

# Mazingira Bora



# TIST

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

English Version

An Environmental, Sustainable  
Development and Community Forestry  
Program.



**Karangi TIST Cluster in Muranga County during their two day training at Karangi Catholic Church on January 22-23, 2018.**

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## New Cluster Budget Policy towards strengthening our service to Small Group members.

**T**IST Leadership Council has reviewed the Cluster Budget Policy. For the last couple of years, the policy has been for a Cluster to qualify for the budget, it must submit its meeting and account reports for three consecutive months.

This policy, though good for active clusters in sharing their successes, does hurt those Clusters that have no active Cluster Servants, or are new.

Therefore, a new policy has been developed as follows:

- A) Clusters with a qualified Cluster Servant will continue getting full budget upon submitting complete meeting and accounting reports every month. This has been reduced from three consecutive months, to only one month (current month).
- B) Old but orphaned Clusters will get assigned to an active Cluster Servant (or they can request a nearby Cluster Servant) who will

assist them in sending their reports. Upon submitting complete reports, they get full budget for a period of six (6) months, after which they are required to have their own Cluster Servants well trained and qualified.

- C) Brand new Clusters normally supported by the Cluster Servants will have their reports submitted but begin qualifying for budget when they have 10 to 20 Small Groups, have scheduled and held Cluster meetings, and have held Cluster leadership elections.

The new cluster will receive full budget for three months, upon which their results will be monitored and if they show growth in number of Small Groups and in trees surviving, they continue to receive budget for another three months, a period during which they will identify a CS trainee and will have been trained.

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## Leadership and Governance in your Cluster.

**T**oday, TIST has more than 200 Clusters. In each cluster, Servant Leaders support our success and share their strengths. Each Cluster has governance and leadership as follows:

### Elected Cluster Leadership

- Cluster Leader
- Cluster Co-leader
- Cluster Accountability person

Cluster Leaders, Co-leaders, and Accountability person serve in each position for a period of four months. After four months of service, the Cluster leader rotates out. The Co-leader becomes the Leader, while the Accountability person becomes the Co-leader.

Women and men alternate in the elections. If the Accountability Person is a man, the next one elected will be a woman. Your Cluster should democratically elect a new Accountability person. Cluster elections are important and mandatory for all TIST Clusters.

### Role of Cluster Leadership

#### Role of a Leader

- 1) Should be a servant to the whole Cluster and exemplify TIST Values.
- 2) Leads/facilitates Cluster activities: coordinates Cluster meeting, quantification and training schedules with other servant leaders.
- 3) Motivates groups to achieve big results, especially planting trees and practicing CF.
- 4) Helps the Cluster to remain strong and united.
- 5) Helps plan for well-organized Cluster Meetings with other servant leaders and making sure the meetings are properly led and trained.
- 6) Works with Accountability Person to ensure that Cluster Meeting and Accounting records are kept properly.
- 7) Works with Accountability Person and Cluster Servant to ensure monthly Cluster reports and Account reports are accurate and sent.



- 8) Helps recruit and train more Small Groups to be registered.
- 9) Helps Small Groups have their Greenhouse Gas contracts signed, scanned and uploaded, if necessary.
- 10) Welcomes and introduces any new visitor who might attend the meeting.
- 11) For payments, they get vouchers and other materials ready before Cluster meetings. Works with Accountability Person to make sure the proper payment process is followed, and communicates any questions or problems to TIST leaders and Cluster Servants. They remind Small Group members of the next meeting.

**Role of an Accountability Person**

- 1) Receives Cluster Budget and announces amount received and spent at each Cluster meeting.
- 2) Works with the Cluster to plan how to use the Cluster Budget to achieve big results.
- 3) Keeps and maintains Cluster records in an organized Cluster record book, accurately and in proper condition.
- 4) Allows inspection of Cluster Records by Cluster members and TIST leaders.
- 5) Organizes with Cluster Servant to send both Monthly Cluster meeting and Accounting reports every month.
- 6) Trains the next accountability person.
- 7) Helps and supports other servants to serve the Small Groups.
- 8) During payments, they hand out vouchers to groups with at least two members present, reviews vouchers, communicates with payment support coordinators, and follows the payment process accurately and honestly.
- 9) Evaluates Quality of Cluster Trainings and reports to GOCC.
- 10) Attend GOCC meetings as Cluster Council Representative.

**Role of a Co-leader**

- 1) Takes over when the leader is not there, while the co-leader is to serve both the Cluster members and the Cluster leader.
- 2) Helps keep time during Cluster meetings.
- 3) Takes records during the Cluster meetings.
- 4) Read the previous minutes to the meeting and keep record of the minutes and discussion held in the cluster.
- 5) Helps train newly elected Accountability People.
- 6) Evaluate quality of Cluster Trainings and report to GOCC.
- 7) Attend GOCC meetings as Cluster Council Representative.

**Role of Group of Clusters Council Representatives**

- 1) Discover and share Best Practices from Clusters.
- 2) Assure high quality training for the Clusters following TIST Values.
- 3) Assure high quality quantification following TIST Values.
- 4) Maintain working equipment for training and quantification.
- 5) Report concerns and make recommendations for policies to Leadership Council.
- 6) Expand TIST through present Clusters.
- 7) Hold Administrative Hearings if a Cluster Servant is suspended, to investigate facts and make recommendations on suspension.
- 8) Hold Administrative Hearings if a Cluster Leader is not following TIST Values.
- 9) Recommend people from the Group of Clusters for additional TIST responsibilities such as Auditor, TSE, or Master Trainer and other responsibilities.
- 10) Receive Quality of Training Evaluation reports and send them to the Leadership Council.



## **Kujengana: Don't miss the blessing for your Small Group and Cluster.**

**K**ujengana is a very important part of your Small Group weekly meeting. It says in Ephesians 4:15 - 16 that we are to build each other up into the fullness of Christ. Each person in your TIST Small Group brings his or her own special talents and gifts to the entire group. One of the wonderful things that happen in the Small Group is recognizing, sharing and using those God-given talents.

Kujengana is a way to let those talents be seen and be used. There are two parts to Kujengana:

- Before the closing prayer, every person in the group says one specific, positive thing that the leader for that week did at that meeting. For example: they smiled, kept to time, made good plans, encouraged all group members to speak, greeted me and made me feel welcome, pointed out something that was going very well in the meeting or in the work the group was doing, etc. Each member needs to say something different. This is not optional. Everyone gives Kujengana to the servant leader. Some groups also give Kujengana to the co-leader.
- In addition, if someone sees a gift shown by the leader, a group member can also say that. With Rotating Leadership, each week a new

leader will receive Kujengana. Through Kujengana, we encourage each other on the good things that week's leader did in the meeting and the talents the person showed. Kujengana is also the way we learn to look for positive things about people and then say them. We all need to train our tongues to say the positive. In addition, the whole group learns what that group thinks is important in a servant leader. The next leaders will benefit from what they have heard in Kujengana about previous leaders and know what the groups think is important in being a servant leader.

In response to Kujengana, that week's servant leader just says, "thank you" after each group member's specific, positive statement. There is no discussion about how it could have been done better, or differently. Often, the person is happy when he or she is told the good things he or she did during the meeting. Sometimes we learn things about ourselves we didn't know! Kujengana helps the leader on that day recognize his or her talents and keeps on using them. Kujengana also helps the Small Group because all the members improve their servant leadership as they learn. Kujengana is a double blessing!

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## **Preparing Compost Manure - a natural fertilizer.**

**C**ompost manure is a natural fertilizer that helps your crops grow. It is better than chemical fertilizer because it is natural, free, and will not damage crops and the environment as some chemical fertilizers can. There are many ways to make compost manure, but the following method has been useful in some areas. Ask your neighbors in your Cluster what has worked well for them.

### **Preparation of compost:**

1. Choose an area for your compost pit measuring 4m by 4m.
2. Clean the area.
3. Dig a hole of diameter 3 - 4m and 1.5m deep.
4. Collect all the remains of the crops you have (e.g. leaves and stalks of maize, millet, beans) and cut these remains into small pieces.
5. Put these crop remains into the hole up to a depth of 0.5m.
6. Add five liters of ash.
7. Next add about 30cm (or as much as available) of animal dung (e.g. dung from pig, cow, goat or chicken).
8. Put another layer of crop leaves and stalks (0.5m).
9. Add another five liters of ash.
10. Repeat adding the leaves and stalks again until the hole is almost filled.

11. Finally add a layer of soil until the hole is filled.
12. While filling the hole with soil, put a long stick in the middle of the hole so it reaches the bottom.
13. Leave the compost pit for 90 days (three months).
14. During this period use your dirty water to water the compost pit. For example, after cleaning your house or clothes, empty the used water over the compost pit. If you have animals, you can also pour animal urine over the pit. This adds extra nitrogen to the compost.
15. Try to water the compost pit in this way every day, or whenever water is available.
16. After 90 days the manure will be ready.

Use the stick as a thermometer. When the compost is ready it should be hot and you may even see steam coming from the stick after you have removed it. Then stir all of the compost together so it is mixed well.

### **Use of compost:**

When you have dug your holes for planting maize, millet or other crops, add one handful of your compost manure to each hole. Watch for the results!



# Conservation Farming: Time to prepare your shamba.

TIST Small Group members who have practiced CF have testified it produces a greater harvest more reliably than traditional farming, especially when the rain is scarce. The holes help catch whatever rainfalls and make it available to the crop. This article will help you understand better how to practice kilimo hai. Following these best practices can help you get better yields this coming season.

## Preparing the land

- Prepare your land at least one month before the rains
- Clear your plot of weeds and bushes, but do not plough
- Prepare your holes oblong (rectangle) shape. They should each be 15 cm wide, 35 cm long and 15 cm deep. Space holes at least 75 cm apart.
- Take some manure or compost manure and good topsoil and mix it together. Fill the hole with the mixture up to five cm below the surface.

## Planting

- When you plant maize seeds (1-2 days before rains start), plant four seeds in the soil across the hole.
- If you are planting sorghum, plant 5-6 seeds at each end of the planting hole, after a good shower of rain.
- Cover the seeds with 2.5 cm of the rich soil and manure mixture. After this the soil in the hole should be about 2.5 cm below the surface of the field.

- The space at the top of the hole enables water to get to the plants when the rains come.

You do not need to use chemical fertilizer on the Conservation Farming plot. Your crops will still do better without chemical fertilizer, if you put enough manure.

## Weeding

- Weed around the holes regularly
- Do not weed the entire plot completely. Outside the holes, plants can cover the soil, keeping it cooler and keeping it from eroding in rain and wind. Just weed in and near the holes. Use a panga to clear weeds between the lines or spaces from one hole to the other. Weed frequently to keep weeds from going to seed and spreading in the holes.
- Leave the weed residue in the plot to rot. This will help add soil fertility.

## Post harvest practices

- Do not burn off the remains on the plot. Leave the residue on the ground so that they make the soil more fertile. Crop remainders can also be used for compost manure.
- Do not graze cattle in the plot.

We will be glad to celebrate your successful harvest and learn from best practices in your area through this newsletter as well during your cluster meeting. Take pictures as you prepare the holes, and then every two weeks take a picture of your CF as it grows. Send all of the pictures to us. Start working now!



## TIST: New best practice: Raised pot beds.

TIST is encouraging farmers to try raised pot beds. Many farmers have found that this improves survival rates of seedlings in the field. Try raised pot beds and report to your cluster what you observe, and whether this practice works better for you.

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



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

This traditional system of arranging pots on the ground can produce seedlings with weak roots. This is because the roots coil up inside the plastic pot. At transplanting, the roots can be weak and therefore not easily establish in the ground. Or, the roots go out of the pot and go deeply into the soil. This requires root pruning just before transplanting, causing major stress to the seedling. To avoid this, it is recommended to establish seedlings in **open bottom** tubes and place them on **raised beds** (Fig 2). A raised bed can easily be made from a wooden frame and wire mesh (see photo) or strips of wood. Raised beds allow automatic root pruning because when the roots reach the container bottom, they naturally drop off (called air root pruning). This means that roots do not get injured through normal root pruning methods. The roots then tend to strengthen inside the tube without growing further out of the tube. This produces a healthy root system and the seedling has a better chance to establish fast and well in the field. It also eliminates the need for the labour of root pruning, a practice that is often forgotten or done too late, causing serious damage to the roots just before the seedling is stressed by leaving the

nursery and being planted in the field. Weed control is also easier in raised beds.



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

The raised beds might appear to raise the amount of water used in nurseries. However, nursery operators have devised innovations to deal with water constraint. One innovation involves digging a trench, placing planks of wood or wire mesh across it and placing the seedlings on the planks or wire mesh. The seedlings thus appear to be on the ground level but the trench under them provides the space, which aids air root pruning. The water is trapped in the trench and will keep seedlings moist through evaporation and so reduce the need for very frequent watering. A polythene sheet can also be placed in the trench to ensure water does not seep into the ground.

### Questions to ask during Cluster Trainings

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

Take pictures of the progress of your raised seedbed and the trees you are planting in them. We will use them for training other Small Groups.

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Kimereu Version

An Environmental, Sustainable  
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**Karangi TIST Clusta ambayo iko Muranga County wakati wa mafunzo ya siku mbili katika kanisa katoliki la Karangi, Januari 22-23, 2018.**

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## **Mantu jangi ja meeru jegie budget cia cluster nikenda twikira inya utungata kiri tukundi tunini.**

**G**ikundi gia atongeria gia TIST (Leadership Council- LC) ni gicokerete gutega mantu ja budget cia clusters.

Miaka iimingi ithiri, Nikenda Cluster yuumba kwona budget ni mwanka ithirwe itumite micemanio na utumiri wa mbea mieri ithatu ithingatene.

Ona kethirwa untu bubu ni bu thongi kiri clusters iria igwita na mbere bwega, nibuinyagiria clusters iria itina mutari miti (cluster servant) kana cluster iria njeru.

Mantu ja meeru nijo jaja:-

- A) Clusters iria iri na mutari miti igeta na mbere kwegwa budget yonthe kethirwa bagatuma ripoti cia micemanio na cia utumiri mbea o mweri. Ripoti iji inyitue kuma mieri ithatu mwanka mweri jumwe aki.
- B) Cluster iria cia tene itina mutari miti nacio ikaegwa mutari miti (kana noo jjaranirie na

mutari miti uria ari akuhi nacio) uria akabatetheria gutuma ripoti cia micemanio na utumiri wa mbea. Ripoti cia tumwa bakaegwa budget gwa kagita ga mieri ithathatu nabo bethirwe bacuite mutari wao na aritanwa ngugi na amimanya bwega.

- C) Cluster injeru buru nacio irungamiritwe ni mutari miti, no nkinya ripoti ciao itumwe na bakambiria kwegwa budget - bagwata ikundi bi nini kwambiria ikumi gwita mirongo iiri (10-20sgs) - ba bangania na bambiririe micemanio - bathithia ithurano cia cluster

Cluster injeru ikaegwa budget yonthe gwa kagita ka mieri ithatu kuuma au bategerwe kethirwa nibagakura gukurukiira kwongereka gwa ikundi na miti bagacoka bete na mbere kugwata budget yonthe gwa kagita kangi ka mieri ithatu aria bakendekana bethirwe bena mutari wao wa miti uritanitwe ngugi na amimanya bweega.

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## **Utongeria na witi na mbere ndene ya cluster.**

Narua, TIST irina cluser nkuruki ya igana mirong inana 180. O kiri cluster atongeria, ibagwatagwa mbaru witi na mbere na inya yetu. Witi na mbere na utongeria bwa cluste ita uju:

### **Kuthurwa kwa mutongeria wa cluster.**

- Mutongeria wa cluster
- Munini wa mutongeria
- Mwitithia na mbere cluster

Atongeria ba cluster, anini bao, na etithia mbere barungamaira o giti kagita ka mieri ina (4 months). Mieri ina ya ngugi ya thira, bakagarurana. Munini wa mutongeria akaethua munene, nawe mwitithia mantu na mbere akaethua munini wa mutongeria. Aka na arume kaba garukanaga kagita ka ihuranu. Kethira mwitithia mbere wa gikundi arari ntomurume, uria ungi akathurwa akethirwa ari muntu muka. Ithurano bia cluster I bia bata na bi

bati kuthithwa ni clusters cionthe cia TIST.

### **Ngugi ya utongeria bwa cluster.**

#### **Ngugi ya mutongeria.**

1. Ethirwe agitungataira cluster yonthe na kwonania mikarire ya TIST.
2. Gwitithia mbere manto ja clusters, kubanga micemanio, gutaara na gwitana amwe na aiti ngugi bangi.
3. Gwikira inya ikundi kenda biona uumithio nkuruki ta, kuanda miti, na kuthithia CF. Guteetheria cluster igia na inya na ngwataniro.
4. Guteetheria kubanga na witi na mbere bwa micemanio ya cluster na atongeria bangi.
5. Gwitanira ngugi na mwitithia mbere wa mibango kenda ripoti na mathabu ja cluster o mweri jagutumwa jaticereri.
6. Gutetheria kuthurwa na kuandikithua kwa tukundi tunini.





7. Guteetheria Green House Gas cia tukundi tunini ciitikirua.
8. Kugwata ugeni muntu umweru uria umba kuriungira gikundi mucemanione.
9. Marii: Kuthuranira into bionthe biria bikwendekana mbere ya mucemanio. Gwitanira ngugi na muntu wa accountability kenda amenya njira yonthe ya marii nithingati bwega, kwaraniria mobatu na mathiina kiri anene ba TIST na atongerira ba cluster.
10. Kurikania amemba ba tukundi tunini mucemanio juu jungi.

**Ngugi ya muntu wa witi na mbere.**

1. Kujukia na kuuga bajeti ya cluster na uria itumirikite kiri o mucemanio jwa cluster.
2. Gwitaniria ngugi na cluster kubanga uria bajeti igaita maciara.
3. Gwika na kumenyera mauku na recondi cionthe cia cluster.
4. Gwitikiria gutegwa kwa recondi cia cluster ni amemba ba cluster na anene ba TIST.
5. Gutuma ripoti cionthe cia micemanio ya o mweri na mathabu.
6. Kuritana muntu uu ungi wa akaunti.
7. Gutetheria na guikira inya ariti bangi ba ngugi gutetheria tukundi tunini.
8. Igita ria marii: kunenkanira vucha kiri gikundi kiria amemba bairi bariku, gutega vucha, kwaraniria na antu ba marii na kuthingatiria njira ya marii nierekene.
9. Gutalama moritani ja Cluster na ripoti cia GOCC.
10. Gwita micemanio ya GOCC ja Murungamiri wa Council wa Cluster.

**Ngugi cia munini wa mutongeria.**

1. Gutongeria riria mutongeria atiku. Gutungatira amemba ba cluster na mutongeria wa cluster.
2. Gutetheria igita ria micemanio ya cluster kiri gwika mathaa.
3. Kuandika mibango igita ria micemanio ya cluster.

4. Kuthoma miniti cia mucemanio juria jwathirire.
5. Gwika mantu ja gikundi na ndwaria iria ciaragua kiri mucemanio.
6. Gutetheria kuritana muntu umweru kiri ngugi cia mathabu.
- 7) Gwita micemanio ya GOCC ja murungamiri wa Council wa Cluster.

**Arungamiiri ba kanju ya gikundi kia cluster.**

Munini wa mutongeria na muntu wa mathabu agaita ngugi na GOCC. O muntu agaita ngugi kiri GOCC mieri inana na batwika anene ba cluster ngugi yao kiri GOCC gekathira.

Gikundi kia GOCC kithithitue ni arungamiiri ba cluster ijiri kana ithano baria bari ba cluster igukuianiria. Atongeeria ba gikundi GOC (bagatirimanaga o kiumia kia mbere kia mweri kenda baikia ripoti ya mweri kiri OLC.

**Ngugi Ya Atoongerira Ba Kanju ya Ikundi bia Cluster.**

1. Kumenya na kugaa mantu jaria mega ja o cluster.
2. Kurikithia kwina kuritana kwa njira ee iguru kiri clusters kuthingata utungata bwa TIST.
3. Kurikithia umenyeeri bwa iguru buria bukuthingata mantu ja TIST.
4. Kumenyeera into bia ngugi bia kurita
5. Kuuga na kwariria mantu jaria jabatere niuntu bwa urungamiri bwa Council.
6. Kwaramia TIST gukuriira cluster iria iri o.
7. Gwika micemanio ya kuthikiira mantu mwiti o ngugi o cluster na kuthingatiira kenda arungikwa.
8. Gwika micemanio ya mutongeeria uria utikuthingatiira mathithia ja TIST.
9. Gwikiira antu ba ikundi bia clusters ngugi ingi cia TIST ja auditor, TSE, Master Trainer na ingi inyingi.
10. Kwamukira uritani bwa gutalama riboti na gutuma kiri utongeria bwa council.



## Gwakana: Bukaaga kitharimo kia gikundi kienu.

**G**wakana ni gicunci kirina bata mono ndene ya mucemano jwa gikundi kienu jwa o kiumia. lugaga ndene ya Aefeso 4:15,16 ati nitubati gwakana tugakinyira uujuru bunthe bwa Kristo. Muntu wonthe ndene ya gikundi gikinini gia TIST naretaga talanta na biewa bia mwanya kiri gikundi kionthe. Gintu kimwe kiria kiri gia kurigaria kiria gikarikaga ndene ya gikundi gikinini ni kwona, kugaana na gutumira talanta iu tui ni Murungu.

Gwakana ni njira ya kureka talanta iu cionwa na citumirwa. Kurina icunci biiri ndene ya Gwakana:

- Mbele ya iromba ria muthia, o muntu ndene ya gikundi auge gintu kimwe gikieega gikwirungamira kiria mutongeria athithirie ndene ya mucemano. Mung'uanano, nathekerie, nekire mathaa, nathithirie mibango imiega, neekire amemba bonthe inya, nanketherie na natumire ndaigua nkinyite, naugire akwona gintu gigita bwega mucemano kana ngugine ya gikundi, na jangi jamaingi. O mumemba nagwitia kuuga gintu mwanya. Bubuti bwa kwithurira. Muntu wonthe naakaga mutongeria wa uthumba. Ikundi bimwe ibakaga kinya mutetheria wa mutongeria.
- Kwongera, kethira muntu akwona kiewa ndene ya mutongeria, mumemba noauge.

Gukurukira utongeria bwa kithiuruko, o kiumia mutongeria umweru agakwa. Gukurukira Gwakana, nitwikanagira inya kiri into bibiega biria mutongeria wa kiumia athithirie mucemano na talanta iria muntu ou onenie.

Gwakana ni njira ya kinya kuthoma mantu jamega kwegie antu na riu kujauga. Twinthe nitugwitia gwitana nduume cietu kuuga mantu jamega. Kwongera, gikundi kionthe nikimenyaga jaria gikundi kithuganagia jarina bata kiri mutongeria wa uthumba. Atongeria bangi bakoona baitakumania na jaria baigitue ndene ya Gwakana kwegie atongeria bangi na bakamenya jaria gikundi kithuganagia jarina bata kiri mutongeria wa uthumba

Ariki gwakwa, mutongeria wa kiumia kiu naugaga, 'lbwega' nyuma ya o mumemba wa gikundi auge gintu gikithongi na gikwirungamira. Gutikwariria uria aringi kuthithia bwega nkuruki kana na njira ya mwanya. Jaria maingi, muntu nethagirwa akeni erwa mantu jamega jaria athithirie mucemano. Rimwe na rimwe nitumenyaga mantu kwegie twingwa jaria tutikwiji!

Gwakana nigutethagia mutongeria wa ntuku iu kumenya talanta ciawe na gwita na mbele gwitumira. Gwakana kinya nigutethagia gikundi gikinini niuntu amemba bonthe nibamenyaga gutongeria bwega nkuruki o uria bakuthoma. Gwakana ni kitharimo nteere ijiri!

## Kuthithia mboleo yaku gwengwa – fertilizer itiongeri into bia kuthithua ni muntu.

**M**boleo ya kuthithia na imera ni fertilizer ya kuumania na into bitina ugwati ya gutethia imera biaku bikura bwega. Ni injega nkuruki ya fertilizer cia nduka niuntu icithithitie yongwa na itina ugwati kiri imera na kiri naria kuthiurukite. Kurina njira inyingi cia kuthithia mboleo, indi njira iji ithingatite nitethitie ndene ya guntu kumwe. Uria muturi waku ndene ya cluster yaku jaria jabatethitie nkuruki.

### Kuthithia mboleo:

- 1) Taara antu aria ukeenja kirinya giaku kia warie bwa mita inya na uraja bwa mita inya.
- 2) Theria antu au
- 3) Inja kirinya kirina warie bwa mita ithatu gwita inya na mita imwe na nusu kwina.
- 4) Uthurania matigari ja imera biaku jaria urinajo na ugutange tue tunini. ( mung'uanano mathangu na mati ja mpempe, miere na ming'au)
- 5) Ikira matigari jaja kirinyene mwanka gitigare nusu mita.
- 6) Ongeera lita ithano cia muju
- 7) Riu wongere centimita mirongo ithatu (kana o iria ikwoneka) cia mburi kana nguku).
- 8) Ongera matigari ja imera nusu mita
- 9) Ikira lita ingi ithano cia muju

- 10) Ongera matigari ja imera kairi mwanka kirinya kiende kuujura
- 11) Muthia, ikira muthetu mwanka kirinya kiujure
- 12) Ukiujuria kirinya na muthetu, tonyithia muti jumuraja gatigati ga kirinya mwanka jukinye nthiguru buru.
- 13) Tigana na kirinya giki ntuku mirongo kenda (mieri ithatu)
- 14) Igitene riri tumira ruuji rwaku rwa ruko gwikira boleo. Mung'uanano, warikia kuthambia nyomba kana nguo ciaku, ituura ruuji ruru ugutumagira kirinyene. Kethira urina ndithia ituura maumago jacio iguru ria kirinya.
- 15) Untu bubu nibwongagira nitrogen kiri mboleo yaku
- 16) Geria wikagire kirinya kiu ruuji na njira iji ntuku cionthe kana oriria ruuji rurio.
- 17) Ntuku mirongo kenda ciathira, mboleo ikethira iri tayari.

Tumira muti kuthima mwanki – mboleo yayia no mwanka ithirwe irina mwanki mwanka toi yoneke ikiumaga mutine wajurita ku.

### Utumiri bwa mboleo:

Warikia kwinja marinya jaku ja kuanda mpempe, muya na imera bingi, ongera nkundi ya mboleo yaku kiri o kirinya. Etera wone uria gugakara!



# Ni igita ria kuthuranira munda jwaku niuntu bwa urimi bubwega.

**A**memba ba ikunbi bibinini bia TIST baria bageretie kurima na urimi bubwega nibaritite ukuji ati nibuciaraga iciara ririnene na riumba gweterwa guti na uguuaa kiri urimi bwa kawaida, mono mono ririangai itikung'ana.

Marinya nijatethagia kugwatia ngai iria ikagua na gutuma ruuji ruru rwithirwa rurio kiri kimera. Mantu jaja jagagutethia kwelewa bwega nkuruki uria ubati gutumira njira ya urimi bubwega. Kuthingatira miitire iji iria miega buru gugagutethia kwona iketha ririega nkuruki mbura iji ijite.

## **Kuthuranira muunda**

Thuranira munda jwaku no mweri jumwe kabele ka mbura.

- Rita maria na ithaka muundene jwaku. Ukarima.
- Thuranira marinya jaku. Nijabati kwithirwa jari na warie bwa sentimeta ikumi na ithano, uraja bwa sentimeta mirongo ithatu na ithano na kwinama sentimeta ikumi na ithano. Taarania marinya jaku na sentimeta mirongo mugwanja na ithano kana nkuruki.
- Jukia mboleo inkai na muthetu jumwega jwa iguru na uunganie. Ujuria kirinya na muunganio juju mwanka gikinye sentimeta ithano nthiguru ya nthiguru itirimi.

## **Kuanda**

- Waanda mbeu cia mpempe (ntuku imwe gwita ijiri mbele ya mbura kwambiria), anda mpindi inya kiri muthetu kugitania kirinya.
- Kethira ni ugimbi ukuanda, anda mpindi ithano gwita ithanthatu o muthiene jwa o kirinya ga kuanda nyuma ya mbura injega mma yaura.
- Kunikira mbeu na sentimeta 2.5 cia muunganio juria jwa muthetu jumunoru na mboleo.

Nyuma ya kwongera muunganio juju kirinya kibai kwithirwa kiri senimeta 2.5 nthiguru ya naria nthiguru itirimi.

- Kanya karia gagutigwa kirinyene iguru nigatethagia ruuji gukinyira imera riria mbura ijijaga.
- Gutina aja ya gutumira fertilizer cia kuguura kiri muunda jwaurimi jumwega. Imera biaku bikathithia bwega kinya warega gutumira fertilizer, wekira mboleo ing'ani.

## **Gukuurira iria**

- Kuurira iria akui na irinya o igita o igita.
- Ugakurira munda junthe iria rionthe. Oome ya marinya, imera nobikunikire muthetu, bikajuika jurina gapio na bigatuma jutakamatwe ni mbura kana ruugo. Kuurira iria aki marinyene na akui na marinya. Tuumira kibanga gukurira iria gati gati kalaini kana itigatinekuuma kirinya gwita kingi. Kurira iria o igita o igita nikenda maria jatiraciare mbeu na jatamba marinyene.
- Tiga matigari jam aria muundene kenda joorera ku. Bubu bugatethia kuongera unoru bwa muthetu. aria ubati kuthithia warikia guketha
- Ukaithia matigari ja muunda. Jatige nthiguru nikenda jomba gutuma muthetu junora nkuruki. Matigari ja imera no jatimirwe kinya kuthithia mboleo.
- Ukarithia ndithia muundene. Itu rikana, tukagwirua mono gukeneera iketha riaku ririnene na kuthoma kuumania na miitire imiega buru ntuurene yaku gukurukira gazeti iji amwe na igitene ria mucemanio jwaku jwa cluster.

Ambiria kurita ngugi thaa iji!



# TIST: Njira injeru cia kuthithia minanda ya nyongu yukiritue.

**T**IST ni igwikira arimi moyo kugeria kuthithia minanda yukiritue. Arimi babaingi nibonete ati njira iji ni yukiritie na njira inene gukura kwa mbegu riria cieta kwaandwa. geria gukiria munanda jwa nyongu na uringe riboti kiri Cluster yaku mantu jaria ukona na kethira njira iji ni igugutethia bwega nkuruki .

Mbicha namba 1: irungamirite njira ya kubanga nyongu o jauria twiri au iguru:



**Mbicha 1: mbegu cia Moringa oleifera ibangi nthiguru.**

njira iji inkuru ya kubanga tunyongu nthiguru nitumaga mbegu ikagia na mirii itina inya .Thina iji iretegwa ni miiri gwikunja ndene ya kanyongu ga maratasi. Igitia ria kuthamia mbegu iji , miiri iria nontu itina inya igutumaa mbegu iria ikarega kugwata kana miiri igatura karatasi na igacianda mithetune kuraja mono. Untu bubu ibutumaa miiri iji yenda kutematemwa mbeere ya kuanda.na iji tumaga mbegu iria ikagia thina cia mthemba.

Kwebera mantu ja jaja , ni bwega kumithia mbegu kiri mibira ikunuri bwa nthiguru na umirikire kiri minanda yukiritue (mbicha no 2) Munanda jukiritue nojuthithue ugitumagira mbau na waya (ona mbicha) Minanda yukiritue ni itikagiria kurita miiri iria itina inya na njira imbuthu nontu riria miiri igakinya nthiguru ya karatasi karia, gaikukaa yongwa. Iji itagwa njira ya ruuo ya gukura miiri. Guku ni ja kuuga miiri iji itithukangagua ni kumikuura jauria iringi thukangua ni njira ingi cia kawaida cia kumikura. Miiri itaga na mbeere kugia na inya itigukura ikuruka karatasi karia mbegu yaandiri. Iji itumaga mbegu ikagia miiri iri na inya bwega iria itumaga mbegu igwata bwega na mpwi riria

yathamua kuuma munandene.

Njira iji ninyiyagia uriti ngugi buria buringitumirwa gutematema miiri iu, ngugi iria yuragiria kana ikathithua icereri mono , untu buria butumaga miiri ikaaga inya mbeere ya kuthamua kwa mbegu. Kumeenyera iria kinya guti inya kiri minanda iji yukiritue.



**Mbicha no 2 : Mithemba mwanya mwanya ya mbegu imbangi munandene jukiritue.**

Munanda jukiritue nojukare jeka jutumagira ruuji rurwingi nkuruki ya minanda iji ingi ya nthi. Indi, baria karitaga ngugi minandene iji nabathithitie njira ya utimiri bwa ruuji rurukai. Njira imwe ni kwinja mutaro kana muguru na gwika maruku jagitangi kana waya na kurikira mbegu iguru ria maruku jau kana waya. Mbegu cionanagia jaka iri nthiguru indi muguru kana mutaro juria juri rungu ijutethagiria kwejana kaanya ga gukuura miiri iria itina inya. Ruuji ruria rugwatiritue mugurune / mutarone juekira mbegu iria ruuji ruria rugacikinyira riria rwaithua ii riuu. Njira iji nitumaga mbegu iria itekende gukara igikairwa ruuji othaa cionthe. Karatasi ka nailoni nogekirwe mugurune juju kenda karigiria ruuji ruru gutonya mugurune.

### **Biuria bia kuuria kiri micemanio ya Cluster.**

- a) **Ni into biriku tukundi tuniini tutumirite kuthithia tumiuko twa nyongu . Irananeni njira iria njega buru**
- b) **Natia tukundi tuniini tumba gucibangania kenda bomba kuthithia tumiuko twa nyongu?Ni antu bangana bakwendekana kuthuranira tunyongu tutu? Iri? Ni antu bangana bakwendekana kuungania muthetu jwa gwikira tunyongune? Na inaa?**
- c) **Ni ikundi bing'ana bigereritie minanda iji yukiritue?**
- d) **Kuri antu bari na mantu jamega baringi enda kwira bangi? Iraneni ntento iji kiri mucemanio juu juungi jwa aritani**

# Mazingira Bora



## TIST

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

**Kikuyu Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



**Karangi TIST Clusta ya Muranga County mari mathomo-ini katitha-ini wa gatoriki wa Karangi mweri uyu wa Januari 22-23, 2018.**

**Inside:** Maundu mangi meru ma Bajet ya Clusta niguu gwikira hinya utungata kuri tukundi tunini. *Page 2*

Utongoria na wathani thiini wa Cluster. *Page 2*

Riu ambiriria kurutithia mubango waku wira mecemanio uyu ungi uukite. *Page 4*

Kuhariria thumu wa mborera – bataraita ya kimerera. *Page 4*

Mahinda ma kuhariria mugunda waku niundu wa Kilimo Hai. *Page 5*

TIST: Njira Njeru: Giito kia metha. *Page 6*



## Maundu mangi meru ma Bajet ya Clusta niguogwikira hinya utungata kuri tukundi tunini.

**G**ikundi gia utongoria gia TIST (Leadership Council – LC) ni ikurora ringi mundu ma bajeti cia Clusta.

Miaka miingi mithiru maundu marari ati nigetha Clasta iingire bajeti-ini no nginya ineane micemanio na mahuthiro ma mathabu mao ma mieri itatu.

Maundu maya, onakorwo ni mega kuri Clastas guteithania uthii wa na mbere, matihinyagiriria Clastas iria itari atari a miti (Cluster Servants) kana iria njeru.

Niundu wa uguo maundu maria meru ni ta maya:

A) Clastas iria iri na atari ma miti iguthii na mbere na kwamukira bajeti yao yothe thutha wa kuneana riboti cia micemanio yao na cia uteri wa mathabu mao o mweri. Kunyihitio kuma mieri itatu kinya mweri umwe kwambiriria mweri uyu.

B) Clasta iria cia tene ni cikuheo mutari wa miti (kana no ciaranirie na mutari wa miti uria uri hakuhi) uria uguteithiriria gutuma riboti. Thutha wa gutuma riboti yao, ni makuheo mathabu mao mothe ma mieri itandatu (6 months), kuria makubatarikana kugia na mutari wao muthomithie na akahituka.

C) Clastas njeru biu iteithiriirio ni mutari wao (Clasta Servants) roboti ciao cikwamba kuneanwo niguog mambiririe kuheo bajeti yao makorwo mari na ikundi nini (Small Groups) 10 kinya 20, mahaririirie ma makagia na mucemanio wao na makagia na arugamiriri.

Clasta njeru makuheo bajeti yoythe ya mieri itatu, na macokererio kurumirirwo monekane kana ni marathii na mbere na ikundi nini na kana miti yao niirakura wega, maguthii na mbere kuheo bajeti handu ha mieri ingi itatu ngiya or riria makagia na Clasta Servant wao na agathomithio.

## Utongoria na wathani thiini wa Cluster.

**U**muthi, TIST iri na makiria ma cluster 160. thiini wa o cluster, atungata nimateithagiriria na magekirana hinya. O cluster iri na wathani na utongoria ta uu.

### Aria mathuraguo ni;

- Mutongoria wa Cluster
- munini wa mutongoria.
- Muigi mabathu.

Mutongoria, munini wake na muigi mathabu matungataga mieri 4 o giti na magathiururukana. Munini wa mutongoria agatuika mutongoria na ke muigi mathabu agatuika munini wa mutongoria. Athuri na atumia nimacenjanagia hari utongoria-angikorwo muigi mathabu ni muthuri, uria ungi uguthurwo thutha wake agukorwo ari mutumia. Clustyer yanyu yagiriirwo gukorwo na githurano kiri na utheri na uigananu riria murathura atongoria.

Ithurano cia cluster nicia bata na cia muhak kuri cluster ciothe.

### Mawira ma utongoria wa cluster.

#### Mawira ma mutongoria wa cluster.

1. Agiriirwo gukorwo ari ndungata kuri cluster yoythe na akorwo na values cia TIST.
2. Gutongoria mawira ma cluster: kubanga micemanio ya cluster, utari wa miti na ithomo na atongoria aria angi.
3. Gwikira ikundi hinya niguog cigie namaciario mingi hamwe na uhandi wa miti na Kilimo Hai. Guteithiriria cluster kunyitanan na kugia hinya.
4. Guteithiriria mibango ya micemanio ya cluster hmwe na atongoria angi na gutigirira micemanio niyathii n-mbere wega.
5. Kurutithania wira na muigi mathabu gutigirira ripoti cia mathabu ninginyaniru na niciatumwo.
6. Guteithiriria kwandikithia ikundi njeru.



7. Guteithiriria ikundu kugia na uiguithanio wa Green Gas Contract, gwikira kirore na gutumwo.
8. Kwamukira na kumenyithania geni aria mangikorwo mari mucemano-ini.
9. Hari marihi: kuoya vouchers na indo ingi nbere ya micemano. Kurutithania wira na muigi mathabu gutigirira marihi nimarihwo na gukinyi ciuria kana mathina kuri atongoria a TIST na cluster
10. Kuririkania ikundi muthenya wa mucemano.

**Mawira ma muigi mathabu.**

1. Kwamukira budget ya cluster na kumenyithnia muigana na uria cihuthiritwo o mucemano.
2. Kurutithania wira na cluster kubanga uria budget ikuhuthirwo niguu kuongerera maciaro.
3. Kuiga nma kumenyerera rekodi cia cluster na njira njega ya nabuku.
4. Gwitikiria uthuthuria wa rekodi cia cluster kuri memba a cluster na atongoria a TIST.
5. Gutuma ripoti cia micemano namathabu ma cluster o mweri.
6. Guthomithia muigi mathabu uria ukumucoka.
7. Guteithiriria atungati angi gutungatira ikundi.
8. Mahinda ma marihi: kuheana voucher kuri ikundi riri kuri na amemba 2 kana makiri, kurora vouchers, kwaniriria na atabariri a marihi na kurumirira mitaratara yothe na njira ya utheri na nginyaniru.
9. Gwikira githimi kia ithomo hindi ya micemano ya Cluster na kuheana ripti kuuri GOCC
10. Guthii micemano ya GOCC ta Cluster Council Representative

**Mawira ma munini wa mutongoria.**

1. Kunyitirira riria mutongoria atari kuo. Agiriirwo ni gutungata ari mumemba hamwe na mutongoria.
2. Guteithiriria kuiga mathaa micemano-ini.

3. Kuoya rekoti thiini wa micemano.
4. Guthoma minutes cia mucemano ucio ungi.
5. Kuiga mathaa maria mahuthirwo mucemano-ini.
6. Guthomithia muigi mathabu mweru.
- 7) Gwikira githimi kia ithomo hindi ya micemano ya Cluster na kuheana ripti kuuri GOCC.
- 8) Guthii micemano ya GOCC ta Cluster Council Representative.

**Arugamiriri a ikundi thiini wa kanju ya utongoria (GOCC).**

Munini wa mutongoria na muigi mathabu nimatungataga thiini wa GOCC. O umwe agatungata gwa kahinda ka mieri 8 na agatuika mutongoria na agatiga gutungata kanju-ini ino.

GOCC ithondekagwo ni arugamiriri 2-5 a cluster aria mataraihaniriirie. GOC iricemangia o mweri na muno kiumia kia mbere kia mweri na igatuma ripoti cia omweri kuri OLC.

**Mawira ma GOCC.**

1. Guthundura na kurumirira mitaratra ya cluster.
2. Gutigirira githomo kia iguru nikiathanwo kuri cikirumirira values cia TIST.
3. gutigira utari wa miti muega kuringana na values cia TIST.
4. kumenyerera indo cia wira cia uthomithania na utari wa miti.
5. kumenyithania mathina na kuheana utaari kuri OLC.
6. gutheremia TIST kuhitukira cluster;
7. gutabania ciira wa kurugamio kwa atungati niundu wa ungumania.
8. gutabania ciira angikorwo mutongoria ndararumirira values cia TIST.
9. kuheana andu makiria kuma kuri GOC kuri mawira ta Auditor, TSE kana athomithania anenena mangi maingi.
10. Kwamukira ripoti kuuma GOCC na gutuma kuri Leadership Council.



## Riu ambiriria kurutithia mubango waku wira mecemanio uyu ungi ukite.

**K**ujengana: Ndukahitukwo ni irathimo thiini wa gikundi kianyu. Kujengana ni gicunji kia bata thiini wa TIST micemanio-ini ya o wiki. Thiini wa Ephisians 4:15,16 ati twakane turi thiini wa kristo. O mundu thiini wa gikundi kinini kia TIST arehage kiheo giake kia mwanya na akahe gikundi giothe. Maundu mamwe ma magegania mahanikaga thiini wa gikundi ni gukurana na kuhuthira iheo iria mahetwo ni Ngai.

Kujengana ni njira ya kuona na kurutithia iheo wira. Kuri na miena iiri thiini wa Kujengana:

- mbere ya mahoya ma kuhinga, o mundu thiini wa gikundi akauga kindu kime kirahutia kaundu na nikiauthii wa na-mbere karia mutongoria eka thiini wa mucemanio. Kwa muhiano, atheka, aiga mathaa, akorwo na mubango mwega, ekira arimi hinya kwaria, angeithia na atuma njigue ndi mucii, auga kaundu thiini wa mucemanio na gatuma mucemanio uthii na-mbere wega. O mundu agiriirwo nikuga kaundu ngurani. Kaundu gaka ni ka muhaka. O mundu auge kaundu ga kujengana kuri atungata. Ikundi ingi niciheanaga kujengana kuri munini wa mutongoria.

- Na makiria, angikorwo mundu nionete kiheo kuma kuri mutongoria, no age uguo.

Tukihuthira utongoria wa guthiururukana, o kiumia mutongoria mweru niakwamukira kujengana. Kuhitukira Kujengana, niturahinyiriria arimi na mutongoria guthii na-mbere na maundu mega kiumia kiu.

Kujengana ni njira njega ya gukurana na kumenya kiria mundu arathimiiirwo. Ithuothe twirute kwaragia maundu meega. Na makiria gikundi gikona maundu maria mega na mabata mekitwo ni atungati. Mutongoria uria uguka niagukorwo athomete kuma kuri atongoria aria angi.

Hari kujengana ututngati wa kiumia kiu agacokeria andu ngatho o thutha wa o mumembakuheana uho wake. Mutikariririe uria kaundu kangiekirwo wega na njira ngurani. Muno, mundu niakenaga riria erwo maundu mega maria ekite thiini wa mucemanio na makiria nituthomaga maundu maitu maria tutoi!

Kujengana niguteithagia mutongoria kumenya kiheo giake na guthii na-mbere na gugitumira. Kujengana niguteithagia atongoria kwagirithia utongoria o magithomaga, Kujengana ni kirathimo maita meeri.

## Kuhariria thumu wa mborera – bataraita ya kimerera.

**T**humu wa mborera ni bataraita ya kimerera iria iteithagia mimera gukura wega. Bataraita ino ni njega gukira ya nduka tondu I ya kimerera, ndiri thogora, ndithukagia mimera hamwe na maria maturigiciirie ta uria bataraita imwe cia nduka ciikaga. Kuri njira ngurani uria unghota gwithondekera thumu waku wa mborera. Hari njira imwe iria tuguthomithia iria ikoretwo igitumirwo ni andu aiangi. Niwega urie arimi aria angi muri mucemanio wa cluster ni njira iria matumagira.

### Kuhariria guthondeka thumu:

1. Chagura handu haria ikwenja irima riaku ria mita inya kwa inya.
2. Theria handu hau.
3. Haririria kana uchimbe irima ria warie wa mita ithatu nginya inya na iriku wa mita imwe na nuthu.
4. Cokeria hamwe maragara maku moth eta mahuti, mabebe, maboco kana muhia na umatinangie tuchunji tunini.
5. Iki maragara macio irima-ini riaku kwa uriku wa nuthu mita.
6. Ongerera lita ithano cia muhu.
7. Thutha ucio, ongerera thumu wa ng'ombe kana mburi kana nguku kana nguruwe kwa uriku ta fiti imwe.
8. Ongerera maragara mangi inguru ta nuthu mita.

9. Ongerera lita ithano cia muhu.
10. Ongerera maragara maku nginya irima riaku rikirie kuiyura.
11. Wa muthia, humbura na tiiri nginya iria riigure
12. Hindi iria urahumbira na tiri, handa kamuti nginya kahutie irimariaku gitina.
13. Eterera gwa kahinda ka thiku 90 kana mieri itatu.
14. Gwa kahida gaaka korwo ugitiriria thumu waku maai maku ma giiko. Ungikorwo ni ukuhota ona mathugumo ma mahiu maku uitiririe.
15. Mathugumo ni mateithagia kuongera nitrogen.
16. Geria guitagiriria maai na muthugomo kwa mahinda makuhi.
17. Thutha wa thiku mironko kenda, thumu waku ugakorwo uri muhiu.

Tumira kamuti karia uhandire ta githimi giaku. Hindi iria thumu waku wahia, wagiririrwo gukorwo wi muhiu na wacomora kamuti niwagirirwo ni kurata ndogo ya urugari.

### Uhuthiri wa thumu waku wa mborera:

Warikia kuhariria marima maku ma mbembe kana muhia kana o mimera iria ingi urahanda, ikira thumu muigana wa m oko maku o hari o irima. Eterera wone maciaro!





# Mahinda ma kuhariria mugunda waku niundu wa Kilimo Hai.

Arimi aria marimite na Kilimo Hai mari na uira ati magetha ni maingi gukira urimi wa ki-nduire na makiria riria mbura iri nini.

Marima nimateithagia maai ma mbura kuigika na guteithia mimera na njira iria njega.

Uhorro uyu niuguguteithia gutaukuo wega uria ungiteithika na Kilimo Hai. Kurumirira mitaratara miega niguguguteithia kugia na magetha mega.

Kuhariria mugunda waku.

Hariria mugunda waku mweri umwe mbere ya mbura yurite.

- Tuguta mahuti maria mari mugunda-ini, ndukarime.
- Enja marima ma rectangle. Magiriirwo nigukorwo na warii wa 15cm na uraihu wa 35cm na uriku wa 15cm na umataganie na utaganu wa 75cm.
- Ikira thumu na tiiri wa iguru na utukanie. Ikira mutukanio ucio na utigie 5cm.

Kuhanda

- riria wahanda mbembe(matuku 1-2 mbere ya mbura yurite), handa mbegu 4 irimaini.
- Wahanda muhia, handa 5-6 irima-ini thutha wa mbura kuura.

- Humbira mbegu na tiiri muigana wa 2.5cm.
- Haria irima ritaiyurite hateithagiriria kuiga maai.

Ndurabatara gutumira fertilizer ukihuthira Kilimo Hai. Mimera yaku no igukura wega ona hatari fertilizer ungikira thumu muiganu.

Kurimira

- rirmira irimaini maita maingi.
- Ndukarimir mugunda wothe. Nja ya irima, mimera no ihumbiretiiri, niguu kuuiga uri mugunyu. Rimira hakuhi na irima. Huthira ruhiu kwehutia riia riria riri gatagati-ini ka mimera. Rimira maita maingi niguu riia ritikaingihe irima-ini.
- Mahuti ma riia riria watuguta matige mugunda-ini. Njira ino niyongagirira unoru tiiri-ini.

Maundu ma thutha wa kugetha.

- Ndugacine mahuti mugunda thutha wa magetha. Tiga mahuti macio mugunfa-ini niguu manorie tiiri. Matigari ma mimera nomathondeke thumu.
- Ndukariithie mahiu mugunda-ini, ririkana nitugakena tugikunguira magetha maku na guthoma kuma kuri wee.

Ambiriria wira riu.



## TIST: Njira Njeru: Giito kia metha.

**T**IST ni iraringiriria Arimi magerie guthondeka ciito cia kuoyo na iguru (raised seed bed). Arimi aria mena ciito ici nimonete umithio tondu miti yao niikoretwo igikura na njira njega itekuma na ihenya. Geria giito giki na umenyethie Cluster yaku kana giito gia muthemba uyu kina umuthio kana ca

Mbica ya I: Ikwonania njira ya kiunduire ya nathari ya miti.



**Fig 1: mimire ya miti ya *Moringa oleifera* ibangitwo thi tiri-ini.**

Njira ino ya kiunduire ya nathari iri tiri-ini niitumaga mimera yaku igie na miri itari na hinya. Gitumi ni tondu, miiri nituikaga ya gwikunja iri iratathini. Hindi ya kuhanda miti yaku, miiri ikoragwo itari na hinya na kuguo ikaremwo ni kwibanga wega tiri-ini. Ni undu wa uguo, murimi ni onaga wega agerie gukunjura miiri iyo na kumicheha na eka uguo akamikira ironda.

Kweherera thina uyu, niwega gukorwo na maratathi mena miena yeri iri utheri na kubanga thiinii wa giito kioee na iguru (mbica ya keeri). Giito kioee na iguru no giakwo na mbau na waya (wire mesh). Giito giiki nigitumaga miri ya mimera yaku ituike ya guchehwo ni riera riria yaharuruka na kuuma na thi ya iratathi. Kuguo miiri ya mimera nihotata gukorwo na hinya tondu ni riera

riramecheha na riria ukahanda muti waku, niugakorwo na hinya na umiriru munigi. Makiria ya uguo, ndugakorwo na ihinda ria wira wa gucheha miiti yaku na ukagitira ugwati wagwikira miti yaku ironda. Umithio uingi wa giito giiki ni ati ni uhuthu kurimira kana kweheria ria giito-ini giaku.



**Fig 2: Mimera ibangitwo giito kioetwo na iguru.**

Giito giiki rimwe nikionekaga ta gitumagira maai maingi. No nikuri njira ingi ingitumika ya kumenyerra maai na kwenja mutaro ugacooka ukabanga turubau ukaigirira mimera yaku hau iguru. Mutaro uyu niukuhota kuiga maai na ukahere mimera yaku ugunyu. Ona no ware iratathi ria munyore rrungu rwa giito giaku na utege maai maria unguhuthira oringi hari mimera yaku.

### Ciirua kuri mucemanio wa Cluster

- a. **Hari guthondeka mihuko wa miti, ikundi irahuthira njira iriku?**
- b. **Ikundi ingihuthira nnjira iriku guteithania gwaka giito gia kuoyo na iguru? Ni andu aigana mangibatarania? Gwa kahinda kariku? Andu aigana kuhariria tiiri, thumu na muthanga?**
- c. **Kuri ikundi cithondekete giito gia kuoywo na iguru**
- d. **Andu mena mataro ngurani? Niwega kwaririria makiria mucemanio wa mweri uguka.**

# Mazingira Bora



## TIST

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

**Kiswahili Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



**Karangi TIST Clusta ambayo iko Muranga County wakati wa mafunzo ya siku mbili katika kanisa katoliki la Karangi, Januari 22-23, 2018.**

**Ndani:** Sera mpya ya bajeti ya Cluster ili kuimarisha huduma zetu kwa wajumbe wadogo wa Kikundi. *Uk. 2*

**Uongozi na Utawala katika cluster yako. *Uk. 2***

**Kujengana: Msikose baraka ya Kikundi chenu. *Uk. 4***

**Kutengeneza mbolea kutokana na mimea – mbolea ya kiasili. *Uk. 4***

**Ni wakati wa kutayarisha shamba lako la Kilimo hai. *Uk. 5***

**TIST: Ubunifu mpya wa kutumia minanda iliyoinuliwa. *Uk. 6***



## Sera mpya ya bajeti ya Cluster ili kuimarisha huduma zetu kwa wajumbe wadogo wa Kikundi.

**B**araza la Uongozi wa TIST limeangalia Sera ya Bajeti ya Cluster. Kwa miaka michache iliyopita, sera imekuwa ya Cluster ili kustahili bajeti, ni lazima iwasilishe ripoti ya mkutano na akaunti kwa miezi mitatu mfululizo.

Sera hii, ingawa ni nzuri kwa makundi ya kazi katika kugawana mafanikio yao, huumiza vikundi hivi ambavyo hazina Watumishi wa Cluster, au ni mpya.

Kwa hiyo, sera mpya imejengwa kama ifuatavyo:

- A) Makundi yenye Mtumishi wa Cluster aliyestahili ataendelea kupata bajeti kamili juu ya kuwasilisha ripoti kamili na ripoti za uhasibu kila mwezi. Hii imepungua kutoka miezi mitatu mfululizo, hadi mwezi mmoja tu (mwezi wa sasa).
- B) Makundi ya zamani yatima yatapewa kwa Mtumishi wa Cluster (au wanaweza kuomba Mtumishi wa Cluster wa karibu) ambaye

atawasaidia kutuma ripoti zao. Baada ya kuwasilisha ripoti kamili, wanapata bajeti kamili kwa kipindi cha miezi sita (6), baada ya hapo wanahitajika kuwa na Watumishi wao wa Cluster wenye mafunzo vizuri na wenye ujuzi.

- C) Makundi mapya ya kawaida yanayotumiwa na Watumishi wa Cluster watakuwa na ripoti zao zilizowasilishwa lakini kuanza kuhitimu bajeti wakati wana Vikundi Vidogo 10 hadi 20, wamepanga na kushika mikutano ya Cluster, na wamefanya uchaguzi wa uongozi wa Cluster.

Kifungu kipyua kitapokea bajeti kamili kwa miezi mitatu, ambayo matokeo yao yatazingatiwa na ikiwa yanaonyesha kukua kwa idadi ya vikundi vidogo na miti inayoendelea, wanaendelea kupokea bajeti kwa miezi mitatu, kipindi ambacho watatambua mwalimu wa CS na watafundishwa.

## Uongozi na Utawala katika cluster yako.

**T**IST ina zaidi ya cluster mia moja na themanini. Katika kila cluster, viongozi watumishi husaidia katika mafanikio yetu na hugawana nguvu zao nasi. Kila cluster inaa utawala na uongozi kama ifuatavyo:

### Viongozi wa cluster waliochaguliwa,

- Kiongozi wa cluster.
- Msaidizi wa kiongozi katika cluster.
- Mwajibikaji wa cluster.

Uchaguzi wa Cluster inafaa na nilazima kwa TIST Clusters. Kiongozi, msaidizi wake na mwajibikaji wa cluster hutumika katika kila nafasi kwa muda wa miezi mine. Baada ya miezi mine ya kutumika, kiongozi wa cluster hutoka uongozini. Msaidizi wake huingia kuwa kiongozi naye Mwajibikaji huwa msaidizi wa kiongozi. Wanawake na wanaume huzungukana katika uchaguzi- kama mwajibikaji ni mwanamume, huyo mwingine atakuwa mwanamke. Cluster yako yafaa kuchagua mwajibikaji mpya kwa

njia ya kidemokrasia. Uchaguzi wa cluster ni muhimuna wa lazima kwa cluster zote za TIST.

### Majukumu ya viongozi wa cluster.

#### Majukumu ya kiongozi.

1. Anafaa kuwa mtumishi wa cluster yote na kuonyesha maadili ya TIST.
2. Huongoza katika shughuli za cluster; huratibu mikutano ya cluster, uhesabu miti na ratiba ya mafunzo pamoja na viongozi wengine.
3. Huvipa motisha vikundi kufikia matokeo makubwa, pamoja na kupanda miti na kilimo hai. Husaidi cluster kubaki na nguvu na umoja.
4. Husaidia kupanga mikutano ya cluster iliyopangwa vizuri pamoja na viongozi wengine na kuhakikisha mikutano inaongozwa na kufunzwa vizuri.
5. Hufanya kazi na Mwajibikaji kuhakikisha kuwa rekodi za mkutano wa cluster na za uwajibikaji zimetunzwa vizuri.
6. Husaidia kuingiza vikundi vidogo vingine.
7. Husaidia kuhakikisha kuwa kadarasi za GhG



za vikundi vidogo zimetwa saina, kuwekwa katika computa na kuingizwa mtandaoni ikitakikana.

8. Hukaribisha na kujulisha mgeni yeyote ambaye amehudhuria mkutano.
9. Katika malipo: Huleta vocha na vitu vingine kabla ya mkutano. Hushirikiana na mwajibikaji kuhakikisha mchakato wote wa ulipaji umezingatiwa na kufikisha maswali au shida zozote kwa viongozi wa TIST na watumishi wa cluster.
10. Huwakumbusha wanavikundi vidogo kuhusu mkutano unaofuata.

### **Majukumu ya Mwajibikaji.**

1. Hufikiwa na bajeti na kutangaza kiasi kilichofika na kutumika katika kila mkutano wa cluster.
2. Hushirikiana na cluster kupanga jinsi ya kutumia bajeti ya cluster kufikia matokeo makubwa.
3. Huweka na kutunza rekodi za cluster katika kitabu cha rekodi kilichopangwa vizuri cha cluster, kama ilivyo na kwa hali nzuri.
4. Huruhusu kuangaliwa kwa rekodi za cluster kwa wanacluster na viongozi wa TIST.
5. Hutuma ripoti ya kila mwezi ya mkutano wa cluster na ya uwajibikaji kila mwezi.
6. Hufunza mwajibikaji anayemfuata.
7. Husaidia watumishi wengine kutumikia vikundi vidogo.
8. Wakati wa malipo: hupeana vocha kwa vikundi vyenye memba wawili mkutanoni, hupitia vocha, huwasiliana na ratibu wa kusaidia katika malipo na hufuata mchakato wa malipo umefuatwa kwa usahihi na ukweli.
9. Hutathmini ubora wa mafunzo ya cluster na ripoti za GOCC.
10. Huhudhuria mikutano ya GOCC kama mwakilishi wa baraza la cluster.

### **Majukumu ya msaidizi wa kiongozi**

1. Hushika usukani kiongozi asipokuwa. Msaidizi wa kiongozi anatumikia memba wa cluster na kiongozi wa cluster.
2. Husaidia wakati wa mkutano kuweka masaa.
3. Huchukua rekodi wakati wa mkutano wa cluster.

4. Husoma yaliyoandikwa katika mkutano uliopiata.
5. Huandika masaa na majadiliano yaliyo katika cluster.
6. Husaidia kufunza mwajibikaji mpya aliyechaguliwa.
7. Hutathmini ubora wa mafunzo ya cluster na ripoti za GOCC.
8. Huhudhuria mikutano ya GOCC kama mwakilishi wa baraza la cluster.

### **Wawakilishi wa cluster katika Chama cha GOCC.**

Msaidizi wa kiongozi na Mwajibikaji watumika pia katika GOCC. Kila mmoja wao atatumika katika GOCC kwa muda wa miezi minane halafu akiwa kiongozi wa cluster, utumishi wao katika GOCC utaiha.

GOCC ina wawakilishi kutoka cluster mbili kufika tano ambazo ni majirani wa karibu. Kikundi hiki kitakutana kila mwezi ikiwezekana wiki ya kwanza na chapaswa kutuma ripoti ya kila mkutano kwa OLC.

### **Majukumu ya wawakilishi katika GOCC**

- 1) Kugundua na kugawana njia bora za kufanya mambo kutoka kwa cluster.
- 2) Uhakikikisha mafunzo ya hali yaa juu katika cluster yakifuatilia maadili ya TIST.
- 3) Uhakikisha uhesabu miti wa hali ya juu unaofuatilia maadili ya TIST.
- 4) Hutunza vyombo vya kazi vya ufunzaji na uhesabu miti.
- 5) Huripoti wasiwasi zilizopo na kutoa mapendekezo katika baraza la uongozi.
- 6) Hueneza TIST kupitia cluster zilizopo.
- 7) Huita mikutano ya utawala iwapo mtumishi amesimamishwa kazi ili kuangalia mambo yaliyokuwa na kutoa mapendekezo kuhusu kusimamishwa kwake.
- 8) Huita mikutano ya utawala iwapo kiongozi wa cluster hafuatilii maadili ya TIST;
9. Hupendekeza watu katika GOCC watakaongezwa majukumu zaidi kwa mfano mkaguzi, TSE, ama mkufunzi mkuu na kazi zingine.
10. Hupata mafunzo mwafaka kuhusu balaza la uongozi.



## Kujengana: Msikose baraka ya Kikundi chenu.

**K**ujengana ni sehemu muhimu sana ya mkutano wa kila wiki wa kikundi chako. Inasema katika Aefeso 4:15,16 kuwa tujengane hadi tuwe na utimilifu wa Kristu. Kila mtu katika Kikundi chako cha TIST huleta talanta na zawadi zake maalum kikundini. Moja ya vitu vya kuajabisha inayotokea katika kikundi kidogo ni kujua, kugawana na kutumia talanta hizo ulizopewa na Mungu.

Kujengana ni njia moja ya kufanya hizo talanta kuonekana na kutumika. Kuna sehemu mbili za Kujengana:

- Kabla ya ombi la kufunga, kila mtu katika kikundi aseme kitu kizuri maalum ambacho kiongozi amefanya katika mkutano huo. Kwa mfano, alitabasamu, aliweka masaa, alifanya mipango mizuri, aliwatia nguvu wanakikundi wote kuongea, alinisalimu na alinifanya nijisikie nimekaribishwa, alisema kitu kilichokuwa kinaendelea vizuri katika mkutano ama katika kazi iliyokuwa ikifanywa na kikundi, na kadhalika. Kila mwanakikundi

anahitajika kusema kitu tofauti. Hili si la kujichagulia. Kila mtu ajenge kiongozi wa utumishi. Vikundi vingine hujenga hata msaidizi wa kiongozi.

- Kuongezea, ikiwa mtu ameona zawadi iliyoonyeshwa na kiongozi, mwanakikundi anaweza pia kusema ni zawadi ipi.

Kwa kupitia uongozi wa mzunguko, kila wiki kiongozi mpya hujengwa. Kupitia Kujengana, tunatiana nguvu kati yetu kuhusu vitu vizuri alivyofanya kiongozi wa wiki hiyo mkutanoni na talanta alizoonyesha mtu huyo.

Kujengana pia ni njia ya kujua kuangalia vitu vizuri kuwahuu watu halafu kuvisema. Sote twahitaji kufunza ndimi zetu kusema yaliyo mazuri. Kuongezea, kikundi chote hujua ni nini kikundi kinafikilia ni muhimu katika kiongozi mtumishi. Viongozi wanaofuata watafaidika kupitia waliosikia katika Kujengana kuhusu viongozi waliopita na kujua ni nini muhimu katika kuwa

## Kutengeneza mbolea kutokana na mimea – mbolea ya kiasili.

**M**boleo ya majani ni mbolea ya kiasilia ya kusaidia mimea yako kukua. Ni bora zaidi ya mbolea za viwanda kwani ni ya kiasili na haina athari za kuumiza mimea na mazingira. Kuna njia nyingi za kutengeneza mbolea, lakini njia ifuatayo imekuwa saidifu katika baadhi ya maeneo. Uliza majirani zako katika cluster yako ni gani imewaonekana.

### Utayarishaji wa mbolea:

- 1) Chagua eneo lenye upana wa mita nne na urefu wa mita nne la kuchimba shimo lako la taka
- 2) Fagia sehemu hiyo
- 3) Chimba shimo la mduara lenye upana wa mita tatu au nne na mita moja na nusu kina.
- 4) Kusanya masala yote ya mimea uliyo nayo na uyakate kuwa sehemu ndogo ndogo ( kwa mfano majani na mashina ya mahindi, mtama, maharagwe)
- 5) Weka masala haya ya mimea katika shimo ilo hadi kina cha nusu mita.
- 6) Halafu ongeza lita tano za jivu
- 7) Halafu uongeze centimita thelathini (ama kiwango kilichopo) za kinyesi cha mifugo (kwa mfano kinyesi cha nguruwe, ng'ombe, mbuzi au kuku).
- 8) Ongeza safu nyingine ya majani ya mimea na mashina (nusu mita)
- 9) Ongeza lita zingine tano za jivu.

- 10) Ongeza majani na mashina tena hadi shimo likaribie kujaa.
- 11) Hatimaye, ongeza safu ya udongo hadi shimo lijae.
- 12) Unapokuwa ukiweka udongo shimoni, ingiza fimbo ndefu katikati mwa shimo hadi ifike chini ya shimo.
- 13) Liache shimo la taka kwa miezi mitatu (siku tisini).
- 14) Katika kipindi hiki tumia maji yako machafu kuweka katika shimo hili. Kwa mfano, baada ya kuosha nguo au nyumba, yamwage maji uliyotumia juu ya shimo. Ikiwa una mifugo waweza pia kumwaga mikojo ya mifugo juu ya shimo.
- 15) Jambo hili litaongeze naitrojeni kwa mboleo yako.
- 16) Jaribu kuweka maji kila siku kwa njia hii, ama wakati maji yapo.
- 17) Baada ya siku tisini mbolea itakuwa tayari.

Tumia fimbo kama kipima joto – mbolea inapokuwa tayari lazima iwe na joto na waweza kuona mvuke ukitoka kwa fimbo hiyo baada ya kuitoa.

### Matumizi ya mbolea hii:

Ukishachimba mashimo yako ya kupanda mahindi, mtama au mimea mingine, ongeza mboleo kiwango kinachotoshea katika kiganja chako katika kila shimo. Angalia ili kujua matokeo!



# Ni wakati wa kutayarisha shamba lako la Kilimo hai.

**W**anaTIST katika vikundi vidogo ambao wamelima kwa kutumia njia ya Kilimo hai wameshuhudia kuwa ukulima bora una vuno bora na la kuaminika kuliko ukulima wa kawaida, san asana wakati mvua haitoshi.

Mashimo husaidia kushika mvua wowote unaonyesha na kuyawezesha haya maji kupatikana kwa mmea.

Makala haya yatakusaidia kuelewa zaidi kuhusu jinsi ya kujaribu kilimo hai. Kufuatilia mienendo bora ifuatayo kutakusaidia kupata mavuno bora zaidi msimu unaokuja.

## **Kutayarisha shamba.**

Tayarisha shamba lako angalau mwezi mmoja kabla ya mvua.

- Ondoa magugu na vichaka kutoka shamba lako. Usilime.
- Tayarisha mashimo yako ya umbo la mstatili. Yapaswa kuwa na upana wa sentimeta kumi na tano, urefu wa sentimeta thelathini na tano na kina cha sentimeta kumi na tano. Nafasi kutoka shimo hadi lingine iwe sentimeta sabini na tano.
- Chukua mbolea na udongo wa juu na uchanganyishe. Jaza shimo kwa huu mchanganyiko hadi sentimeta tano chini ya ardhi ya kawaida.

## **Kupanda.**

- Unapopanda mbegu ya mahindi (Siku moja au mbili kabla ya mvua), panda mbegu nne kuvuka shimo.
- Kama unapanda wimbi, panda mbegu tano au sita katika kila mwisho wa shimo la kupanda baada ya mvua tosha.

- Funika mbegu kwakutumia mchanganyiko wa udongo na mbolea. Baada ya haya udongo katika shimo uwe sentimeta mbili na nusu chini ya ardhi ya kawaida.
- Nafasi iliyopo juu ya shimo itasaidia maji kufikia mimea mvua ijapo.
- Hauhitaji kutumia mbolea za viwandani katika shamba lako la kilimo hai. Mimea yako itafanya vizuri hata bila ya mbolea za viwandani.

## **Kuondoa magugu.**

- Ondoa magugu kuzunguka mashimo mara kwa mara.
- Usipalilie shamba lote. Nje ya mashimo, mimea yaweza kufunika udongo, huku ikiuweka baridi na kuuzuia kumomonyeshwa na mvua au upepo. Tumia panga kutoa magugu katikati ya mistari au katika nafasi iliyopo kati ya mashimo. Palilia mara kwa mara kuzuia magugu kuzaa na kuenea mashimoni.
- Yawache mabaki ya magugu shambani ili yaoze. Haya yatasaidia kuongeza rutuba ya udongo.

## **Unayofaa kufanya baada ya kuvuna.**

- Usiyachome mabaki ya shamba lako. Yawache udongoni ili yaongeze rutuba ya udongo. Mabaki ya mimea yaweza pia kutumiwa kutengeneza mbolea.
- Usiwalishe ng'ombe shambani lako. Tafadhali kumbuka, tutafurahi kusherehekea vuno lako kubwa na kuijua mienendo bora katika eneo lako kupitia jarida hili pamoja na katika mkutano wako wa cluster.

Anza kufanya kazi sasa!



## TIST: Ubunifu mpya wa kutumia minanda iliyoinuliwa.

**T**IST inawahamasisha wakulima kujaribu minanda iliyo inuliwa. Wakulima wengi wamegundua kwamba njia hii inaimarisha miche wakati wa upanzi. Jaribuni minanda iliyoinuliwa na mpeane ripoti ya matokeo kwa Cluster yenu na kama njia hii ikona manufaa Zaidi kwenu.

Picha ya kwanza (1) inaonyesha njia za kawaida za kupanga nyungu kama ulivyochezewa hapo juu.



**Picha 1: miche ya Moringa Oleifera imepangwa ardhini.**

Njia hii ya kitamaduni ya kupanga vyungu hivi chini inachangia miche kuwa na mizizi ilidhoufika sana. Hii ni kwa sababu mizizi inajikunja ndani ya chungu kile ilichopandwa. Wakati wa kupandikiza, ile mizizi huwa imedhoufika ki afya na kwa hivyo huwa haianzishi vizuri wakati wa upanzi. Ama ile mizizi ina mea hadi inapita kile chungu hadi kwa udongo. Hivyo inahitaji kupogoa mizizi kabla ya kuipanda.

Kuzuia haya yote, inapendekezwa kupanda mbegu zile kwa mifuko ama vyungu ambavyo havijazibwa chini na kuziweka kwa minanda iliyo inuliwa. (picha ya pili) Minanda iliyoinuliwa inaweza kutengezwa kwa urahisi ukitumia sura ya mbao na waya yenye matundu (ona picha) Minanda iliyo inuliwa inarahisisha kupogoa mizizi moja kwa moja kwa sababu mizizi ikifika chini ya mfuko iliyopandwa, inashuka yenyewe.

Hii ina maana kwamba mizizi hawapati kujeruhiwa kupitia njia ya kawaida kupogoa. Mizizi kisha huwa na kuimarika kwa afya ndani ya bomba bila ya kumea zaidi.

Hii hutoa afya mfumo wa mizizi na miche ina nafasi nzuri ya kuanzisha haraka na vizuri mahali itakapo pandwa.

Hii upunguza haja ya kazi ya kupogoa mizizi, zoezi ambalo hufanyika mara nyingi limechelewa ama linasahaulika kabisa. Kusababisha uharibifu mkubwa wa mizizi tu kabla ya miche.

Kwenda kupandwa kwa uwanja. Pia ni rahisi kuzuia kwekwe ni rahisi kwa minanda iliyo inuliwa.



**Picha 2: miche ya aina mbalimbali imepangwa kwa juu ya mnanda ulioinuliwa.**

Minanda iliyoinuliwa inaweza kuonekana kama inatumia maji mengi zaidi ya yale yanatumika kwenye minanda ya kawaida. Lakini wanaofanya hii kazi ya minanda wamegundua njia bunifu za kupambana na vikwazo vya ukosefu wa maji. Njia moja bunifu inahusisha kuchimba mtaro na kuweka mbao na waya yenye matundu ikitanda mahali pale na kuweka miche kwa zile mbao ama ile waya yenye matundu. Miche inaonekana kama iko kwa ardhi lakini ule mtaro utaweka miche unyevu kupitia maji kupaa kwa sababu ya jua na kwa hivyo kupunguza haja ya kuweka maji mara kwa mara. Karatasi ya nailoni inaweza kuwekwa pia kwa ule mtaro kuzuia maji kuingia ardhini.

### Maswali ya kuuliza wakati wa mikutano mafunzo ya Cluster

- Ni vifaa gani ambavyo vikundi vidogo vidogo wametumia kwa mafanikio kutengeneza vyungu ya mifuko? Shiriki njia zilizo nzuri kabisa.**
- Je, vikundi vidogo vidogo vinaweza aje kujipanga minanda yao ya vyungu? Ni watu wangapi wanaohitajika kuandaa vyungu hivi? Ni watu wangapi wanaohitajika kuandaa mchanganyiko huu wa udongo? Wapi?**
- Ni vikundi vingapi vimejaribu minanda ya vyungu iliyo inuliwa?**
- Kuna watu wana ushauri mwingine? Shiriki maelezo katika mkutano ujao wa mafunzo**



# Mazingira Bora



# TIST

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

**Kikamba Version**

An Environmental, Sustainable  
Development and Community Forestry  
Program.



**Ngwatanio ya TIST ya Karangi Muranga County yila maina umanyisyo wa mithenya ili ula weekiwe ikanisani ya katoliki matuku 22 na 23 January 2018**

**Inside:** Mbangyeti Nzau ya ngwatanio sya TIST yelekele kwongela vinya uthukumi kwa ene tukundi. *Page 2*

Utongoi na uungamii wa ngwatanio yaku. *Page 2*

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## **Mbangyeti Nzau ya ngwatanio sya TIST yelekele kwongela vinya uthukumi kwa ene tukundi.**

**U**tongoi wa kanzu ya TIST ni unekaliile nathi waliano wa mbangyeti ta ngwatanio. Kwa myaka yianona mivituku, waliano ula withiitwe kwa ngwatanio kukwata mbangyeti wiasya nonginya matume mathanguu moo ma mbumbano sya kila mwai na livoti ya masavu vandu va myai itatu iatiane.

Onakutwika waliano uu ni museo kwa ngwatanio ila iuthukuma na kuweta kwika kwoo nesa, ni kumiasya ngwatanio ila itena athukumi masyo kana athukumi ala mevo ni eu na uyithia maitonya utunga livoti kwoou mailea ukwata kila kyaile.

Kwoou, waliano mweu uneekiwa na wiasya tauu:

- a) Ngwatanio ila syina athukumi avitukithye syiendee utunga livoti undu vaile na kunewa mbangyeti yoo itina wa utunga livoti sya kila mwai sya mbumbano na masavu. Vala ivinda yinaolilwe kuma myai itatu nginya mwai umwe. (Mwai ula wivo)
- b) Ngwatanio sya tene ila itwikite ndiwa ni ikunengwa muthukumi (kana ikulye

muthukumi wa ngwatanio ila mathengeanie amathukume) amatetheesye kutuma livoti syoo. itina wa kumina utunga livoti ni meunegwa mbangyeti yoo ya myai thathatu (6), itina wa uu maile ithiwa ma manyiity'e umwe woo kutwika muthukumi utonya na muvitukithye kutunga livoti syoo.

- c) Ngwatanio ila nzau syaile ukwathiwa ni muthukumi wa ngwatanio na livoti syoo kutungwa onakau kuvitukithw'a kukwata mbangyeti syaile ithiwa na tukundi kuma 10 kuvika 20, mayithiwa mimbanite mbumbano sya kila mwai na mekite unzakwani wa utongoi wa ngwatanio.

Ngwatanio nzau ikakwata mbangeti yoo yonthe itina wa myai itatu. Itina wa uu matokeo moo ni mekw'iwa usyaiisyon na kwoneka undu maneana na namba ya tukundi tula tulikite na miti ila matonyete kwikalya na maiendee ukwata mbangyeti yoo itina wa kila myai itatu, ivindani yila meithiwa maile kwithiwa molootete muthukumi wa ngwatanio yoo na akamanyiw'a.

## **Utongoi na uungamii wa ngwatanio yaku.**

**U**imuthi TIST yina ngwatanio mbee wa ngwatanio 180. Nthini wa kila ngwatanio vena mutongoi ula ula ukwete mbau kuendee kwitu na kwithiwa naitu nthini wa mawonzu na molumu maitu. kila ngwatanio yina utongo na uungamii uilyi uu:

### **Atongoi anyuve ma ngwatanio.**

- Mutongoi wa ngwatanio
- Munini wake
- Mwii wa kinandu / mwiki wa masavu.

Utongoi uyu wa ngwatanio niwaile uthukuma vandu va myai ina naindi uthi kithyululu vala munini wa mutongoi utwika mutongai na mwiki wak masavu aitwika munini wake na vaiyuvwa mundu ungi wa uthukuma ta mwii wa kinandu kyumanisyo ethiwa mwii wa kiandu ula unaivo ni mundu muka ula usakuawa kumatia ethiwa e munduume. ngwatanio yenyu niyo yaile usakua ula ukutwika mwii wa kinandu itina wa kila myai ina. uyu ni undu wa lasima kwa kila ngwatanio ya TIST.

### **Mawia ma utongoi wa ngwatanio.**

#### **Mawia ma mutongoi.**

1. Aile ithiwa e muthukumi kwa ngwatanio yonthe na engelekany'o kwa maundu na walany'o wa TIST.
2. Nutongoasya maunduni ma ngwatanio, kuungamia mbumbano sya kila mwai, uvitukithya, umanyisa ena atongoi ala angi.
3. Kuthuthya ikundi kuvikia mosyao manene ta kuvanda miti, nima ya kusuvia (CF), kutetheesya ngwatanio kwikala yi numu na yina uumwe.
4. Nuthukumaa vamwe na mwii wa kinandu na atongoi ala angi kuikiithya livoti na mathangu ma mbumbano sya ngwatanio nimaie nesa nakuikiithya yila kwina umanyisa na mbumbano nisyekwa nesa na kwa nzia ila yaile.
5. Nuthukumaa vakuvi na mwii wa kinandu kuikiithya kana livoti sya mbumbano na masavu nimaw'o ma kila mwai na niwatunga livoti isu syi nzeo na ite nzelee.
6. Nutetheesya kumanyisa tukundi tunini undu tutonya ulika ngwatanioni na kutuandikithya.



7. Nutetheeasya tukundi tunini kwona contract syoo na Green House Gas nisyeeekiwa saii, syeekwa scan nasya likwa kwa internet ethiwa vena vata.
8. Nuthokasya na kumanyithany'a mueni ula wavika mbumbanoni syoo.
9. Kwa ndivi: Nulatasya mathangu ma ndivi (voucher) na kila kingi kikwendeka mbee wa mbumbano. Nuthukumaa na mwii wa kinandu kuikiithya nzia ila yaile ya ndivi niyaatiwa, na kuneenany'a ethiwa ve ikulyo kana thina kwi atongoi ma TIST na athukumi ma ngwatanio.
10. Kulilkan'ya tukundi iulu wa wumbano ula ungi yila ukethiwa.

**Wia wa mwii wa kinandu.**

1. Nukwataa mbesa sya mbungyeti ya ngwataniona kutangaasa ni mbesa nziana ukwatie na undu itumikie kila wumbanoni wa ngwatanio.
2. Nuthukumaa na ngwatanio kwia mivango ya undu meutumia mbesa ithi sya mbandyete kuvikia usyao munene.
3. Niwiasa na lekoti na mavuku mangwatanio na kuikiithya mena uw'ona nimaandikitwe nesa.
4. Nunengae ene ngwatanio na atongoi ma TIST mwanya wa kunikila mavuku aya na lekoti.
5. Nutumaa livoti sya kila mwai itina wa mbumbano sya ngwatanio.
6. Numanyiasya mwii wa kinandu ula ungi wasakuwa.
7. Nutetheeasya athukumi ala anga kuthukuma tukundi tunini.
8. Ivindani ya ndivi: nunenganae mathangu ma ndivi (vouchers) kwa ikundi ve ene ikundi eli kuma kila kikundini, nunenanasya na ala maivaa na kukwata mbau wia uu na kuatii kwona ndivi yeekwa kwa w'ona na kwa nzia ila yaile.
9. Kukunikila wailu wa umanyisya wa ngwatanio sya Tist na livoti sya GOCC.
10. Kuvika umbanoni wa GOCC ta umwe wa kanzu.

**Wia wa munini wa muttongoi.**

1. Ni ukwatiiaa mawia ma mutongoi yila mutongoi utevo na kuthukuma ene ngwatanio vamwe na mutongoi.
2. Nutetheeasya yila kwina mbumbano kwa kusyaiisya masaa.

3. Ni uandikaa na kwia lekoti na kuandika kila kyaneenwa yila kwina mbumbano.
4. Nusomaa kila kyaneenaniw'e yila kwai na wumbano muvituku.
5. Niwiasa lekoti sya uneenanya ula weethiwa nthini wa ngwatanio.
6. Nutetheeasya kumanyisya mmwii wa kinandu ula wasakuwa.
7. Kukwata wailu wa umanyisya na kitinga livoti kwa utongoi wa kanzu.

Ula withiawa kanzuni ya ikundi vandu wa ngwatanio yake (Cluster representative to the group of Custer Council).

Munini wa mutongoi na mwii wa kinandu wa ngwatanio nimathukumaa nthini wa GOCC. kila umwe niuthukumaa vandu wa myai nyaanya (8months) naindi atiwika mutongoi wa ngwatanio uthukumi wake thini wa GOCC uithela.

GOCC iseuvitwe ni ala methiawa ilioni sya ikundi ta 2-5 ila ituanie. kanzu ino (GOC) ni kakomanaa kila mwai ta kyumwa kya mbee kya mwai na kunengane livoti ya mbumbano syoo kwi OLC.

**Mawia ma ula withiawa kilioni kya kanzu ino ya ikundi (GOCC).**

1. Kumatha nzia nzau sya uthukumi kwa ngwatanio
2. Kuikiithya umanyisya museo na wa yiulu maatii mawalany'o na myamulo ya TIST.
3. Kuikiithya kuvitukithya kwa kila kiseo vaatiiwe mawalany'o ma TIST.
4. Kwikalya miio ya uvundisya na uvitukithya ithukuma nesa.
5. Kutunga livoti na kunengane woni nthini wa Utongoi wa Kanzu.
6. Kuthathsya TISTS maatii ngwatanio ila syivo.
7. Kwithiwa na syikalo sya kwithukiisya na kwika ukunikili ethiwa muthukumi wa ngwatanio nimuungamye wiani na kunengane wani iulu wa kuungamw'a kuu.
8. Kwithiwa na syikalo sya kwithukiisya ethiwa mutongoi waa ngwatanio nde kuatii mawalany'o ma TIST.
9. Kumya woni iulu wa ikundi kuma ngwatanioni kwongelwa wia ni TIST ta Auditor, TSE, Master Trainer na mawia anga.



## Kwakana: Ndukavitukwe ni uathimo wa kakundi kaku kanini.

**K**wakana ni kwavata muno nthini wa kakundi kanini yila mwakomana kila kyumwa. Nthini wa Aveso 4:15 - 16 yiasya tuthuthanie ithyi kw aithyi kwindu wa uima wa Klisto. Kila umwe kakundini kenyu kanini nuetae kinengo kivathukany'o kwa kakundi kenyu. Kindu kimwe mwaile ni kwika ni kwona na kwakana na inengo ila Ngai umunengete.

Kwakana ni kueka inengo ila mwinasyo kwoneka kila kimwe kiithukuma. Ve nzia ili sya kwakana

- Mbee wa mboya sya mwiso/kuinga wumbano kila umwe niwaile uweta undu wa kuthuthia ula mutongoi wikie nthini wa wumbano usu. Kwa ngelekany'o, kukeny'a, kusuvia masaa, walany'o museo wa mivango, uneeni wa uthuthia andu maneene, ngethi itumie mundu ew'a e muthokye wumbanoni, kumya mwolooto iulu wa undu uwetiwe na weekwa ni kakundi kaa na weethiwa wi museo mbee kwa kila umwe na angi maingi. Kila umwe nowaile uneena undu onakau ni kwenda kwa mwene.
- Ethiwa nimwoona kineng'o kinenganitwe ni mutongoi wenyu nimwaile ukiweta nikana onake amanye na kwiyikia vinya.

Na utongoi wa kumanisya/kithyululu kila kyumwa mutongoi mweu akaakawa. Kwakanani kila umwe watongosya kyumwa kiiu akeethiawa akikite nundu kinengo kyake kila kitena ungi akeethiawa atonya utavya na kuthuthw'a iulu wakyo ni amemba ala angi yila meuneenea kwakana.

Kwakana ni nzia ingi ya kusisya maundu ala maseo munduni na kumaweta, ithyoonthe nitwailwe uvundisya nimi situ kuneena mauseo ma umwe kuthi ula ungi. Nikana withie kila umwe niwoona na kusoma kuma utongoini wa uthukumi wa kila umwe wanyuvwa kutongosya. Mutongoi ula ungi mukanyuva akeethiwa emanyiiti'e maundu meu kuma kwakanani kwenyu kula mwaaka mutongoi ula ei mbee wake. Ethiwa mukaneenany'a kwa kwakana ukeethia vaina mundu ukuthi anyungunyisya ayasya undu, unduu uu wialile kwikwa nundu kila umwe ena muyo na nimwianie nikwithiwa ethiwa motongoi ona akitie kwasya "nimuvea" kila umwe ena muyo na vai mundu ukwiw'a ataile na mundu atavya useo wake nutanaa na kumanya undu uteisi iulu wake mwene.

Kwakana ni uathimo keli nundu ula uteisi kinengo kyake akimanya nuendeeaa na kukitumia na ungi akevundisya kuma kwake kwoonda wa utongoi ula wanengwa.

## Kuseuvya vuu wa yiima - Vuu ute na kemikoo.

**V**uu wa yiima ni vuu usevitw'e vate ndawa na mimea kuma muundani na nutumaa mimea yiana nesa. Ni museo kwi vuu wa kuua ula wina kemikoo nundu niwakuma mniemani na niwamana ti wakuua na nwanangaa liu kana mawithyululuko ta vuu /vatalisa wa kuua. Ve nzia mbingi sya useuvya vuu uyu, lakini ve nzia imwe nzeango kwi syothe isioni imwe. Kulya mutui waku wa ngwatanio yenyu kila kithukumite nesa kwoo.

### useuvya vuu wa yiima.

- 1) Kusakua kisio kya matambya 4 x 4m na kwisa yiima.
- 2) Enga kisio.
- 3) Inza yiima uthathau wa 3 - 4m na 1.5uliku.
- 4) Kolany'a matialyo ma mavemba, muvya, mavoso na uitilanga tulungu tuniini.
- 5) Ikiya yiimani itumie uliku wa 0.5m.
- 6) Ikiya muu wa lita itano.
- 7) Ongela kyaa kya indo ethiwa kivo kya uliku wa 30cm ethiwa vaii oundu kiana (uyu ni vuu wa nguluwe, ng'ombe, mbui kana nguku).
- 8) Ongela matu na makusa uliku ungi wa 0.5m.
- 9) Ikiya muu ungi wa lita itano.
- 10) Ongela matu na makusa withie yiima

notayausua.

- 11) Ususya yiima na muthanga.
- 12) Uyusuya yiima ikia muti muasa kati withie utinite yiimani ungu.
- 13) Eka yiima yiu yiyiue vandu va myai itatu kana mithenya miongo kenda.
- 14) Ivindani yii yonthe osaa kiw'u kila kina kiko uketa vo ngelekany'o kila wavua nakyo kana kuthambya miio. Ethiwa wina maumao ma indo no wite vo.
- 15) Kii nikyongelaanzeve ya Nitrogen nthini wa vuu.
- 16) Tata navinya ungiye yima yii kila muthenya kwa nzia ila utonya.
- 17) Itina wa mithenya miongo keenda vuu wiithiwa wi tayali.

Tumia muti uyu wikati ta kithimi kya uvyuvu. Vuu wasuva ukeethiwa wimuvyu na nowone muti uuyu waumya uitoa.

### Utumii wa Vuu wa yiima.

wenza maima ma uvanda mbemba, muvya kana o mimea ingi ikia ngundi imwe ya vuu kila yiimani. Syaiisya wone kila ukwata kuma vo!



## Ni ivinda ya kuseuvia miunda kwa nima ya kusuvia.

**T**ukundi tunini twa TIST tula twithiitwe tuitumia nzia ino ya nima ya kusuvia (CF) nimaendee na kukwata ngetha mbingi na nzeo kwi yila mana tumiaa nzia sya kitene sya nima ona yila mbua nini.

Maima nimatetheeasya kutumaninia kiw'u yila mbua yaua kwoou uyithia kivakuvi kwa mimema.

Ithanguu niyukutwetheesya kuelewa na kumanya mbee iulu wa Kilimo hai. Kuatiia nzia ithi nikuukutetheesya kukwata ngetha nzeo mbua ino yukite.

### **Kuseuvia muunda.**

Seuvia muunda waku vainyiva mwai umwe mbee wa mbua kwambiia.

- Thesya kisio withie kiina yiia kana ikuthu. Ndukaima.
- Seuvia maima maku mema kona inya. Kila yimwe yaile ithiwa yina uthathau wa 15cm, uasa wa 35cm and uliku wa 15cm. Utaaniu wa maima waile ithiwa wi 75cm.
- Osa vuu na muthanga wa iulu uvulany'e na uyususya yiima yii ta 5cm na muvulany'o usu.

### **Kuvanda.**

- Yila ukuvanda mbemba (mithenya ili ka umwe mbee wa mbua kwambiia) vanda matonya ana muthangani usu ikelene ma mbemba.
- Ethiwa wi vanda muvya vanda matonya 5-6 kithyululu mwisoni wa yiima itina wa mbua kua nesa.

- Vwika mbeu na muthanga muvulanye na vuu uliku wa 2.5cm itina wa uu yiima yitiwa yina mwanya wa 2.5cm.
- Mwanya uyu watiwa niw'o utetheeasya kiw'u kuvikia mbeu/ngii yila mbua yaua.
- Tilasima utumie mbolea ya kuua (fertilizer) yila ukwika uimi wa kusuvia muundani waku. mime yaku noikwika nesa watumia vuu wa yiima.

### **Kuimia.**

- ima uthyululukite maima kaingi
- Ndukaima kisio kiu kyothe savali umwe vuu. Nza wa maima, mimea noivwike muthanga na kutetheesya kuuthithya na kusiiia kukuwa kwa muthanga ni nzeve kana mbua. Ima tu vakuvi na yiima na yimani. Tumia kilovoo/kivanga kwenga yiia yila yi mwanyani ula uaanitye maima. Ima kaingi kusiiia yiia kuvikia mimea .
- Tia mavuti aya na yiia moee kisioni kiu, nundu moa meendee na kuete unou wa muthanga.

### **Kuvutha Itina wa ngetha.**

- Ndukavivye matialyo/mavuti muundani. Ekana namo nundu ni unou wa muthanga, kana ukue ukamainde yiimani useuvye vuu/mbolea.
- lilikana ndukaingiie indo muundani wamina ngetha.
- Kwa ndaia lilikana kana tukatana naku weethiwa na ngetha nzeo itina wa kwimanyisya na kuatiia nzia nzeo sya uimi wa kusuvia kwisila ithanguni yii na mbumbanoni sya ngwatanio yaku sya kila mwai.

Ambiia uthukuma oyul!



# TIST: Nzia nzau sya uthukumi: mbisu sya kivuio kya kitanda.

**T**IST nithuthasya aimi kutumia nzia ya kivuio kya kitanda. Aimi aingi nimonete kana undu uu utumaa withiwa na ivuso iseo ya miti yaku mingi kwiyumisya na kuelea kuma. Tatai nthini wa ngwatanio yenyu museu vyve kivuio kii kya kitanda nikana mwone undu kiuthukuma nesa kwenyu.

Visa uu I. wionania nzia ya tene ya kwia miti kivuioni kya nthi.



**Visa I. ii nimiti muthemba wa Moringa Oleifera ila ivangitwe kivuioni kya nthi.**

Ndia ino ya tene ya kuvanga miti kivuioni kya nthi itumaa miti yithiwa na mii itena vinya. Kii nikwithiwa mii yikunziaa mathanguni aa. Yathamiiw’a muundani uyinyia mii nimyosu na kukwata kwa muti uyithia kwina vinya nindu iyisa utambuuka na kwambiia kuthi na nthi nikukua ivinda. Ingi ethiwa ti uu ukethia ethiwa mathangu ti makunike ungu niyamea na kutwaa mii na nthi vala ivuitwe na ithamw’a ila mii nitilikaa na kutuma muti usu wathamw’a withiwa mwosu kukwata. Nikana kumanwa na nthina uyu vuia miti mathanguni **matemakunike itina** na kwia **kivuioni kya kitanda** (Visa.2). Kitanda kya kivuio ni useuvya okwa nzia ite vinya kuma mbwauni/mitini na waya wa kisungi kina maima mathathau. Kivuio kya kitanda nikitumaa mii yinzea na ukethia niyamea kuinanthi nundu ithangu ti ikunike itina. Mii yaasava na kuvituka ithangu nisuaa na ikaendee na kwithiwa na vinya na tumili tula twanzeve nitwinzeaa kwoou muti nduumia usewa mii. Kwoou muti uyu watwawa muundani withiwa utonya ikwata na kumea kwa mituki. Ingi wia wa kusea mii

withiwa waoleka ula ni wia kaingi wulaa kana ukekwa wi muselee muno, na uiete wanangiko munene kwa miti ino iyumwa kivuioni. Ingi vayithiwa na yiia kwoou kuimbia kivuio kuivo.



**Visa 2: mithemba kivathukanio ya miti kivuioni kya kitanda.**

Ivuio sya kitanda nitumaa kiw’u kitumika kingi. Onakau ala mena ivuio ii mena nzia ya usiia kiw’u kuthi kingi. Nzia imwe ila menayo ni kwisa mutau, kwikia matilo ma miti na kwiliila miti vo. Ingi miti yeekiwa kivuioni takii withiaa yioneka ta yinthi onakau ungu va mutau .Kiw’u kila kyalika mutauni uu nikikalaa vo na kwikalya miti yina kimeu kwoou uyuthia ndiungithw’a kaingi. Ingi nutonya kwalania ithangu ya nailoni kukolania kiw’u kila kyetika kikanthi.

## **Makulyo ma ukulya yila kwina umayisyo wa ngwatanio.**

- a. **Ni matilio syiva mutumiite kuseuvya mbisu sya uvanda miti? (mathangu ma nailoni kana)**
- b. **Tukundi tunini nata tutonya kwiymbanisya kivuio kya kitanda? Na nia andu meana ata mendekaa kuseuvya imbisu? Indii? na ni andu meana ata mendekaa kuseuvya na kuvulania muthanga? va?**
- c. **Ve kikundi kimwe kitatite kivuio kya kitanda?**
- d. **Vena mundu wina utao ungi? Nenanisyai uvoo uu yila mwina umbano wa amanyisya.**

# Mazingira Bora



# TIST

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

*Kipsigis Version*

An Environmental, Sustainable  
Development and Community Forestry  
Program.



**Karangi TIST Kilasta en Muranga County komiten en tuiyetab konetisiet betusiek aeng en Karangi Catholic Church en January 22-23-2018.**

**Inside:** Ngatutiet nelel nebo tetetab rabisiek en Kilasta asi komuch kogimit boisiet en kurubisiek che mengechen. *Page 2*

**Kandoinatet ak ngatutik en Kilasta.** *Page 2*

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**Ketoo keturrek chebo minutik.** *Page 4*

**Kasarta nepo, chopet 'tap imbaret kokany.** *Page 5*

**TIST kotinyei boisiet ne kararan neton ko kabeti ne kanabtaiyat.** *Page 6*



## Ngatutiet nelel nebo tetetab rabisiek en Kilasta asi komuch kogimit boisiet en kurubisiek che mengechen.

**T**IST nebo leadership coucil ko kogoit ko lelit tetetab rabisiek chebo kilasta. En kenysisiek che kogobata ko kotam konyoru rabisiek kilasta ne koituwosi mogutik ye koiyokto rebot nebo tuiyet ak nebo rabinik en orowek somok che koisibgei.

Ngotutiyoni ko kararan en kilastaisiek che tinye bandabtai amun tinye wolutik che ko roronon, tos tot komaimuch kotoret kilastaisiek che motinye kiboitnik che moboisie anan ko chelelach.

En imanit miten Ngatutiet nelel kouni:

A. Kilasta ne miten kiboitiyot ne yamat ak koyoto rebot nebo tuiyet ak nebo Rabisiek en kila arawa koite konyor rabisiekwak. Kogibos komego orowek somok kou atgai tugul.

B. Miten kilastaisiek che motiye kiboitiyotab kilasta .Imuchi kocheng chito ne imuchi kotoret ne negit ak kilasta nenyuan asi komuchi koyotechi rebot nebo tuiyet nyuan, koite konyor rabisiek en orowek 6 asi komuchi ko chegige kiboitiyot ne nenyuan ne yamat.

C. Kilasta nelel nebo katugul komuchi kotoret kiboitiyot ko yotechi rebot asi komuchi koit konyor budget. Ago moyomosei agot komotiye kurubisiek kongeten 10-20 che nootin ak kotinye kondoik chebo kilasta.

Kilasta nelel konyoru rabisiek en orowek somok yetok bandabtai ne nyuan ko tesak kurubisiek ak ketik che tinye. Ketesin orowek somok konyor rabisiek kot koit kosich kiboitiyot ne kaginet kobois komie koyamak.

## Kandoinatet ak ngatutik en Kilasta.

**E**n iguni kotinye tist kilataisiek 160 kilasta agetugul kiboistinikab kilasta kotoreti ak boisionik kiyok ak kobchee kotinye

ngotutik ak kandoinatet kouni:

### Kondoik chelewenotin:

- Kondoitetab kilasta
- Rubeiyot
- Chemotogo

En kibotnik chetonkotinye boronodo nebo orowek angwa koboisie yeibata komanda kondaitetab kilasta konyon konomchi rubeiyot koik kondoitet neo, konyo akine chemotogo koik rubeiyot en let kelewen chemotogon ne lelel. Tinye boroindo kwonyik agichek koik kondoik.

Bogomunet niton kayai lewenisiet en tist kilasta tugul.

### Boisietab kondoikab kilasta

Boisietab kondoitet

1. Koik kiboitiyotab kilasta tugul ak kobor totochikab TIST.
2. Kondoik chetolonchin boisionikab kilasta, koitikab ketik kotet konetulik ak kiboitnik alak.
3. Konet kurubisiek konyor melekwek chechang, kobo komin ketik, koyai (CF) ak kotoret kilasta kotuiya asi kogimit.
4. Kotet agobo tuyosekab kilasta ak kiboitnik alak.





5. Kobo is ak chemotogo agoger kole kogerib sirutik komobetiyo, ak kiyoto rebotisiek tugul
6. Kotach kurubisiek che lelach.
7. Kotoret kiyoto (koyososiekab kurubisiek chelelach).
8. Kotoch toek ak konet yon kabwa tuiyet.
9. Koger kole konyor kurubisiek vochaisiek yon miten kotomo kinan tuiyet. Ak kosib kon ole nyoluncho.
10. Kobwotik biik agobo tuiyet nrnyone.

**Boisietab chemotogo**

1. Kotoch che kochut legut ak komwochi biik ak chegagiboisien en betutab tuiyet.
2. Kotet ak tuiyet ole kiboisionto asi kenyor melekto neo.
3. Korib ak kosir wolutik en kitabu en oret neiyat ak kogonor komie.
4. Koyonchi kondoikab tist kosuwa ak chebo kilasta.
5. Koyoto rebotisiek tugul chebo kilasta.
6. Konet chemotogo ne isibu inendet.
7. Kotoret ak konet kiboitinikab kurubit.
8. Kotoret kogoito vochaisiek en kastab libanet en kurubit nemiten biik oeng kawekta vochait ak kongalal ak chito ne tonouchi libanet.

**Boisietab rubeiyot**

1. Kotonchi tuiyet yon momiten kondointet ak kotoret membaek and kondochi yuiyetab kilasta.
2. Koribchi tuiyet saisek.
3. Kosir walutik en tuiyet.

4. Kosomochi tuiyet wolulikab arawet ne gosirto.
5. Korir walutik ak kit neganga lalen tuiyet.
6. Konet chemotogo lelel.

**Kondoikab kilasta kobenti koik kondokab council (gocc)**

Rubeiyot ak chemotogo kobenti koikadoik en (gocc) en korurugutioni koboisiechin kilasta en kasartab orowek sisit komanda.

En korurugutioni (GOCC) koyomtosgei kilastaisiek 2-5 che itinge. Kondoichin kotinye tuiyenwan en kila arwa wigit netain nebo arawet. En ngalenwan koyongto reboysisiekwak koba (olc)

**Boisietab kondoikab council**

1. Konger agobchei boisionik chemiten kilasta
2. Konger kole koitik konetisoesiek kilasta ak tolochikab TIST.
3. Kotononchi masinisiek chekiboisien ak koitetab ketik.
4. Koyoto reboisiek kon olenyolu koba tuiyetab (OLC).
5. Kotech kilasta koet.
6. Kotononchi kiboitinikab kilasta.
7. Kotononchi kondointetab kilasta ak kogas ingoboisie ago isibi tolochikab TIST.
8. Kongolonchi biik agobo tesetabtain agobo TIST.
9. Kotonchin agobo koitosiekab ketik ngosibi tolochigab TIST kou chigilisiet tse ak kibotnik tugul.



## Techet 'ab ge; Rib men kosirin koberuret nebo groupit ngung'.

**T**eget 'ab ge en groupit ko bo maana en groupishek che mengechen chebo TIST. Mwoe en Ephesians 4:15,16 yoche ketech ke en kanyitet 'ab Christ. Chitukul en groupishek che meng'echen en TIST koibu talentaishek chwoik kobwa TIST. Kit agenge ne kararan en groupishek ko naet 'ab talentaishek che kikekonech.

Techet 'ab ke ko oret ne kimuche keboishen talentaishek chok. Miten komoswek oeng' en techet 'ab ge;

- Kotoma kesa saadet ne letu, kesom chitugul komwa kit ageng'e ne kararan agobo kandoindet. Tuguk cheu, kitoreti chi tugul en boishoni, kiiborwon kit ne kitomosich etc.. Yoche komwa membayat age tugul kit ne terchin. Inoniton komo optional. Chitugul kokochin teget' kandoindet nekobo kasara ton. Ogo groupishek kokochin kujeng'ana toretik 'ab kondoik.

Yon miten zung'uganet 'ab kandoinatet, kila wikit konyoru kandoindet Kujengana. En Kujengana, Keti ke en tuguk che kororon che koyai

kandoindet nebo wiki noton ak talentaishek che koibor chi choton.

Kujengana kora kotoretech kenai ole kicheng'toi tuguk che kororon en membaek .Yoche kinet ng'elepwokik chok komwa tuguk che tech'. kora, konoe groupit noton kit neibwote kole bo maana en kandoik. Kandoik che rube konete ke en ng'alek che kakas en kujengana akopo kandoik che kokobata ak konai kit ne ibwote membaek kole yomeke en servan leaders.

En wolunet nebo Kujengana, komwoe kandoindet nebo wiki noton kole 'kong'oi', yon kakomwa membayat age tugul. Inoniton koboiboite kandoindet 'ab wiki noton yon kakemwochi tuguk che kororon che koyai en groupit ak tuyoshek. En yuton kimuche kinet ke tuguk che kimoging'en akobo ehek!

Kujengana kitoreti kandoindet 'ab kasaraton konai talentaishek che tinye akotakoboishen. Kujengana kora kitoreti groupishek che meng'echen, ang'amun kandoik tugul kotese skills chebo kandoinatet. Kujengana ko berurto konyil oeng'

## Ketoo keturrek chebo minutik.

**K**eturek ko toreti mising minutik kochok en ngungunyek. Ago kororonen amun motinye ngemet en rurutik ago nyumnyum kenyor ago motiye oliyet neo mising, motiye ngemet en agobo ltondab emet.

Miten anyun orinuwek chechang che kimuchi ketounen keturek en koboronet ne isibu ko kigoyomnda biik chechang temik. Otebenge en Kilasta ole kiboisito biik alak.

### Tounet ketoo kechob keturek.

1. Lewen ole imuchi ichoben keturek (4m by 4m).
2. Itilil yoton.
3. Bal keringet netinye kokwoutik 3m - 4m - 1.5m kochut orit.
4. Iyum anyun ngetunanikab imbar tugul ak itonaton komengegitun ak itorchi keringet chon ko kou (sogegab ketik mobekkab bandek, ngendek) ak alakau.
5. Torchi keringt koit 0.5m.
6. Tesin beekab 5ls chebo orek.
7. Tesin sorowekab tuga, neng, lgojenik kot koit 30cm.

8. Tesin ngetunanaik kot koit 0.5m.
9. Tesin beek 5ls chebo orek.
10. Testai itesi ngetunanik got konyi keringet.
11. Tesin baragut ngungunyek.
12. Ye itestai icheng bitoiyot ne koi ak ilumchi kwenutab keringet kot kotiny kwony.
13. Igomuny keringet kotar betusiek 90(orowek somok).
14. En kasariton tugul itestai itumchi beek chon kiunen tugul en kaa. Ingot itinye tuga imuchi iyum sogororek asi itesi keringet.
15. Niton kotesin nitrogen.
16. Yai kouniton en betusiek tugul.
17. Ye kagobata orowek 3 ko koruriyo keturek.

Togunen burget ne mi keringet.

### Boisietab keturek:

Ye kagoit ichob imbaret inam ibal keringonik kosibgei ak minutik cheimoche igol. Keringet angenge koibe keturekab rubeito, rib anyun wolutik che bitunen imbarengu.



## **Kasarta nepo, chopet ‘tap imbaret kokany.**

**G**roupishek chepo TIST che kikonetke akopo CF, kokobaoryan kole chang’ ruutik kosir yon kakiminso keboishen oratinwek chepbo kenya, sanasana yon wo robta.

Toreti kering’oik chhoton bek koma rwai en imbar, ak ko’kochi minutik bek che yomotin.

Ng’alek chuton kotoretin inai kilimo hai komye ak ole kiboishoten. Ang’ kot isib oratinwek che choton kochong’oite ruru.

### **Ole kitayorishondo imbarenik.**

l’ngol imbaret arawet ageng’e kotomo kobwa robwek.

- l’tilil imbaret koisto ke chema’si .Amati ng’ol.
- Bal kering’oik che rectang’ular . Nyolunot ko 15 cm en boroindo , 35 cm koindo and 15 cm loindab kering’et. Lochindap kering’oik keyoche ko 75 cm.
- inde mbolea safi che ing’olotin ak mbolea chebo duka, ng’ung’unyat ‘ab barak. Inyit kering’et ak kong’olanik choton agoi 5 cm.

### **Minet.**

- Yon imine keswek ‘ab andek (betushek 1-2 kotomo konam robta),Min kewek 4 kong’et kering’et.
- Ang’ot imine , min 5-6 keswek en mwisho nebo keringoik yon kokorobon.
- Tuch keswek ak ng’ung’unek ak mbolea 2.5 cm. Koboch yuton konyolunot koloindab ng’weny ko 2.5 cm kong’eten barak.
- Nafasi nemiten barak ko’kochin.

- Molazima iboishen mbolea chebo fertilizer en Conservation Farming plot. Keswek kuk korurtos ogot ang’o meboishen mbolea chebo fertilizes .

### **Istoet ‘ab saratik en imbar.**

- Isten saratik en kering’et kila weekit.
- Mati’iste saratik en imbaret tugul.Tobonwokik ab kering’oik ,Minutik kotuche ng’ung’unek, koko’koite ng’ung’unek agityo koter komoib robta ana ko koristo. Iten saratik chemi yebo kering’et kityo. Boishen panget ltilil imbaret koistoke saratik. Isten saratik kila mara asi maibista kochut kering’et.
- Bakaten saratik che’ketutu en imbar asi konuno. Tese bombonindab imbaret.

### **Tuguk che kiyoe yon kakebutis.**

- Matibel saratik che kong’et en imbar.Bakagten saratik choton en imbar asi kotes mbolea en imbar. Kimuche kora keboishen ke chobe manure .
- Amati bokokchi tuga koaget en imbaret. Kaikai ibwat ile,Tun kiboiboienchini tugul tun koruryo minutik kuk ak inetke en youtik che miten en erea neng’unget ak tuyoshek ‘ab cluster asi kotesak rurutik.

Inam ing’unon!



# TIST kotinyei boisiet ne kararan neton ko kabeti ne kanabtaiyat.

gimiti TIST temik kotoi kabeti ne kanabtaiyat anan ko nemiten barak. Konyor temik che chang koguiyo kole kororonen ketik en kabetinon amun sobtos yekimin, yomten akoboniton itou en gaa ak yeibata ibu wolutik chegenyuru kobwa kilasta.



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

En kaborunet nebo tai kaboru ole kagitetita akoboniton **F1 kaboru keswekab moringa ak** chebo emitik che kakitet en ngwony. En kaborunoni kotinyei konyor keti nyalunatet amun tinyei tigitik kaimetab gei. Amu rotegei tikitit en tiubit orit, anan alake komuji komantaen kot konam ngwony, en niton kotomo kemin koyochi getil tikitit niton kogochin konyor ketit kaimet. Keistoen gei oraniton kogeche tiubisiek che isengengotin komoswek twan ak **gekanaba kabeti kwo** barak asikosiki **tigitik komantaen** F2 kaboru oletebtoi niton. Nyumnyum keisto amun iboisien biremisiek ak inte waiyat netere ketik imuche iger en bichait. Ye kaichum tikitik koyomtos amukonyor koristo, mou che yoche kisambut tikitik. Ikochin ketit konyor tililinto ak kogimit, asi yekibe kemin komotinyei konogut. Nyumnyum ka semberet amumonyoru timto neo



**F2. kaboru kombot ketik che kigiruruch en kabeti.**

Kabeti initon kkoboisien beek che chang amun miten barak. Mwoe anyun biik chegikoboisien kole ingoyum tounik oleimiche kobosto beek amun chang, kou gebal bereisit ak getet ak waiyat ak kinte baragut ketik asikomuch tikitik komantaen. Ak konyor ketit koititindo en abakora. En ngwony kemasta takolkol asikobos beek che miten kwony.

**Tebutik che kimiche keteb en tiuyetab kilasta.**

- (a) **Tos kimuchi keboisien nee ne kararan asi kibitin kitik en kabetisiek?**
- (b) **Imukto ano bikab kurubit koyumak ak kotoi kabeti? Ou? Biik at ache mokotin kobat ngungunyek? En ou?**
- (c) **Tos miten kurubit ne kiyomta? Akoboniton?**
- (d) **Tostinyei biik alak kabwatet agei? Obchei ak biik en tuyetab kilasta.**