumiawa nala maautumia.

e Melia (Melia volkensii)

Muti uyu nduisawa ni muthwa na ivindani ya sua niwithiawa wi uithyo museo wa indo yila kwithiawa liu wa indo utekw’o kaingi kwoou nowithiwe wa vata mbee kwa aimi ma Tist. Muti uyu withiwa na ngwava mbingi nd ikole/ ikonde yaw’o ni wiu muuluku na wianaa uasa wa matambya ta 6 kuvika 20. Muti uyu kaingi niwithiawa weuni kula kumu nundu wendaa mbua nini ya ta 300 - 800mm. Ingi niwithiawa nguumoni sya mbusi sya kavinda naingi mivakani ya kula mbua itavikaa nesa ona kula kwi mavia. Ni witaa matu maw’o keli kwa mwaka na nimuseo kuvandaniw’a na liu (mimea).

Muti uyu wa melia kaingi uvandawa ukavo waw’o kana mwii onakau mwii muti wamea withiawa utemulumu. Ethiwa wivanda muti uyu kuma mbindini/ngii nomuvaka uivitilye mwakini ilasye kana mwakini wa nyeki kana utile munya na uyiinda ndandu va masaa 6 mbee wa kuvanda.

Utumiku:

- Nimuseo kwa liu wa indo munamuno liu wa mbui, ngu na uithi wa nzuki.
- Matu maw’o nimalungasya ndaa na ngi kaingi kwa tutena twa mbui.
- Nimuseo kwa kuthungya mititu.

Mazingira Bora



TIST

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

Kipsigis Version

An Environmental, Sustainable
Development and Community Forestry
Program.



A New TIST Cluster, Ngandu in Mathira West, receive Ashley Pettus, a TIST Visitor in March 2016

Inside: Values chebo TIST: Foundation ak Strength nebo TIST. Page 2

TIST: Tononet ne Kararan. Page 2

Muriru TIST ko kilasta ne teseitai koetu en kenyin bo 2016. Page 4

Temikab TIST kebosie timwek. Page 4

Kasarta nebo minset ! Yom ketichu Indigenous. Page 5



Values chebo TIST: Foundation ak Strength nebo TIST.

By Joseph Gituma

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

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

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

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

TIST: Tononet ne Kararan.

Tiinye teminde age tugul Kewelatet en Tibetab Minutik ak Ketik ak susik ak Miyonuel cheimuchi kowech imbar cheu sususik ,Toritik ,Koristo ak Kutik.Timto en imbar Kogochin Rurutik ak Ketik Komonyor Boiboiyet amun Toren amitwogi,Bek,Boroindo ak Asista.

Miten anyun koyob oengu en Sirani .Nabotai kotinye Kabwatet neitwin chi tugul ineimuchi koter komonyor susurik ak miyonuwek. Oret ne karan Kegol imbareni ko magitem. Oret ab oeng ke nyeru eng temik Chechang chetinye Kotigonutik en chigitetab Susurik ,miyonuuek.Mogitini Koenyoru mising akobo niton amun minutik chechang kotinye Miyonuek chechang Kosibgei ak Susurik cheter.inye boroindo kondoik tukul koyai

ngalatet ak biik en kurubit.

Kabwatet ne kararan.

Kitinye kabwatet kile intoimugosei Kegol Rurutik en imbarenik che Magitem Kotoret Mising koter Susurik ak Miyobuwek. Che isibu ko tuguk imuchi kibowoti.

Onguidab Nyungunyek: Igochin nito Rurundi kochok ak kogimit amun konyo omitwogik che kororonen, komonyoru miyondo

Minutik cheterechin enimbar; milen anyun susurik chetiengi minutiet nekararan komat imin rurutiet Agenge en kila kenyt, wal igol rurutik alek asi mosich boroindo susurik

**Kole tab minutik cheter en imbaret Agenge;**

Niton kogochin kobos susurik che mogingei Rurutiet Agenge mitenkora chengemin ak rurutik kotinye koristo ne imuchi koisto susurik en imbar, yomiten kou.

Keurto minutik ak tuchi; kararan niton amunteseni ngungunyek tondonito ak kogochin ngungunyek konyor bek en kasarta age tugul, nito amun kobose timdo en imbar. Matiboisien ketik che tinye tobtok ak keswek chuton koibu miyonuwek en rurutik.

Boisien ngetunanikab Rurutik komukosei; ibuwat iboisen kesuwekab kipkaa chemiten anan chetinyea amun motinye borotet chebo sang En kurubit omuchi Onyorunen ngomnot.

Oratinuek chegiisto en miyonuwek ak kebebertab Rurutik; minutiet age tugul netinye miyondo kinemu en imbar asi maimuch koisto. Imuch komanam ketik katugul, kinemu kebeberta netinye miyondo.

Koi kesuwek che moitin miyondo ak ne kararan; neimuchi kogochi rurutik kosobcho. Agot iboisien kotoltoleiwak che nirib asi

maimuch koib miyonuwek kobwa imbar.

Chetinye keret ne kararan en bunik; En abagora komiten susurik ak kutik chechang en imbarenikyok yon miten minutik imbar. Miten tiyongik chemengechen chekinyorunen kelchin en kasarta netinye susurik maanik anan yon itinye Arek koigu amitwogikab alak. Somunyk, Birechik, Kiprorogoik ak Toritik ko chetoreti konemu en Rurutik. Moyome nilon imuchi igeng kerichik cheimuchi kotoretin. Alage Komuchi kotoretin en susurik ak timdo en imbar. Chigit amun kerichik che iboisien asinyorunen kelchin en imbarengu ak inyoru Rurutik che kororon.

Semberet; Ngandan ui mising niton ago nyolu amun keisto timdo en imbar. Alak ko omitwogik en tuga an alak ko kerichik akotinye tobtok che nyorunen segemik omitwogik.

Kinyorchin en konetisioni; Konetisiet ne kinyoru en [A]kotoretin inye mising isoengei Susurik ak miyonuwwewak Rurutik. Lewwnchigei kerichik cheimuchi iboisien en imbarengung en Rurutik chenin. Oyai ngalalet en kurubit asi onyorunen borotet.



Muriru TIST ko kilasta ne teseitai koetu en kenyin bo 2016.

Kimuyoe kongoi mising temik chebo muriru en kasari bo lwat gut en robta. Kiteseitai kimine ketik ak kitichi kabeti.

En ninguni ketinye kurubisiek 42 en kongeten arawetab sogol en 2014 ko kiginam ketech kilasta nenyon kogimit. Ki tynye kabeti nebo kilasta ne kiinemunen kurubit age tungul ksh 100 ak ketesi chebo kilasta buget ketounen kialen kesuwek ak seleleisik chebo ketik.

En kasarian ne kimiten robta kouni ko kinyor chi tungul ketik che kibagomin en imbarenikwak. Niton ko boroindo ne kararan ne itin membaek tungu en kurubit.



Temik chebo Muriru kilasta komiten koboisie en kabeti.

Temikab TIST kebosit timwek.

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

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

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

mengomiten ketik chechang, chemoginge biik chang, tynye anyun temikab tist boroindo korib timwek, ketage tugul ne kagimin keyome kewegun indondab emet.

Tinye temikab TIST bcheetab ngomnotet agobo timwek asi kewegun ketik ak tiongik chelegiten, ogeibu konguwot asi kimuch kewal akenyoru mogor notosiekab emet, mising ketikab kipkaa.



Kasarta nebo minset ! Yom ketichu Indigenous.

Indigenous trees ko ketik che kirute en Africa koboche keny' amun enn noton konomeke ak emon'iton. Imuche kochob ngu'ngunyek ak koik ole menyé tasiritik ak tyong'ik che meng'echen . Ketik che terterchin korutu en ole terchin .

Koyob TIST seminars ak tugoshek kokonai membaek ketik che kororon che indigenous che nomeke ak komoswek chuton . Alak en chuton kosirotin en ngweny yon , kongoi en World Agroforestry Centre en ngalak che kikonech agobo seed collection ak preparation asi koruruyo. Kaikai yom iboishen alak en chuton en kasartab minset ne isubu ak kora inaisiyech agobo indigenous trees che miten komoswek kwok !

a. Prunus africana (Kikuyu: Muiri, Kimeru: Mweria)

Sana sana kenyoru en forest reserves .keswek kwai kenyoru en osnet en kasartab asis . icherun che biriren kityo anan en ketit anan ko che mi ngweny.

Icherun pulp , kindo bek en saaishek 24, akityo iun en wiremesh . asi kosoyo , inde ole miten koristo ak urwet en saaishek 4.

Boishen sokek iter komaistoke bek en keswek yon kibokemine . min directly kochut seedbed anan ko pots.

Asiko rut kotore weekishek 6-8.

Boishonik kwai :

- Bore pest: imuche kowon anan kobar pest cheu,. aphids, nematodes (che nome minutik) angamun en smell nenywanet. Kiboishen ko kwenik.
- Kerichek : bek chebo keti keboishen kiyoe prostrate enlargement . sokek keboishen keisto fever anan ko keboishen keimproven

appetite . Bek keteshen baldet ab ketoton ak bek chon biriren keboishen kinyaen moet ; kora extracts chebo tabandab ketit keboishen kinyoe tuga.

- Keteren ketik komala bek ngungunyek : ketik komuche korut en ridges ana ko terraces , koiku uronok che kororona k koter koriswek che yechen .tese ng'ungu;nyek sokek kimuche keboishen koik mulch ak green manure.
- Ornamental: Keti kochobe biyut ne kararan en compound .

b. Peacock Flower (Albizia gummifera, Kikuyu: Mukurwe)

Sanasana kenyoru ketiton en lowland ak upland rainforest anan ko olenekityin ak osnoshek .

Keswek che tako fresh komomokchin ke treatment alaktugul . keswek che kakekonor kindo bek che burgei, akityo kide ko, . kimuche ke-'nicken' seed coat en cotyledon end asi kosib korut ketit . rutunet ab ketiton kokararan, 70%-80% en betushek 10. Keswek konyolu kisib kicher en ketit kotomo konam tyongik che meng'echen .kswek kwai kimuche kekonor agoi kotar kenyit , en ole momiten be kana ko tyongik che meng'echen .

Boishonik kwai:

- Bee-forage, kwenik , bokonik , gum, tannin, kerichek (bek chekicherunen ketiton konye moet ak komuche kobos malaria), tere ng'ng'unyek komala bek (tikitik kwai kotere bek 'ab robta komal ng'ung'unyek),



- Urwet , nitrogen fixing (improveni ng'ung'unyek), naat ko good-mulch tree angamun sokek kwai kochoruke en season nebo sheding.
- Ornamental (kimuche kemin keti en avenues en townishek.
- Kimine en tobonwokik , sokek kwai kotese ruret 'ab indizinik .

c. Olea africana (African wild olive, Kikuyu: Mutamaiyu, Kimeru: Muthata)

Kinyorunen keti, tobonwokik 'ab oinoshek ana ko tabaita anan ko open woodland . Kiboishen keswek che fresh yon kimine . keswek che yosen kindo bek koroon en saaishek 48. Kitreaten keswek chutonen en oratinik cheu kerolleni en koik anan kecracken. Istoet ab endocarb kotoreti en germination. Keswondoni kimuche kekonor agot kenysishek cheite oeng'.

Boishonik :

- Omitwokik:olive products cheu olive oil ak olives che kiyome. Fodder: kititon sanasan koyome tuga .kwendet, ,bokoyot , makaa, chepsitwet.
- Reclamation:Angamun ketiton komuche komuita kasarwek 'ab asiista kimuche keboishen en ole kikitil ketik en semi-arid zones en Africa.
- Ornamental: kitit 'ab olive kokororonite imbarenika ak emit komugul.

d. Waterberry (Syzygium guineense, Kikyuyu: Mukoe, Kimeru: Muriru)

Kititon kinyorunen lowland rain forest ak mountain rain forests. Saidi korutu en ole miten bek , anan ogo en oinet orit , anan ko tobonwoki 'ab oinoshek. Keswek komomokcinke pre-treatment , angamun rutunetnywai kokararan .

80-90% en betushek 25-50.

Nyolu kemin directly koba pots . lokoek komuche koyachekitun ,en noton koyoche kicher en haraka yon kokolulyo en ketit .Anan ko ne'mo non kitumtum ketit kororok lokoek. yoche kemin keswek saait noton , anan angot komoimugoksei inde keswek choton ole mitin sawdust che miten bek.

Ole kiboishoito:

- Bee forage, bokoiyot , kwendet , urwet ,kerichek.

Note: lbwat ile tabonwokik 'ab ketiton komuche kore meet, en noton koyoche kenyor chito ne ingen asi keboishen koik kerichek.

e. Melia (Melia volkensii)

ketiton ne termite-resistant tree kokonu fodder yon bekunote arawek 'ab asista ,yon tuten fodder en ketik alak , komuche kobunchi maana en temik 'ab TIST . Keti chuton , open-crowned, chetinye gray bark, komuche korut agoi 6-20 m. Melia kenyoru sanasan en acacia-commiphora bushland che'tinye rainfall nebo 300-800 mm. Kimuche kenyor kora en seasonal rivers anan ko rock outcrops . sokek kwai koistoke mara mbili kila keniyit ago kimuche kemin ak minutik alak.

Melia kimuche kinam en tilet 'ab tikitik , ang'andan tilet 'ab tikitik komuche kochob ketit ne mo stable. Yon kakimin en keswot , koyoche ke scarifyen keswot noton (keboishen mat anan ko suswek che yonyotin) anan kenicken keswondonoton akityo kinde bek en saaishek 6.

Boishonik:

- fodder nebo tuga ak nego,;bokoiyot, anan kechoben beehives.
- preparation nebo sokek keboishen en wonet 'ab flys ako tam mkoboishe sanasana en goatkids.
- Kararan ko ketit 'ab agroforestry.