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Guide for Small-Holder Coffee Farmers

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# GUIDE FOR SMALL-HOLDER COFFEE FARMERS



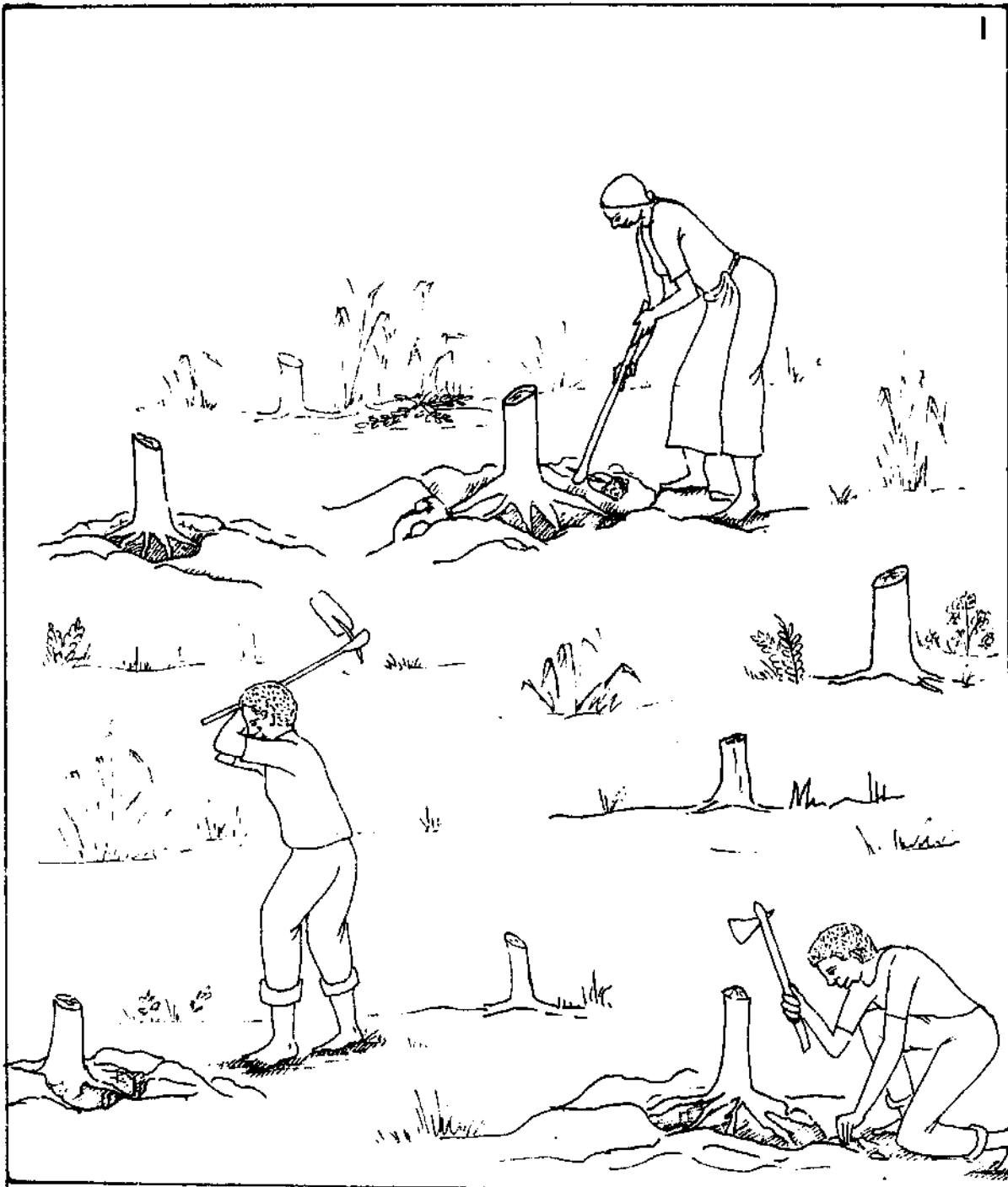
DEPARTMENT OF AGRICULTURE - ZAMBIA

FOOD & AGRICULTURE ORGANISATION OF THE UNITED NATIONS

This Booklet is designed for Small Holder Coffee Farmers in the Northern Province of Zambia. It was prepared by the Team of the Coffee Development Project, Northern Province, and was reproduced by the Food and Agriculture Organisation Headquarters in Rome.

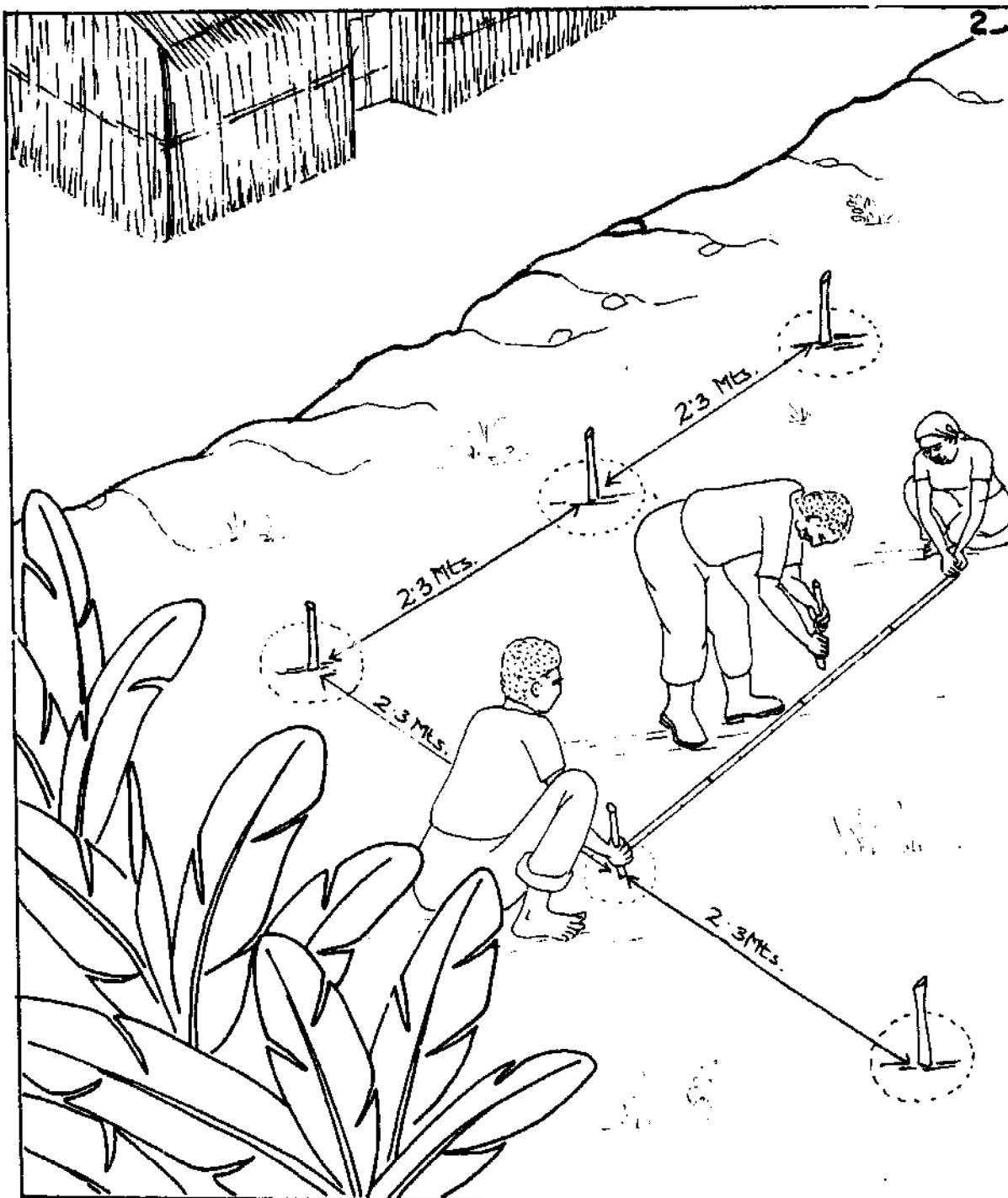
Farmers are advised to contact their Coffee Extension Officers for further information.

KASAMA, April 1983.



PANSENI IMPANGA  
SHULENI IMISHILA YONSE  
IMISHILA ILETA UBULWELE

CLEAR BUSH  
DIG OUT ROOTS  
ROOTS BRING DISEASE



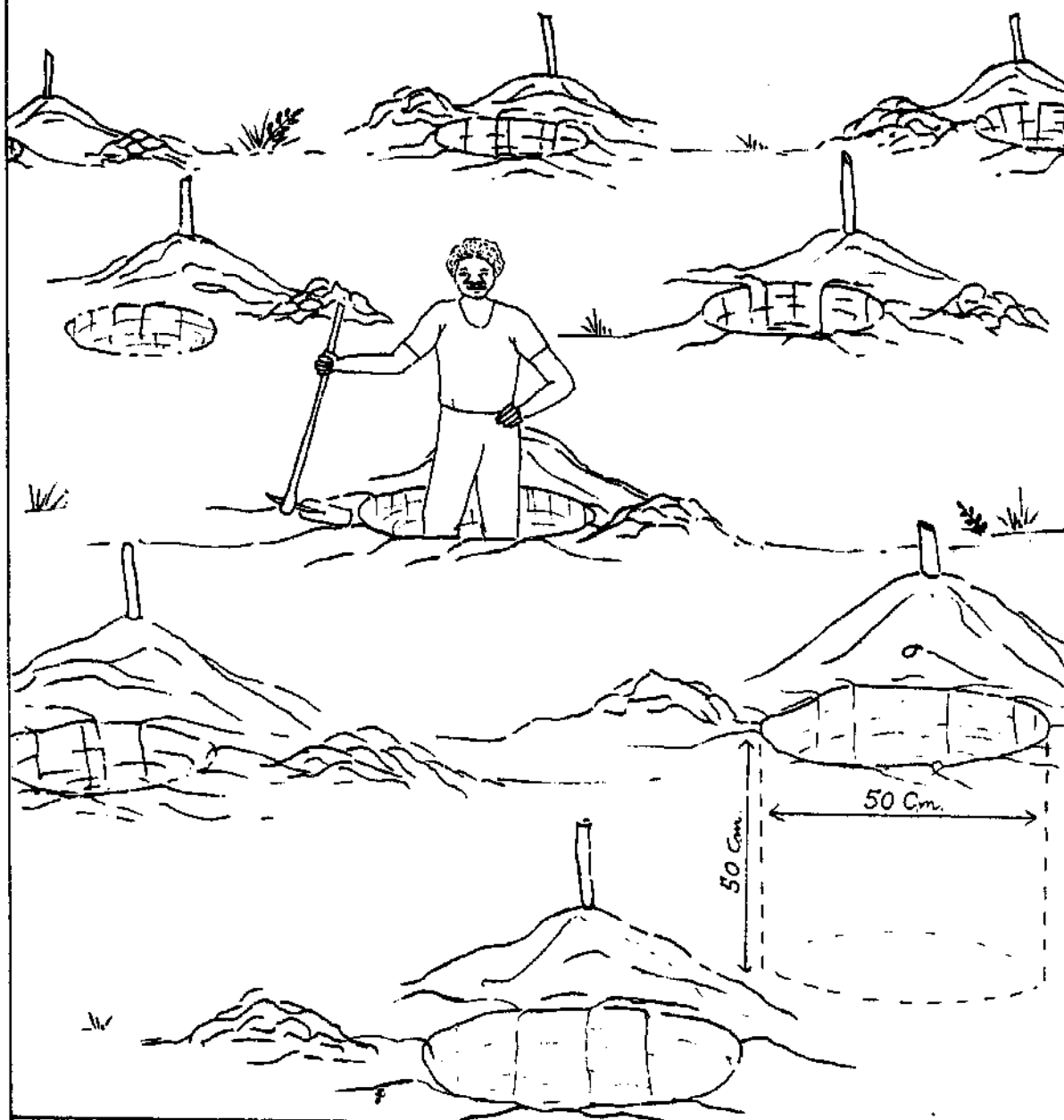
KOFI IKULILA NE MFULA

ILIMBWA UKUTALUSHANYA 2.3m x 2.3m

RAINFED COFFEE SPACE AT 2.3m x 2.3m

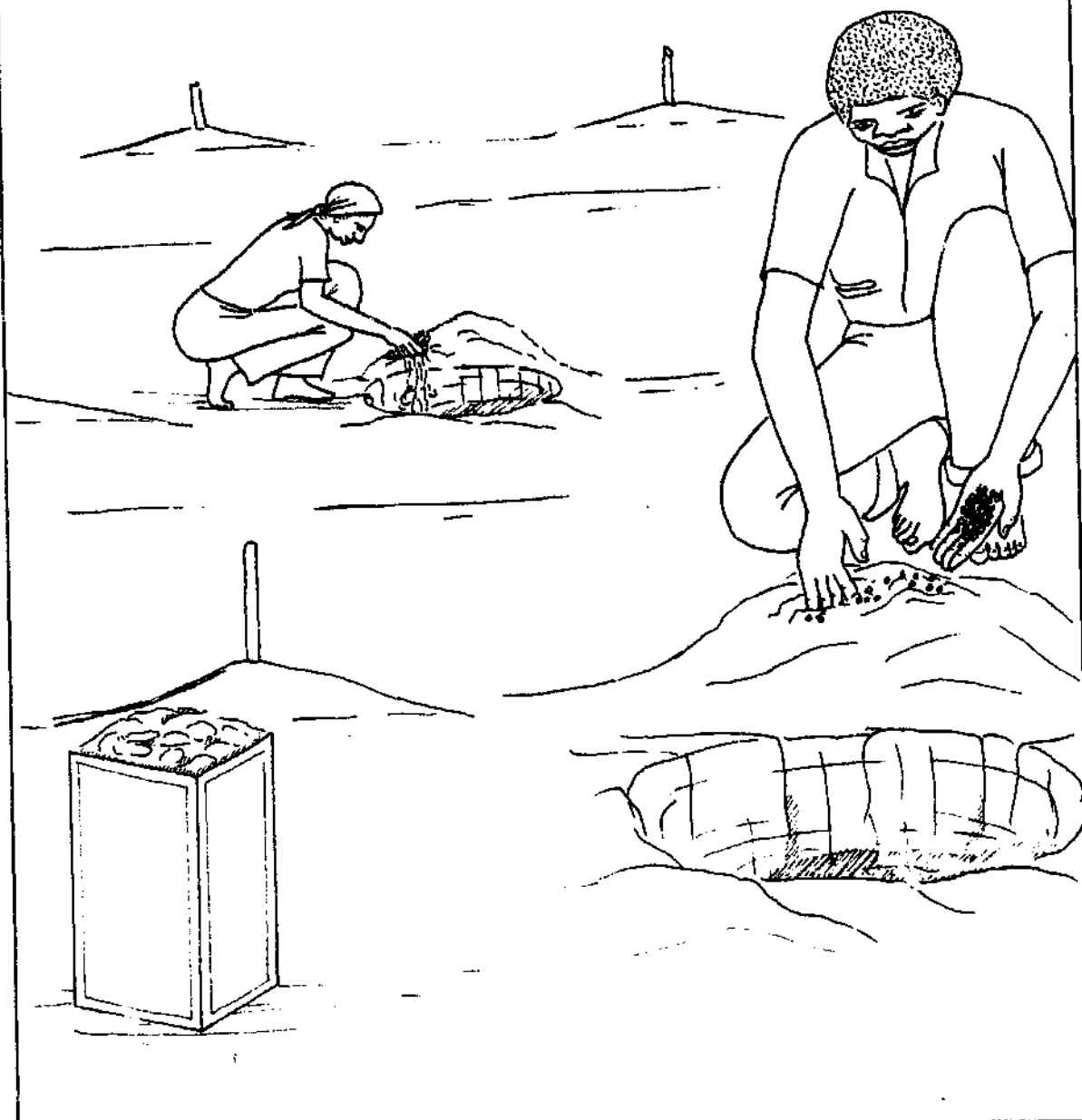


KOFI ITAPILISHIWA NAMENSHI MULUSUBA  
UKUTALUKANYA KWA MITI NI 2.3m x 1.5m  
IRRIGATED COFFEE SPACE AT 2.3m x 1.5m



IMBENI IFILINDI UKUYA PANSHI KUSHINTA MUMAKUFI  
 (50 x 50cm) KULEKANYA ILOBA LYAPAMULU NELYA PANSHI

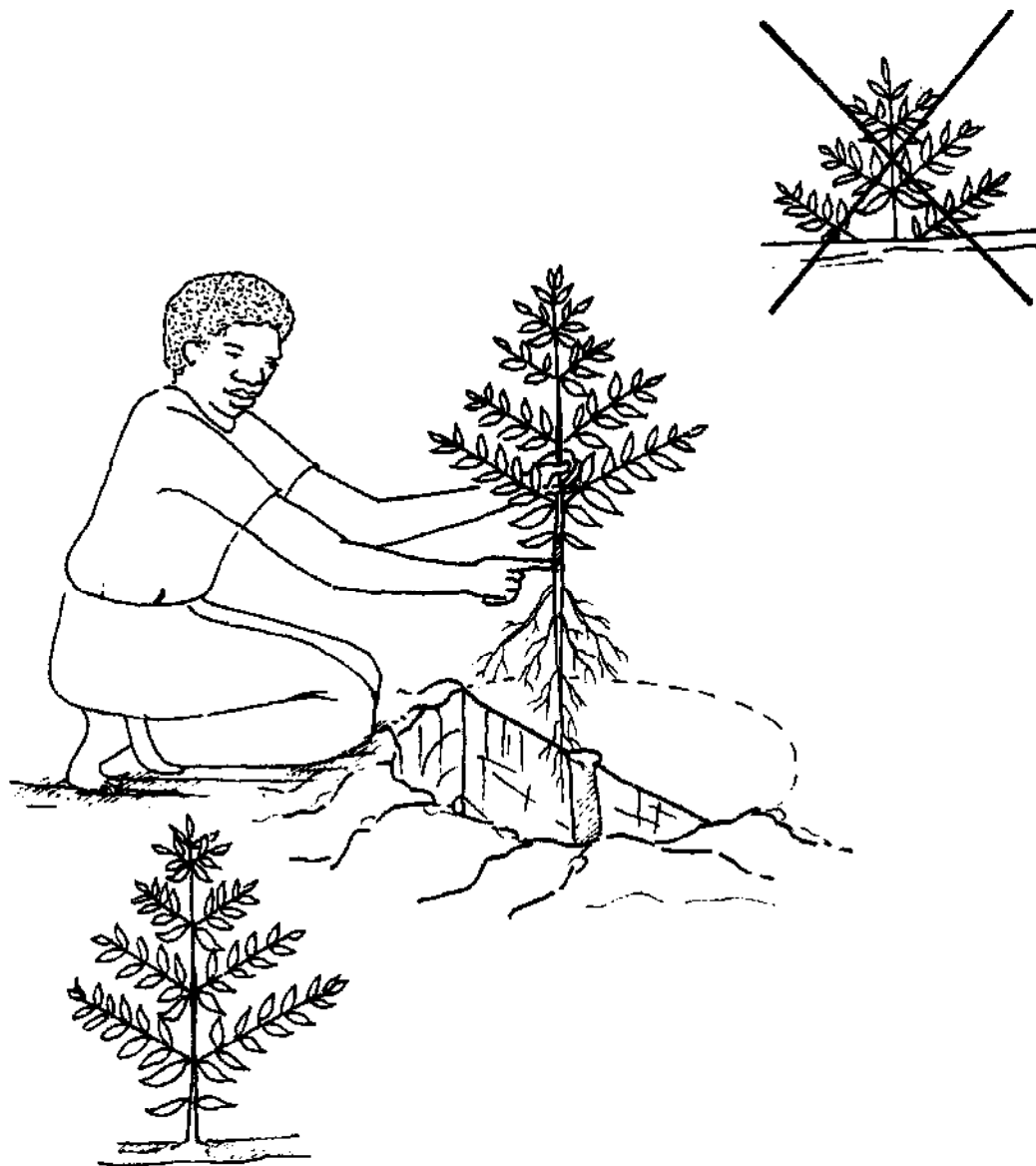
DIG HOLES APPROXIMATELY KNEE DEEP 50cm x 50cm  
 SEPARATING TOP SOIL & SUB SOIL



SHIKENI FILINDI NO MUSHILI WAPA MULU USAKANISHIWA NA  
CHITINDI WA NG'OMBE NANGU UWAMFUNDIKILE NANGU  
100gm UMUFUNDO SUPERPHOSPHATE 'D'NANGU 'X'

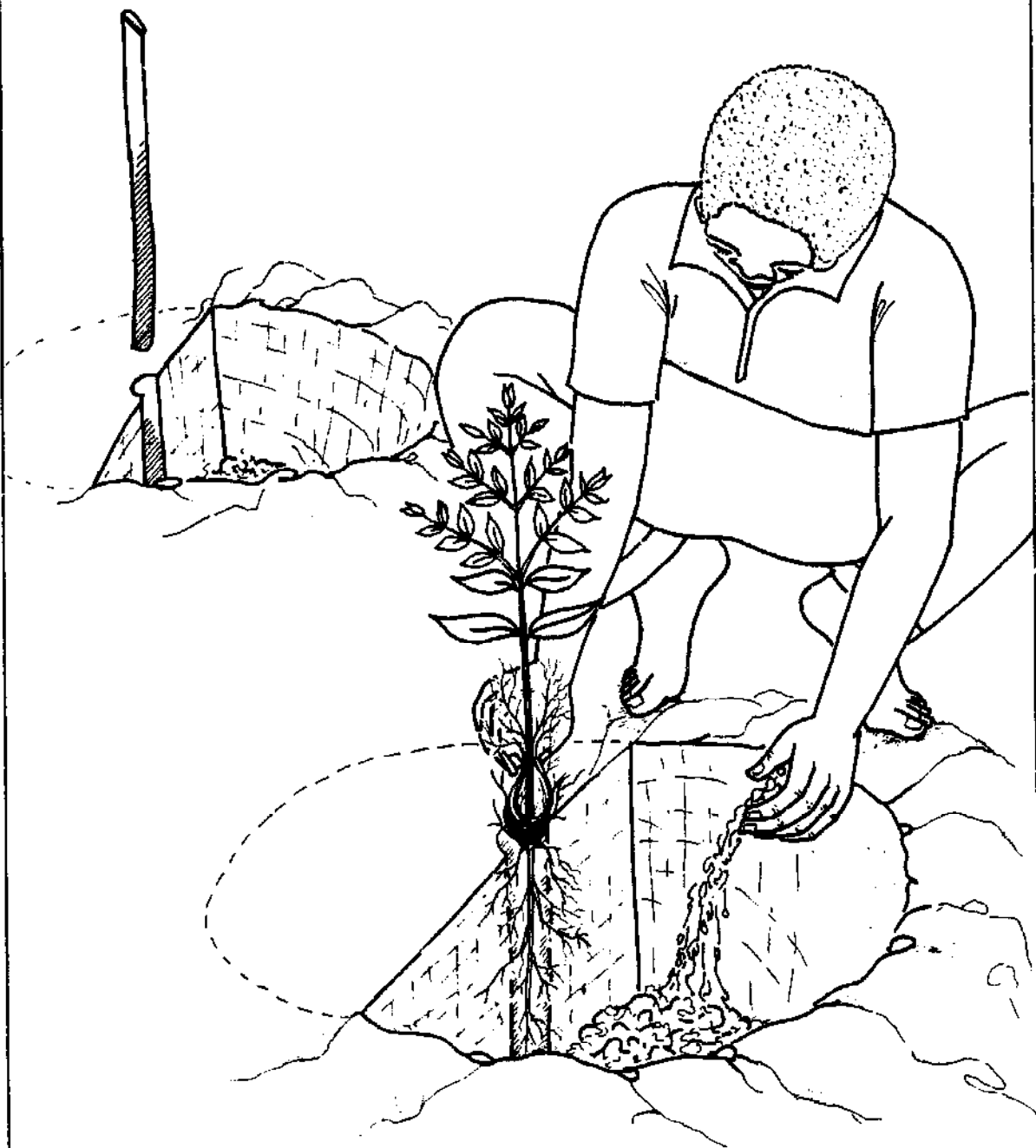
FILL HOLES WITH MIXTURE OF TOP SOIL, CATTLE MANURE OR COMPOST  
OR 100 grammes SUPERPHOSPHATE OR COMPOUND FERTILIZER





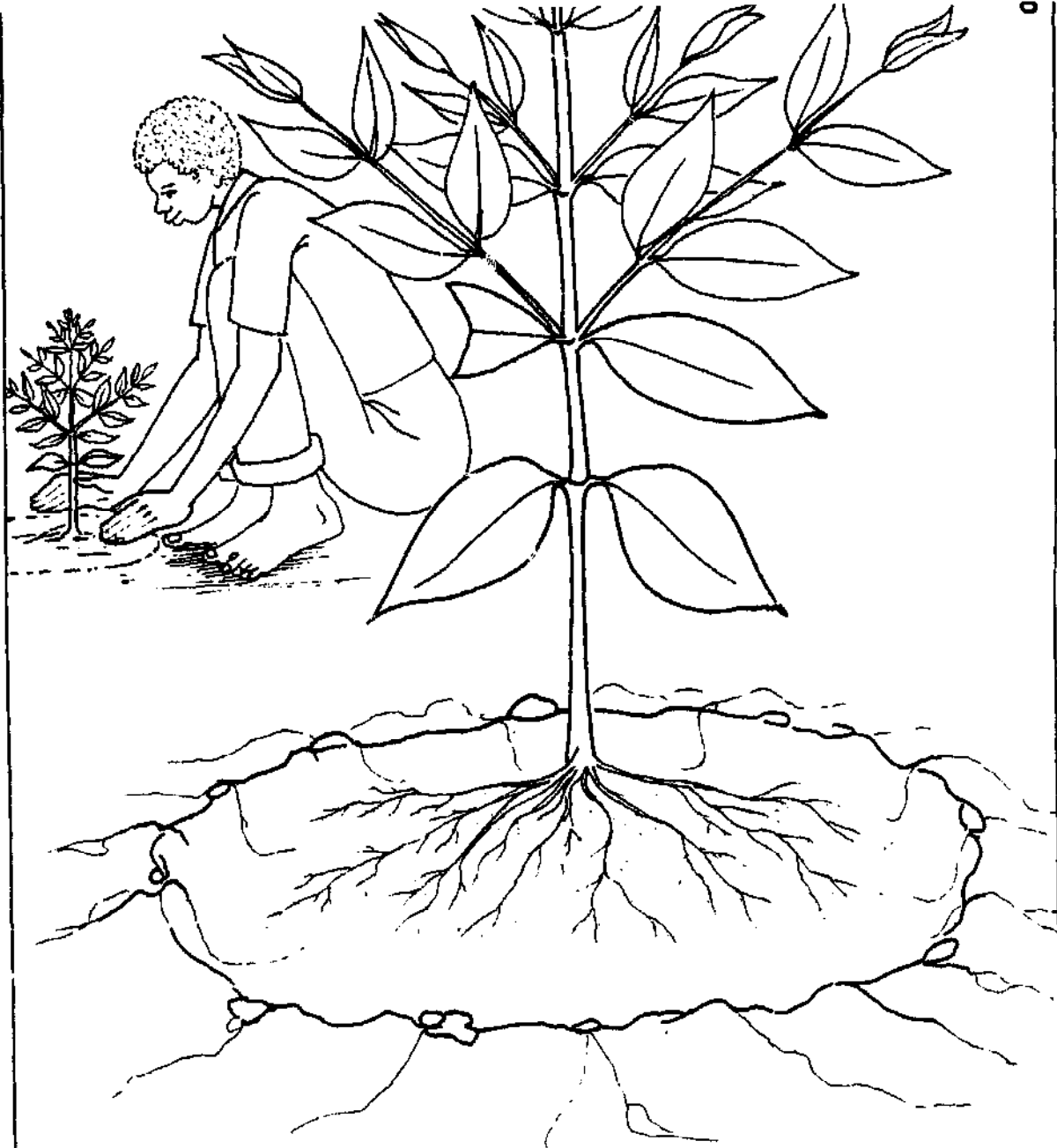
LIMBENI IMITI UKUSHIKA UKUFISHA PALYA ILOBA  
LYAPELELE PAKUFUNYA UMWAKUKULILE IMBUTO,  
TAKULI UKUSHIKISHA IYO.

PLANT AT ORIGINAL NURSERY LEVEL DO NOT PLANT TOO DEEP



IMILIMBILE ISUMA - I FUKULENI UKUFISHA PAKATI KA  
 CILINDI ELYO LIMBENI UMUTI WA KOFI PALYA APACIBA  
 ULUPOPO. IKATILENI IMISHILA YAMUMBALI KUMULU  
 LIMBENI INTONDO UKULUNGAMIKA PAKATI NOKUSHIKISHA  
 ILOBA.

PROPER PLANTING - I-DIG OUT HALF HOLE AND FIT SEEDLING TO STICK  
 GROOVE-HOLD UP FEEDER ROOTS-PLANT TAP ROOT STRAIGHT AND FIRM



IMILIMBILE ISUMA - 2

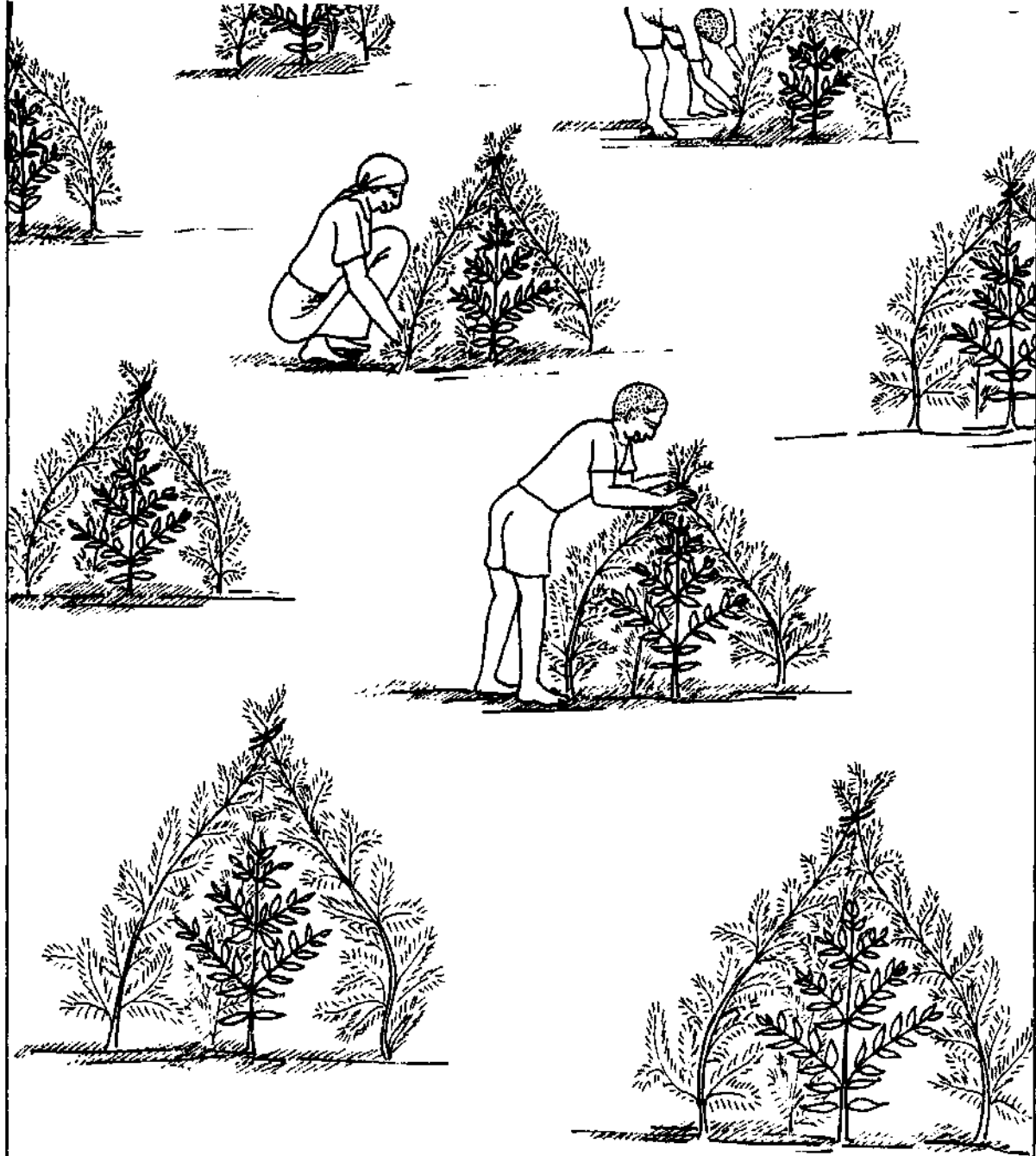
SALANGANYENI IMISHILA YAMUMBALI

SHIKENI NOKUSHINDAILA UKWALINGA

PROPER PLANTING - 2

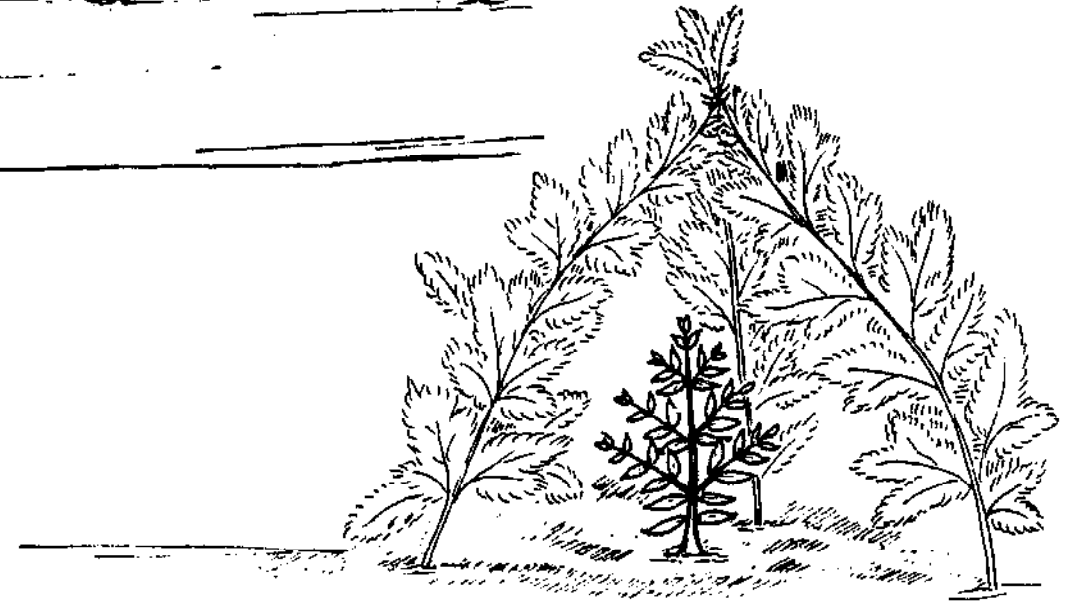
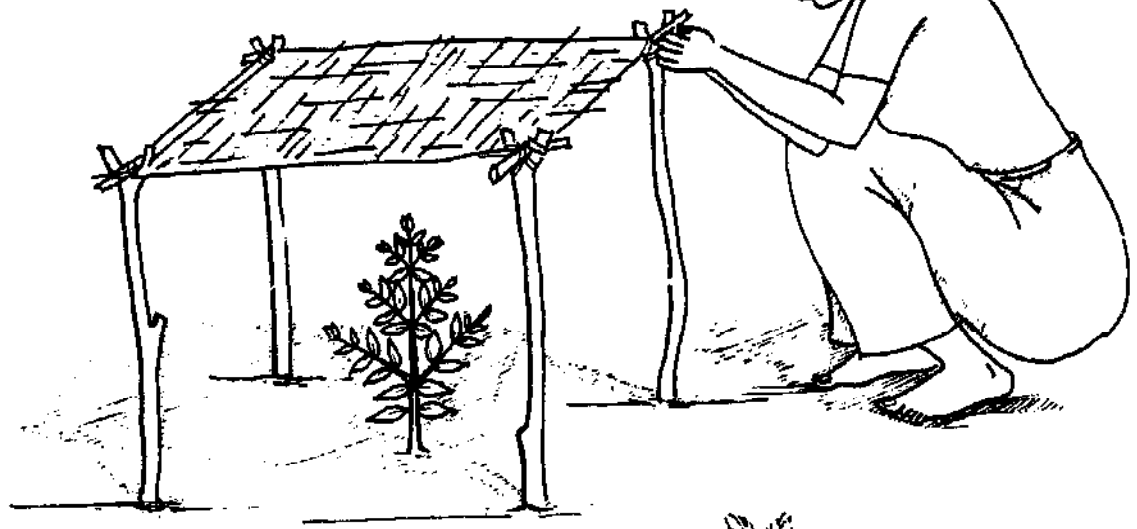
SPREAD FEEDER ROOTS

COVER FIRMLY



ICINTELELWE CILAFWAIKWA PANGILILENI ICINTELELWE  
PANUMA YAKUPWISHA UKULIMBA UMUTI

SHADE IS IMPORTANT  
PROVIDE SHADE AS SOON AS SEEDLING IS PLANTED



BOMFYENI ULUPUTU NANGU IFYANI PAKUPANGA  
ICINTELELWE

USE BRACKEN OR GRASS FOR SHADE



UKWANSA IFYANI MWISHINTE KULAFWILISHA KOFI  
PAKWANSA BONFYENI IFYANI AMABULA YANKONDE  
NANGULA IMIPETI YANYANJE

MULCH HELPS COFFEE  
GRASS BANANAS MAIZE STALKS ARE VALUABLE



BIKENI IFYANI UKWISUSHA UKULINGANA NAKALUPUTA  
AKASHINGULUKA UMUTI WA KOFI

FILL BOX RIDGES DEEPLY WITH MULCH



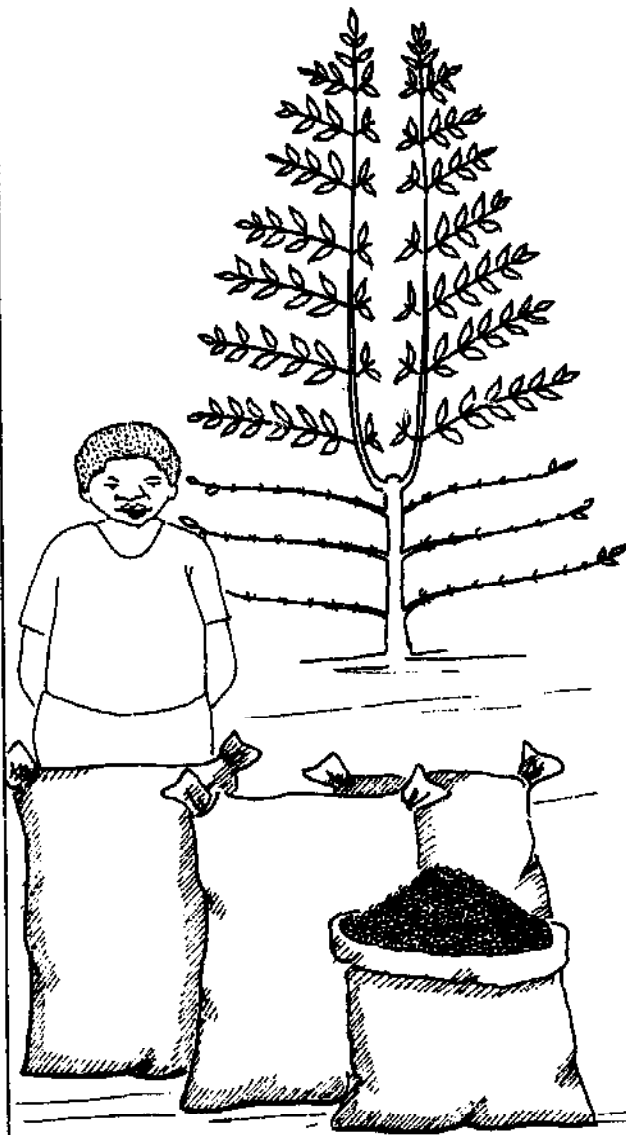
KOFI WANTAPILILE NAO AFWILE UKUSANSHIKILWA  
IRRIGATED COFFEE ALSO MULCHED





BONFYENI FOLOKO PAKUSEKWILAMO  
NAKILILENI PAKUKANA ONAULA IMISHILA  
YA PAMULU

USE FORK HOE OR FORK CAREFULLY  
TO PRESERVE FEEDER ROOTS



UKUSEKWILA KUPELA UBUNONSHI

WEEDING GIVES GOOD PROFITS



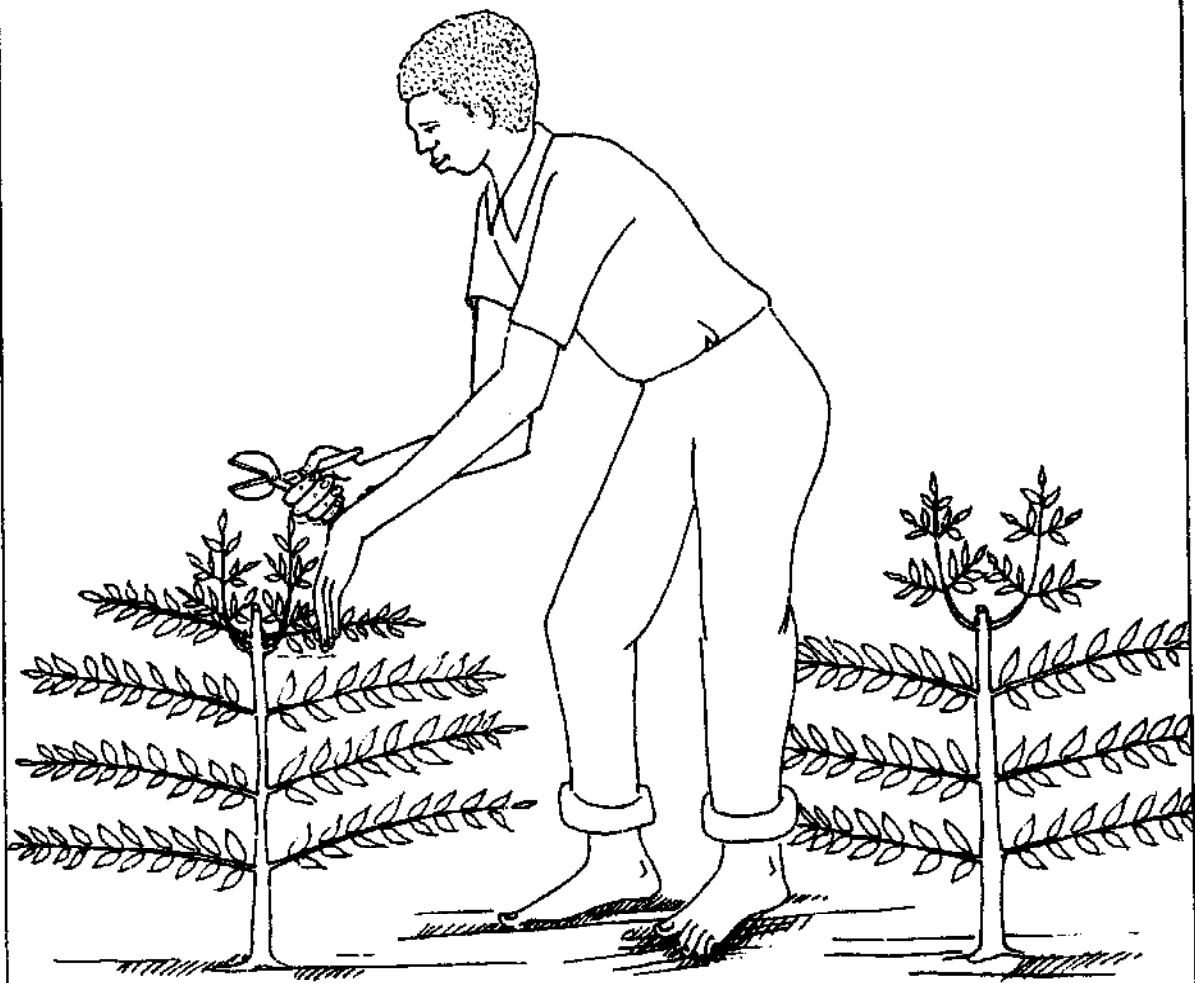
BIKENI UMUFUNDO CILA MWESHI WA CINSHIKUBILI /  
MUPUNDU MILIMO BWEKESHENI UKUBIKA CILA MWESHI  
WAKABENGELE KAKALAMBA / KUTUMPU MONENI  
KUMPELA YAKATABO PAFYAKUCITA

APPLY FERTILIZER EVERY NOVEMBER / DECEMBER  
REPEAT IN FEBRUARY / MARCH



PUTULENI UMUTI PAMULU UKULINGANYA MWIKUFI  
(45cm - 50cm) PAKUTI UMUTI UKWATE IMISAMBO IBILI

CAP AT KNEE HEIGHT 45cms - 50cm  
TO PRODUCE 2 STEMS



ILYO IMISAMBO IBILI IYAPUKA YAKULA UKULINGANA  
NO LUPI-20 cm FUNYENI IMISAMBO IBILI YAMUMBALI  
YAIKO

WHEN 2 STEMS ARE 1 HAND HIGH - 20cms  
REMOVE 2 TOP PRIMARIES

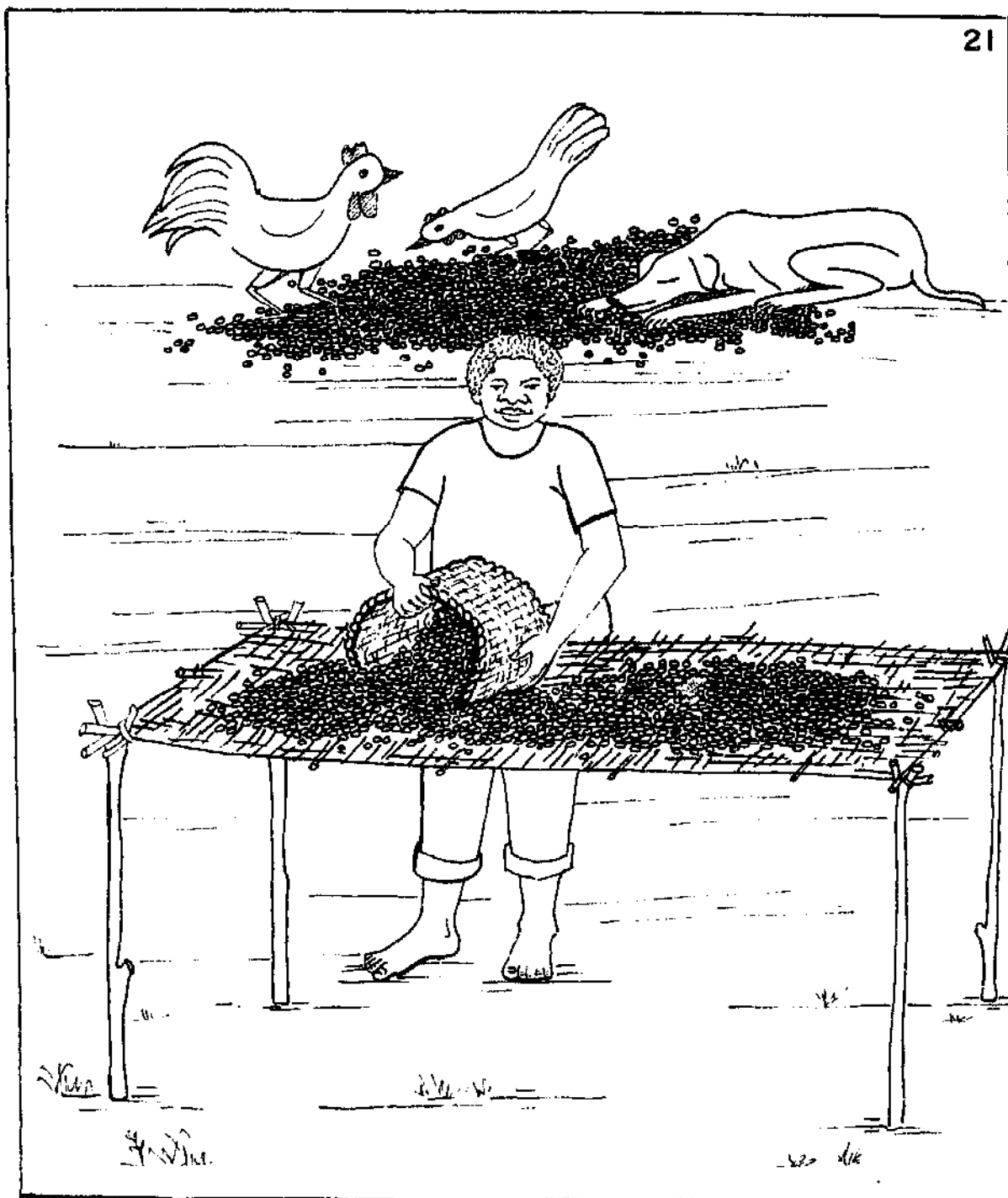


TUNGWILENI UTULEPUKA UKUBONFYA CAKUPIJTWILA  
REMOVE SUCKERS BY CUTTING



SWENI IMBUTO ISHAPYA ISHAKASHIKA

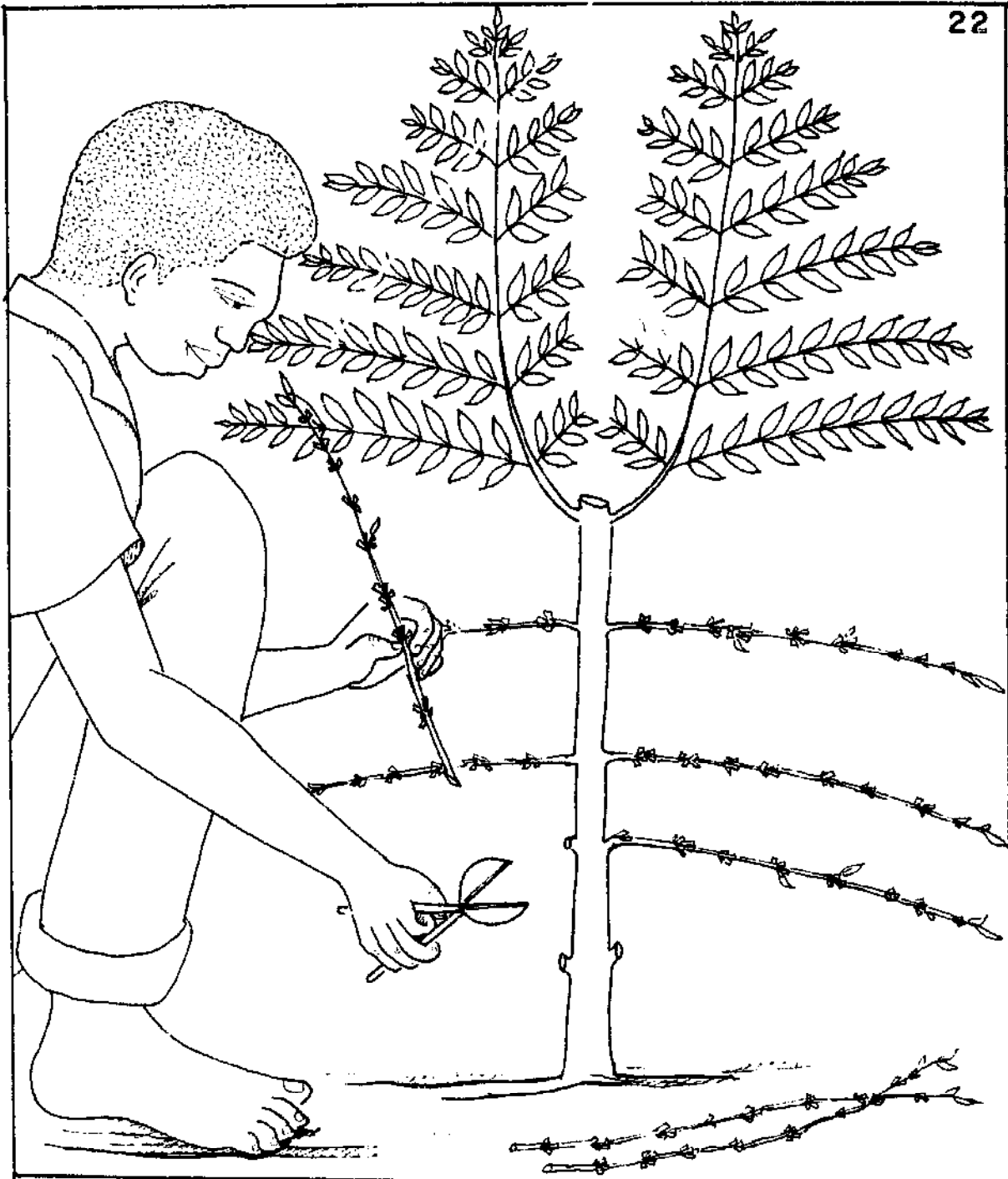
PICK ONLY RED RIPE CHERRY



ANIKENI KOFI IYI SHASOTOLWA NANGU IYASOTOLWA  
PACINTAMBA TEPANSHI YAFYE

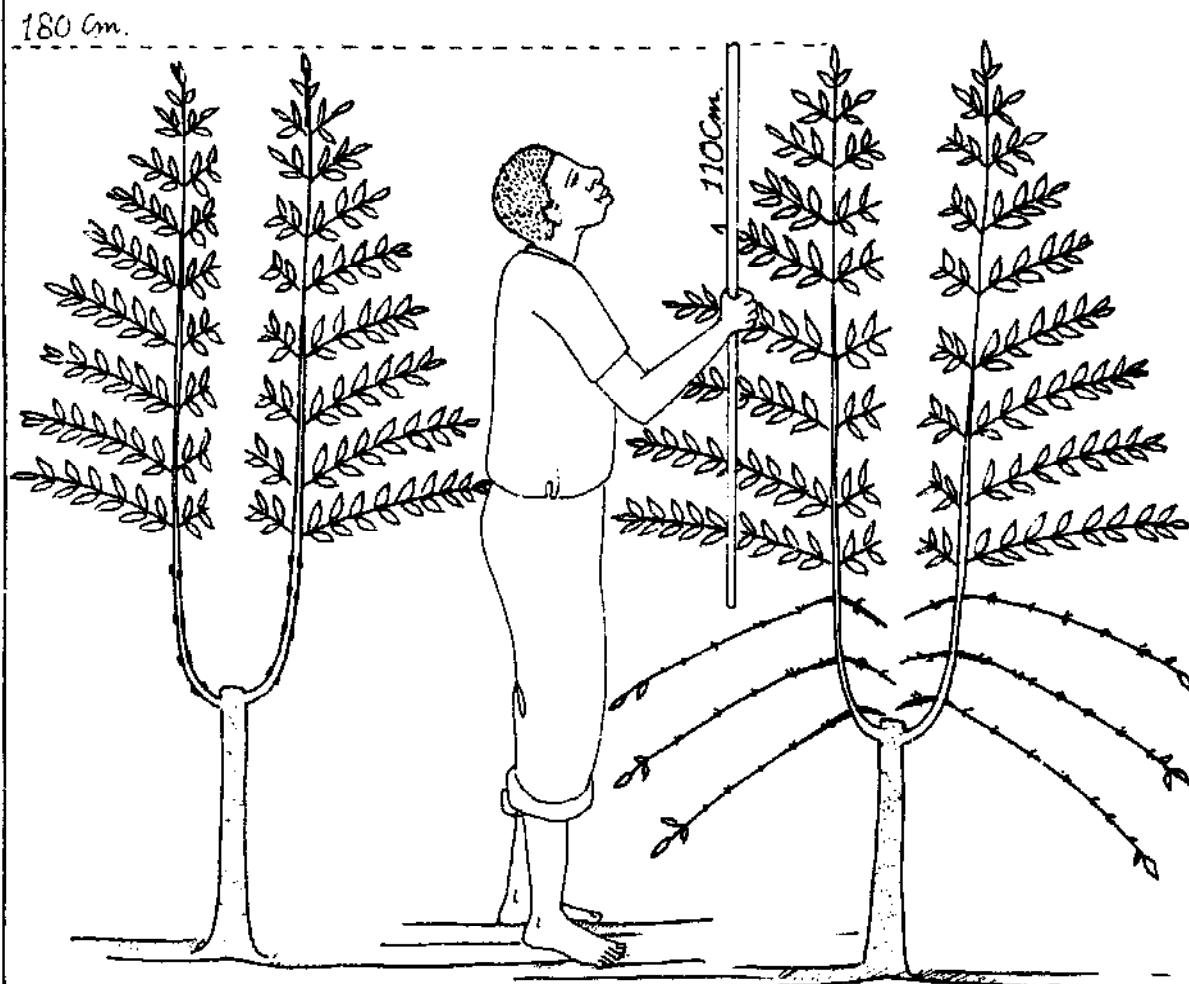
DRY CHERRY OR BEANS ON A RAISED MAT  
NOT ON GROUND TO AVOID DIRT.





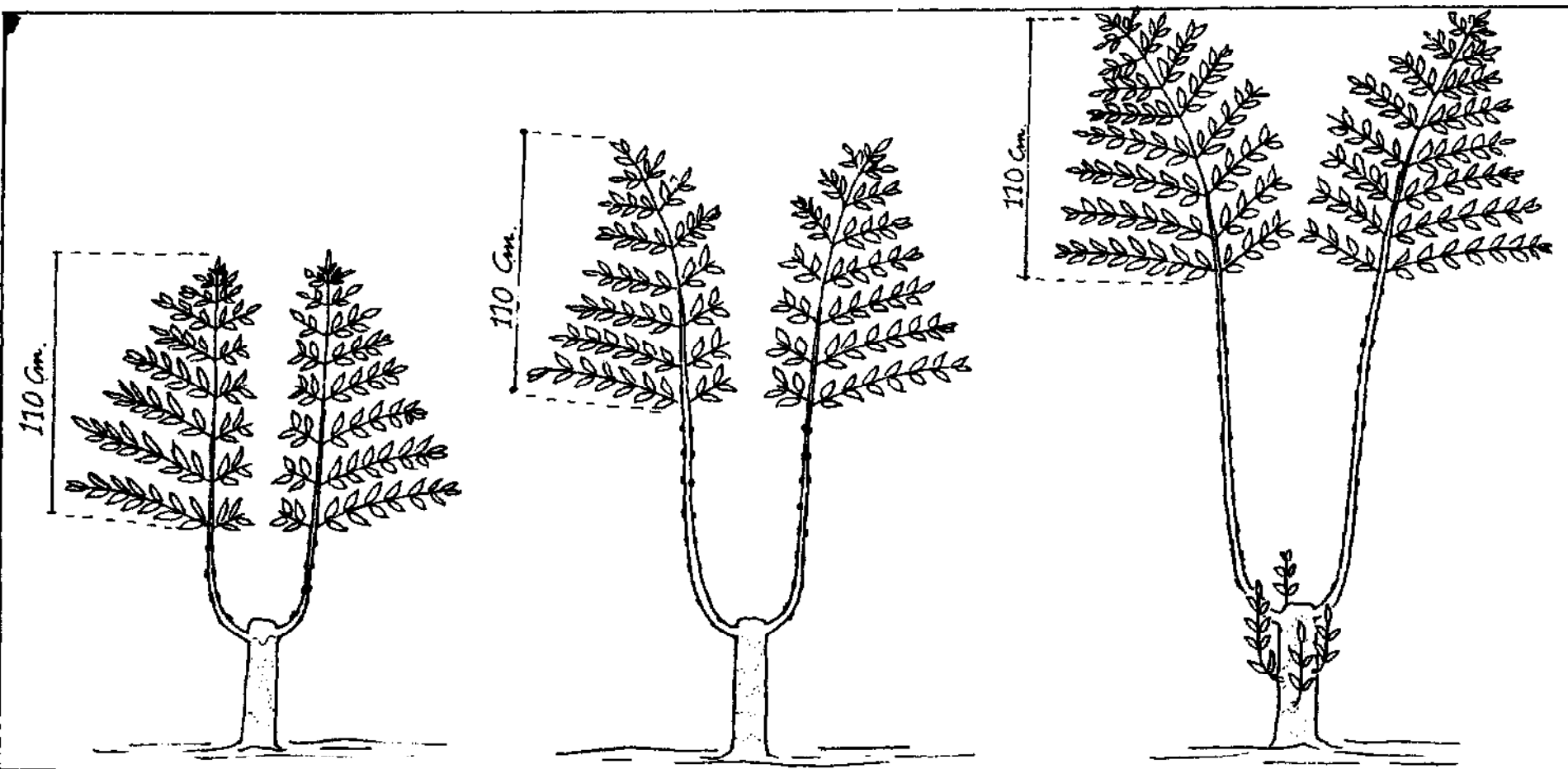
FUNYENI IMISAMBO YAMWISAMBA LILYA YALEKA UKUTWALA  
 ILINGILINE CIBA NIPA NUMA YAKUTWALA KWALENGA IBILI  
 MWITUNGWILA IMITI YALWALA IPELENIFYE ICINTELELWE

REMOVE LOWER BRANCHES WHEN THEY HAVE COMPLETED BEARING  
 USUALLY AFTER SECOND CROP



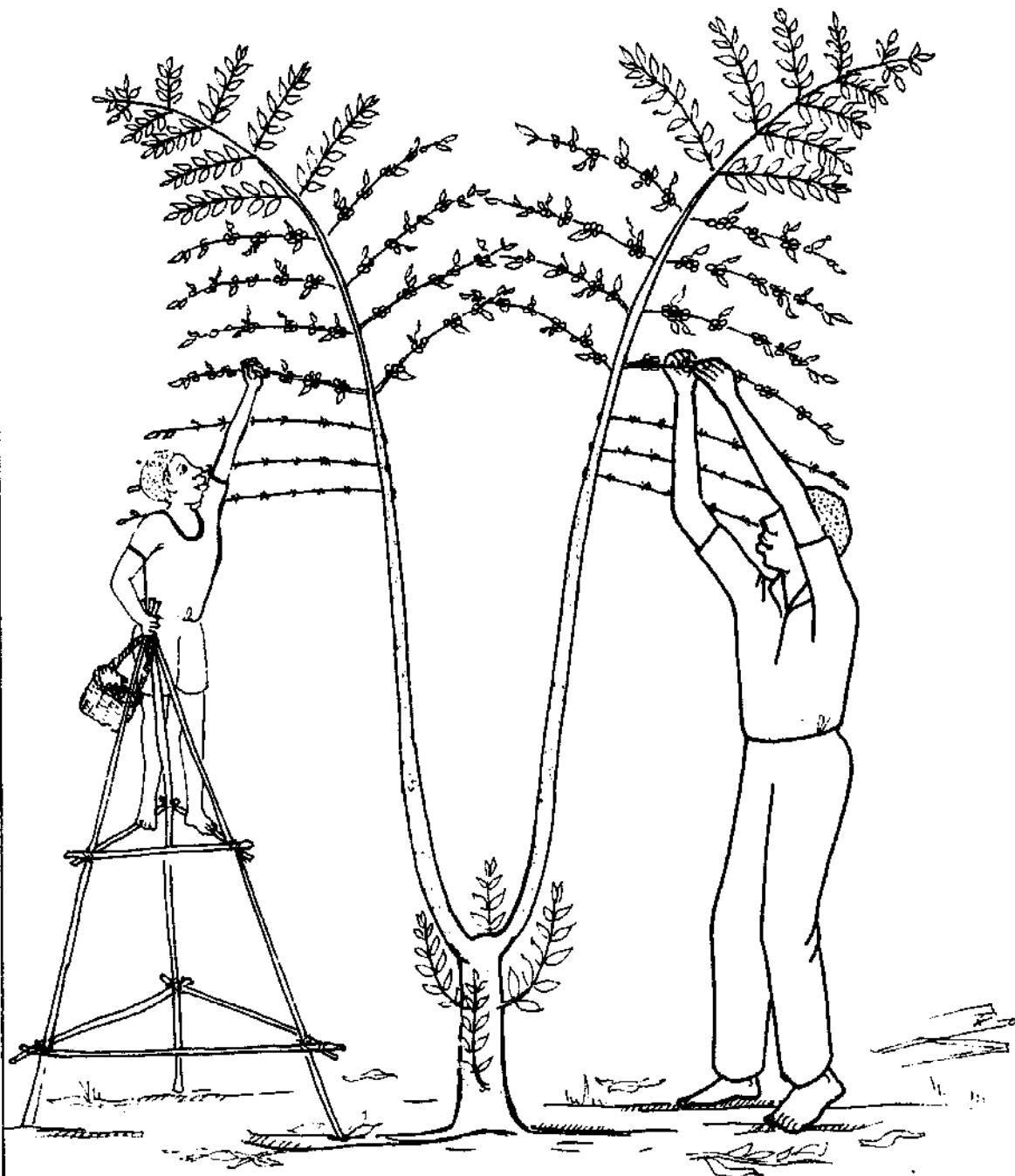
UKUTUNGWILA KWA PAMWAKA - Panuma yakupwisha ukusombola  
 ILINGILINE KUTAMPA ILYO IMITI YAKULA UKUFIKA PALI  
 180cm BIKENI CIPIMO UKUFUMA PAMULU WAMUTI NOKUPIMA  
 UKUYA PANSHI UKUFIKA PALI 110cm PUTULENI IMISAMBO  
 YONSE IYA SHALA PANSHI PA 110 cm

ANNUAL PRUNING-After harvest USUALLY STARTS WHEN TREE IS 180cms  
 HIGH PLACE MEASURING STICK AT HEAD OF TREE AND MEASURE  
 DOWN 110 cms PRUNE OFF ALL PRIMARY BRANCHES BELOW 110 cms



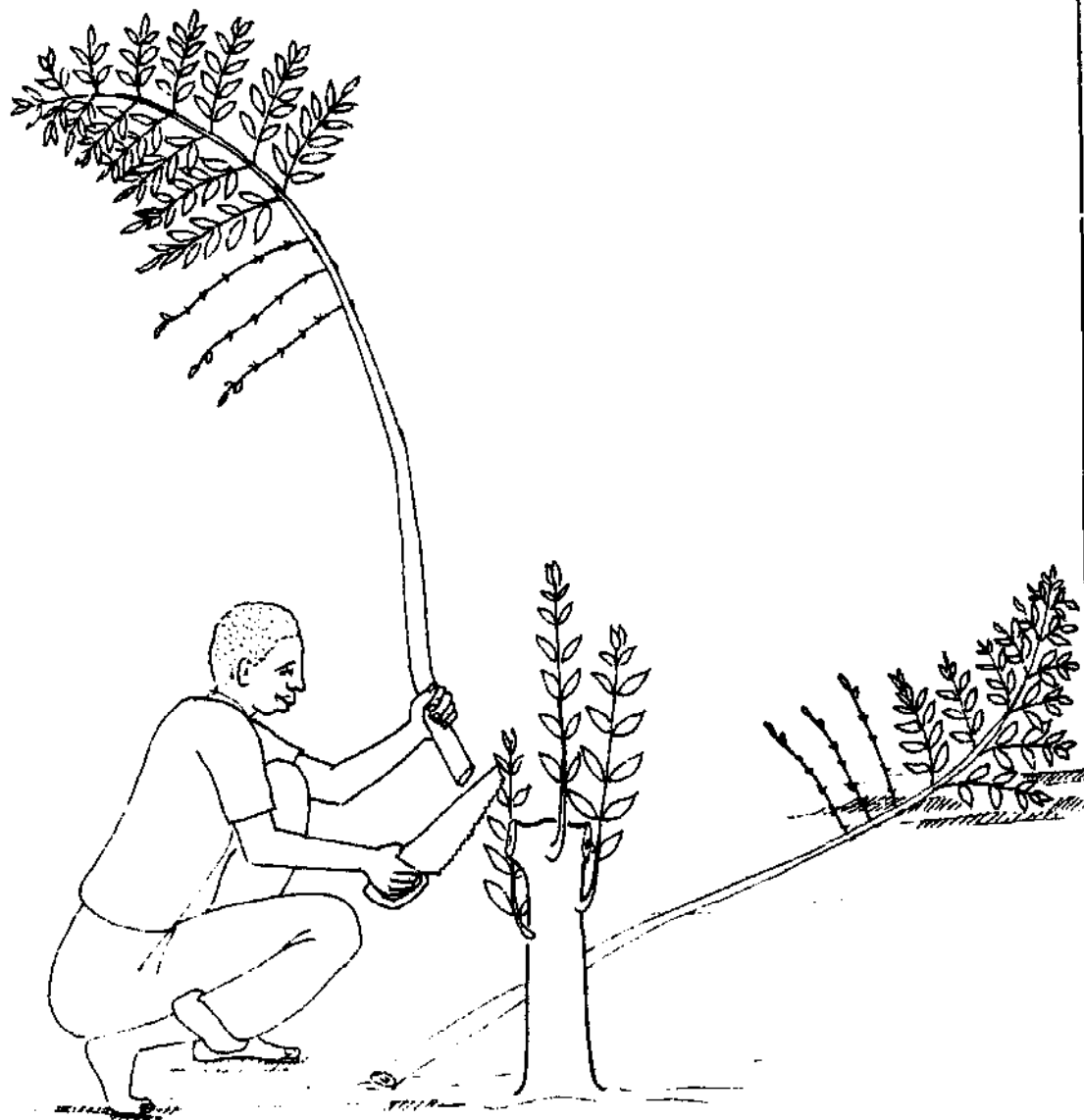
UKUTUNGWILA KWA PAMWAKA CILAMWAKA KOFI AYA ALETWALILA LWAPAMULU CILAMWAKA UMUTI  
 ULAKULA NOKULEPELAKO CILAMWAKA PANUMA YAKUSOMBOLA IMISAMBO ILAPUTULWA IYABA MWISAMBA  
 NGAMWAPIMA 100 cm

ANNUAL PRUNING: EACH YEAR THE CROPPING AREA OF THE TREE MOVES HIGHER  
 EACH YEAR THE TREE GROWS A NEW TOP AND IS TALLER  
 EACH YEAR AFTER HARVEST THE PRIMARIES BELOW 110cms ARE PRUNED OFF



UKUTWALA KWAKULEKELESHA ILYO IMITI TAILA PUTULWA  
 IMISAMBO YAMUMBALI ILATUNGULWA UKUSHAKO IYAKUTWALA  
 60cm UKUFIKA PAMULU ANGWILENI IMISAMBO IYINONO MUKATI  
 KAIKALAMBA UKULINGANA 30cm PAKUTI ULUBUTO LULEFIKA  
 MWISAMBA PA KWAFWILISHA UMUTI UKUTAMPA UKUTUMBA  
 LWAPAMAMPANDA

FINAL CROP BEFORE CHANGING CYCLE STEMS PRUNED UP TO LEAVE  
 AHEAD OF 60cms PRIMARIES PRUNED UP ON INSIDE FOR 30cms TO  
 OPEN TREE AND PERMIT SUCKERS TO GROW IN SUNLIGHT AT  
 JUNCTION AREA

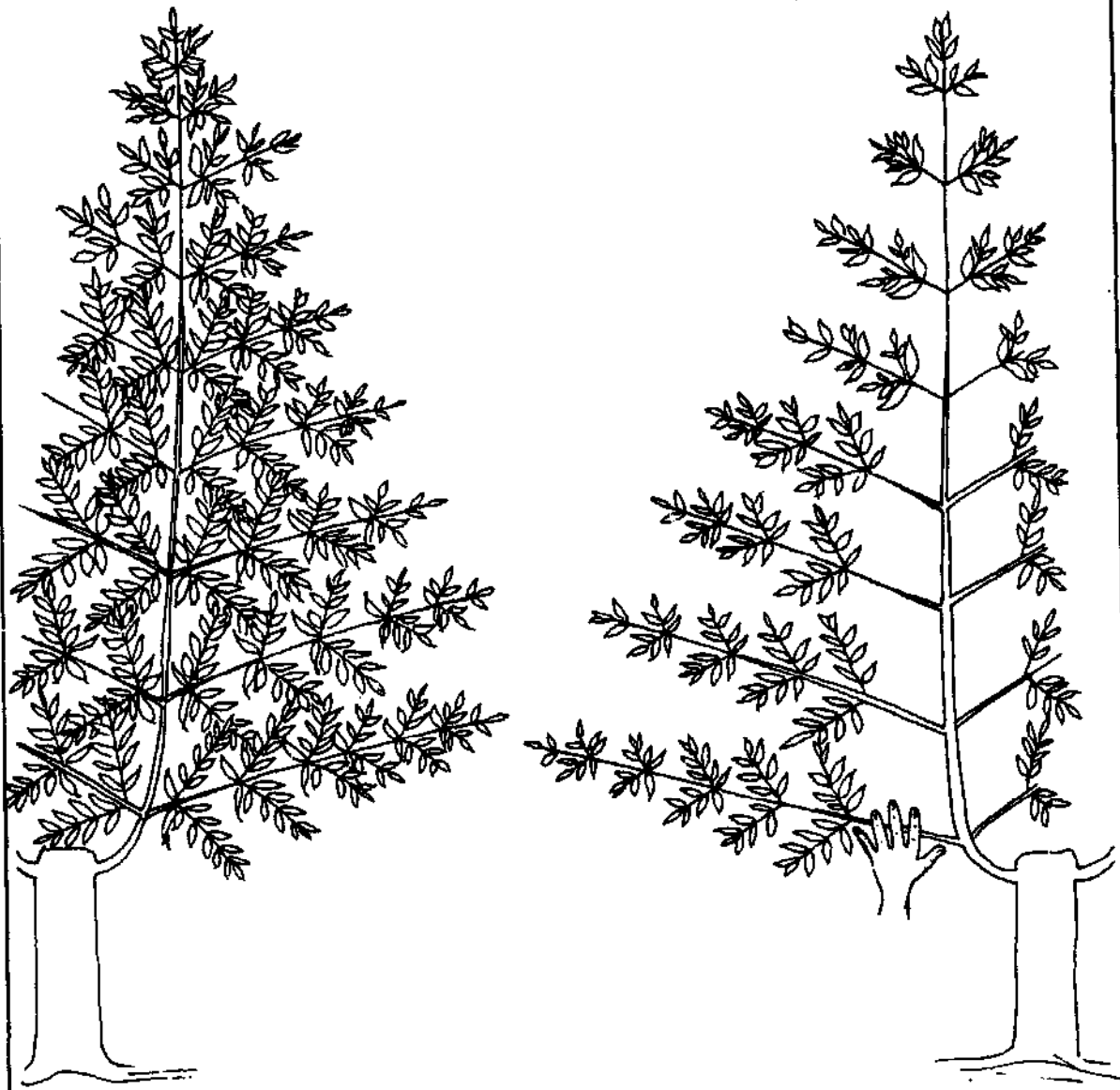


PANUMA YAKUSOMBOLA KWAKULEKELESHA PUTULENI  
 IMISAMBO UKUPINDIKA (SAW) PAKUPUTULA IMITI  
 IYATUMBA IKATWALA UMWAKA WAKONKAPO

AFTER FINAL HARVEST STEMS REMOVED BY SLOPING SAWCUT  
 SUCKERS WILL BEAR NEXT YEARS CROP



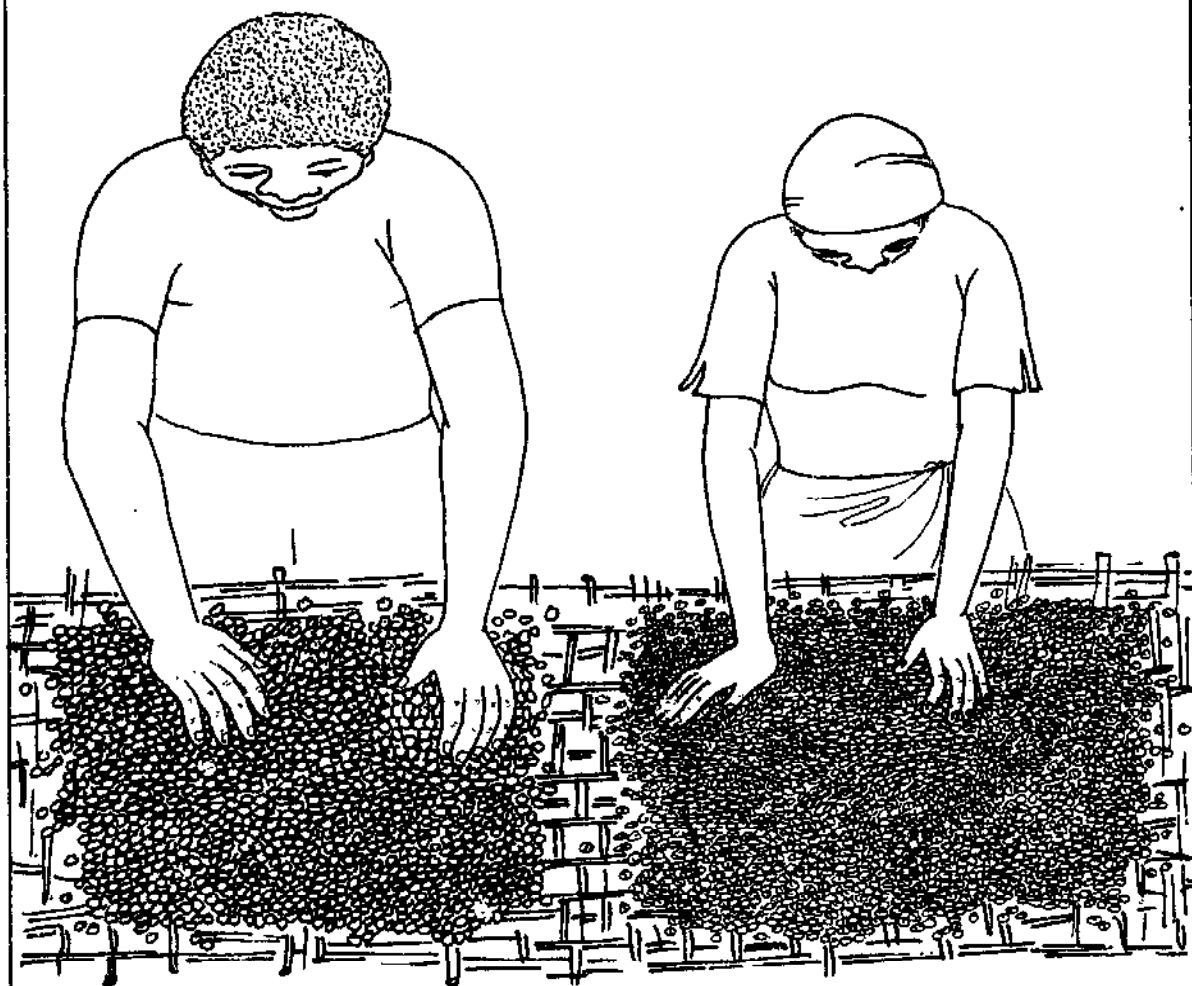
IFITWALO IFIPYA FILEKULA KUMISAMBO YAMUMBALI  
NEW CROP GROWING ON LOWER PRIMARIES



### UKWANGULA

UKULESHA UTUMISAMBO UKUTITIKANA KULENGA UMUTI UKUBA  
 UWA SAKALALA PAKATI FUNYENI IMISAMBO INONO KUMISAMBO  
 YAMUMBALI UKUPIMA ULUPI LUMO(20cm) UKUFUMA PAKATI KA  
 MUTI KWANGULA KWALINGA UKUBA PANUMA YAKUSOMBOLA  
 LILYA MAINSA TAYALAIISA NALILYA YAPWA

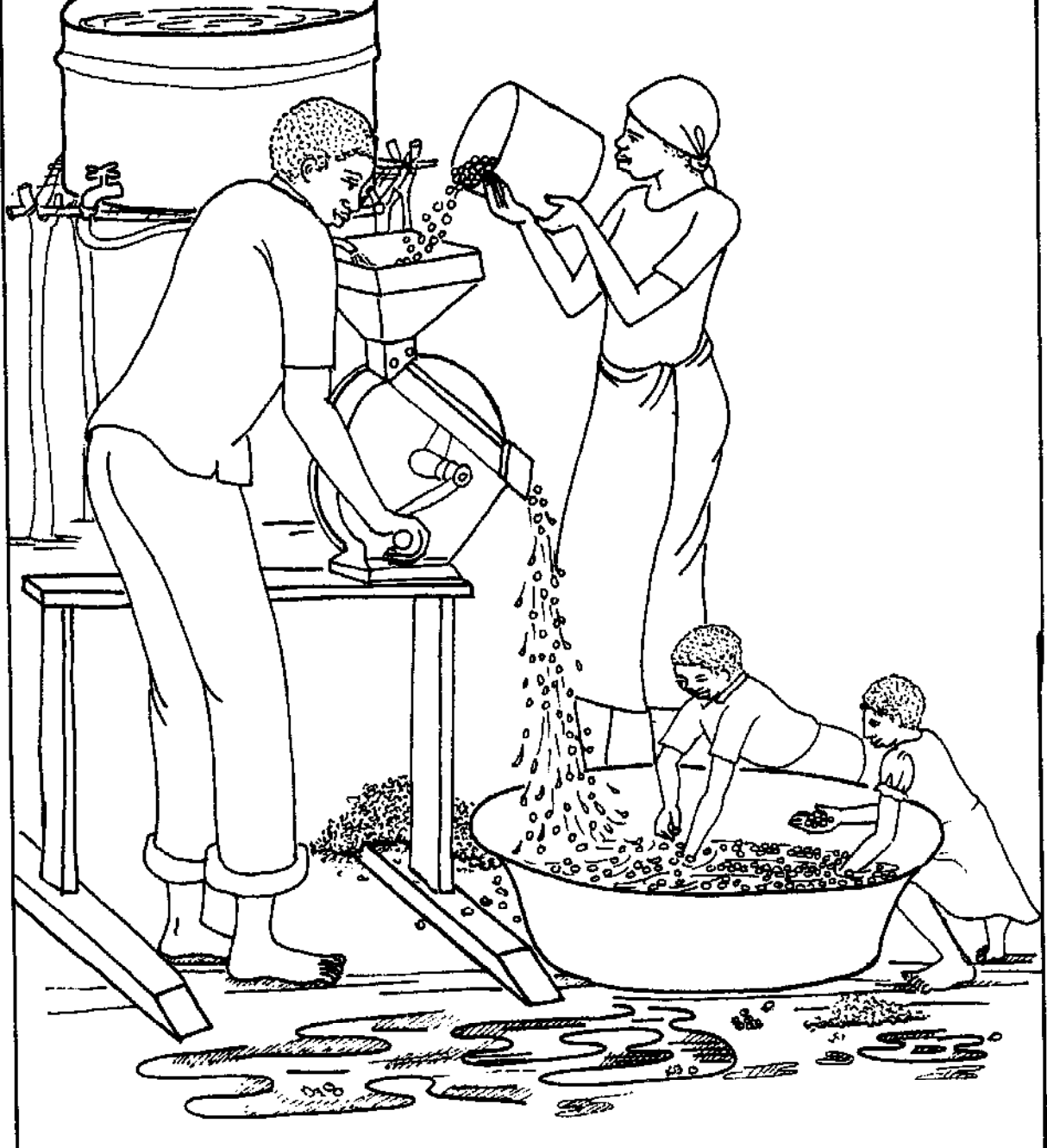
TRIMMING: CONTROL OF SECONDARY AND TERTIARY GROWTH- ESSENTIAL  
 TO KEEP MIDDLE OF TREE CLEAR- REMOVE ALL SECONDARIES FOR  
 FIRST 20cms (HANDSPAN) ALONG PRIMARY FROM MAIN STEM- NO TERTIARIES  
 PERMITTED- TRIMMING NECESSARY AFTER HARVEST AND BEFORE AND  
 AFTER RAINS.



KOFI WAMIKOTO NI ULYA UWASABWA NOKWANIKWA  
KWABULA UKUSOTOLA MPAKA AUMA KOFI WASOTOLWA  
NI ULYA UWABULA AMAPAPA WAYABIKILWA ELYO  
NOKWANIKWA MUKASUBA NA MUCHINTELELWE

SUNDRIED CHERRY IS THE WHOLE FRUIT PICKED WHEN RED RIPE  
AND DRIED UNTIL COMPLETELY DRY  
PARCHMENT COFFEE IS THE BEAN WITHOUT THE SKIN WHICH  
HAS BEEN FERMENTED AND DRIED IN SUN AND SHADE





SABENI KOFI UWAPYA UWAKASHIKA NOKUSOTOLA  
BWANGU AMENSHI YALENGA MASHINI YAKUSOTWELA  
KUBOMBA BWINO FUNYENI AMAPAPA AYALI YONSE  
KULI KOFI IYASOTOLWA

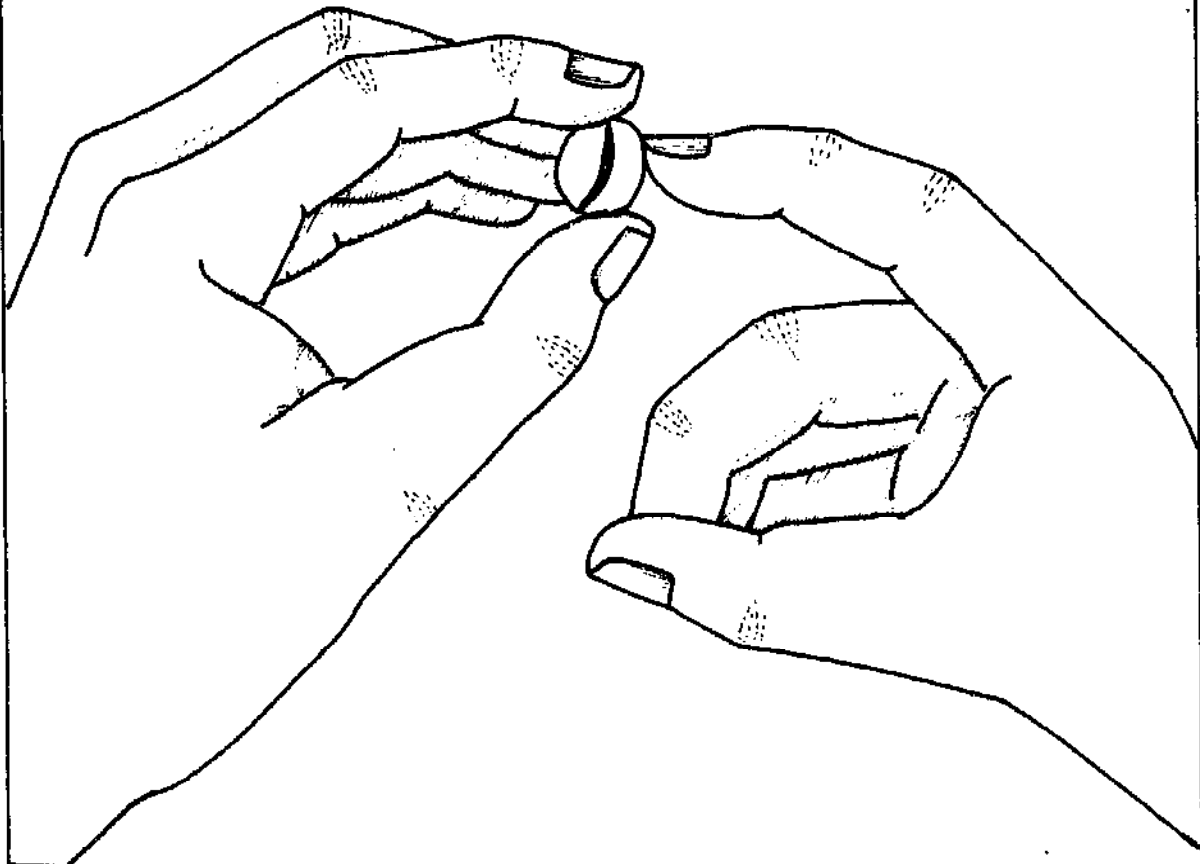
PICK RED RIPE CHERRY AND PULP IMMEDIATELY- WATER  
LUBRICATES THE MACHINE-REMOVE ANY SKINS FROM  
BEANS



FUNYENI AMENSHI

FIMBENI KOFI MULI BAFWA NANGULA BESENI NE SAKA  
ILISUMA. LEKENI IFUNDE PANSHIKU SHIBILI PAKUPWISHA  
UKUTELELA MWIBONFYA IFINTINI FYA NSHIMBI

DRAIN WATER: COVER BEANS IN BATH WITH CLEAN SACK  
LEAVE TO FERMENT FOR 2 DAYS TO REMOVE STICKINESS  
AVOID METAL CONTAINER



FOOLENI KOFI UMO (ULUBUTO LUMO) NO LWALA  
NGAYAUMFWIKA IYAKALABANA SANFYENI

SCRATCH BEAN WITH FINGER NAIL  
IF GRITTY GIVE FINAL WASH



KUSAMFYA KWAKULEKELESHA MUMENSHI AYASUMA  
FINAL WASH IN CLEAN WATER



**YABIKILENI MUMENSHI AYASUMA PANSÁ 24**

**SOAK IN WATER FOR 24 HOURS**



ANIKENI KOFI PABUTANDA  
 FIMBENIPO PAKATI KAKASUBA  
 TANDANYENI CILA INSA IMO  
 PAKUMININA CISENDA IMILUNGU IBILI NANGU ITATU

DRY BEANS ON MAT  
 SHADE DURING MIDDAY  
 STIR HOURLY  
 DRYING TAKES 3-4 WEEKS



NGAYAUMA UKUFILWA UKUKOKOTA  
 SUNGILENI MWISAKA ILYA UMA  
 ILISUMA SHININKISHENI UKUTI  
 KOFI NAUMA PANTU NGA AFUFUMA  
 UBUSUMA BUKA FUMAMO

WHEN COMPLETELY DRY AND IMPOSSIBLE TO  
 BITE-STORE IN A CLEAN DRY WOVEN SACK.  
 BE SURE BEANS ARE REALLY DRY OR IF  
 MOULDY VALUE IS REDUCED

UKUTALUKANYA: IYIKULILA MFULA.... 2.3 METRES X 2.3 METRES

IYITAPILISHIWA..... 2.3 METRES X 1.5 METRES

UMUFUNDO:

PAKULIMBA.....100GRAMMES SUPERSPHOSPATE NANGU'P'NANGU

'X'UKUSAKANYA NOMUSHILI WA PAMULU MUCHILINDI.

IKULILA IMFULA.....MU MYESHI YA CHINSHIKUBILI/UMUPUNDU ELYO

NAMU KABENGELE KAKALAMBA /KUTUMPU BOMFYENI UMUFUNDO

WA AMMONIUM NITRATE PANUMA YA MWESHI UMO UKUFUMA

APO MWALIMBILE IMITI IYILI NOMWAKA UMO (30grams)UTUNONO

PALUPI PAMUTI UMO IMIKU IBILI PAMWAKA UMO. IMITI IYILI

NEMYAKA IBILI(60grams) UKUFUSHAKO CINONO PAMUTI UMO IMIKU

IBILI PAMWAKA UMO. UMWAKA WALENGA ITATU NOKUYA

KUNTANSHI (80grams) KUPIMA ULUPI LUMO PAMUTI UMO IMIKU

IBILI PA MWAKA UMO

IBUKISHENI: SULPHATE OF AMMONIA KUBOMFYA PAMYAKA ITATU

IYAKUTAMPA EPELA. KUFUSHAKO PANTU AMAKA YANONO. UREA

WENA KUCEFYAKO PANTU ALIKWATISHA AMAKA.

IYITAPILISHIWA: BASHI BULIMI ABATAPILISHA BAFWILE UKUBOMFYA

UMUFUNDO NGEFYO BALONDOLOLA PAMULU ELYO NOKUBIKA MUKA-

PEPO KANONO / NAMUKASAKANTOBO.

IFYAKUCHINGILILA AMALWELE: PAKULESHA UBULWELE BWA

NDALAWA (Leaf Rust) FUMINISHENI IMIKU IBILI NA COPPER FUNGI-

CIDE MUMYESHI YA LANGASHE /CHINSHIKUBILI NANGU KABENGELE

KANONO/KABENGELE KAKALAMBA....6grams/LITRE UKUFULA

KWA MENSHE 120grams/20LITRES UKUFULA KWA MENSHE.

MONENI ABABOMFI WA KOFI PAKUTI BAMULANGE IFYO

MWINGACHITA KUTUSHISHI NAMA LWELE



## RECOMMENDATIONS

### SPACING:

RAINFED COFFEE.....2.3 METRES X 2.3 METRES.

IRRIGATED COFFEE..... 2.3 METRES X 1.50 METRES.

### FERTILISER:

AT PLANTING.....100GRAMMES TRIPLE SUPERSPHOSPHATES  
OR 100GRAMMES D.OR X. COMPOUND.

MIXED WITH TOPSOIL IN PLANTING HOLE.

RAINFED TREES:..... APPLY NOVEMBER/DECEMBER AND  
FEBRUARY / MARCH

1st YEAR TREES.....30g AMMONIUM NITRATE PER TREE 2 X YEAR.

2nd YEAR TREES.....60g " " " " 2 X YEAR.

3rd YEAR ONWARDS.....80g " " " " 2 X YEAR.

NOTE: SULPHATE OF AMMONIA CAN BE USED INSTEAD AT  
TWICE ABOVE RATES FOR THE FIRST THREE YEARS ONLY.  
OR UREA CAN BE USED AND RATES REDUCED BY ONE  
THIRD

### IRRIGATED TREES:

FARMERS WHO CAN IRRIGATE SHOULD APPLY AT THE ABOVE  
RATES AND TIMES, AND CAN ALSO APPLY ADDITIONAL  
FERTILISER AT THE SAME RATES IN MAY AND AUGUST.

### DISEASE CONTROL:

ANT LEAF RUST SPRAY.....OCTOBER-NOVEMBER AND JANUARY  
FEBRUARY

COPPER FUNGICIDE..... 6 GRAMMES / LITRE OF WATER

CONTACT YOUR COFFEE EXTENSION OFFICER FOR ADVICE  
ON PESTS AND DISEASES AS THEY OCCUR