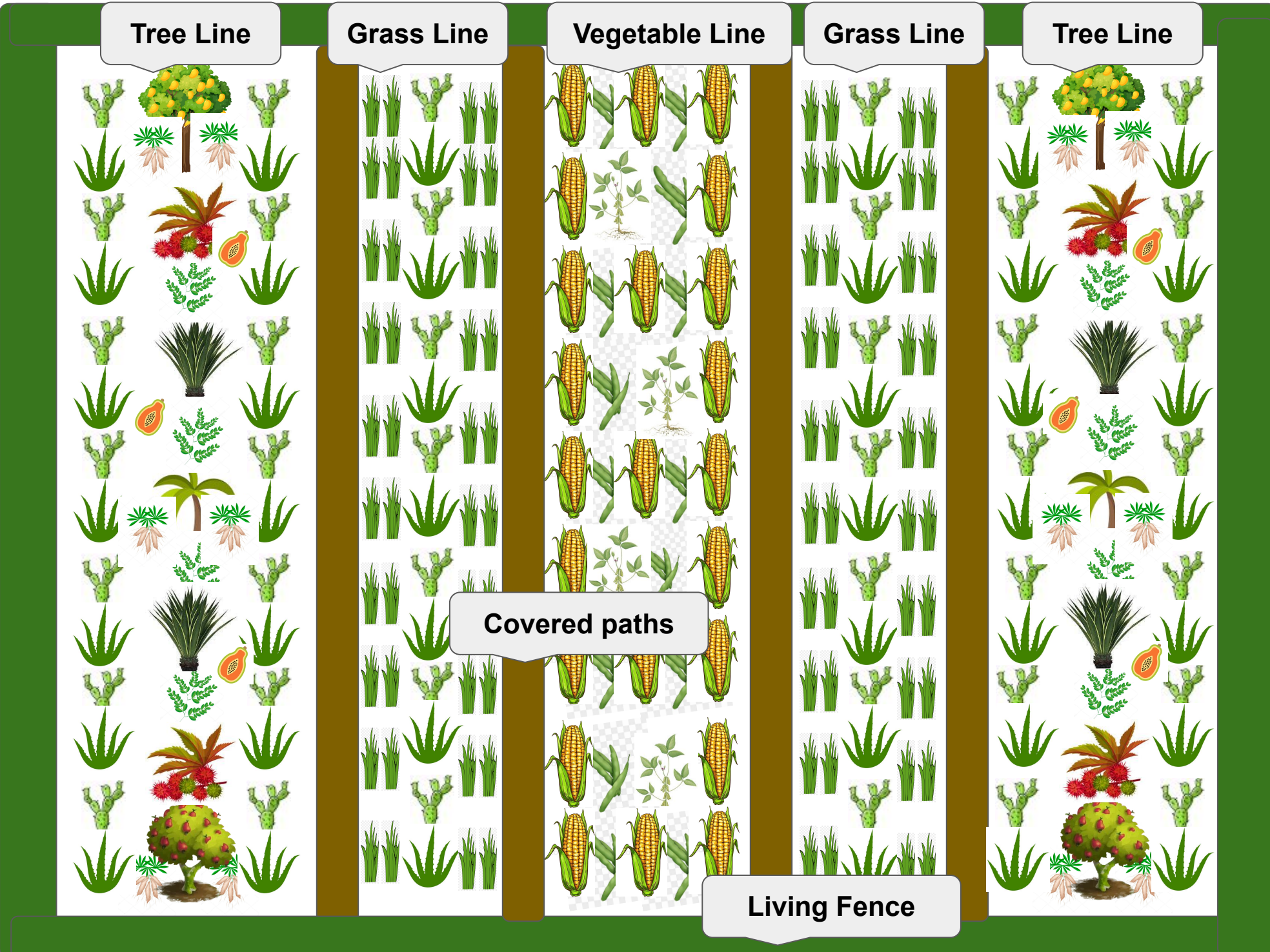


# Syntropic Community Farm in Semi-Arid Tropical Coastal Climates without irrigation



### Step 1: Bed Making

1. Follow and customize the design for your farm.
2. Minimum plot 45 x 29 feet
3. 3 feet wide beds along contours to stop erosion
  - a. 1 foot wide paths between all beds
4. Add as much old manure (bolea) as possible
5. 6 foot living fence on boundary (grass, sisal & trees)
6. This can be done in a farm full of maize already
  - leave the maize in and plant around it!

### Step 2: Mulching

1. Mulch thick with waste material;
  - a. woody and coarse material below (twigs, sisal)
  - b. finer material on top (leaves, grasses);
  - c. try to not uproot grasses on other fields
2. Paths are covered with woody material such as
  - a. Boards, logs, palm fronds

### Step 3: Planting (Start with the rains!)

1. Tree lines: Fruit every 10 feet, coconut in center
  - a. Pawpaw, castor and sisal (trim thorns) can be mixed between
  - b. Timber/biomass trees can be mixed as well
  - c. Casavas planted around all the trees. Cactus (no thorns) / aloe on sides of tree and grass lines
2. Grass lines: Plant grasses densely! Grass is the most important element in a semi-arid climate
3. Vegetable Lines. Plant tallest crop first (maize) and fill up spaces with shorter crops.

### Step 4. Stewardship

- A. Prepare for Rains
  - o Create water catchment with ditches, gutters.
  - o Plant drought resistant crops (cactus, aloe, sisal, castor) These will create a micro climate for vegetables and fruit trees
  - o Prepare nurseries
- B. Pruning and Mulching
  - o Starting out: Cutting grasses, cactus, sisal when over 3 feet tall
  - o Pruning trees regularly after they reach 6 feet
  - o All cut materials should be laid down in beds and paths
- C. Harvesting & Replanting
  - o Leave roots in soil!
  - o Rotate planting locations for all crops

### Remember

- Grass is the irrigation of the system. Grass is a must!
- Keep all soil covered! & Keep walking paths covered with mulch
- Collect old manure mix with a little ash and use when planting
- No-Gaps: Plant very intensively and diversely - plant many different species together
- Allow for vertical layers of trees, shrubs, grasses and vegetables
- Continuous maintenance, pruning and scouting for pests (use neem water and not pesticides)

The purpose of this Syntropic Community Farm is to help teach, feed our neighbors and community and regenerate the soil for future generations. Growing and cutting mulch (cactus, sisal, grasses, castor), and intensive mixed planting drought resistant crops can make our soil more productive and healthy.

Anyone can work on the Syntropic Community Farm or bring inputs (manure, water, seedlings, etc) and be rewarded Sarafu (Community Currency) and can also use Sarafu to purchase vegetables from the farm.

Dial \*384\*96# Safaricom or \*483\*46# on other networks to use Sarafu. For more information call Tel: +254757628885  
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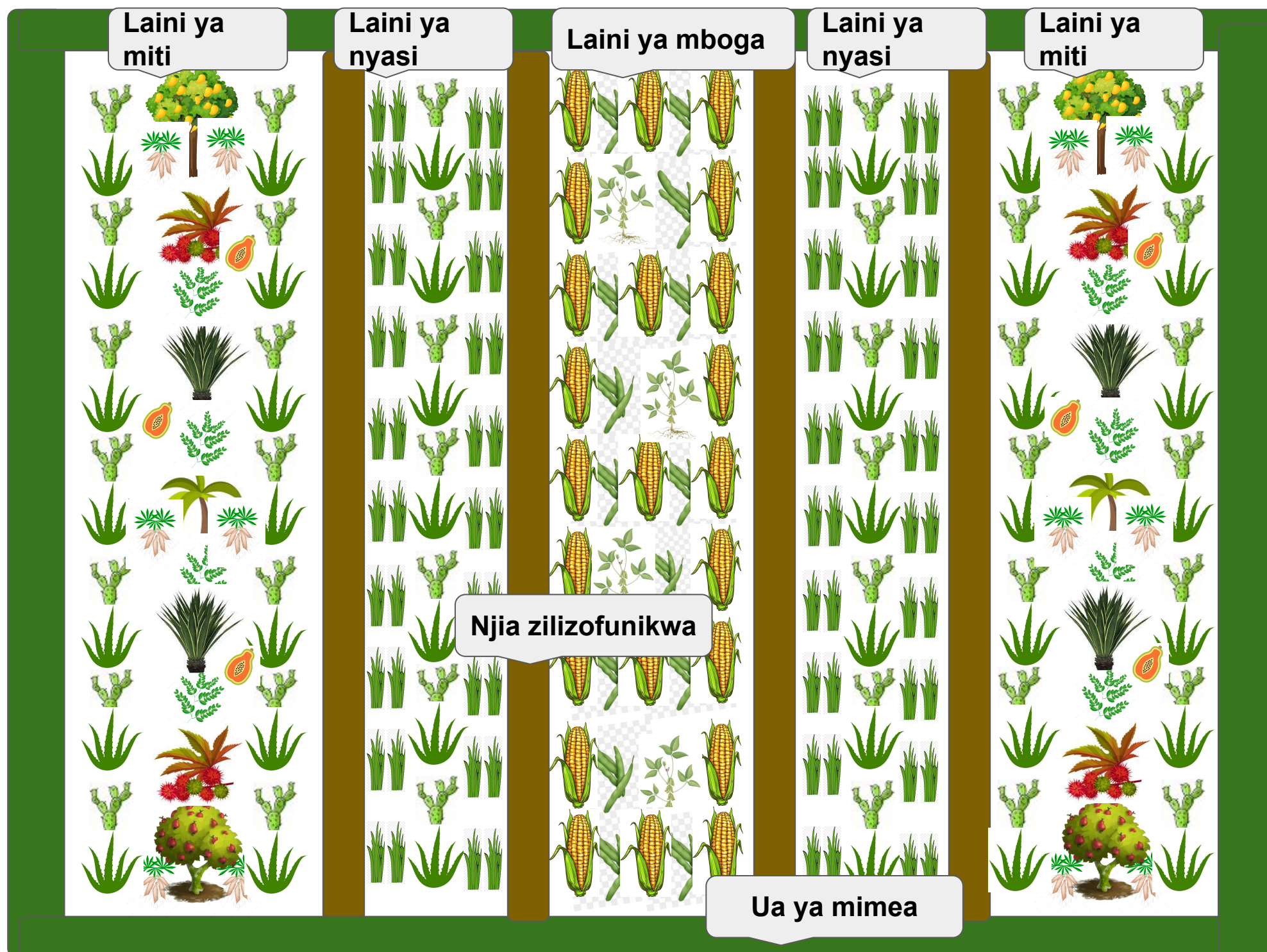
### Legend

- Living Fence: Grasses, sisal and trees (fast growing, neem, lucena, moringa, cenna (mrabai))
- Covered Paths: Logs, palm fronds and other mulch on paths
- Fruit Trees: Cashew, Mango, guava, 10 feet apart **Cassava**: Used to protect upcoming fruit trees
- Timber/Biomass: Moringa, Casuarina, neem. **Pawpaw (papaya)** can be planted every meter
- Castor and Sisal: Cut back for mulching
- Cactus / Aloe without thorns for mulching
- Grasses: Nepia, Millet, Mombasa Grass, For mulching
- Vegetables/Herbs: maize, cow peas (kunde), sorghum, chillies, amaranth, kale, spider plant (sagaa), pigeon pea / mbaazi, rosemary, lavender, thyme, mints,





# Syntropic Shamba ya Jamii katika maeneo yenye nusu ukame katika tropiki ya pwani bila maji



## Hatua 1: Kutengeneza Kltanda (wakati wa ukame)

1. Fuata na tengeneza kwa ubunifu
2. Kiwango cha shamba iwe kiasi 45 x 29 futi
3. Vitanda vyenye Upana wa futi tatu kando ya mtaro ili kuzuia mmomonyoko wa udongo.
  - a. Njia ya upana wa futi moja kati ya vitanda.
4. Ongeza mbolea iliyoiva kadri iwezekanavyo.
5. Ua wa mimea wa futi sita kwenye mipaka ya shamba. (nyasi, makonge, na miti)
6. Hii inaweza fanywa kwa shamba yenye mahindi tayari.
  - Usitoe mahindi panda kando yake.

## Hatua 2. Matandazo

1. Vitanda vya matandazo viwe vinene na taka zinazooza
  - a. Nyenzo zenye kozi (Matawi, makonge)
  - b. Maganda mepesi yawe juu ( Matawi, Nyasi)
  - c. Usingoe nyasi kutoka kwa shamba lingine.
2. Njia zafunikwa kwa vifaa kama vile
  - a. Bodi, magogo, mikunjo ya mitende/mnazi, Majani ya mgomba iliyokauka.

## Hatua 3. Upanzi (mvua inapoanza!)

1. Laini ya miti: miti ya matunda kila baada ya futi kumi na mnazi katikati
  - a. Paipai, mmbono na makonge inaweza changanywa ( kata miba)
  - b. Mbao/miti ya majani inaweza changanywa pia.
  - c. Mihogo ipandwe kuzunguka miti yote. Mwatsa (isiyo na miba) mmea wa aloe ipandwe kwa upande wa miti na njia ya nyasi.
2. Laini ya nyasi: panda nyasi kwa wingi. Nyasi ndio mmea muhimu zaidi kwenye sehemu kame.
3. Laini ya mboga. Panda mimea mirefu kwanza kama vile mahindi kisha jaza nafasi na mimea fupi.

## Hatua 4. Chunga

### A. Jitayarishe kwa mvua

- Tengeneza sehemu za kuhifadhi maji, gata.
- Panda mimea inayostahimili kiangazi (Mwatsa, aloe, Makonge, Mmbono.
- Hii itatengeneza mazingira mazuri kwa ukuaji wa mboga mna miti ya matunda.
- Tengeneza nasari

### B. Kupunguza na kutandaza

- Uanzishaji: Kata nyasi, Mwatsa, makonge ifikapo urefu wa futi tatu.
- Punguza miti mara kwa mara ifikapo futi sita
- Mimea yote iliyokatwa itandazwe kwa vitanda na njia.

### C. Kuvuna na kupanda tena

- Wacha mizizi kwa mchanga,
- Badilisha maeneo ya kupanda ya mimea yote.

**Kusudi la Syntropic Shamba hili la jamii ni:** kusaidia, kufunza, kulisha majirani na jamii na kuzaliwa upya kwa mchanga kwa kizazi cha baadaye. Matandazo (kuza nyasi na uzikate), mchanganyiko wa mimea inayoweza kustahimili kiangazi hufanya mchanga uwe na mazao mazuri na yenye afya.

Mtu yeyote anaweza fanya kazi kwa shamba la jamii ama alete vifaa (Mbolea, maji na kadhalika) na atazawadiwa sarafu (Mapato ya kimsingi) na pia atumie Sarafu kununua mboga na mazao mengine ya shamba.

Bonyeza \*384\*96# Sarafu ama \*483\*46# kwa mitandao mengine. Kwa maelezo zaidi piga 0757628885 au tembela <http://grassecon.org> Twitter: @grassecon

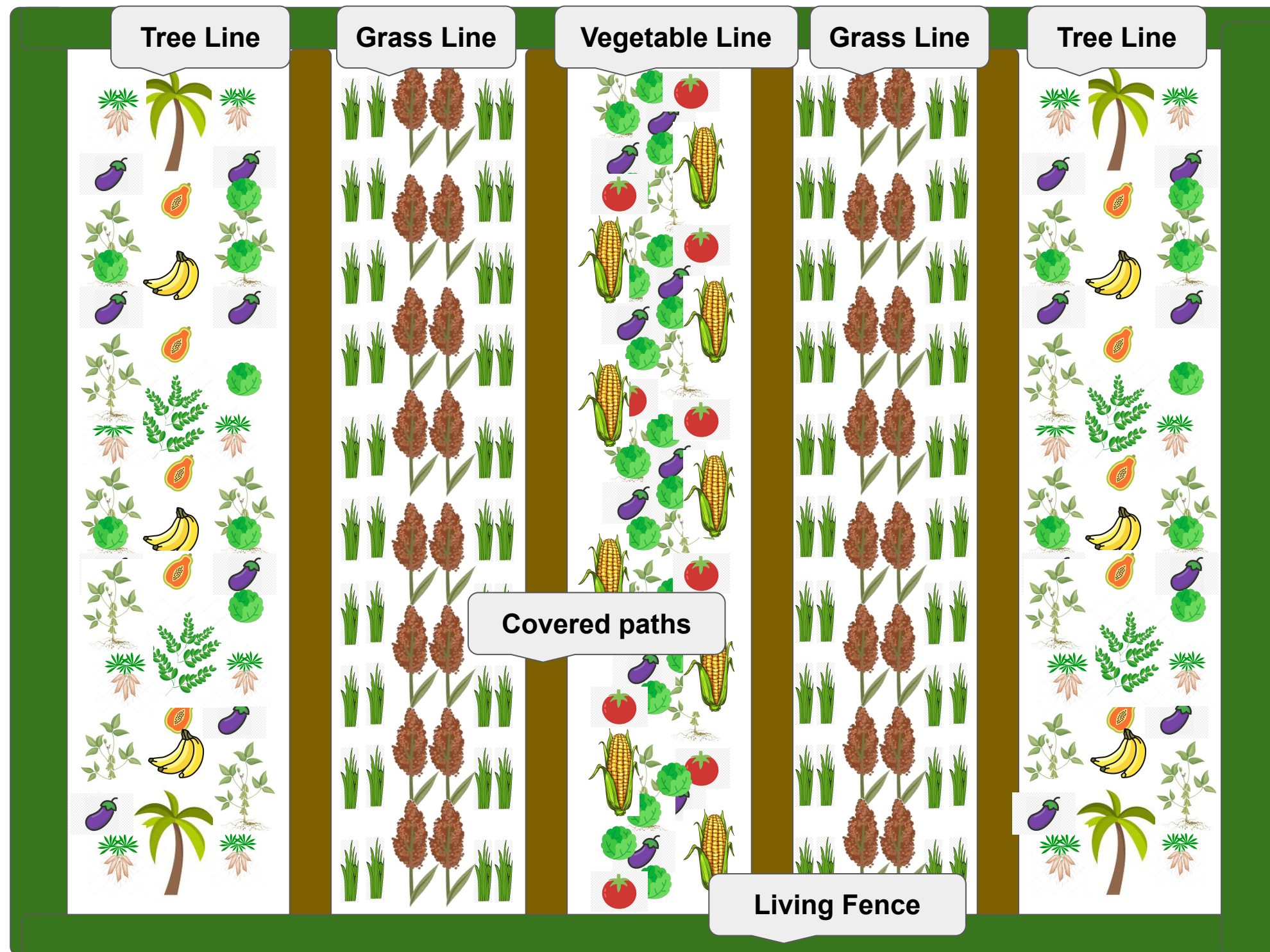
## Kumbuka

- Nyasi ndio kiungo kikuu kwa huu mfumo, Nyasi ni lazima!
- Funika mchanga na njia za kutembelea na matandazo.
- Changanya mbolea iliyoiva na jivu kiasi na utumie wakati wa upanzi.
- Kusiwe na nafasi: panda mimea tofauti kwa wingi-
- Panda miti, vichaka, nyasi na mboga kwa mistari
- Utunzi uendelezi wa shamba: kupunguza uchunguzi kwa wadudu usitumie dawa ya kemikali

## Simulizi

- **Ua ya mimea:** Nyasi, makonge na miti. (inayokua kwa haraka. Mkiilifi, mlucena, mzungi, mrabai.
- **Njia iliyofunikwa:** magogo, mikunjo ya mtende/ mnazi na matandazo mengine,
- Miti ya matunda:** Mkorosho, mwembe, mpera umbali wa futi kumi. **Muhogo** unatumika kuzuia jua kwa miti midogo.
- Mbao/matawi ya miti:** Moringa, Casuarina mkilifi. **Papaya** inaweza pandwa baada ya kila mita moja.
- Mmbono na Makonge:** zikate uzitumie kwa matandazo.
- Miatsa / mmea wa aloe:** isiyo na miba kwa matandazo.
- Nyasi:** Nepia, Mtama, nyasi ya mombasa, kwa matandazo
- Mboga/Mimea:** Mahindi, kunde, mawele, pilipili, sukuma wiki. Mchicha, sagaa, mbaazi,

# Syntropic Community Farm in Semi-Arid Tropical Coastal Climates with irrigation:



**The purpose of this Syntropic Community Farm** is to help teach, feed our neighbors and community and regenerate the soil for future generations. Growing and cutting mulch (cactus, sisal, grasses, castor), and intensive mixed planting drought resistant crops can make our soil more productive and healthy.

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## Step 1: Bed Making (in dry season)

1. Follow and customize the design for your farm.
2. Minimum plot 45 x 29 feet
3. 3 feet wide beds along contours to stop erosion
  - a. 1 foot wide paths between all beds
4. Add as much old manure (bolea) as possible
5. 6 foot living fence on boundary (grass, sisal & trees)
6. This can be done in a farm full of maize already  
- **leave the maize in and plant around it!**

## Step 2. Mulching

1. Mulch thick with waste material;
  - a. woody and coarse material below (twigs, sisal)
  - b. finer material on top (leaves, grasses);
  - c. try to not uproot grasses on other fields
2. Paths are covered with woody material such as
  - a. Boards, logs, palm fronds










## Step 3. Planting (Start with the rains!)

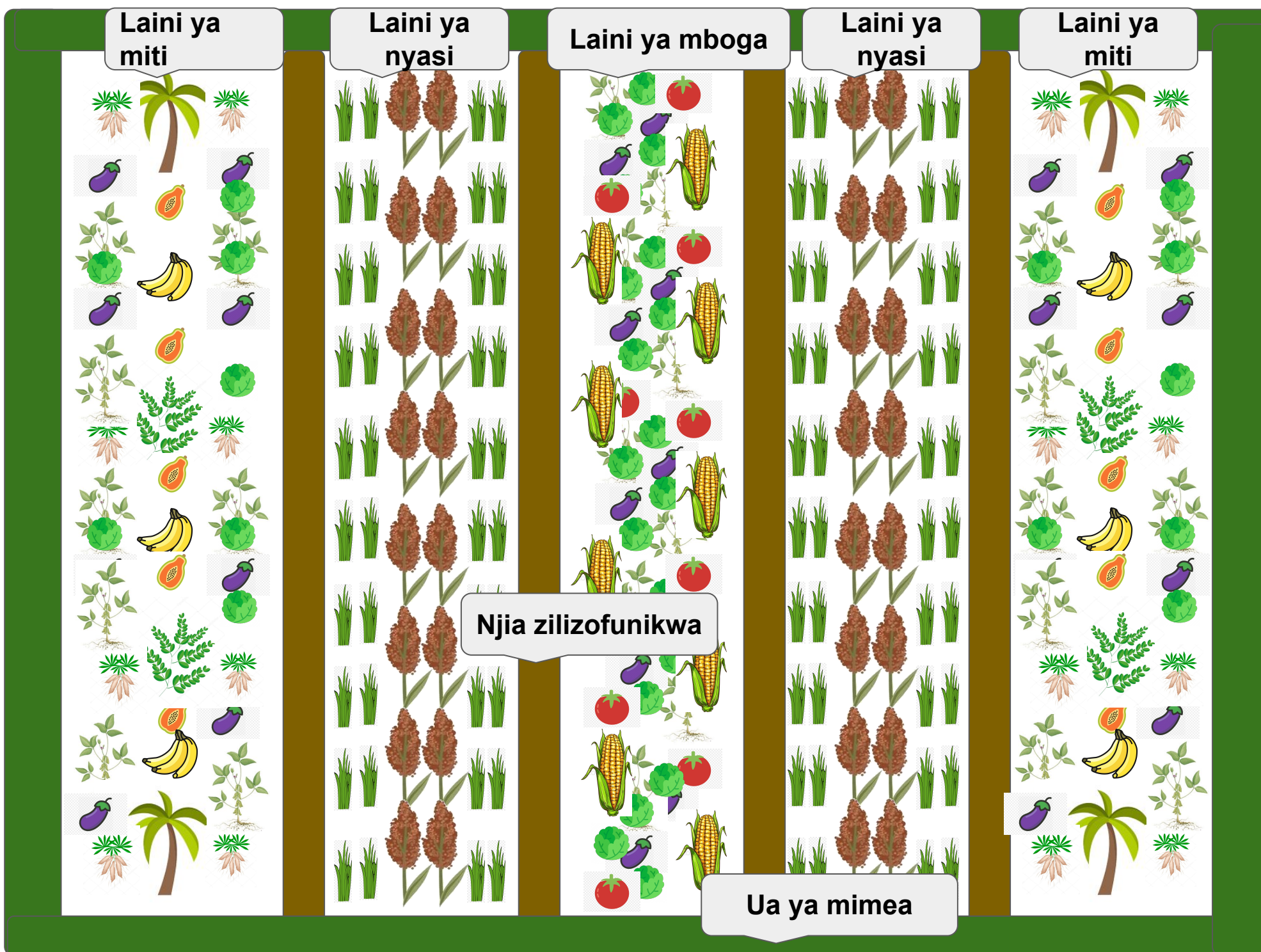
1. Tree lines: Coconut/fruits at corners
  - a. Fruit trees between bananas every 6 feet
  - b. Timber/biomass trees around fruits. Casavas around all the trees.
  - c. Papaya in between bananas and all trees. Vegetables on sides of trees
2. Grass lines: Plant grasses densely! Grass is the most important element in a semi-arid climate
3. Vegetables Lines. Plant tallest crop first (maize) and fill up spaces with shorter crops.

## Remember

- Grass is the irrigation of the system. Grass is a must!
- Keep all soil covered! & Keep walking paths covered
- Collect old manure mix with a little ash and use when planting
- No-Gaps: Plant very intensively and diversely - plant many different species layered together
- Continuous maintenance, pruning. Use neem water & not pesticides for pests
- Check soil moisture before irrigating
- Bananas need deep holes and adding ash and manure is a must

## Legend

-  **Living Hedge:** Grasses and trees (fast growing)
-  **Covered Paths:** Logs, palm fronds and other mulch on paths
-  **Coconut or fruit:** On edges 25 feet apart
-  **Bananas:** In between fruit trees
-  **Timber/Biomass:** Moringa, Mbaazi, Casuarina
-  **Papaya:** In between all trees and bananas
-  **Cassava:** Used to protect upcoming fruit trees
-  **Grasses:** Nepia, Millet, Sorghum, Mombasa Grass, Miwa (sugar cane)
-  **Vegetables/Herbs:** maize, chillies, onions, capsicum, amaranth, egg plant, cow peas / kunde, kale, tomatoes, spider plant (sagaa), pigeon pea / mbaazi, rosemary, lavender, thyme, mints, garlic



**Kusudi la Syntropic Shamba hili la jamii ni:** kusaidia, kufunza, kulisha majirani na jamii na kuzaliwa upya kwa mchanga kwa kizazi cha baadaye. Matandazo (kuza nyasi na uzikate), kupanda mchanganyiko wa mimea inayoweza kustahimili kiangazi hufanya mchanga uwe na mazao mazuri na yenye afya.

Mtu yeyote anaweza fanya kazi kwa shamba la jamii ama alete vifaa (Mbolea, maji na kadhalika) na atazawadiwa sarafu (Mapato ya kimsingi) na pia atumie Sarafu kununua mboga na mazao mengine ya shamba.

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### Hatua 1: Kutengeneza Kitanda (wakati wa ukame)

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5. Ua wa mimea wa futi sita kwenye mipaka ya shamba. (nyasi, makonge, na miti)
6. Hii inaweza fanywa kwa shamba yenye mahindi tayari.
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### Hatua 2. Matandazo

1. Vitanda vya matandazo viwe vinene na taka zinazooza.
  - a. Nyenzo zenye kozi (Matawi, makonge)
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  - c. Usingoe nyasi kutoka kwa shamba lingine.
2. Njia zafunikwa kwa vifaa kama vile
  - a. Bodi, magogo, mikunjo ya mitende/mnazi, Majani ya mgomba iliyokauka.

### Hatua 3. Upanzi (mvua inapoanza!)

1. Laini ya miti: Nazi/matuna kwa kona.
  - a. Miti ya matunda iwe kati ya ndizi kila baada ya futi
  - b. Mbao/majani ya miti kando ya matunda. Mihogo izunguke miti
  - c. Papai ziwe kati kati ya ndizi na miti yote. Mboga ziwe kando ya miti
2. Laini ya nyasi: panda nyasi kwa wingi. Nyasi ndio mmea muhimu zaidi hususan kwenye sehemu kame.
3. Laini ya mboga. Panda mimea mirefu kwanza kama vile mahindi kisha jaza nafasi na mimea fupi.

### Kumbuka

- Nyasi ndio kiungo kikuu kwa huu mfumo. Nyasi ni lazima!
- Funika mchanga na njia za kutembelea na matandazo.
- Changanya mbolea iliyoiva na jivu kiasi na utumie wakati wa upanzi.
- Kusiwe na nafasi, panda mimea tofauti kwa wingi-Panda mimea tofauti kwa wingi
- Utunzi wa shamba na kupunguza.
- Tumia maji ya mwarubaini usitumie dawa ya duka kwa wadudu
- Angalia unyevu wa mchanga kabla ya kunyunyizia maji
- Ndizi yahitaji shimo kubwa na kuongeza jivu na mbolea ni lazima.

### Simulizi

- Ua lenye uhai:** Nyasi, makonge na miti. (inayokua kwa haraka.)
- Njia iliyofunikwa:** magogo, mikunjo ya mtende/ mnazi na matandazo mengine
- Nazi au tunda:** Kwa kingo wenye upana wa futi ishirini
- Ndizi:** Katikati ya miti ya matunda
- Mbao/majani ya miti:** Moringa, mbaazi,
- Papaya:** iwe katikati ya miti na ndizi
- Mihogo:** Inakinga miti midogo ambayo yanaanza kumea
- Nyasi:** Mahindi, mawele, nyasi ya mombasa, miwa
- Mboga/Mimea:** Mahindi, pilipili, kitunguu, pilipili hoho, mchicha, biringanya, kunde, sukuma wiki, tomato, sagaa plant (sagaa), pigeon pea / mbaazi, rosemary, lavender, thyme, mints, garlic (kitunguu saumu)



**Grassroots Economics**