

Mazingira Bora

Not for sale

Newsletter July 2026

tist Growing Trees
Growing Leaders

1. We are Honest
2. We are Accurate
3. We are Transparent
4. We are Servant to each other
5. We are Mutually Accountable to each other

www.tist.org

English Version

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

Dial *709# (Safaricom) or *789*7000# (Other Networks) and get to know more about TIST and your Small Group. Follow the prompts. Safaricom is Free.



**Ntombo TIST Cluster meeting held on 11/06/2026.
Next meeting will be held on 9/07/2026.**

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TIST Values: The strength and foundation of TIST.

Most TIST Small Groups know TIST values. Still, it is important to reflect on these Values and to be sure that we all are truly living by them. The success of TIST is based on the integrity and effort of individual members within TIST. What we can achieve depends on each of us following these Values as we plant and care for our trees, take part in training and other activities, and report our results. Who is TIST? We are!

Who We Are.

- 1) We are honest.
- 2) We are accurate.
- 3) We are transparent.
- 4) We are servants to each other.
- 5) We are mutually accountable to each other.
- 6) We are Role Models.
- 7) We are Volunteers.

How We Do Things *that other people can see.*

- 1) We do the work ourselves in Small Groups.
- 2) We develop and use Best Practices.
- 3) We use our head and hands.

What do we do.

- 1) We plant variety of trees for long-term.
- 2) We find ways to improve our health.
- 3) We practice Conservation Farming.
- 4) We do other projects and businesses (sustainable agriculture, nurseries, citrus growing, dairy goats and farming, chickens, bee keeping, fish ponds and fish keeping, silkworm farming, etc.).
- 5) We sell carbon credits.

What we create.

When follow these Values as we live and do business, we create something good that was not there before.

- 1) We create Team Work—by doing things this way, we end up working like a team.
- 2) We create Capacity—we create organization, strength, and a system that is strong.
- 3) We create Enjoyment—we see results, we accomplish big things that we enjoy.
- 4) We create Big Results—Big results in planting trees. Big results in Conservation Farming and from other projects and business that we do.
- 5) We create Low Budget/cost, yet we achieve big results.



Planting Trees in Dry Areas.

As TIST continues to expand both in high potential and dry areas, we face challenges in tree survival. In TIST we always develop and share Best Practices, and this has always helped us in the TIST family get good results.

Below are some Best Practices that we can try in tree planting in dry areas:

1. Site selection for your nursery is especially important in dry areas. Seedlings will need to be watered once or twice each day when they are young. Consider keeping the seedlings in a convenient area near your home so you can use household water for seedlings. Using a windbreak around the nursery will reduce water use, and provide shade to protect young seedlings.
2. Early Preparation: Prepare the holes for tree planting possibly 1 month before the onset of the rain, the hole will crack and this will help in easy water penetration when it rains. After the first downpour, plant the trees and fill in the hole starting with the topsoil and manure.
3. Try using rainwater harvesting techniques, like micro-basins, so that more water reaches trees. Trees may also better survive if planted near areas where water flows seasonally.
4. Mulching: Mulch after planting the trees. This will help in moisture retention as it reduces evaporation. Using a compost manure will add nutrients to soils, but rock mulching can also provide some benefit in rocky areas.
5. Agroforestry: Let us try to practice agroforestry. The survival rate of trees planted in farm areas is higher than those planted in grassland and bushy areas since trees are better cared for and on better soil.
6. Choose species that grow well in dry areas. Often indigenous species from the surrounding area are strong survivors. Some examples include *Melia*, *Acacia seyal*, and *Muuuku (Terminalia brownii)*.
7. Protect existing trees and allow them to regenerate. These established trees are strong, and can often survive difficult seasons if we protect them. They provide an important source of locally adapted seeds as well as shade and other services.
8. Raised seedbeds or sunken seedbeds can help. When we establish the raised seedbed, we get seedlings with strong roots, so their survival rate is high. It may also help to keep seedlings a bit longer in the nursery so they can grow bigger and stronger. However, a sunken seedbed may also be a good choice since it shelters the seedlings and reduces drying. In this case, be careful to turn seedlings frequently so roots don't grow into the ground below the tubes, damaging roots in transplanting.

Let's use the Best Practices we have, and develop and share with others so that we can achieve more results and help TIST grow in our areas.



TIST: Intercropping.

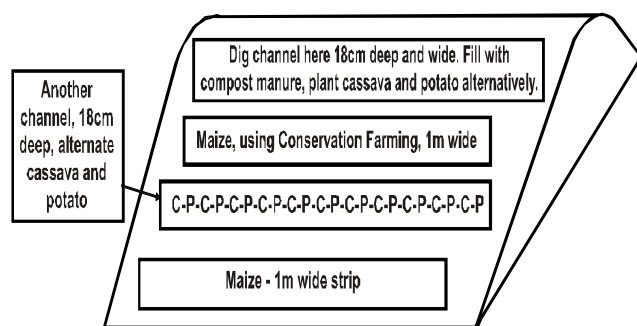
Multi-cropping is where two or more crops are grown together during a single season. With the right combinations this can help increase biodiversity on the land, increase soil fertility and reduce risk of pests and diseases.

Intercropping describes the practice where different crops are grown at the same time in the same field. It can also include growing crops with trees such as alley cropping.

Some TIST groups have tried the following technique, which is especially good for slopes

1. For the first row dig a trench 18cm deep and 18cm wide.
2. Fill this trench with compost manure.
3. Plant cassava and potato alternatively.
4. For the next row plant a one-meter strip of maize using conservation farming holes.
5. Another row of cassava and potato.
6. Another row of maize, etc.

This technique uses much of what we have learned in the training: it involves using intercropping, it uses compost manure and also conservation farming.



- Try alternating rows of maize with rows of trees. Small groups have tried alternating a 3m strip of maize with a row of moringa / yellow cassia / leucaena / bead tree trees.
- Rows of sorghum can be planted between rows of moringa or leucaena.
- Try combinations of calliandra and bananas, calliandra and beans, calliandra and maize, maize and beans, beans and leucaena, beans and bananas, beans and coffee (while young).
- Try intercropping cowpea with maize / sorghum or millet.

Experiment with the spacing to see what works best, and let TIST know the results.

Crop rotation ideas

Crop rotation is where farmers cycle through planting different crops over time on the same land. There is a particular order of crops followed, where the next crop chosen is from a different family than the previous one. Crop rotation can be beneficial for soil fertility as different crops have different depths of root systems, meaning the same layer of soil nutrients is not depleted year after year. This method also helps to break up the soil at different levels, which improves soil structure, and can attract different types of beneficial soil organisms.

To get the benefits of crop rotation a different type of crop must be planted in turn. This is because crops of the same type may attract similar pests and diseases, and rotating the types can reduce the risk of certain pests and diseases taking hold in the soil.

The following list categorizes crops according to groups. Crops from the same group should not be planted one after the other. Be sure to mix the groups in your rotation plan!

- Group 1: Cucumber, gourds, pumpkin, squashes, watermelon (Gourd family).
- Group 2: Broccoli, brussel sprouts, cabbage, cauliflower, collards, kale, radish, turnip, mustard, watercress (Crucifer/Brassica family).
- Group 3: Eggplant, pepper, tomato, potato (Solanaceous family).
- Group 4: Lettuce, artichoke (Aster family).
- Group 5: Maize, rice, sorghum, wheat, oat, barley, millet (Grains and cereals family).
- Group 6: Beans and peas (Legume family).
- Group 7: Garlic, leek, onions, chives (Allium family).
- Group 8: Carrot, celery, dill, parsnip, parsley (Carrot family).
- Group 9: Cassava, sweet potato, taro, yam, water chestnut (root crop family).
- Group 10: Cotton, okra (Mallow family).

If the above system is overly complicated, many farmers simplify crops to five groups to rotate between (information taken from Infonet-Biovision website):

- a) Leaf crops (broccoli, cabbages, cauliflowers, kales, spinach, etc.). They need more nutrients than other vegetables.



- b) Fruit crops (chilies, eggplants, peppers, tomatoes, etc.). They need a considerable amount of nutrients but not as many as 'leaf' crops.
- c) Root crops (carrots, beetroots, potatoes, onions, radishes, turnips, etc). They need fewer nutrients compared with leaf and fruit crops.
- d) Legumes (beans, chickpeas, cowpeas, grams, peas, pigeon peas, etc.). Their additional benefit is fixing atmospheric nitrogen into the soil.
- e) Cereals (maize, millets, sorghum etc.).

Ideas to consider:

Try planting maize and groundnuts together in year 1 and in year 2-plant sorghum. Try planting groundnuts in year 1 and then a mixture of legumes, sunflower and/or potatoes in year 2.

Another idea is to try planting maize followed by a legume such as soybeans or groundnuts. Then in the following season try a cash crop such as cotton.

Try leaving the land fallow for a whole year, then plant crops again for 3-5 years before leaving it to fallows again. This will give the land a chance to replenish its soil nutrients. Consider Napier grass for fodder if you have livestock.

In general, plant legumes before cereals. Planting crops from the Brassica family (e.g. cabbage) before and after crops from the Solanaceous family (e.g. tomatoes) can help prevent build-up of root-knot nematodes and bacterial wilt.

The following is a crop rotation idea taken from Infonet-Biovision. This takes an example of a farm with four plots covering four seasons with each season approximately 4 months.

First season:

Plot 1: Maize / garlic / onions / or leeks.

Plot 2: Eggplant / chilies / potato / or tomato.

Plot 3: Broccoli / cabbage / cauliflower / or kale.

Plot 4: Beans / cowpeas / grams / or peas.

Second season:

Plot 1: Beans / cowpeas / grams or peas.

Plot 2: Broccoli / cabbage / cauliflower / or kale.

Plot 3: Eggplant / chilies / potato / or tomato.

Plot 4: Maize / garlic / onions / or leeks.

Third season:

Plot 1: Broccoli / cabbage / cauliflower / or kale.

Plot 2: Beans / cowpeas / grams / or peas.

Plot 3: Maize / garlic / onions / or leeks.

Plot 4: Eggplant / chilies / potato / or tomato.

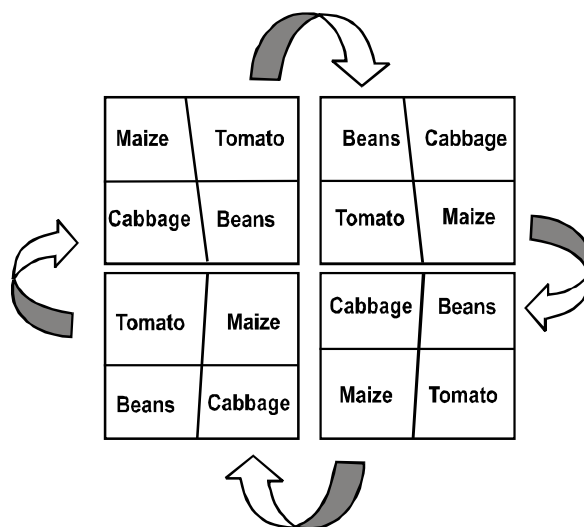
Fourth season:

Plot 1: Eggplant / chilies / potato / or tomato.

Plot 2: Maize / garlic / onions / or leeks.

Plot 3: Beans / cowpeas / grams / or peas.

Plot 4: Broccoli / cabbage / cauliflower / or kale.





TIST: Waste Management.

Waste is any material that is a by-product of human activity and that may not have immediate value, which includes:

- ☐ Human excreta/waste.
- ☐ Domestic rubbish like left over food.
- ☐ Waste paper.
- ☐ Scrap metals and old batteries (dry cells)
- ☐ Polythene bags.
- ☐ Sewage sludge, etc.

What Causes Rubbish Problems in your Community?

Waste is inevitable but is made more problematic by:

- ☐ Wasteful/inefficient use of resources.
- ☐ Lack of methods for reusing waste.
- ☐ Lack of waste disposal sites (Rubbish pits, latrines)
- ☐ Lack of knowledge about the dangers of waste management.

Problems caused by poor waste management:

- ☐ Litter of fields and compounds.
- ☐ Loss of beauty of the area.

- ☐ Pollution of water, air and soil, disease outbreak
- ☐ Blockage of drainage channels.
- ☐ Toxic poisoning and fumes from old batteries.
- ☐ Children and animals may be poisoned or injured if they pickup and play with old batteries or other rubbish.

What Can Your Small Group Do Help Solve The Problem?

- ☐ Reduce or minimize the generation of waste
- ☐ Consider using solar powered products instead of those that use disposal batteries when possible.
- ☐ Reusing-use materials again where possible.
(i.e. plastic bags)
- ☐ Composting as a natural fertilizer for use in gardening (save organic waste from left over food and fodder)
- ☐ Dig a rubbish pit in your compound.
- ☐ Remember to only burn paper and cards.
 - Do not burn batteries as they can explode, instead put them in the pit latrine.

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**Mkutano wa Ntombo TIST Cluster uliofanyika tarehe 11/06/2026.
Mkutano ujao utakuwa tarehe 9/07/2026.**

Inside:

- ✓ Jaria TIST iikirite: Inya na musingi jwa TIST. Page 2
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Jaria TIST iikirite: Inya na musingi jwa TIST.

Ikundi bibinini biria bingi bia TIST nibiji jaria TIST iikirite. Amwe na bou, kurina bata kuthuganiria mantu jaja na kumenyeera ati nitujathingatira na umma. Kuumbana gwa TIST gukaumania na kuthingatira kwa jaria jabati na ngugi ya o mumemba wonthe ndene ya TIST. Jaria tukomba gukinyira jakaringana na uria o umwe kiritwi akathingatira mantu jaja riria tukuanda na kumenyeera miti yetu, tugwita kiri uritani na kiri mantu jangi, na tugacokia ripoti kwegie jaria tuthithitie. TIST nibao? Ni batwi!

Turi bao.

- 1) Turi ba umma.
- 2) Turi ba jaria jongwa jario.
- 3) Turi ba weru.
- 4) Turi atungataniri.
- 5) Turi ba kumenyanira twingwa.
- 6) Turi ming'uanano imiega.
- 7) Turi ba kuiritira.

Uria tuthithagia mantu jaria antu bangi bakoona.

- 1) Turitaga ngugi twingwa ndene ya ikundi bibinini.
- 2) Nituthuganairia na gwitikaniria mitire iria miega buru ya kuthithia mantu.
- 3) Tutumagira mitwe na njara cietu.

Nimbi tuthithagia.

- 1) Nituandaga miti mithemba imingi ya igita riraja.
- 2) Nitucwaga njira cia kuthongomia thiria yetu ya mwiri.
- 3) Niturimaga na njira ya Urimi bubwega (Kilimo Hai).
- 4) Nituthithagia miradi na biashara ingi (urimi bwa gwika unoru bwa miunda yetu igita riraja, minanda, kurima ntunda, mburi cia iria na kurima, gwika njuki, gwika makuyu, kurithia imemeo na jangi jamaingi)
- 5) Nitwendagia ruugo.

Jaria tuthithagia.

Riria twathingatira mantu jaja o uria tugutuura na kuthithia biashara, nituthithagia gintu gikiega kiria gitirario mbele.

- 1) Nituumbaga kuritanagiria ngugi amwe—gukurukira kuthithia uju, turigayia kurita ngugi ja timu.
- 2) Nitwakaga—Nituthithagia kambuni, inya na njira iria irina inya.
- 3) Nitugwiragua—twona maciara, nituumbaga kuthithia mantu jamanene jaria tukenagira.
- 4) Nituthithagia mantu jamanene—Mantu jamanene kiri kuanda miti. Mantu jamanene kiri urimi bubwega na mibango na biashara ingi iria tuthithagia.
- 5) Nitutumagira mbeba inkai, indi tukathithia mantu jamanene.



Uandi miti ndene ya ntuura injumu.

Ouria TIST igwita na mbele gutamba ndene ya ntuura irina kanya gakathongi na injumu, nitugutirimana na magerio jamaingi kiri gutuura kwa miti. Ndene ya TIST nituthithagia na kugaana mitire imiega buru ya kuthithia mantu, na bubu nibututethagia batwi ndene ya nja ya TIST rionthe kwona maciara jamathongi.

Aja ni mitire imwe iria miega buru iria tuumba kugeria kiri uandi miti ndene ya ntuura injumu:

1. Utaari bwa antu a gwika munanda jwaku burina bata mono ndene ya ntuura injumu. Miti igetie gwikirwa ruuji rimwe kana jairi o ntuku riria inyii. Thugania gwika miti antu aria gukuiriteie nja nikenda ugatumira ruuji ruria rugutumirwa nja gwikira miti. Kunyiyia ruugo akui na munanda gugatethia kunyiyia utumiri bwa ruuji na kua miti iminini kirundu.
2. Kuthuranira kurio: Thurania marinya ja kuanda miti kwombika mweri jumwe mbele ya mbura, kirinya gikaunika na bubu bugatethiakuuthioa gutonya kwa ruuji riria gukaura. Nyuma ya ngai ya mbele anda miti na ujurie kirinya ukiambagiria na muthetu jwa iguru riu mboleo.
3. Geria gutumira njira cia kugwatia ruuji rwa ngai nikenda ruuji rurwingi rukinyira miti. Miti ikoomba gutuura yaandwa akui na aria ruuji rwithagirwa ruriku rionthe.
4. Gukunikira muthetu: Gukunikira muthetu warikia kuanda miti. Bubu bugatethua gwika ruuji niuntu nikunyiagia gukamatwa ni riu. Gutumira mboleo ya imera gukoongera

nutrienti muthetune indi gukunikira na maiga kinya ku no kulete baita guntune kuria kurina maiga jamaingi.

5. Kuungania imera na miti: Tugerieni kungania imera na miti. Miti iria iandagwa muundene niyo yuumbaga gutuura nkuruki ya iria iri ithakene niuntu nimenyagirwa na iri muthetune jumwega nkuruki.
6. Taara mithemba iria igakura bwega ndene ya ntuura injumu. Miti ya gintwirekuuma kiri ntuura iria ithiurukite niumbaga gutuura. Mng'uanano imwe ni *Melia*, *Acacia seyal*, na *Muuuku* (*Terminalia brownii*).
7. Menyeera miti iria irio na umitikirie iciarane. Miti iji irio irina inya na niumbaga gukurukira mbura injumu twamikaria. Niejanaga kiumo kia bata kia mbeu cia gintwire amwe na kirundu na mantu jangi.
8. Minanda itiritie kana injiri no itethie. Riria twambia minanda itithitue, nituonaga miti irina miti imiriku na kwou igatuura. No itethie kinya gwika miti munandene igita riraja nikenda inenea nkuruki na igia inya. Indi minanda ya kwinjira no ithirwe iri imiega niuntu nikunikagira miti na ikanyia kuuma. Aja, menyeera kugaruria miti o nyuma ya igita nikenda miri itigakure itonya muthetune rungu rwa mubuko, na kwou igitaria miiri igita ria kuthamia.

Tutumireni mitire iria miega buru iria turinayo, na tuthithie na kugaana na bangi nikenda tukinyira maciara jamaingi na tutethia TIST gukura ndene ya ntuura cietu.



TIST: Kuanda imera mwanya amwe.

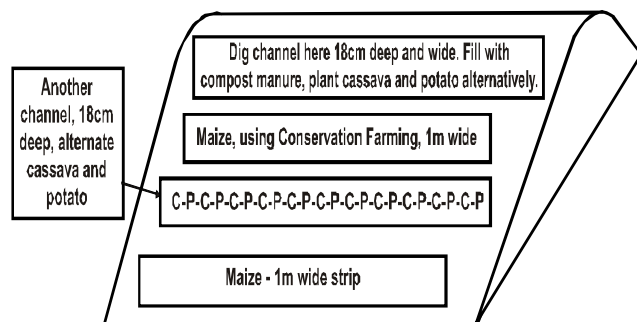
Multi-cropping ni Uandi bwa imera biiri kana bithatu mwanya amwe igitene rimwe. Uungenie bwega bubu nibuongagira gukaraniria kwa mithemba mwanya ya imera na nyomoo, kwongera unoru bwa muthetu na kunyiyia kanya ga kugwatwa ni tunyomoo na mirimo.

Intercropping nayo niaria imera mwanya igitita rimwe na muundene jumwe. No ithirwe kinya iri kuanda imera bia irio amwe na miti ja kuanda miti iri lainine muundene jwa imera bia irio.

Ikundi bimwe bia TIST nibigeretie njira iji, injega mono naria kurina ibari

1. Mulainine jwa mbele inja mutaro jurina uraja bwa 18cm na warie bwa 18cm.
2. Ujurie mutaro juu na mboleo ya mati.
3. Aanda mianga na ikwaci bithingatene.
4. Mulainine jou jungi anda mpempe mita imwe ugitumagira marinya jwa urim bubwega.
5. Aanda laini ingi ya mianga na ikwaci.
6. Aanda laini ingi ya mpempe na wite na mbele o ou.

Mwitire juu nijutumagira jamaingi ja jaria tuthomete kuumania na uritani: nijwegie kuandaniria imera mithemba mwanya amwe, njwegie mboleo ya mati na kinya urimi bubwega



- Geria kuthingatania milaini ya mpempe na milaini ya miti. Ikundi bibinini bimwe nibigeretie kuanda mpempe mwanka warie bwa mita inya ithingati ni laini ya moringa / yellow cassia / leucaenia / bead tree.
- Milaini ya mwere no iandwe gati gati ka milaini ya moringa kana leucaenia.
- Geria kuanda calliandra na marigu, calliandra na mung'au, calliandra na mpempe, mpempe na mung'au, mung'au na leucaenia, mung'au na marigu, mung'au na kauwa (kari kanini).
- Geria kuanda ncugu na mpempe / mwere kana muya.

Geria gutarania mwanya mwanya nikenda umenya ni mwanya jwiku juri jumwega nkuruki na wire TIST jaria ukoona.

Mathuganio jegie kuthiurukia imera

Kugarurania imera ni aria arimi bathiurukanagia bakiandaga imera mwanya o igitita muundene jumwe. Gutu uria imera bibati kuthingatana, aria kimera kiria kithingatite nigitaragwa kuumania na nja mwanya na iu iraandi. Kuthiurukania imera kuri baita kiri unoru bwa muthetu niuntu imera mwanya biri miri irina uraja mwanya, kwou irio biria biri amwe aria miiri igukinyira bititumirwa o mwaka nyuma ya mwaka. Njira iji kinya nitethagia kuunanga muthetu guntu mwanya mwanya, untu buria buthongomagia uria muthetu jubangi na buria bumba kinya gukucia tunyomoo twa mithetu mwanya mwanya turina baita.

Nikenda wona baita cia kuthiurukania imera, kimera mwanya nikibati kuandwa o igitita. Bubuniuntu imera bia muthemba jumwe nobikucie tunyomoo na mbajua mwanya mwanya na kuthiurukania imera nikunyiagia kwithirikua kwa tunyomoo tutu na mbajua muthetune.

Aja nthiguru ni imera biiki kiri ikundi. Imera kuumania na gikundi kimwe biti bati kuandwa kimwe nyuma ya kingi. Menyeera ati ukuungania ikundi bibi riria ukugarurania!

- Group 1: Cucumber, tukiri, malenge, squashes, watermelon (nja ya malenge).
- Group 2: Broccoli, brussel sprouts, cabbage, cauliflower, collards, kale, radish, turnip, mustard, watercress (Nja ya mpoka).
- Group 3: Eggplant, nchini, nyanya, ikwaci (Nja ya Solanaceous).
- Group 4: Lettuce, artichoke (Nja ya Aster).
- Group 5: Mpempe, muchele, mwere, nkano, oat, barley, muya (Nja ya mpindi).
- Group 6: Mung'au na nono (Nja ya ming'au).
- Group 7: Garlic, leek, matunguru, chives (nja Nja ya karati).
- Group 9: Mianga, mukuo, taro, ikwa, water chestnut (Nja ya miri).
- Group 10: Cotton, okra (Nja ya Mallow).

Kethira njira iji iri au iguru ni injumu, amemba babaingi nibekagira imera kiri ikundi bitano riu bakagarurania kuuma o kiri kimwe gwita kingi (umenyo buumenie na website igwitwa Infonet-Biovision):



- Imera bia mathangu (broccoli, cabbages, cauliflowers, kales, spinach, etc.). Nibiendaga irio bibingi nkuruki ya imera bingi.
- Imera bia matunda (chilies, eggplants, peppers, tomatoes, etc.). Nibiendaga irio bibingi indi ti ta imera bia mathangu.
- Imera bia miri (carrots, beetroots, potatoes, onions, radishes, turnips, etc.). Nibiendaga irio bibikai nkuruki ya imera bia mathangu na bia matunda.
- Ming'au (beans, chickpeas, cowpeas, grams, peas, pigeon peas, etc.). Baita ya kwongera ni gutonyithia nitrogen muthetune kuuma ruugone.
- Mpindi (maize, millets, sorghum etc.).

Mathuganio ja kugeria:

Geria kuanda mpempe na njugu amwe mwakwa jwa mbele na mwaka jwa iiri uande mwere. Geria kuanda njugu mwaka jwa mbele riu muunganio jwa ming'au, sunflower na/kana ikwaci mwaka jwa iiri

Ithuganio ringi ni kuanda mpempe riu ithingati ni mung'au jumwe ja soya kana njugu karanga. Riu mbura iu ingi geria kimera kia mbeca ta cotton.

Geria gutiga munda jutiandi gitu mwaka junthe, riu uande imera kairi miaka ithatu gwita itano riu ujutige jutiandi kairi. Bubu bukaa munda kanya ga gucokia iri biria bikwendeka. Thugania kuanda thaara kethira urina ndithia.

Kijumla anda ming'au mbele ya kuanda mpindi ingi. Kuanda imera kuumania na nja ya Brassica (ja mpoka) mbele na nyuma ya kuanda kuumania na nja ya Solanaceous (ja Nyanya) nogutethie kurua na kwingia kwa kwimba kwa miiri na kunyara kuumania na bakiteria

Aja ni ithuganio ria kuthiurukia imera kuumania na Infonet-Biovision. Mung'uanano juu ni munda jurina tumiunda tuna, ndene ya mbura inya aria o mbura ikujukia mieri inna



Mbura ya mbele:

- Plot 1: Mpempe / saumu/ matunguru/ kana leeks.
 Plot 2: Eggplant /nchini / ikwaci / kana nyanya.
 Plot 3: Broccoli /mpoka / cauliflower / kana sukuma.
 Plot 4: Mung'au/ ncugu / ndengu / kana nono.

Mbura ya ijiri:

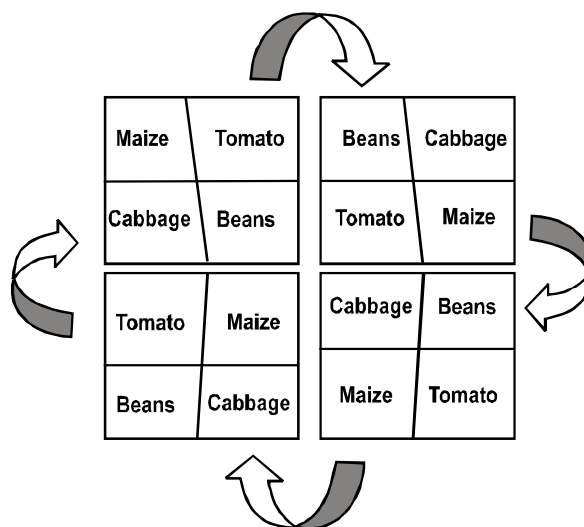
- Plot 1: Mung'au/ ncugu / ndengu / kana nono.
 Plot 2: Broccoli /mpoka / cauliflower / kana sukuma.
 Plot 3: Eggplant /nchini / ikwaci / kana nyanya.
 Plot 4: Mpempe / saumu/ matunguru/ kana leeks.

Mbura ya ithatu:

- Plot 1: Broccoli /mpoka / cauliflower / kana sukuma.
 Plot 2: Mung'au/ ncugu / ndengu / kana nono.
 Plot 3: Mpempe / saumu/ matunguru/ kana leeks.
 Plot 4: Eggplant /nchini / ikwaci / kana nyanya.

Mbura ya inya:

- Plot 1: Eggplant /nchini / ikwaci / kana nyanya.
 Plot 2: Mpempe / saumu/ matunguru/ kana leeks.
 Plot 3: Mung'au/ ncugu / ndengu / kana nono.
 Plot 4: Broccoli /mpoka / cauliflower / kana sukuma.





TIST: Kurungamira ruuko.

Ruuko ni gintu kionthe kiria kiuamanagia na maththio ja muntu na kiria gitona utumiri bwa oriu, na ni amwe na:

- ☐ Kioro kia muntu.
- ☐ Matigari ndene ya nja ta irio.
- ☐ Maratasi jatina ngugi.
- ☐ Miuko ya mubira.
- ☐ Cuuma, maiga jatumiri.
- ☐ Ruuko rwa sewage na jangi jamaingi.

Nimbi iretaga thina ya ruuko ndene ya ntuura yaku?

Ruuko rutiebereka indi nirwingiagua rukaa thina na njira ya:

- ☐ utumiri bubuthuku bwa biria turina bio.
- ☐ Kwaaga njira cia kurutumira kairi.
- ☐ Kwaaga antu a kuruta (ja bioro bia oome).
- ☐ Kuaga umenyo bwa mogwati jaria joomba kuumania na urungamiri bubuthuku bwa ruuko.

Jaria jaumanagia na urungamiri bubuthuku bwa ruuko.

- ☐ Kujura kwa ruuko bienine, kwaga uthongi bwa antu au.

- ☐ Kuthukua gwa ruuji, ruugo na muthetu.
- ☐ Kuumbuka kwa mirimo.
- ☐ Kuingana gwa paipu cia kurita ruuji.
- ☐ Sumu na ruugo ruruthuku kuumania na maiga jamakuru.

Aana na ndithia no ciajithue kana ikagitarua riria ciajukia na guchetha na maiga jamakuru kana ruuko rungi.

Nimbi gikundi giaku kithithia kuthiria thina iji

- ☐ Nyiyia mantu jaria jatumaga ruuko rwija.
- ☐ Thugania gutumira into biria bitumagira mwanki jwa riuu antu a biria bitejagwa riria uumbikia.
- ☐ Tuumira kairi – tumira into kairi riria uumbikia (ja maratasi ja mubira).
- ☐ Kuthithia mboleo- iika ruuko ruria rumba kwoora (irio biria bitigarite na bia ndithia) ja mboleo ya gutumira muundene.
- ☐ linja kirinya kia ruuko nja yaku.
- ☐ Ririkana kuithia aki maratasi na kadi.
- Ukaithia maiga niuntu noja lipuke. Ikira kiorone.

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Kikuyu Version

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**Mucemanio wa Ntombo TIST Cluster uria wahanikire mweri 11/06/2026.
Mucemanio ucio ungi ugakorwo mweri 9/07/2026.**

Inside:

- ✓ Ikundi nyingi cia TIST niciui values cia TIST. Page 2
- ✓ Uhandi wa miti kundu kumu. Page 3
- ✓ TIST: Kuhanda mithemba miingi ya irio. Page 4
- ✓ TIST: Kuhurana na giko. Page 6



Ikundi nyingi cia TIST niciui values cia TIST.

Na ningi, nniwega kurora values ici niguu gutigirira ati turatura hamwe nacio. Umithio wa TIST ukwoneka riria twagia na uigiririki na wirutiri wa amemba thiini wa TIST. Maundu maria tungihota mararingana na values ici riria turahanda miti na tugathomithania na tukaheana maumirira. TIST nima? Turi!

Ithui turi:

1. Turi ehokeku.
2. Turi akinyaniru.
3. Turi andu a utheri.
4. Nitutunganaga.
5. Turi na uigiririki.
6. Turi cionereria njega
7. nitwirutagira.

Niatia twikaga maundu maria andu angi mangiona?

1. Niithui twirutagira mawira thiini wa ikundi.
2. Nituhuthagira mitarata miega.
3. Tuhuthagira hakiri na moko.

Niatia twikaga.

1. Tuhandaga miti mithemba miingi ya gutuura.
2. Nitwagirithagia ugima mweka wa mwiri.
3. Nitukoragwo na mitarata ingi na biashara ingi(urimi wa guteithia, tuta, ukuria wa machungwa, uriithi wa mburi, nguku na uigi wa njuki ohamwe na thamaki na kuiga igunyu cia silk.
4. Niturimaga Kilimo Hai
5. Nitwendagia carbon.

Kiria tuthondekaga.

Riria twarumirira mitarata ino na twatura na kuruta wira, nituthondekaga maundu maingi gukira mbere.

1. Turutaga wira turi hamwe – ugikaga maundu an njira ino niturutaga wira turi timu.
2. Niturekira uhoti – nitwikiranaga hinya nakugia na mitarata iri na hinya.
3. Nituthondekaga ikeno – nituonaga umithio na tukahota maundu maingi maria tukenagira.
4. Nitukoragwo na umithio mweka – maumirira mega riria twahanda maiti, maumirira mega riria twahurthira Kilimo Hai na mitarata ingi miingi.
5. Nitugiaga na maumirira mega na mahuthiro manini.



Uhandi wa miti kundu kumu.



TIST igithiaga na-mbere na gukura miena yothe iria yaraga na yumaga, nitukoragwo na mathina ma gukuria miti. Thiini wa TIST tukuragia na tugatwarithia mitaratara miega, na njira ino niituteithitie thiini wa TIST kugia na maciaro mega.

Ino ni imwe ya mitaratara ya kurumirira gukuria miti kundu kumu:

1. Guchagura handu hega ha ha nathari ya miti. Mimera niiribataru kuheo maai riita I kana maita 2 hari o muthenya riria iri minini. Cagura kuhanda mimera hakuhi na mucii niguu uhuthire maai manyumba gutiriria mimera. Ukihuthira indo ciakugitira ruhuho guthiururukiria nathari yaku nigukunyihia uhuthiri wa maai na kuhe mimera kiiruru.
2. Uhariria wa tene: hariria marima ma kuhandira miti muno mweri I mbere ya mbura, iria nirigwatuka na uteithie maai kuingira tiiri-ini wega mbura yaura.
3. Geria gutege maai ma mbura niguu maai maingi makinyire miti. Miti noikure wega riria yahandwo kuria maai mageraga.
4. Ikira mahuti mugundaini niguu maige ugunyu tiiri-ini.

5. Hamda miti mugundaini wa irio. Riria wahanda miti mugunda-ini niikuraga wega tondu niiramenyererwo hamwe na irio iria iri mugunda.
6. Cagura mithemba ya miti iria ikuraga wega na riua. Muno miti ya ki-nduire niyo miega. Kwa muhiano Melia, Acacia, na Muuku (*Terminalia brownii*).
7. Menyerera miti iria iri kuo na umihotihie gutherema. Miti ino mikuru iri na hinya, na noiikare gwa kahinda karaihu twamimenyerera. Niiheanaga kihumo kia mbegu cia kuhanda.
8. Tuta njoe iguru nociteithie. Riria twathondeka tuta njoe iguru, nitugiaga na mimera iri na miri iri na hinya na irakura wega. Noiteithie kuiga mimera iri na hinya thiini wa nathari niguu ikure iri minene na ikure na uraihu munene. No ona kuri o uguu tuta njoe iguru noikorwo iri njega tondu niitumaga mimera ndigakue na ihenya. Niundu wa uguu, menyerera na ugarure mimera niguu miri ndigakinye thi.

Reke tuhuthire mitaratara miega na tukuraniea na tuthomithanie na nitukwigwatira maundu manene thiini wa TIST.



TIST: Kuhanda mithemba miingi ya irio.

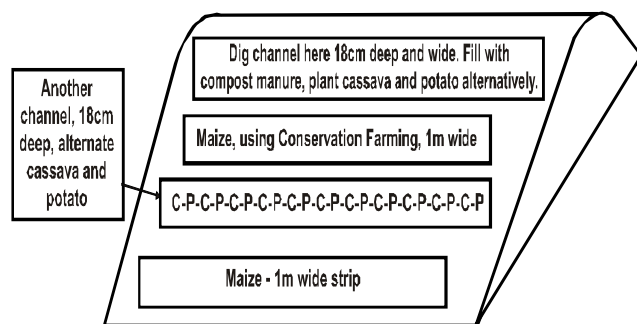
Murimi noahande irio mithemba miingi kimera kimwe. Ririawacagura mithemba iria ingitwarana wega nouteithirie kwagirithia biodiversity migundaini, kwngerera unoru wa tiiri na kunyihia ugwati wa tutambi na mirimu.

Intercropping yonanagia kuhanda na gukuraniria iri mithemba miingi mugunda-ini umwe. Ona ningi kuhanda irio na miti hamwe.

Imwe cia ikundi cia TIST nicigeretie njira ta ici, iria ninjega na kuria kuinamu na kuri na iharuruka.

1. Muhari-ini wa mbere enja mutaro wa uriku wa 18cm na warii wa 18cm.
2. Ihuria mutaro na thumu.
3. Handa mianga na waru.
4. Huhari-ini ucio ungi, handa mbembe 1m ukihuthira Kilimo Hai.
5. Cokera mianga na waru
6. Cokera membe.

Njira ino ihuthagira makiria maundu maria tukoretwo tugithoma. Ni kuhandaniria na gukuraniria irio mithemba miingi mugunda-ini umwe, ihuthagira thumu na Kilimo Hai.



- Geria gucenjania mihari ya mbembe na miti. Ikundi nicigeretie kuhanda mihari itatu ya mbembe na muhari umwe wa mringa/yellow cassia/leucaenia/bead tree.
- Mihari ya muhia noihandwo gatagati ja mihari ya moringa na leucaenia.
- Geria mutukanio wa calliandra na mboco na marigu, mboco na kahuwa (riria kari kanini).
- Geria kuhandaniria njugu na mbembe/muhia na mwere.
- Geria na utaganu niguo wone ruia mwega na uheane maciaro kuri TIST.

Gucenjania uhandi wa irio mugunda-ini.

Crop rotation ni kuria arimi macenjanagia uhandi wa irio na imera mugunda-ini umwe. Nikuri mutaratara uria urumagirirwo kuria riria uracagura muthemba uria ukurumirira wagiriirwo ni kuya kuma family ingi. Guconjania guku niguteithagia kwngerera unoru wa tiiri tondu mimera ngurani ikoragwo na miri ya uraihu ngurani kuuga ati unoru niuthiaga ugityonyaga tiiri-ini kuringana na muthemba wa irio.

Niguo kugia na mawega ma gucenjania irio, ninginya uconjanie wega. uu

Nitundu mimera ya muthemba umwe noiguciririe muthemba umwe wa tutambi na mirimu na riria wacenjanagia niunyihagia ugwati wa tutambi na mirimu gutherema na guikara tiiri-ini.

Group 1: Cucumber, gourds, pumpkin, squashes, watermelon (Gourd family).

Group 2: Broccoli, brussel sprouts, cabbage, cauliflower, collards, kale, radish, turnip, mustard, watercress (Crucifer/Brassica family).

Group 3: Eggplant, pepper, tomato, potato (Solanaceous family).

Group 4: Lettuce, artichoke (Aster family).

Group 5: Maize, rice, sorghum, wheat, oat, barley, millet (Grains and cereals family).

Group 6: Beans and peas (Legume family).

Group 7: Garlic, leek, onions, chives (Allium family).

Group 8: Carrot, celery, dill, parsnip, parsley (Carrot family).

Group 9: Cassava, sweet potato, taro, yam, water chestnut (root crop family).

Group 10: Cotton, okra (Mallow family).

Angikorwo njira ino ninditu, arimi aingi nimahuthagia na gukorwo na ikundi 5 ci gucenjania.

- a) Mathangu (broccoli, mboga, cauliflower, kales, spinach etc) nicifataraga unoru muingi gukira mboga.
- b) Matunda (chilies, eggplants, peppers, tomatoes, etc.) nicibataraga thumu muingi no ti ta irio cia mathangu.
- c) Irio cia miri crops (carrots, beetroots, potatoes, onions, radishes, turnips, etc.) citibataraga humu muingi ta mathangu na miri.



- d) Legumes (beans, chickpeas, cowpeas, grams, peas, pigeon peas, etc.).maundu mangi ma bata macio ni guthondekanitrogen tiiri-ini.
- e) Cereals(mbembe, muhia, mwere).

Maundu ma kurora mbere.

Geria kuhanda mbembe na njugu hamwe mwaka wa mbere na mwaka wa keeri uhande muhia. Handa njugu mwaka wa mbere na utukanie na legumes, sunflower na/kana waru mwaka wa keeri. Njira ingi ni kuhnada mbembe irumiriirwo ni legumes na soybeans kana njugu na kimera kiu kirumiriire ugerie kindu ta cotton.

Geria gutiga mugunda utarimite gwa kahinda ka mwaka umwe ucoke uhande ringi gwa kahinda ka miaka 3-5 utautigite ringi. Njira ino niikuhe mugunda kamweke ga gukorwo na unoru. Geeria thaara na nyeki ya ngombe.

Na muno makiriahanda legumes mbere ya kuhanda cereals. Riria wahanda mimera ya Brassica(ta mboga) mbere na thutha wa Solanaceous(ta nyanya) noguteithie kugitira mirimu ya tiiri na miri.

Ino ni njira ya gucenjaniai muhandire wa irio mugundaini kuma kuri Infonet-Biovision. Iroya muhiano wa mugunda uri na plot 4 hari imera 4 na o kimera kiri na mieri 4.

Kimera 1:

- Plot 1: Maize / garlic / onions / or leeks.
- Plot 2: Eggplant / chilies / potato / or tomato.
- Plot 3: Broccoli / cabbage / cauliflower / or kale.
- Plot 4: Beans / cowpeas / grams / or peas.

Kimera 2:

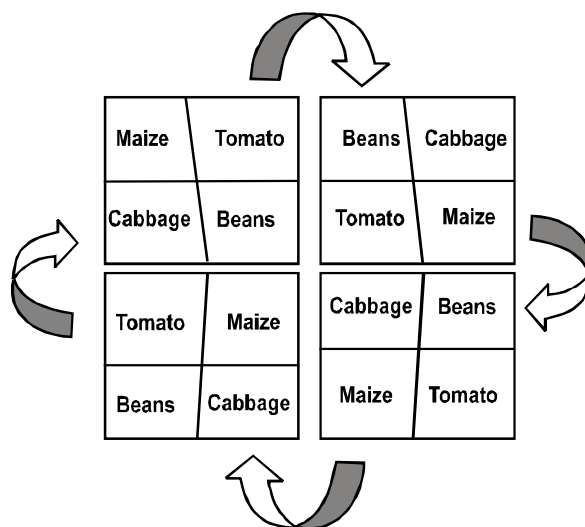
- Plot 1: Beans / cowpeas / grams or peas.
- Plot 2: Broccoli / cabbage / cauliflower / or kale.
- Plot 3: Eggplant / chilies / potato / or tomato.
- Plot 4: Maize / garlic / onions / or leeks.

Kimera 3:

- Plot 1: Broccoli / cabbage / cauliflower / or kale.
- Plot 2: Beans / cowpeas / grams / or peas.
- Plot 3: Maize / garlic / onions / or leeks.
- Plot 4: Eggplant / chilies / potato / or tomato.

Kimera 4:

- Plot 1: Eggplant / chilies / potato / or tomato.
- Plot 2: Maize / garlic / onions / or leeks.
- Plot 3: Beans / cowpeas / grams / or peas.
- Plot 4: Broccoli / cabbage / cauliflower / or kale.





TIST: Kuhurana na giko.

Giko ni kindu kiumanaga na andu
kuruta wira na niindo ta,

- ☐ Mai ma mundu.
- ☐ Matigari ma irio.
- ☐ Maratathi mahuthiku.
- ☐ Cuma nguru na betiri huthiku.

Nikii kirehaga giki matuuraini?

Giko gitingiithemwo no nikiingihagio ni:

- ☐ Njira njuru cia uhuthir wa indo.
- ☐ Kwaga njira cia kuhuthira indo ringi.
- ☐ Kwaga njira cia gute giko.
- ☐ Kwaga umenyo wa mogwati ma giko.

Mathina maria marehagwo ni giko.

- ☐ Maratathi ma kihaaro na miciiini.
- ☐ Kwaga uthaka miciiini.

- ☐ Guthukio kwa riera, maai na tiir ohamwe na gututhuka kwa mirimu.

- ☐ Guthingana kwa njira cia maai.

- ☐ Guthukio kwa riera ria kuhuhia.

- ☐ Guthukio gwa ciana riria cirathaka.

Niatia gikundi kianyu kingika niguo kunyihia thina uyu wa giko?

- ☐ Kunyihia njiracia kurehe giko.

- ☐ Kuhuthira njira cia riuu handu ha betiri.

- ☐ Kuhuthira ringi indi.

- ☐ Gutua giko thumu wa kuhuthira mugundaini.

- ☐ Kwenja irima ria kiara.

- ☐ Gucina maratathi.

- Ndugacine betiri tondu nocituthuke, cikie kioro kia irima.

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Kiswahili Version

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**Mkutano wa Ntombo TIST Cluster uliofanyika tarehe 11/06/2026.
Mkutano ujao utakuwa tarehe 9/07/2026.**

- Ndani
ya
Gazetti:**
- ✓ Maadili ya TIST: Nguvu na msingi wa TIST. Uku. 2
 - ✓ Kupanda miti katika maeneo kavu. Uku. 3
 - ✓ TIST: Mseto wa mimea. Uku. 4
 - ✓ Usimamizi wa taka. Uku. 6



Maadili ya TIST: Nguvu na msingi wa TIST.

Vikundi vidogo vya TIST vyajua maadili ya TIST. Bado, ni muhimu kuyafikiria haya maadili na kuhakikisha kuwa tunayafuayilia kiukweli. Kufanikiwa kwa TIST kunazingatia uadilifu na juhudi ya kila mwanaTIST. Tunayoweza kufikia kutategemeana na kila mmoja wetu kufuatilia haya maadili tunapopanda na kuihudumia miti yetu, tunapojiunga na mafunzo na mambo mengine na kuripoti matokeo yetu. TIST ni nani? Ni sisi!

Sisi ni

- 1) Sisi ni Waaminifu.
- 2) Sisi huwa sahihi.
- 3) Sisi ni wenye Uwazi.
- 4) Sisi ni watumishi kwa kila mmoja wetu.
- 5) Sisi ni wenye kuwajibika kati yetu wenyewe.
- 6) Sisi ni mfano wa kuigwa.
- 7) Sisi ni wenye kujitolea.

Tunavyofanya mambo ambayo wengine wanaona.

- 1) Tunafanya kazi wenyewe katika vikundi vidogo.
- 2) Tunaanzisha na kutumia njia bora zaidi za kufanya mambo.
- 3) Tunatumia vichwa na mikono yetu.

Tunayofanya

- 1) Tunapanda miti ya aina mbali mbali kwa muda mrefu.
- 2) Tunapata njia za kuboresha afya yetu.
- 3) Tunalima na njia ya Kilimo Hai.
- 4) Tunafanya miradi na biashara (kilimo endelevu, vitalu, kukuza matunda ya jamii ya machungwa, mbuzi wa maziwa na ukulima, kuku, nyuki, mabwawa ya samaki na kuweka samaki, kulima buu na kadhalika) zingine.
- 5) Tunauza hewa tunayosafisha.

Tunayojenga

Tukiyaifuatilia haya maadili tunavyoishi na kufanya biashara, tunajenga kitu kizuri ambacho hakikuwa hapo mbeleni.

- 1) Tunapata Kujenga kazi ya pamoja —Kwa kufanya hivi, tunaishia kufanya kazi kama timu.
- 2) Tunapata kujenga uwezo—Tunajenga ushirika, nguvu na mfumo ulio na nguvu.
- 3) Tunapata kujifurahia—tunaona matokeo, tunafikia mambo makubwa tunayofurahia.
- 4) Tunapata matokeo makubwa—Matokeo makubwa katika kupanda miti. Matokeo makubwa katika Kilimo Hai na katika miradi na biashara zingine tunazofanya.
- 5) Tunapata kutumia gharama nafuu, hata kama tunapata matokeo makubwa.



Kupanda miti katika maeneo kavu.

Jinsi TIST inavyoendelea kutamba katika maeneo yaliyo na uwezo mkuu na makavu, inakumbana na changamoto katika kuishi kwa miti. Katika TIST sisi huanzisha na kugawana mazoezi au njia bora za kufanya mambo, na hili limetusaidia kila wakati katika familia ya TIST kupata matokeo mazuri.

Hapa chini ni njia chache bora tunazoweza kujaribu tunapopanda miti katika maeneo kavu:

1. Uteuzi wa mahali pa kuanzisha kitalu chako. Miche itahitaji kuwekewa maji mara moja au mbili kila siku ikiwa michanga. Fikiria kuweka miche yako karibu na nyumba ili uweze kutumia maji yanayotumika nyumbani kuimwagia. Kutumia miti ya kupunguza upepo kutapunguza matumizi ya maji na itaipa miche yako michanga kivuli.
2. Maandalizi ya mapema: Andaa mashimo ya kupanda miti mwezi mmoja kabla ya mvua kuanza ikiwezekana, shimo litapasukapasuka na ili litasaidia maji kuingia udongoni kwa urahisi kunaponyesha. Mvua wa kwanza ukishaanguka, panda miti na ujaze shimo kwanza na udongo wa juu halafu mbolea.
3. Jaribu kutumia njia za kushika maji ya mvua ili maji mengi zaidi yaweze kufikia miti. Miti pia itaweza kuishi ukiipanda karibu na maji yaliyopo kila msimu.
4. Kufunika ardhi: Funika ardhi baada ya kupanda miti. Hili litasaidia kuzuia kupotea kwa maji kwa sababu kunapunguza kubebwa kwa maji na jua. Kutumia boji kutaongeza virutubisho udongoni, lakini

kufunika kwa mawe pia kwaweza kuleta faida zingine katika maeneo yenye mawe.

5. Kilimo mseto: Tujaribu kilimo mseto. Kiwango cha kuishi cha miti iliyopandwa katika mashamba ni juu zaidi ya iliyopandwa misituni na vichakani kwa sababu itatunzwa na ipo katika udongo bora.
6. Chagua aina inayokua vizuri katika maeneo kavu. Mara nyingi miti ya kiasili iliyotoka eneo linalozingira huweza kuishi san asana. Mifano ni Melia, *Acacia seyal*, na *Muuuku (Terminalia brownii)*.
7. Linda miti iliyopo na uiruhusu kuzaa. Miti hii iliyopo ni yenye nguvu na yaweza kuishi katika misimu iliyo na ugumu tunapoilinda. Inatupa chanzo la mbegu zilizozoea eneo hilo pamoja na kivuli na vinginevyo.
8. Vitalu vilivyoinuka vyaweza kusaidia. Tunapozisha vitalu hivi, tunapata miche yenye mizizi yenye nguvu kwa hivyo itaishi. Vinaweza pia kusaidia kuweka miche kwa muda mrefu zaidi katika kitalu ili iwe mikubwa na yenye nguvu. Hata hivyo, vitalu vilivyochimbiwa vyaweza kuwa chaguo nzuri kwa sababu vinafunikia miche na vinapunguza kufa. Hapa, kuwa mwangalifu na ugeuze miche kila baada ya wakati Fulani ili mizizi isimee na kuingia udongoni.

Tutumieni njia bora zaidi tulizonazo, na tutengeze na kugawana na wengine ili tuweze kufikia matokeo mengi na kusaidia TIST kukua katika maeneo yetu.



TIST: Mseto wa mimea.

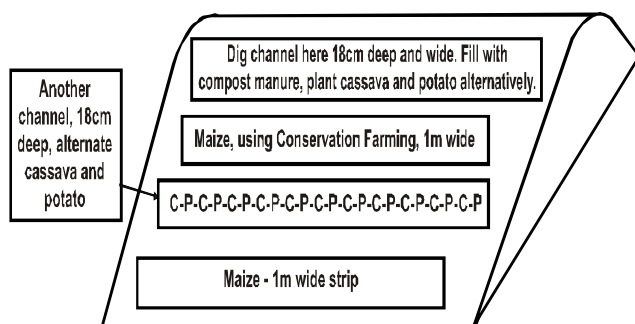
Upandaji wa mimea mingi ni ambapo mimea miwili au mitatu hukuzwa pamoja katika msimu mmoja. Kwa mchanganyiko unaofaa, hili laweza kuongeza bionuwai katika ardhi, kuongeza rutuba na kupunguza uwepo wa vijidudu na magonjwa.

Mseto hueleza zoezi la kupanda mimea tofauti wakati mmoja katika shamba moja. Pia yaweza kuhusisha kukuza mimea pamoja na miti kwa mfano kilimo mseto.

Baadhi ya vikundi wamejaribu mbinu zifuatazo, nzuri hasa kwenye miteremko.

1. Kwa mstari wa kwanza, chimba mtaro wenye urefu wa centimita kumi na nane na upana wa centimita kumi na nane.
2. Jaza mtaro huu na mbolea ya mimea.
3. Panda mihogo na viazi vikifuatana.
4. Kwa safu ya pili panda ukanda wa mahindi mita moja ukitumia mashimo ya kilimo hai.
5. Mstari mwingine wa mihogo na viazi.
6. Mstari mwingine wa mahindi na kadhalika.

Mbinu hii hutumia mengi ya tuliyosoma katika mafunzo: ina kilimo mseto, ina mbolea ya mimea na pia kilimo hai.



- Jaribu kufuatanisha mistari ya mahindi na miti. Vikundi vidogo vimejaribu kufuatanisha ukanda wa mita nane wa mahindi na msatri wa miti ya moringa / yellow cassia / leucaenia / bead tree.
- Mistari ya mtama yaweza kupandwa kati kati ya mistari ya moringa au leucaenia.
- Jaribu mchanganyiko wa calliandra na migomba ya ndizi, calliandra na mahagwe, calliandra na mahindi, mahindi na maharagwe, maharagwe na leucaenia, maharagwe na ndizi, maharagwe na kahawa (ilipo changa).
- Jaribu kuchanganya kunde na mahindi / mtama au uwele.

Jaribu nafasi mbali mbali ili uone ni gani bora zaidi, na ujulishe TIST matokeo.

Mawazo kuhusu mzunguko wa mazao

Mzunguko wa mazao ni ambapo wakulima huzunguka huku wakipanda mimea mbali mbali katika ardhi moja. Kuna utaratibu maalum wa upanzi

wa mimea, ambapo zao litakalofuata hutoka familia tofauti na iliyopandwa kabla. Mzunguko wa mimea waweza kuwa wenye faida kwa rutuba ya udongo kwani mimea tofauti huwa na urefu tofauti wa mifumo ya mizizi, kumaanisha si safu moja ya virutubisho vya udongo humalizwa mwaka baada ya mwaka. Mbinu hii pia husaidia kuvunja udongo katika safu tofauti, jambo ambalo huboresha mfumo wa udongo, na laweza kuvuta aina tofauti za viumbe hai wenye faida katika udongo.

Ili kupata faida za kuzungusha mimea, lazima aina tofauti ya mimea ipandwe kila wakati. Hili ni kwa sababu mimea ya aina moja huvuta vijidudu na magonjwa sawa, na kuzungusha aina kwaweza kupunguza uwezekano wa baadhi ya vijidudu na magonjwa kuchukua umiliki kwatika udongo.

Orodha ifuatayo inaweka mimea kulingana na vikundi. Mimea kutoka kikundi kimoja haifai kupandwa moja baada ya nyingine. Hakikisha umechanganya vikundi vyako katika mpango wako wa mzunguko!

Kundi la kwanza: Tango, vibuyu, malenge, squashes, tikiti maji (Familia ya mtango).

Kundi la pili: Broccoli, Brussel sprouts, kabichi, cauliflower, collards, sukuma, radish, turnip, haradali, watercress (Jamii ya crucifer / Brassica).

Kundi la tatu: Mbilingani, pilipili, nyanya, viazi (Jamii ya solanaceous).

Kundi la nne: Lettuce, artichoke (Jamii ya Aster).

Kundi la tano: Mahindi, mchele, mtama, ngano, oat, shayiri, mtama (Jamii ya nafaka).

Kundi la sita: Beans na mbaazi (jamii ya kunde)

Kundi la saba: Vitunguu, leek, vitunguu saumu, chives (Jamii ya Allium).

Kundi la nane: karoti, celery, dill, parsnip, parsley (Jamii ya karoti).

Kundi la tisa: Muhogo, viazi vitamu, taro, viazi vikuu, water chestnut (Jamii ya mizizi).

Kundi la kumi: Pamba, okra (Jamii ya Mallow).

Iwapo mfumo ulio hapo juu ni mgumu sana, wakulima wengi hurahisisha kazi hii kwa kuweka mimea katika vikundi vitano na kuzunguka kati ya vyenyewe (taarifa imetoka katika tovuti ya Infonet-Biovision):

- a) Mimea ya majani (broccoli, kabichi, cauliflower, sukuma, mchicha na kadhalika). Huhitaji virutubisho zaidi ya zinginezo.
- b) Mimea ya matunda (Pilipili, mbilingani, pilipili kali, nyanya na kadhalika.). Huhitaji kiwango kikubwa kiasi cha virutubisho lakini si kama mimea ya majani.



- c) Mimea ya mizizi (Karoti, beetroots, viazi, vitunguu, radishes, turnips, na kadhalika). Huhitaji virutubisho chache ukilinganisha na mimea ya majani na ya matunda.
- d) Jamii ya kunde (maharagwe, chickpeas, kunde, ndengu, mbaazi, na kadhalika.). faida yao nyongeza ni kutia naitrojeni iliyo katika hewa udongoni.
- e) Nafaka (Mahindi, mtama, uwele na kadhalika)

Mawazo ya kuzingatia:

Jaribu kupanda mahindi na njugu pamoja mwaka wa kwanza na mwaka wa pili upande mtama. Jaribu kupanda njugu mwaka wa kwanza halafu upande mchanganyiko wa jamii ya kunde, alizeti na/ au viazi katika mwaka wa pili

Wazo linguine ni kujaribu kupanda mahindi halafu jamii ya kunde ifuate kama vile soya au njugu. Halafu msimu utakaofuata jaribu kupanda mmea utakaoleta pesa kama pamba.

Jaribu kuacha shamba bila chochote mwaka mzima, halafu upande mimea tena miaka mitatu hadi mitano kabla ya kuliwacha tena bila chochote. Hili litaipa ardhi nafasi ya kurudisha virutubisho udongoni. Fikiria kupanda nyasi iwapo una mifugo.

Kwa jumla, panda jamii ya kunde kabla ya nafaka. Kupanda mimea kutoka jamii ya Brassica (kama Kabichi) kabla na baada ya mimea kutoka jamii ya Solanaceous (kama nyanya) kwaweza kuzuia mjengo wa mafundo ya viwavi na kukauka kunaletwa na bakteria.

Lifuatalo ni wazo la kuzungusha mimea lililochukuliwa kutoka Infonet-Biovision. Linachukua mfano wa shamba lenye viwanja vinne huku kila msimu hukiwa takriban miezi minne.

Msimu wa kwanza:

Kiwanja cha kwanza: Mahindi / saumu / vitunguu / au iliki.

Kiwanja cha pili : Mbilingani/ pilipili /viazi / au nyanya. Kiwanja cha tatu : Broccoli /kabichi / cauliflower / au sukuma.

Kiwanja cha nne :maharagwe / kunde /ndengu / au mbaazi.

Second season:

Kiwanja cha kwanza: maharagwe / kunde /ndengu / au mbaazi.

Kiwanja cha pili: Broccoli /kabichi / cauliflower / au sukuma.

Kiwanja cha tatu: Mbilingani/ pilipili /viazi / au nyanya

Kiwanja cha nne: Mahindi / saumu / vitunguu / au iliki.

Third season:

Kiwanja cha kwanza: Broccoli /kabichi / cauliflower / au sukuma.

Kiwanja cha pili: maharagwe / kunde /ndengu / au mbaazi.

Kiwanja cha tatu: Mahindi / saumu / vitunguu / au iliki.

Kiwanja cha nne: Mbilingani/ pilipili /viazi / au nyanya

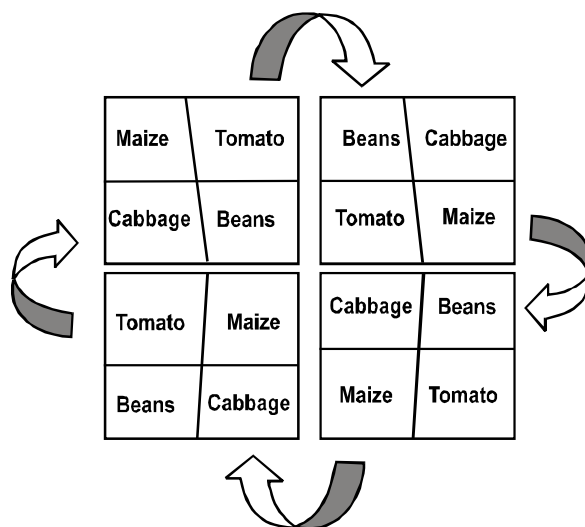
Fourth season:

Kiwanja cha kwanza: Mbilingani/ pilipili /viazi / au nyanya.

Kiwanja cha pili: Mahindi / saumu / vitunguu / au iliki.

Kiwanja cha tatu: maharagwe / kunde /ndengu / au mbaazi.

Kiwanja cha nne: Broccoli /kabichi / cauliflower / au sukuma.





Usimamizi wa taka.

Taka ni kitu chochote kinachotokana na mazi za binadamu na yaweza kukosa utumizi wa mara moja, na ni pamoja na:

- ☐ Choo cha binadamu.
- ☐ Uchafu wa nyumba kama mabaki ya chakula.
- ☐ Makaratasi yasiyotumika.
- ☐ Mifuko ya mpira.
- ☐ Chuma, betri zimeisha (seli kavu).
- ☐ Maji taka sludge nk.

Ni nini husababisha shida za taka katika eneo lako?

Taka haiwezi kuepukika lakini yafanywa kuwa shida zaidi na:

- ☐ Matumizi mabaya ya rasilimali.
- ☐ Ukosefu wa njia za kutumia tena.
- ☐ Ukosefu wa mahali pa kutupa taka (mashimo ya taka, vyoo vya kuchimba).
- ☐ Ukosefu wa ujuzi wa hatari za usimamizi mbaya wa taka.

Usimamizi mbaya wa taka husababisha.

- ☐ Uchafuzi wa mashamba na viwanja, kupoteza urembo wa eneo hilo.

- ☐ Uchafuzi wa maji, hewa na udongo.
- ☐ Kuenea kwa magonjwa.
- ☐ Kufungana kwa paipu za kuondoa maji taka.
- ☐ Sumu na moshi mbaya kutokana na betri nzee.

Watoto na wanyama waweza kupata sumu au kuumizwa wakiokota na kucheza na mawe mazee na taka nyinginezo.

Kikundi kidogo chako chaweza kufanya nini kutatua shida hii?

- ☐ Kupunguza kutengeneza kwa taka.
- ☐ Fikiria kutumia vifaa vinavyotumia nishati kutokana na jua badala ya nishati inayotokana na betri inapowezekana.
- ☐ Kutumia tena – tumia vitu tena inapowezekana (mfano, mifuko ya mpira).
- ☐ Kutengeneza mbolea – weka uchafu unaoza (mabaki ya chakula cha binadamu na cha mifugo) kama mbolea ya kutumia katika kulima.
- ☐ Chimba shimo la taka kiwanjani mwako.
- ☐ Kumbuka kuchoma makaratasi na kadi pekee. Usichome betri kwani yaweza kulipuka. Yaweke katika vyoo vya shimo.

Mazingira Bora

Not for sale

Newsletter July 2026

tist Growing Trees
Growing Leaders

1. We are Honest
2. We are Accurate
3. We are Transparent
4. We are Servant to each other
5. We are Mutually Accountable to each other

www.tist.org

Kikamba Version

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

Dial *709# (Safaricom) or *789*7000# (Other Networks) and get to know more about TIST and your Small Group. Follow the prompts. Safaricom is Free.



**Mkutano wa Ntombo TIST Cluster uliofanyika tarehe 11/06/2026.
Mkutano ujao utakuwa tarehe 9/07/2026.**

Inside:

- ✓ Moseo ma TIST: Misingi na molumu ma TIST. Page 2
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Moseo ma TIST: Misingi na molumu ma TIST.

Ikundi mbindi sya TIST nisyisi mawalany'o na miao ya TIST. Ingi ni useo kuisya vaita / mawalany'o aya ma TIST nikana twikale twisi nesa na kwikala namo undu vaile. Kwaila kwa TIST kwithiawa kwi ungu wa molumu na mawalany'o/misingi ino na kila umwe nutataa nikana amivikie kwoundu wa useo wa kila umwe. Kila tutonya uvikia kiendanasya na undu kila umwe ukuatiia mawalany'o aya na kusuvia miti na kwithiwa e umwe wa ala manyiasya kuvanda na mawiko ma TIST kuvikia matunda ala twiete mbee.

TIST Nu? Twi:-

1. Twi aiikiku.
2. Twithiawa na uw'o.
3. Twikaa maundu maitu kyenini.
4. Twi athukumi umwe kwa ungi.
5. Twithiawa tusinguviana umwe kwa ungi.
6. Twi ngelekany'o.
7. Ni twi yumitye.

Undu twikaa maundu ala andu angi monaa.

1. Tuthukumaa twi tukundi tunini.
2. Nitiaa mawalany'o na kutumia nzia nzeo.
3. Nitutumiaa mitwe na moko maitu.

Twikaa ata

1. Nituvandaa miti kivathukany'o vandu va ivinda iasa.
2. Nitumathaa nzia sya kwailya uima witu.
3. Nitutumiaa nzia ya uimi wa kusuvia.
4. Nitwikaa maundu angi vamwe na viasala ingi (ta uimi uungamiika, ivuio, kuvanda misungwa, kuithya mbuis sya yiia, kuithya nguku, kuithya nzuki, kuithya makuyu na iinyu sya kuseuvya ndii na maundu angi maingi).
5. Nitutesaa nzeve itavisaa (Carbon Credits).

Kila tuseuvasya.

Yila twaatiia mawalany'o aya yila tukwikala na kwika viasala nituseuvasya kindu kiseo kila kiteiivo mbeeni:

1. Nituseuvasya kuthukuma vamwe - nundu wa kwika maundu vamwe muthya withiaa twithukuma ta kikundi.
2. Nituseuvasya ngwatanio - nitwikianaa vinya na kuseuvya ngwatanio numu.
3. Nituseuvasya muyo - yila twavikiia walany'o witu ithyothe nitwiwaa muyo na kila umwe ayendeew'a.
4. Nituetae usyao munene - Nitukwataa usyao munene nundu yila twavanda miti ti kuta nzeve kwoka tutethekaa nakw'o indi ve ngu, unou wa muthanga na kuseuvya mawithyululuko kwa kila umwe.
4. Nituetae utumiku munini na kuvikia matunda manene.



Kuvanda miti isioni ila nyumu.

Oundu TIST iendee kwiana isioni ila itembunu na ila mbumu, now'o kuendee kwithiwa na uto wa miti kwikala. Nthini wa TIST nitwianasya na kumanyianya iulu wa nzia nzeo, na uu nututethetye ta musyi wa TIST kukwata ueti museo.

Vaa ve nzia imwe nzeo tutonya utata kutumia tuivanda miti isioni mbumu

1. Kisio kya kivuio. kivuio nikyaile ungithwa keli kwa muthenya, Sisy wikie kivuio vakuvi vandu utonya kungithya na kiw'u kila uutumia vu musyi. Uitumia kusii nzeve niikuola utumiku wa kiw'u na uimanthia muunyi kusuvia miti isu minini.
2. Inza maima tene ta mwai umwe mbee wa mbua kwambiia, yiima yii niyikwatuka na na kutuma kiw'u kilika na nthi. itina wa mbua ya mbee kua vanda miti na uyusuya yiima na muthanga wa yiulu na vuu.
3. Tata utumie nzia ya uketha kiw'u kya mbua ta tutila na kuikiithya kiw'u nikyavikia miti. Miti ingi noyikale nakwika nesa ethiwa yandandwa vala kiw'u kisilaa.
4. Kwikia muunyi ungu kana matu. kii nikitetheesya kwia kimeu na kuola kukuwa kwa kiw'u ni nzeve. Kutumia vuu wa yiima nikwongeleela unou wa muthanga na ingi ithiwa vai matu ona ivia noyitumike kuvwika muthanga.

5. Ingi tutate uvanda miti miundani nundu muti uvanditwe muundani withiawa na ivuso inene ya kwikala kwi ula uvanditwe kithekani nundu vaa muundani nusuviawa na muthanga wavo nimuseo.
6. Nzakua mithemba ya miti ila yikaa nesa isioni nyumu kuma mawithyululukoni. Ngelekany'o ni Melia, musemei, Muuku (terminalia brownii)
7. Nzuvia miti ila yivo noimieka iendee na kuyaana. Miti ino yithiawa yi milumu na kaingi nivitukaa mawumu othe ala yeethiana namo. Yithiawa yi ya vata kunengane mbeu na ninenganae muunyi na moseo angi.
8. Ivuio syi kitandani nitethasya. Yila twavuia itandani nitukwataa mbeu yina mii milumu na niyithiawa itonya kwikala na kumiisya. Ingi noitetheesye miti kwikala kivuioni ikaneneva na kwithiwa na vinya. Ingi kitanga kii ethiwa nikiliku nokisiie sua na kiw'u kuthi na mituki. Ingi ithiwa uivindua miti yikivuioni kusuvia mii ndikamee ilike na muthangani ungu na kwanangika ivinda ya kumithamya kuma kivuioni.

Ekai tutumie nzia nzeo ila twinasyo, twiane na kumanyiany'a ithyotho tuvikie ukwati museo na kutethye TIST kwiana isioni situ.



TIST: Kuvulany'a na kuvandanisya mimea/maliu.

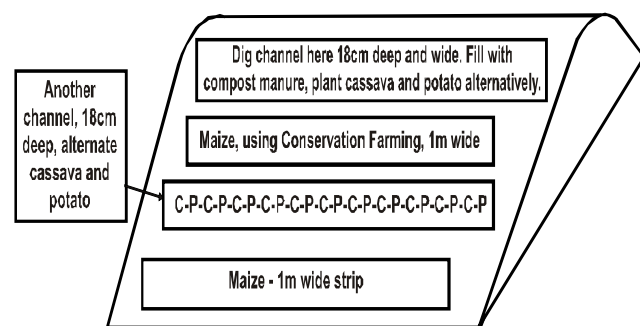
Kuvandanisya nivala mithemba ili kana mingaingi ivanditwe vamwe ivulene mbuani imwe. Kwa mithemba ila yaile ivokanyw'a nitonya kuete useo kwa muthanga, kwongela ngetha ona kuaa mitutu na mowau ula ukwataa mimea yi muundani.

Nima ya kuvandanisya/kivulany'o ni nzia ya kuvata mithemba kivathukany'o vamwe savali umwe ikethiwa na mbua imwe na no yithiwe yiya kuvandanisya miti na mimea/liu.

Ikundi imwe sya aimi ma TIST nitatite nzia ino yivaa nthi ila ninzeo kwa miunda ila mivauuku (yina itheeo).

1. Mukululo /laini wa mbee ni kwisa levu/mutau wina uliku wa 18cm na uthathau wa 18cm.
2. Ususya levu/mutau uyu na vuu wa yiima.
3. Vanda manga na maluu ivulene.
4. Mukululo/laini ula uatiie vanda kasio kena uthathau wa itambya mbemba uitumia nima ya kusuvia vala wisaa maima mauvanda.
5. Laini ungi wa manga na maluu.
6. Laini ungi wa mbemba.

Nzia ino itumiaa nzia imwe kati wa ila twimanyiitwe sya nima ya kivulany'o na itumiaa vuu wa yiima na nimaya kusuvia



- Tata nzia ingi ya kuvanda mbemba na laini sya miti. Ikundi imwe nitatite kwa kuvanda mbemba na miti ta Moringa/Yello cassia/Leucaenia/Bead tree.
- Laingi sya muvya muvandwa katikati wa miti ya Moringa kana Leucaenia
- Tata uvulany'a maiu na Calliandra, Calliandra na mboso, calliandra na mbemba, mbemba na mboso, mboso na leucaenia, mboso na maiu, mboso na kaawa kekanini.
- Tata kuvulany'a nthooko na mbembakana muvya kana mwee.

Tatithya na myanya wone nikiva kiika nesa na uitavwa tist kila woona na wamanya.

Kuvanda uivinduany'a mivai kivathukany'o kisioni kimwe.

Kuvanda uivinduany'a ni undu ukuanasya vala wiivandite ithiwa unavandite mbemba mbua mbitu kisioni kii mbua ino uivanda mboso. Ve nzia ila iatiawa ukethia niwavanda mimea kuma mivaini kivathukany'o ya mimea. Kii nikitethasya muthanga muno ona muimi nundu muthanga nukwataa unou na vaita kivathukany'o kuma mimeani kivathukany'o ya mivai kivathukany'o nundu mii ya mimea kivathukany'o nitumaa mimea yosa liu kuma muthangani kwa uliku kivathukany'o. Kii ingi nikitumaa muthanga ulekany'a nundu mii yithiawa na uliku kivathukany'o na kuete utethyo kwa tusamu tula twikalaa muthangani na kutuma ona twongeleka.

Kukwata vaita wa nima ino ya kuvinduany'a kwa mithemba na mivai kivathukany'o nonginya kila ivinda uvanda. Kitumi nundu muvai umwe niwendeeasya kiinyu na mitutu imwe na uwau umwe ndi wavinduany'a mivai ethiwa ve uwau kana mitutu inai inambiia kulika muvaini ula unavandite nuvikiiiaa na kuthela nakulea kwikinyia muthangani.

Vaa ve mithemba ya mivai kivathukany'o ya mimea. Mimea ya muvai umwe ndyaile uvandwa vandu vamwe mbua siatianie. Lilkana uvulkany'e na uikuany'a. Ikundi sya mivai kithukany'o nita:-

- Kikundi 1. Cucumber, Ikuu, malenge, Mongu, matikitiki (gourd Family).
- Kikundi 2. Broccoli, Brussel Sprouts, Makavisi, Coulfloower, collards, sukuma, radish, turnip, mustard, watercress (Crucifer/ Brassica family).
- Kikundi 3. Eggplant, matulu, manyanya, maluu (Solanaceous family).
- Kikundi 4. Lettuce, artichoke (Aster family).
- Kikundi 5. Mbemba, musele, muvya, ngani, museleku, barley, wimbi (grains and cereals family).
- Kikundi 6. Mboso, mivai ya mbiisi, nzuu, (legume family).
- kikundi 7. Saumu, Leek, kitunguu, chives (Allium family).
- Kikundi 8. Kalati, celery, dill, parsnip, parsley (carrot family).
- Kikundi 9. Manga, makwasi, ikwa, water chestnut, taro (root crop family).
- Kikundi 10. Vamba okra (Mallow family).

Ethiwa walany'o uu wivaa iulu winavinya kuuelewa nusyokete ukailwa ukoka ikundi sya mithemba itano vandu va ikumi ila ni waile ukuany'a kila mbua kwianana na walany'o wa (kisomo kya Infornet-biovision Website)



- Mivai ya matu (sukuma, sivinakyi, broccoli, makovisi etc) Nundu niyendaa liu mwingi kwi mivai ingi.
- Mimea mithemba ya mitunda (matulu, eggplant, ndulu, manyanya naingi mbingi) nisyendaa unou wa muthanga o kiasi lakini ti mwingi ta wa mimea ya matu.
- Mimea ya mii (kalati, betroots, maluu, kitunguu, radishes, turnips, makwasi, manga) nimendaa liu munini kuma muthangani masianiw'a na mimea ya matu.
- Mimea muthemba wa mavoso (mboso, mbiisi, ndengu, thooko, nzuu na ingi mbingi. nisyithiawa na useo ungi nundu nisyongelaa muthanga unou wa nitrogen.
- Mimea muthemba wa cerials (mbemba, uimbi, mweee, muvya, uimbi na ingi mbingi).

Kya usisya ni:-

Tata uvandanisye mbemba na nzuukaranga mbua ya mbee na mbua iatiie uivanda muvya. Tata uvande nzuu karanga mbua na uivulanya ni muvai muthemba wa mavoso ta ilaa(sunflower) na kana maluumbua ya keli.

Kingi kiseo kya utata ni kuvanda mbemba iatiwe ni muthemba wa mavoso ta soybeans kana nzuu kalanga. Na mbua ila iatiie uivanda muvai ungi wa uete mbesa ta vamba.

Tata ingi kwa kuka muunda uteuima kana kuithya vandu va ilungu ya mwaka na indi uisyoka uvande myaka ta 3 - 5 mbee wa kuka ingi kwa ivinda o yamwaka. Kii nikiunenga muthanga ivinda ya kwitungania na kutunga unoi. No wikie kitwethya vau utekuima ethiwa wina indo.

Kwavamwe nikana niwaile uvanda muthemba wa mavoso mbee wa kuvanda mbemba kuvanda mumea kuma muvini wa Brassica kana makovisi mbee na itina wa kumya muvai wa solanaceous(eg manyanya) ni usiia uwau ula withiawa makovisini na miini witawa nematodes na mbaa.

Vaa itheo ve kieleelo kya undu wa ukuanya mivai kivathukany'o kuma kwa infornt-Biovision. Vaa vosetwe ngelekany'o ya muunda wina vuloti inya kana levu inya ila ikukua ivinda ya mbua inya kila mbua yina myai ina.



Mbua yambee:

- Levu 1: Bemba/kitunguu saumu/kitunguu/kana leeks
 Levu 2. Eggplant/chilies/maluu/na manyanya.
 Levu 3. Broccoli/lkovisi/Cuuliflower / na sukuma
 Levu 4. Mboso/Nzoo/Ndengu/ mbiisi.

Mbua ya keli:

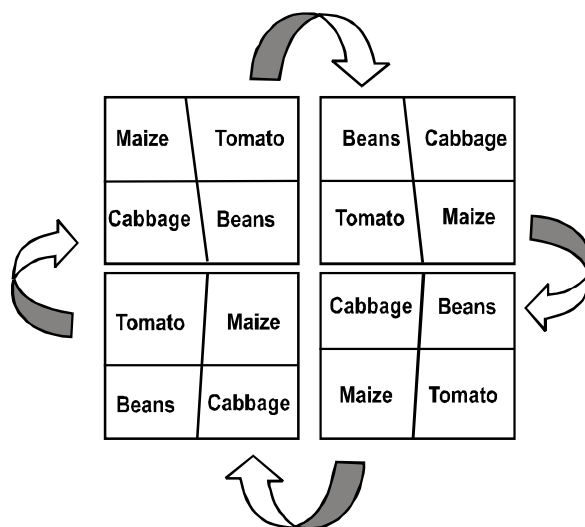
- Levu 1: Mboso/Nzoo/Ndengu/ mbiisi.
 Levu 2. Broccoli/lkovisi/Cuuliflower / na sukuma.
 Levu 3. Eggplant/chilies/maluu/na manyanya.
 Levu 4. Mbemba/kitunguu saumu/kitunguu/kana leeks.

Mbua ya katatu:

- Levu 1: Broccoli/lkovisi/Cuuliflower / na sukuma.
 Levu 2. Mboso/Nzoo/Ndengu/ mbiisi.
 Levu 3. mbemba/kitunguu saumu/kitunguu/kana leeks.
 Levu 4. Eggplant/chilies/maluu/na manyanya.

Mbua ya kana:

- Levu 1. Eggplant/chilies/maluu/na manyanya.
 Levu 2. mbemba/kitunguu saumu/kitunguu/kana leeks.
 Levu 3. Mboso/Nzoo/Ndengu/ mbiisi.
 Levu 4. Broccoli/lkovisi/Cuuliflower / na sukuma.





TIST: Kusuvia kiko.

Kiko ni kindu kyothe kithiawa kitenavaita kyumanaa na utumii wa syindu wa mundu ila ni ta:-

- ☐ Mai ma mundu/ Maumao.
- ☐ Matiolyo ma liu, kiko kuma miioni.
- ☐ Mathangu matenawia.
- ☐ Syuma ila nguu na mavia ma tosi.
- ☐ Mathangu ma nailoni.
- ☐ Kiko kuma kambunini.

Ni Kyau kietae thina wa mavuti kisioni kyenyu?

Kiko na mavuti no muvaka indi utwikaa nthina ethiwa:

- ☐ Ethiwa syindu iutumiwa nesa.
- ☐ Kukosa nzia sya usyoka utumia kiko/takataka usu.
- ☐ Kukosa kundu kwa kwikya kiko ta Syoo namaima ma kiko.
- ☐ Kukosa umanyi iulu wa muisyo wa kiko.

Thina ula uetawe ni kuko kyalea kuungamiwa undu vaile?

- ☐ Kiko na mavuti kila vandu.

- ☐ Kukosa wanake wa vandu.
- ☐ Kuthokoania kiw'u, muthanga na kuete ma uwau.
- ☐ Vinga nzia sya kiw'u.
- ☐ Kumya miuke yi sumu ta mavia ma tosi makua.
- ☐ Syana na indu ni ilikwa ni sumu uyu ta syana iithauka na mavia ma tosi makuu na kiko kingi.

Nata tutonya kwika ta kakundi kanini kutetheesya nthina uyu?

- ☐ Kuola nzia ila ietae kiko.
- ☐ No tutumie vinya wa sua vandu va mavia ma tosi.
- ☐ Kutumia ingi kila kitumiika ta mathangu ma nailoni ma ukua syindu.
- ☐ Kuseuvya vuu wa yiima wa kutumika mundani.
- ☐ Inza yiima musyi kwaku ya kiko.
- ☐ Lilkana kuvivya mathangu ala mate ma niloni.
- ☐ Ndukavivye mavia ma tosi maikavulike na kuuvivya indi ikia kyooni.

Mazingira Bora

Not for sale

Newsletter July 2026

tist Growing Trees
Growing Leaders

1. We are Honest
2. We are Accurate
3. We are Transparent
4. We are Servant to each other
5. We are Mutually Accountable to each other

www.tist.org

Kipsigis Version

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

Dial *709# (Safaricom) or *789*7000# (Other Networks) and get to know more about TIST and your Small Group. Follow the prompts. Safaricom is Free.



**Mkutano wa Ntombo TIST Cluster uliofanyika tarehe 11/06/2026.
Mkutano ujao utakuwa tarehe 9/07/2026.**

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TIST Values: Kimnotet ak foundation nebo TIST.

Chechang' en groupishek chemengechen kongen agobo TIST values. Kora kobo maana keker values ichuton asi kenai angot kisubi. Boratet 'ab TIST kotienke kokilet 'ab ke nebo chi tugul nemiten en TIST. TIST ko ngo? Echek ko ki!

Echek ko ki.

- 1) Kibo imanit.
- 2) Ki accurate en che kiyoe.
- 3) Kiyoe kasit en ole maungat
- 4) Ki kiboitinik ab alak.
- 5) Ki accountable agobo agetugul en echek .
- 6) Ki koborunet.
- 7) Ki konuke en kasit.

Ole kiyoitoi kasishek kokoker alak .

- 1) Kiyoe kasit ko echek en groupishek.
- 2) Kinomchinike oratinwek che chechoget.
- 3) Kiboishen metoekchok ak eunekchok.

Kasishek che kiyoe

- 1) Kimine ketik che terterchin en long-term

- 2) Kicheng'e oratinwek chekimuche keimprovenen health neyonet.
- 3) Kiyoe Conservation Farming.
- 4) Kiyoe kasishek alak che (sustainable agriculture, nurseries, citrus growing, dairy goats and farming, chickens, bee keeping, fish ponds and fish keeping, silkworm farming, etc.).
- 5) Kioldoi carbon credits.

Echek ko ki

Yon kakisib values ichuton chebo TIST keyoe.

- 1) Kechobe Team Work-yon kakiyai kou niton ke iku teamit nekararan.
- 2) Kechobe Capacity-kenyoru organization , kimnotet ak system.
- 3) Kechobe Enjoyment-kikere rurutik ak keyai tuguk che yechen.
- 4) Kenyoru rurutik chechang'-rururtik chechag' en mine tab ketik . results che yechen en Conservation farming ak projects alak che kiyoe .
- 5) Kiyoe bong'onutik ne miten ng'wony ak kenyonu rurutik chechang'.



Minet AB'ketik en emet ne ya'mat.

Kotese ta TIST kotese tai en ole yamaat ak ole moginyorunen bek, Kiger komi yomutyet en sobet 'ab ketik. En TIST Kogibche kila ak kila practices che impya, ak kigo toretch niton en family nenyon nebo TIST kenyorun wolutik cheyachen.

Che isubu ko oratinwek che kimuche keboishen en emotinwek che yomyotin:

1. Lewenet 'ab ole ichoben nursery neng'unget ko kit nebo maana. Seedlings koyoche kinde bek yon kagemin. Imuche imin seedlings en ole negit ak kaa asi konyumnyumit kondeet 'ab bek. Kora kimuche iboishen windbreak en kaa koter korito komabar seedlings.
2. Preparation ne taa: Chob keringoik 'ab ketik en arawet ageng'e kotomo koit robwek, Toreti inoniton keringoik kochut pek .Yon kagoit robta neta imin ketik .Min ketik ak ikonaam ngungunyek chebo barak kosibu mbolea.
3. Yom iboishen oret 'ab harvesting bek 'ab robta, kou negarims ak micro-basins, Asi koitchi ketit beek chechang'. Kora ketik kosobtos zaidi en ole neg'it ak bek.
4. Mulching: mulchen ketik yon karimiin . inoniton kobose komoib asista anan ko koristo, beek . Kora yon kogiboishen mbolea che compost kotese rurutik, Lakini en ole miten koik kimuche keboishen rock mulching .
5. Agro forestry: ongeyom kinetge , ak keyai agro forestry . Ketik che kagimin en imbarenik kotinye nafasi newon koechegitun kosir che minotin en ole miten osnoshek ak suswek angamun riboksek komye ago nyoru ng'ung'unyek che kororon.
6. Chaguan species cherutu en korotinwek che yomyotin. Sanasan ketik chebo komosoton che indeginous ko choton che yechegitun kosir igo. Ketik cheu *Melia*, *Acacia seyal*, ak *Muuuku* (*Terminalia brownii*).
7. Rib ketik che miten en inguni ak itoret icheget koregenereten . Ketichuton kogimen , ago ichek komuche kosobcho ogot en betushek che momiten robwek. Konu ichek seeds che kimuche kenyor en oret ne nyumnyum ak uronok.
8. Raised seedbeds anan ko sunken seedbeds komuche kotoret. Yon kogichob seedbed ne kitogos , kenyoru seedlings che kimen , so ingunon kosobtos. Kora kotoreti seedlings koyechegitun en petit agoik che kimen . lakini seedbed ne sunken komuche kora kogararan angamun tere asista komabar seedlings . En komositon ibwaat iwisowisi seedlings asi mochut tigitik ngweny, tun koweckok yon kisibto.

Ongeboishen practice che kitinye, ak keendelezan oratinwechuton asi kenyorun rurutik ak koyet TIST en komoswechok.



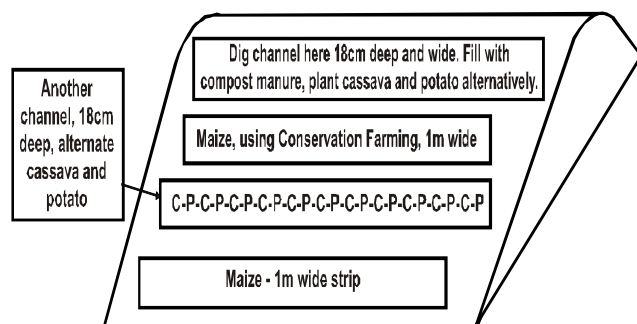
TIST: Koyometab minet chebo minutik.

Koyometab minutik chesire oeng en imbar anan kochechang en kasarta agenge niton kotoreti kotes timuwek kotesin ngungunyek kisich okwointo ak kongem suswe ak miyonuek.

Koyometab minutik komoe kole minetab rurutik chebesiotin en kasarta nenin kobo menetab ketik kou alley cropping miten anyun temik chebo TIST chekigoyom en tulonok.

1. En lainit netai kebole 18cm orit ak tebesinto
2. Kinte kturek.
3. Kemin mogoak biasinik kosibngei.
4. Lainit nebo oeng komin bandek 1m.
5. Lainit ne isibu keminchi mogo ak biasinik.
6. Lainit neisibu kemin bandek . E.t.c.

Kigeboisien oraniton mising amun kigenyuru konetisiet kou koyometab minutik koboisien kturek imbaret ne makibat.



- Yumten bandek ak ketik en lainitab kiyomta kurubisiek alak 3m chebo bandekak moringa / yellowcassia / eucaenia / bead tree.
- Lainitab mosoniking ak moringa ak leucaenia.
- Koyometab calliandra ak indisinik ,calliandra ak ngatek calliandra ak bandek, bandek ak ngeutek, ngeudek ak leucaenia ngendeak ak indisinik ngedeak ak kawek [komege chen]
- Koyometab cowpea ak bandek /songhum /bek. Yomten tuguchu asi inyuru wolutik ak imwochi TIST.

Kibwate nebo waletab minutik.

Noton anyun kominetab minutik cheter chin en imbaret ne agenge en kasarta neter kararan mising noton amun igochin imbaret kouyon okwoiyet amun minutik alak kotinye tigitik. Chebenti kwony mising konyoru omitwogik. Chemoten kwony, nyorunen kotik che miten ngungunyek kotesak amun bosbus ngungunyek. Miten cuyun keiunet neo yon kagimin rurutik che besiolin en imbar amun agotkemin minutiet ne agege ko nyunmnyum kenyor susutik ak miyonuek ek minutik.

Che isibu ko minutik chemonyolu kemin kosibgel en kasarta egege.

1. Cucumber,gourd, pumpkin, squashes, watermelon, gurd famliy.
 2. Broccoli,brussel sprouts, cabbage, couliflowers, collard,kale radish,turnip mustard,watereress (brassica family).
 3. Eggplant, pepper, tommatoes, potatoi (solanaceus).
 4. Lettuce, artichoke (aster family).
 5. Maize, rice, sorghum, wheat, cat, barley, millet, (grain and cereals family).
 6. Beans, and peas (legume family).
 7. garlic, leak, onion, clive (allium family).
 8. Carrot, celery, dill, parsnip, parsley (carrot family).
 9. Cassava, sweet potato, taro, yam, water chest nut(root crop family).
 10. Cotton, okra (mallow family).
- a) Sogegab (broccoli, cabbage, cauliflowers, kale, spinach atc) komoche missing omtuwokik chechang kosir nkewe alak.
- b) Logoek (chillies, eggplant, pepper, tomatoes) komoche omituwoki chechang ago mogou,che tinye sogek.



- c) Minutikab tigitik (carrot, beetroots, potatoes onion, radishes, turnips etc) moche ichek omituwogik che ngerin omoguu chebo logoe anan chebo sogek.
- d) Minutik kou (beans, chick peas, cow peas, gram, peas, pigeon peas etc) toreti koyomti omituwogik en koristo ak kotesi ngungunyek
- e) Minutik (bandaek, mosogik, ak beek).

Okibwat kabwatani

Yomten imin bandaek ak ichuguk en kenyit agenge nebo imin mosonik min ichuguk kenyit anenge nebo oeng imin legum, sunflower, potatoes yomten bndaek agosib, legume kou soybeans or groundnuts ne isibu imin kou cotton.

Yomten ibagach imbaret kenyit agenge komagitem, yeisibu imin kenyisiek 3-5, niton kogochin koret konyor omituwogik, kol napar agot intinye tuguka.

Entugul isib imin minutik chebo tai kou ngendek asi igote bandek, min minutik kou cabbage (brassica family kou ye isibu imin family solanaceous) kou nyanyik.

Che isibu ko minutik che kigole kosibgei yeibata age.

Minet netai:

- Plot 1. Maize/garlic/onion/leeks.
- Plot 2. Eggplant/chillies/potato/tomato.
- Plot 3. Broccoli/cabbage/couflower/kale.
- Plot 4. Beans/cowpeas/gram/peas.



Koletab oeng:

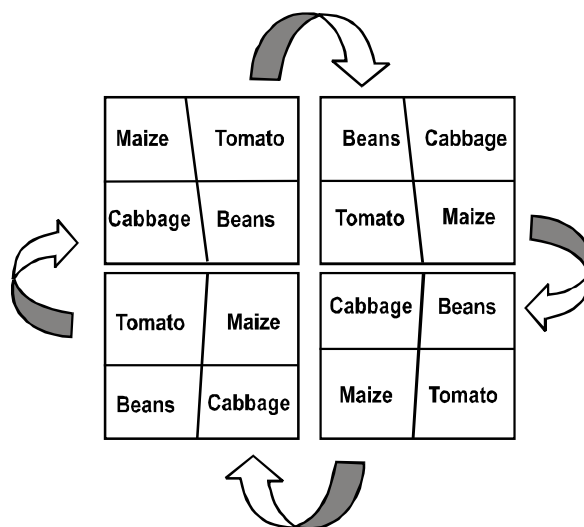
- Plot 1. Beans/cowpeas/gram/peas.
- Plot 2. Broccoli/cabbage/couliflower.
- Plot 3. Eggplant/chillies/potatos/tomotoes.
- Plot 4. Maize/garlic/onion/leeks.

Koletab somok:

- Plot 1. Broccoli/cabbage/caouliflower.
- Plot 2. Beans.cowpeas/gram/peas.
- Plot 3. Maize/garlic/onion/leeks.
- Plot 4. Eggplant/chillies/potomatos/tomatoes.

Koletab angwan:

- Plot 1. eggplant/chillies/potato/tomatoes.
- Plot 2. Maize/garlic/onion/leeks.
- Plot 3. Beans/cowpees/gram/pees.
- Plot 4. Braccoli/cabbage/couliflower.





TIST Ngetunonik che chang.

N getunonik chuton ko
kitagetugul ne mogitinyen
komonut missing; kou:-

☐ Omitwogik che mongunen chito.

☐ Ngetunonik chebo omitwogik.

☐ Kartasisiek.

☐ Ole kiunchin beek che yachen en town.

Ne anyun negonu yoitioni en ole kimenye?

☐ Wegetat tuguk chekitinye.

☐ Mogitinye ortinwek che kimuchi keboisien kora.

☐ Mogitinye ole kimuchi kirurugen (korik chemengechen).

☐ Mogitinye kabwuatet agobo ngoyondit neimuch kobit.

Kewelnatet ne bitu yon mogirib.

☐ Ngetunonik en kaa.

☐ Monyoru keret ne kararan kaa.

☐ Nyabiretab beek, koristo, ngungunyek ak bitu myonwek.

☐ Timoksei ortinwekab beek.

☐ Beterisiek kogonu sumu.

☐ Bitu ngemisiet en logok ak tong'ik.

Kogi kurubit ketoretitoi ano?

☐ Kebal korik chegiboisien ak keringoik chegimetechin.

☐ Keboisien solaisiek ak kemete baterisiek.

☐ Kegetingei keboisien cheimugosei (kou plastic).

☐ Keboisien koik katurek en cheimugosei.

- Mat kebel beterisiek, torchin keringet.