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Guide for Small-Holder Coffee Farmers

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GUIDE FOR SMALL-HOLDER COFFEE FARMERS



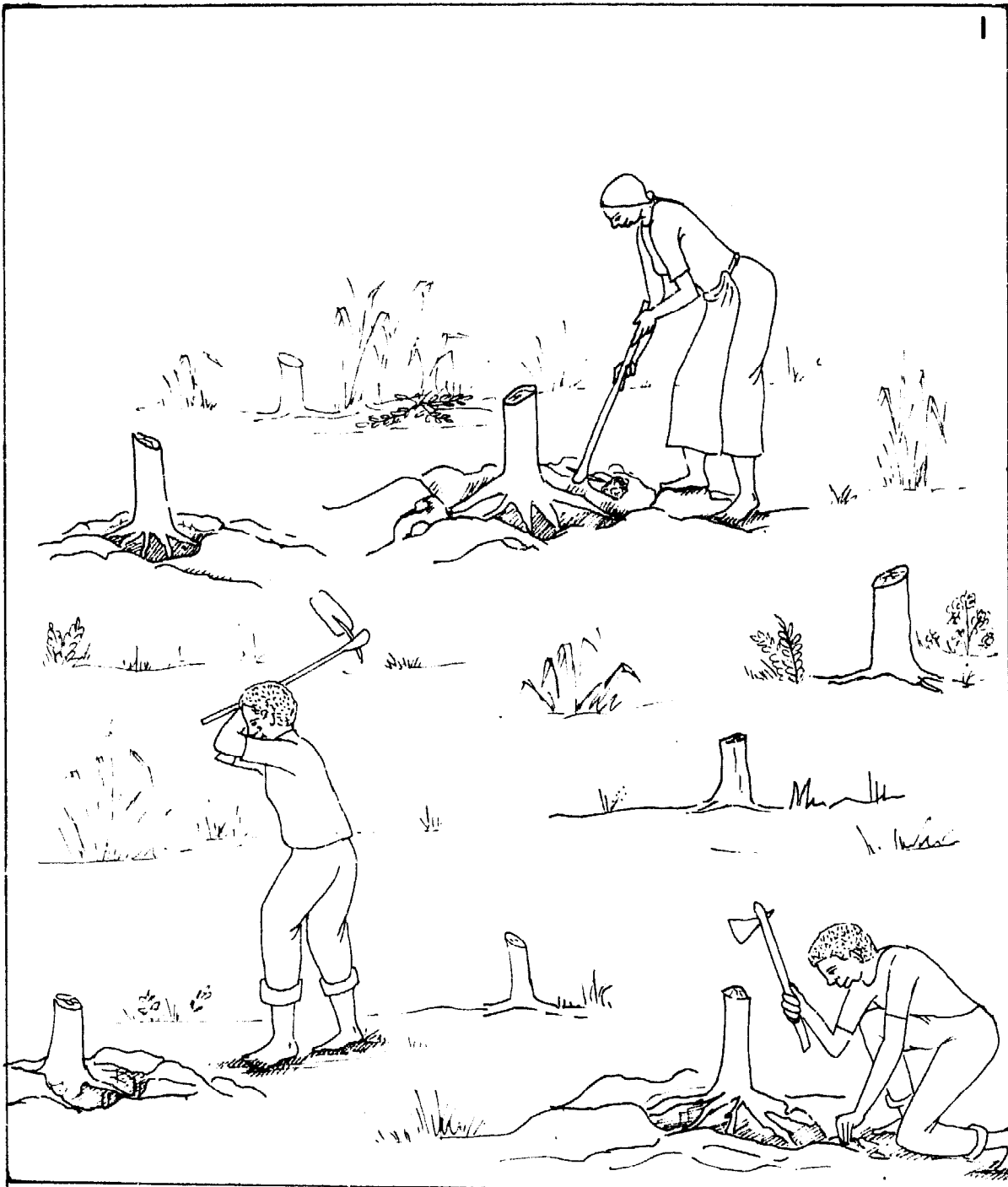
DEPARTMENT OF AGRICULTURE - ZAMBIA

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.

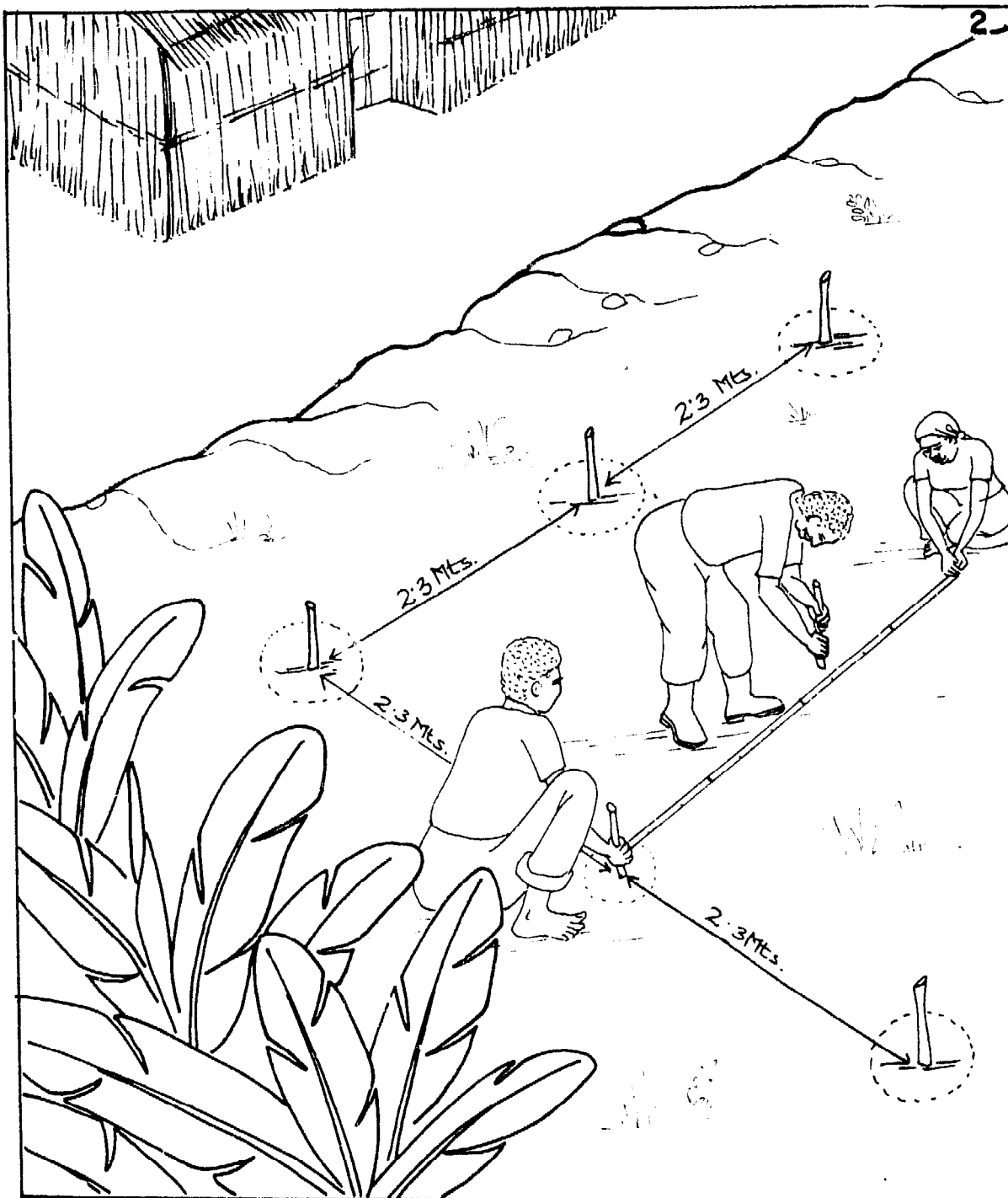
Farmers are advised to contact their Coffee Extension Officers for further information.

KASAMA, April 1983.



PANSENI IMPANGA
SHULENI IMISHILA YONSE
IMISHILA ILETA UBULWELE

CLEAR BUSH
DIG OUT ROOTS
ROOTS BRING DISEASE



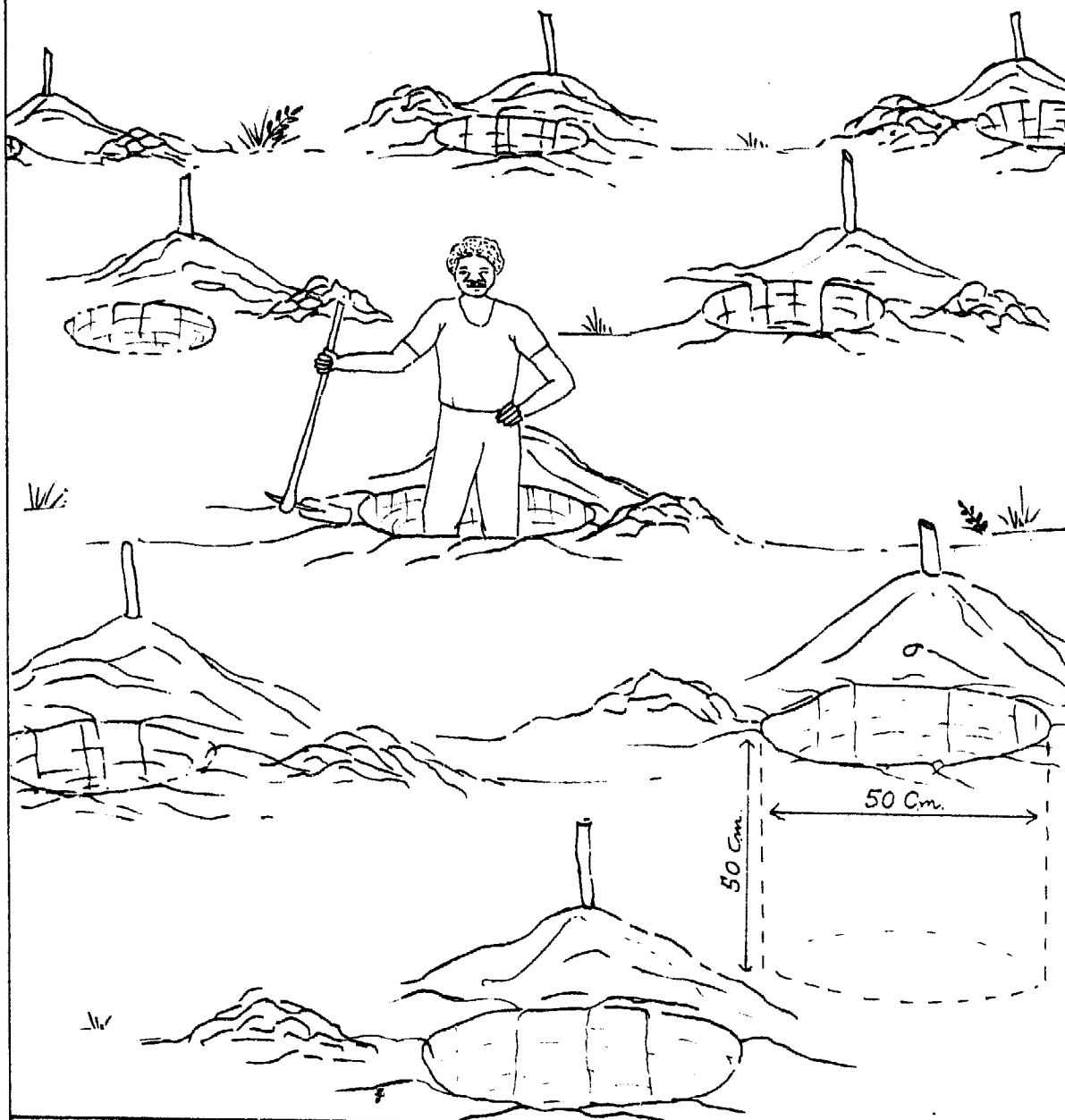
KOFI IKULILA NE MFULA

ILIMBWA UKUTALUSHANYA 2.3m x 2.3m

RAINFED COFFEE SPACE AT 2.3m x 2.3m

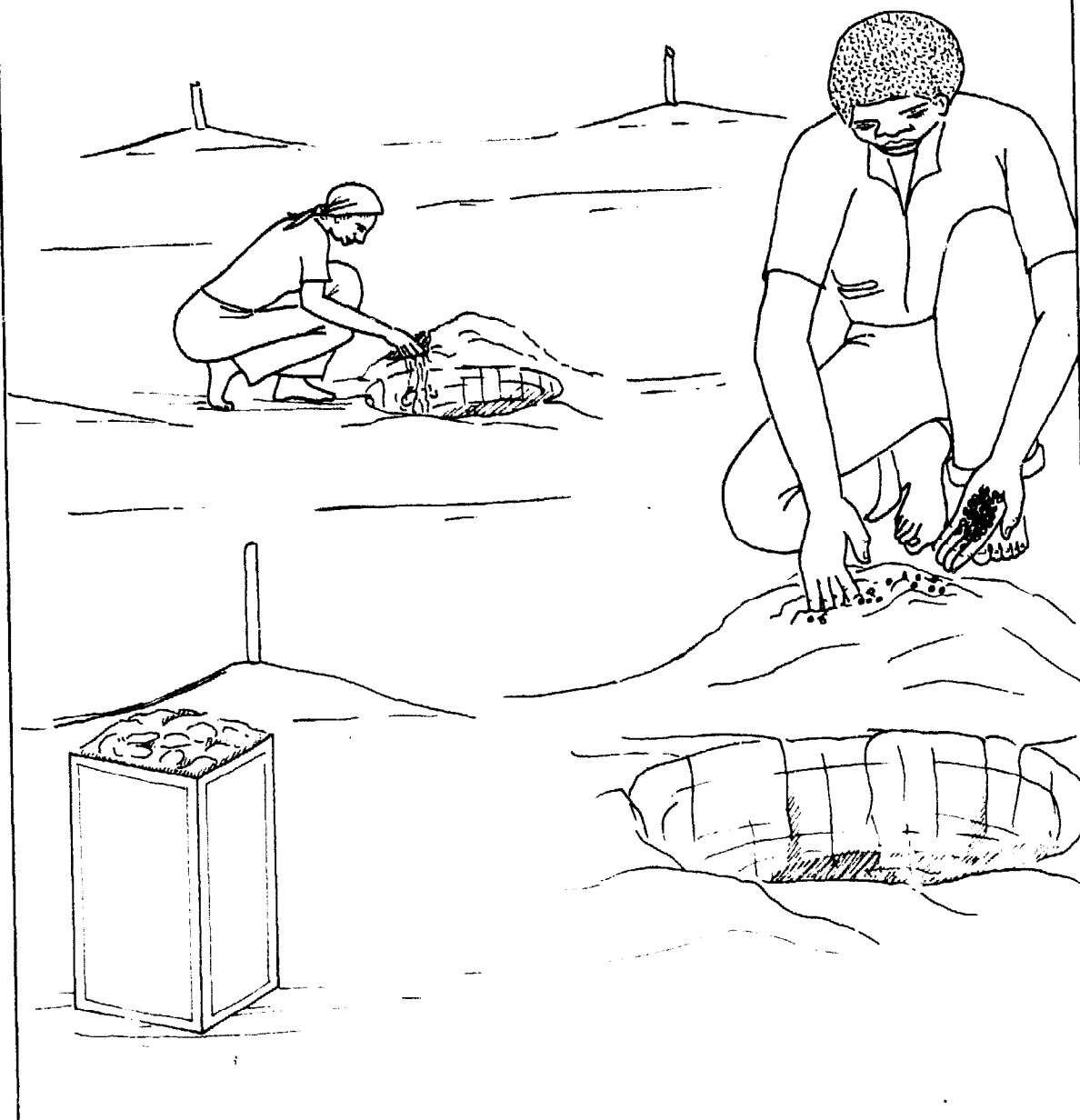


KOFI ITAPILISHIWA NAMENSHI MULUSUBA
UKUTALUKANYA KWA MITI NI 2.3m x 1.5m
IRRIGATED COFFEE SPACE AT 2.3m x 1.5m



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



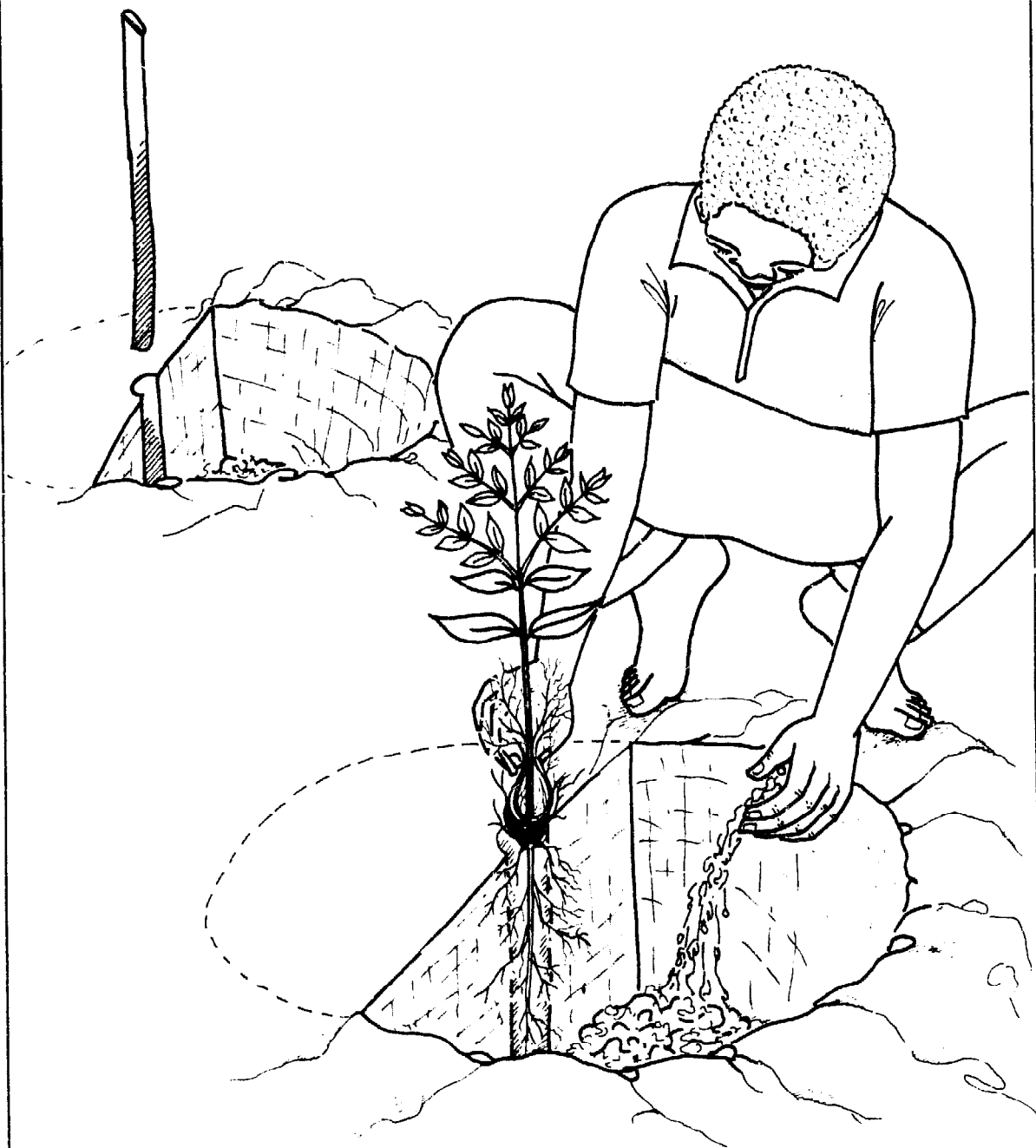
SHIKENI FILINDI NO MUSHILI WAPA MULU USAKANISHIWA NA
CHITINDI WA NG'OMBE NANGU UWAMFUNDIKILE NANGU
100gm UMUFUNDO SUPERPHOSPHATE 'D'NANGU 'X'

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



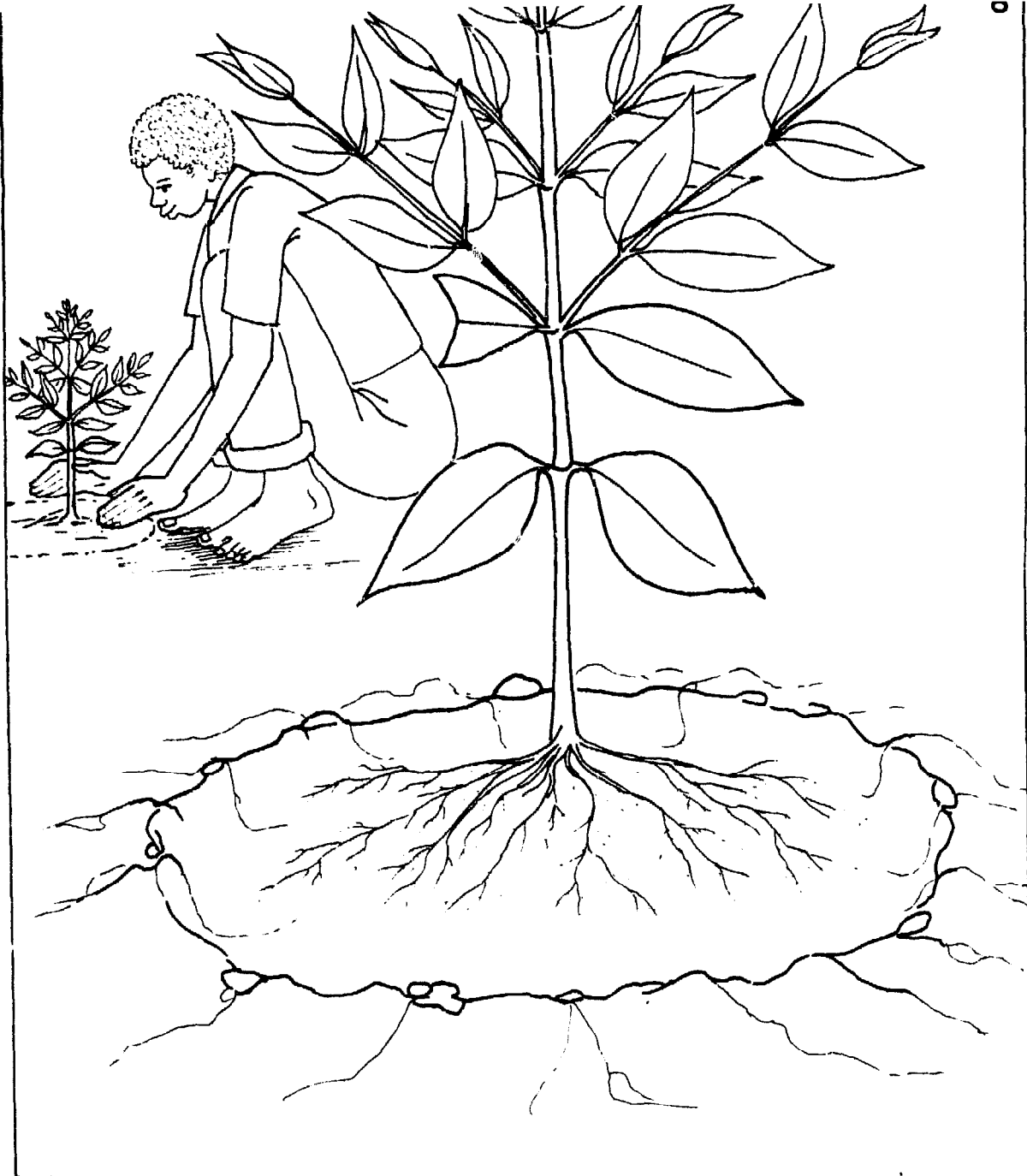
LIMBENI IMITI UKUSHIKA UKUFISHA PALYA ILOBA
LYAPELELE PAKUFUNYA UMWAKUKULILE IMBUTO,
TAKULI UKUSHIKISHA IYO.

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

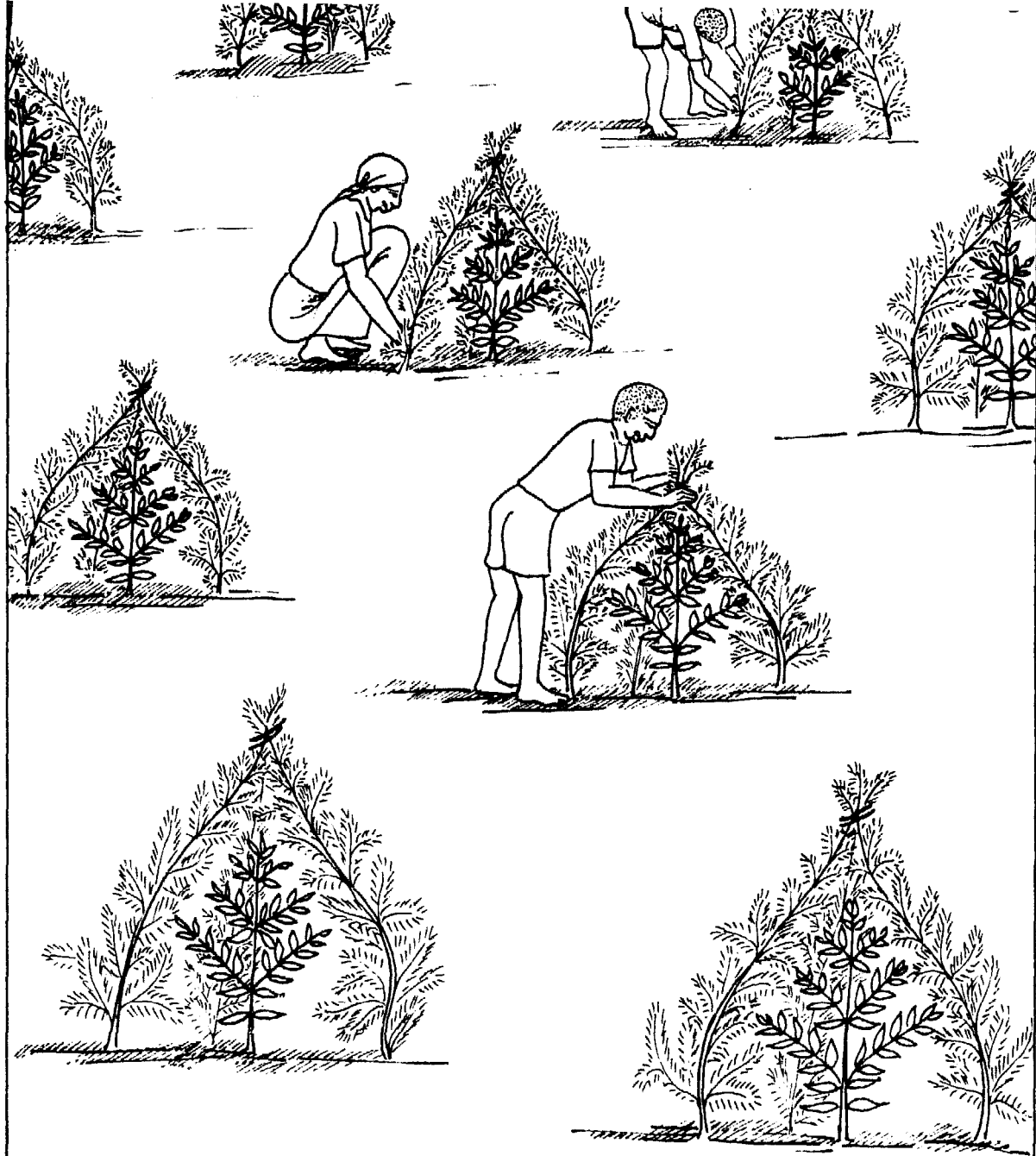
SALANGANYENI IMISHILA YAMUMBALI

SHIKENI NOKUSHINDAILA UKWALINGA

PROPER PLANTING - 2

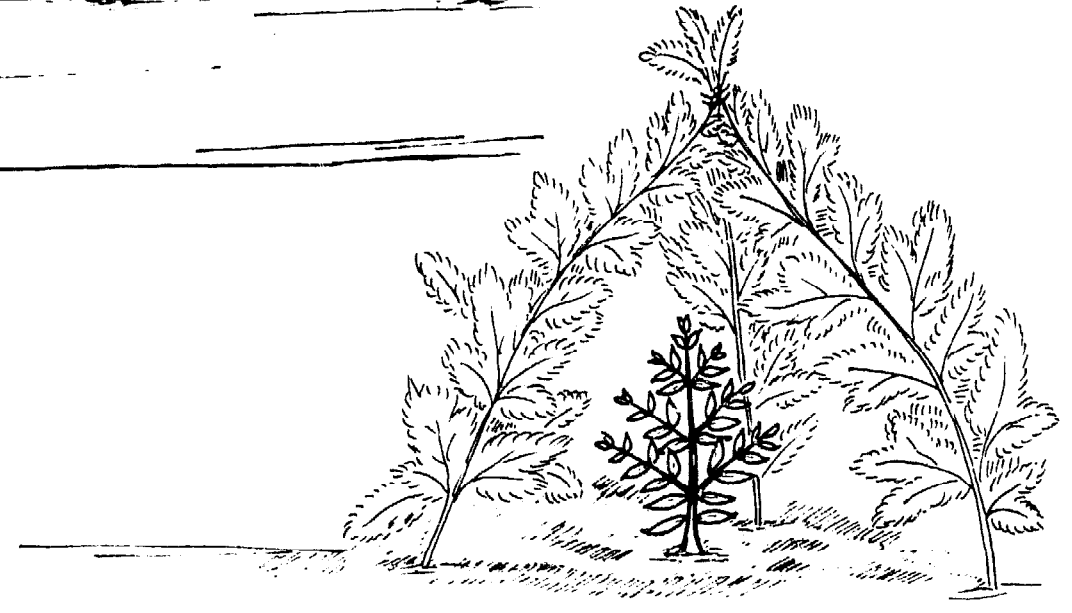
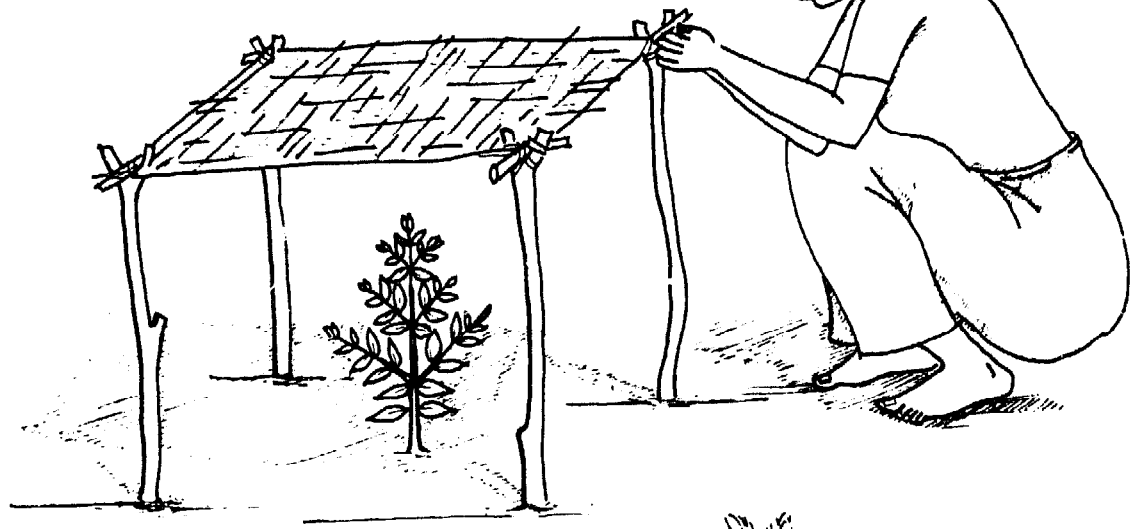
SPREAD FEEDER ROOTS

COVER FIRMLY



ICINTELELWE CILAFWAIKWA PANGILILENI ICINTELELWE
PANUMA YAKUPWISHA UKULIMBA UMUTI

SHADE IS IMPORTANT
PROVIDE SHADE AS SOON AS SEEDLING IS PLANTED



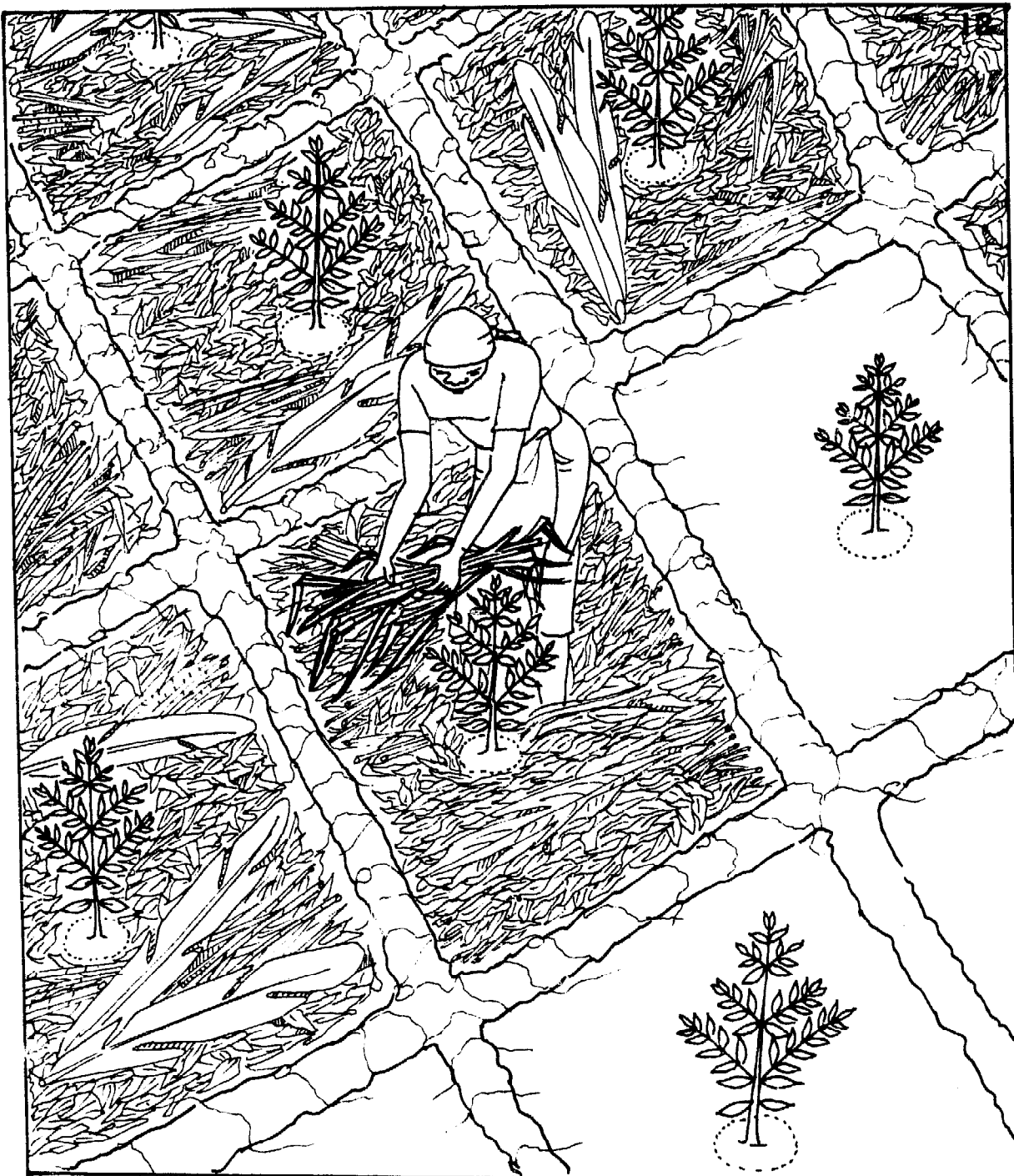
BOMFYENI ULUPUTU NANGU IFYANI PAKUPANGA
ICINTELELWE

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



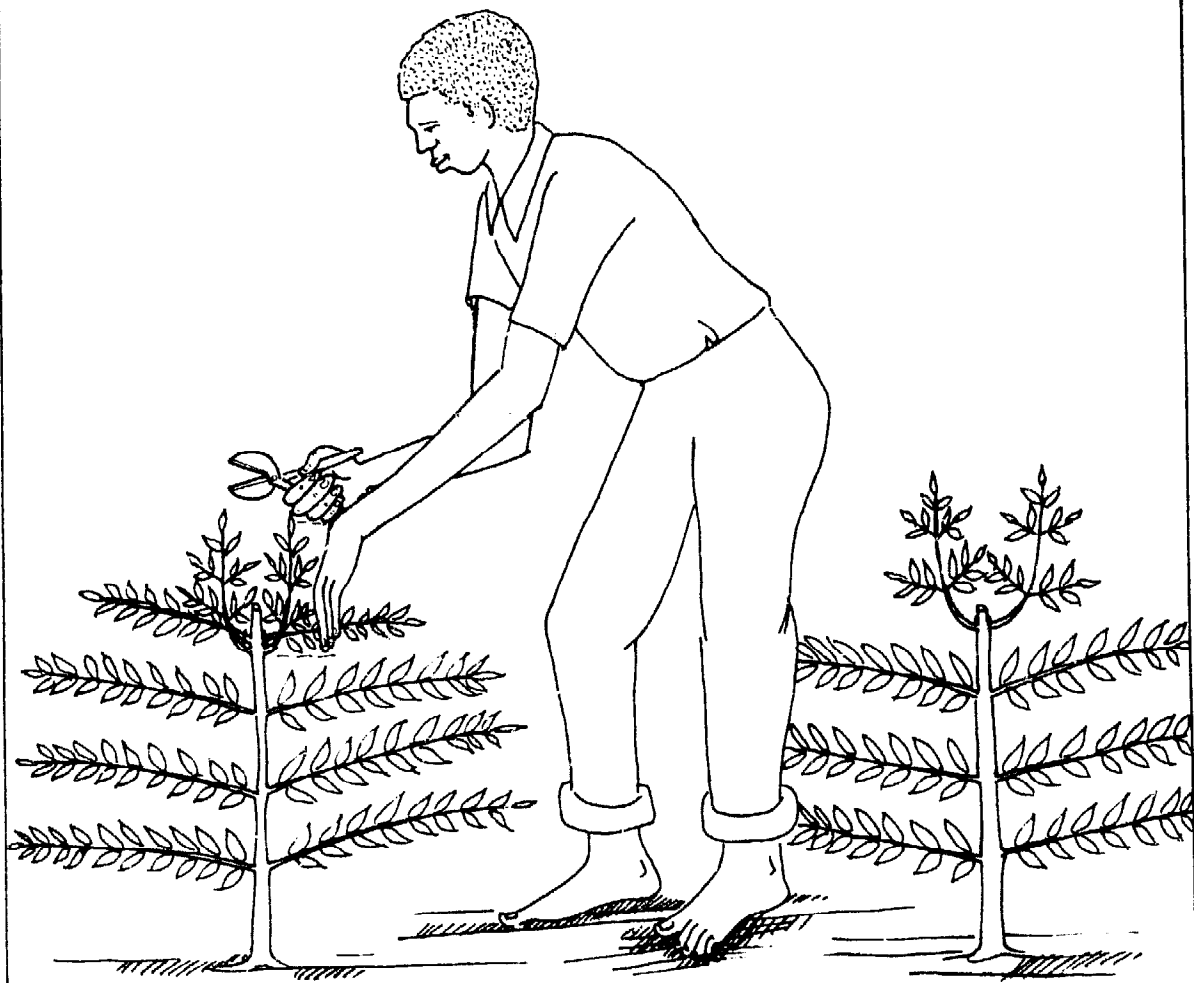
BIKENI UMUFUNDO CILA MWESHI WA CINSHIKUBILI /
MUPUNDU MILIMO BWEKESHENI UKUBIKA CILA MWESHI
WAKABENGELE KAKALAMBA / KUTUMPU MONENI
KUMPELA YAKATABO PAFYAKUCITA

APPLY FERTILIZER EVERY NOVEMBER / DECEMBER
REPEAT IN FEBRUARY / MARCH



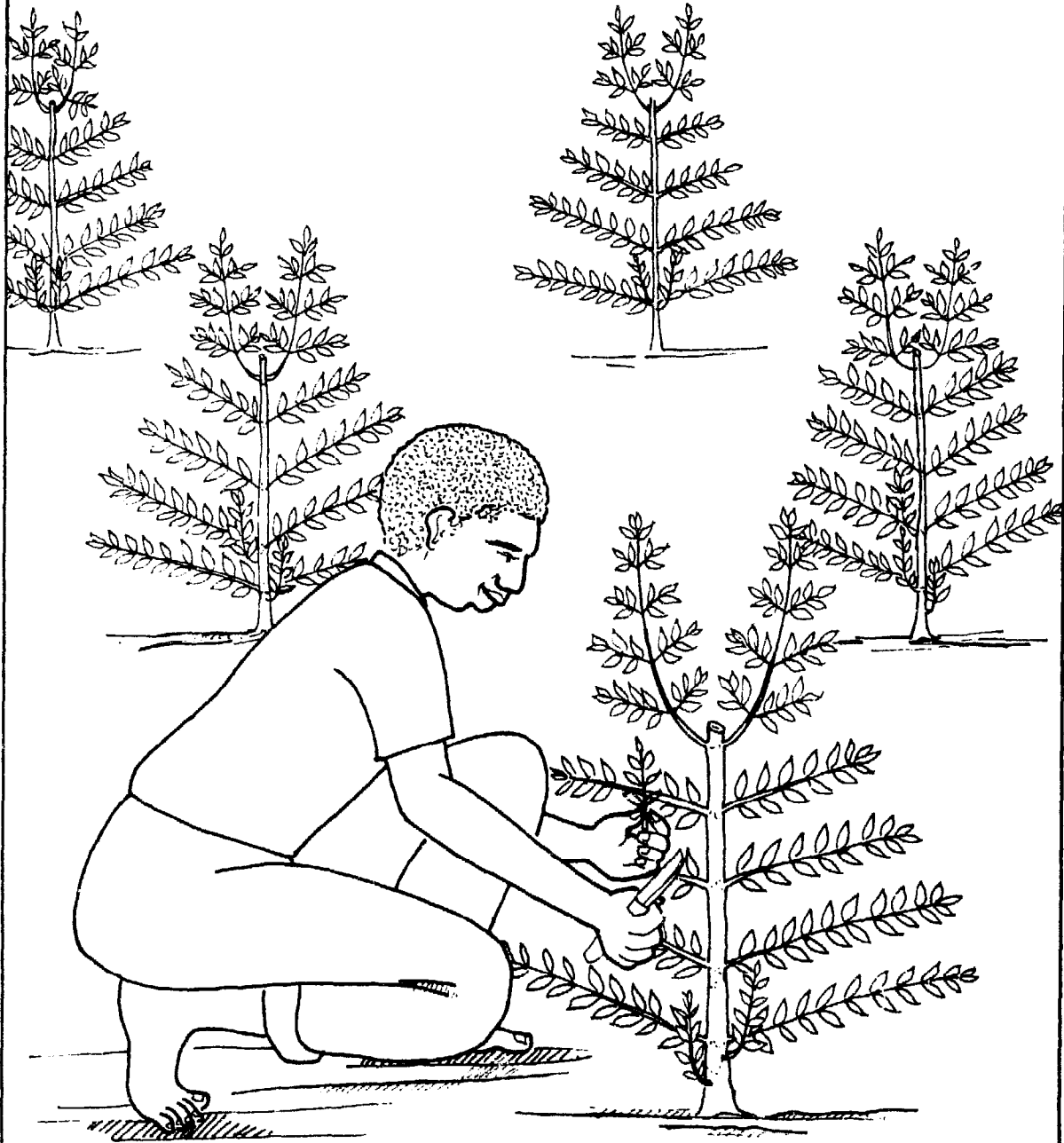
PUTULENI UMUTI PAMULU UKULINGANYA MWIKUFI
(45cm - 50cm) PAKUTI UMUTI UKWATE IMISAMBO IBILI

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

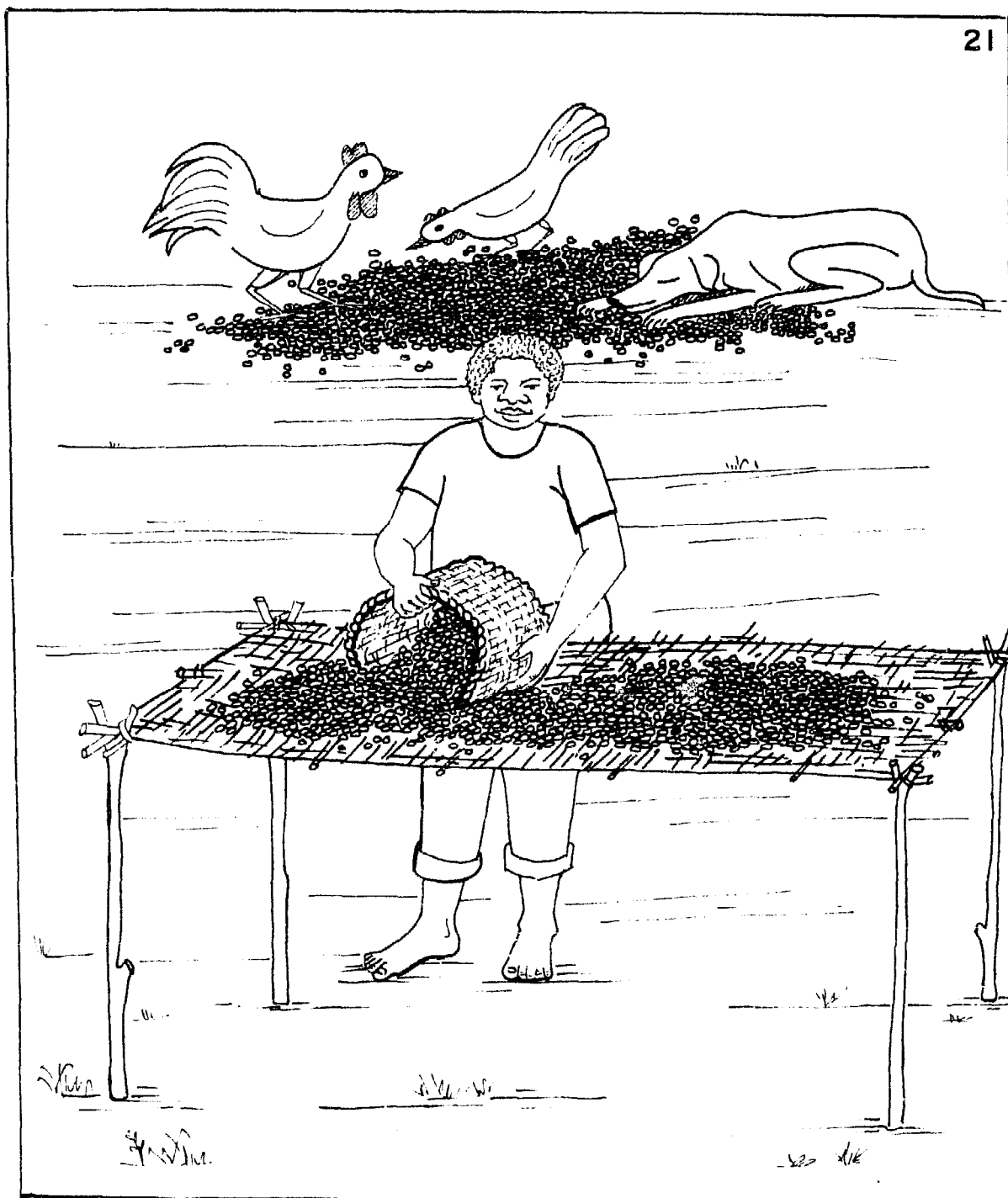


TUNGWILENI UTULEPUKA UKUBONFYA CAKUPIJTWILA
REMOVE SUCKERS BY CUTTING



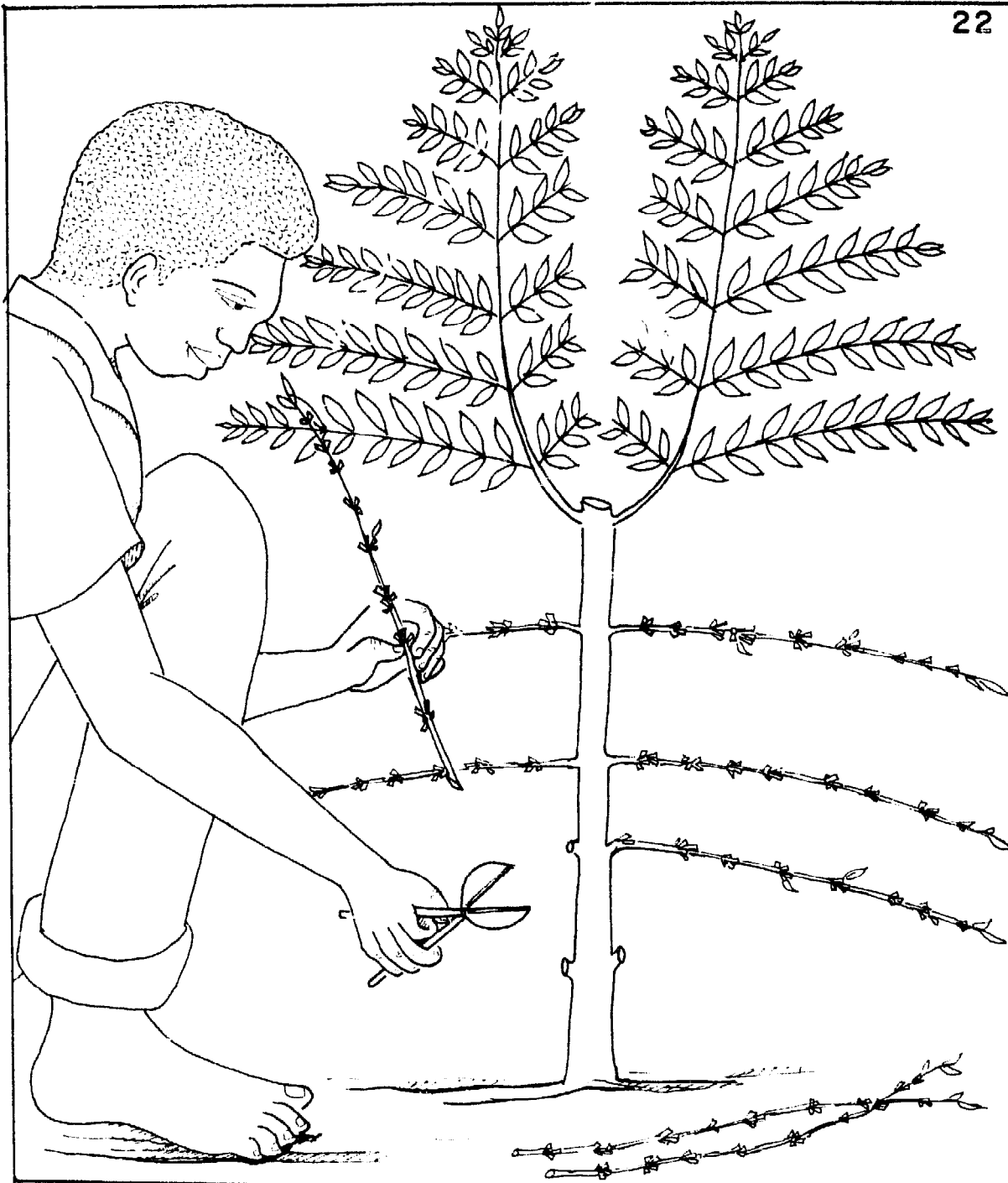
SWENI IMBUTO ISHAPYA ISHAKASHIKA

PICK ONLY RED RIPE CHERRY



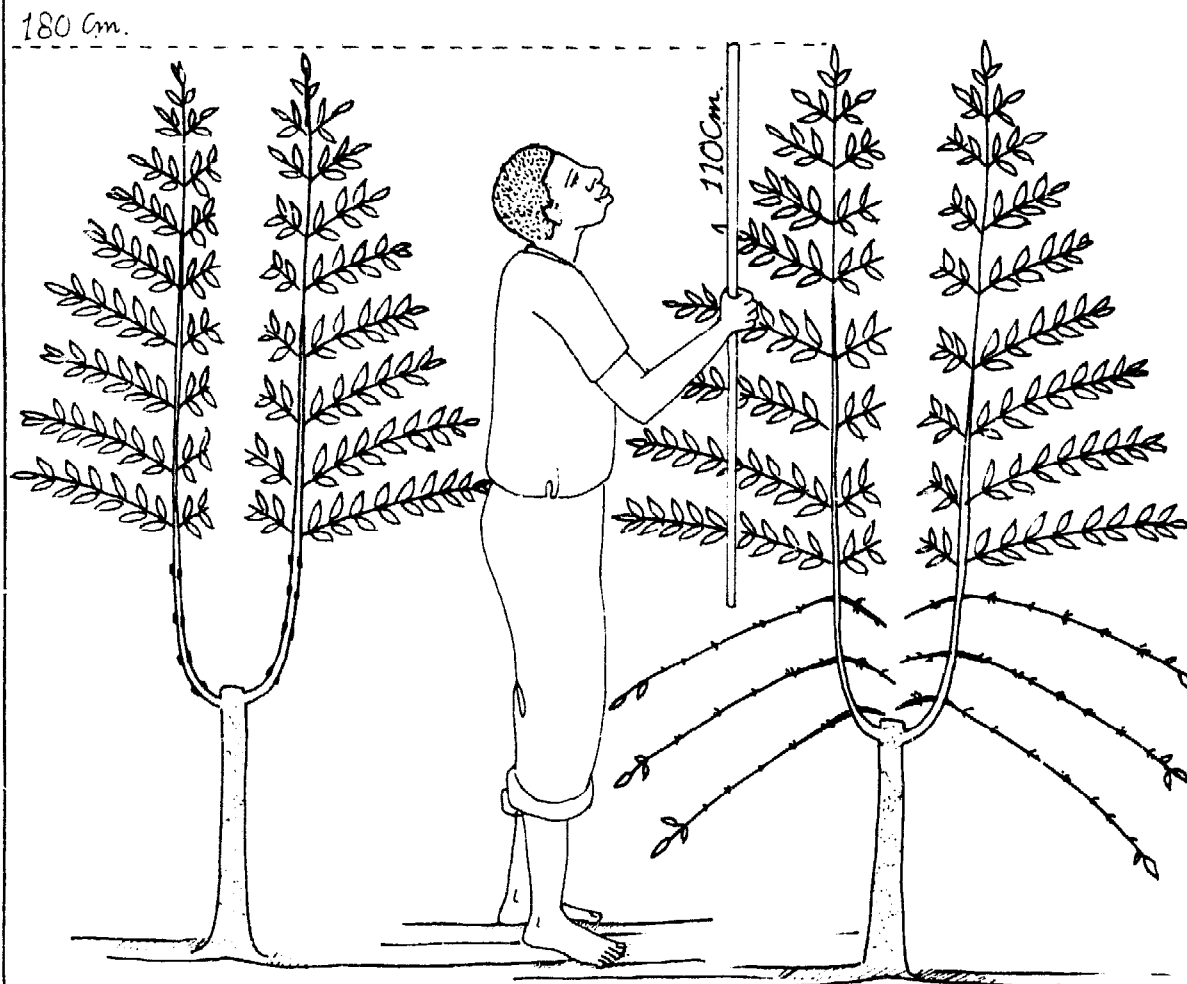
ANIKENI KOFI IYI SHASOTOLWA NANGU IYASOTOLWA
PACINTAMBA TEPANSHI YAFYE

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



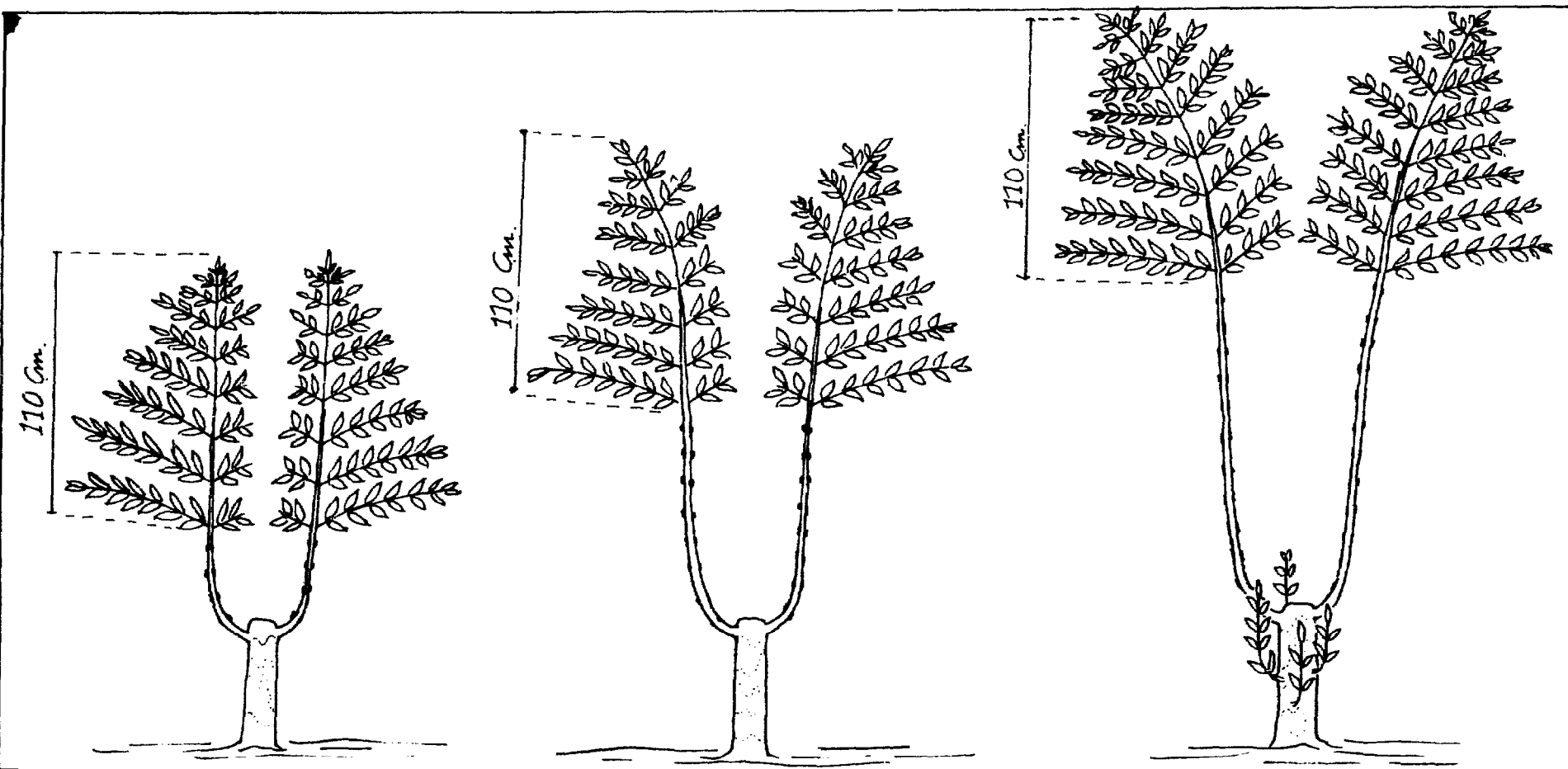
FUNYENI IMISAMBO YAMWISAMBA LILYA YALEKA UKUTWALA
 ILINGILINE CIBA NIPA NUMA YAKUTWALA KWALENGA IBILI
 MWITUNGWILA IMITI YALWALA IPELENIFYE ICINTELELWE

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



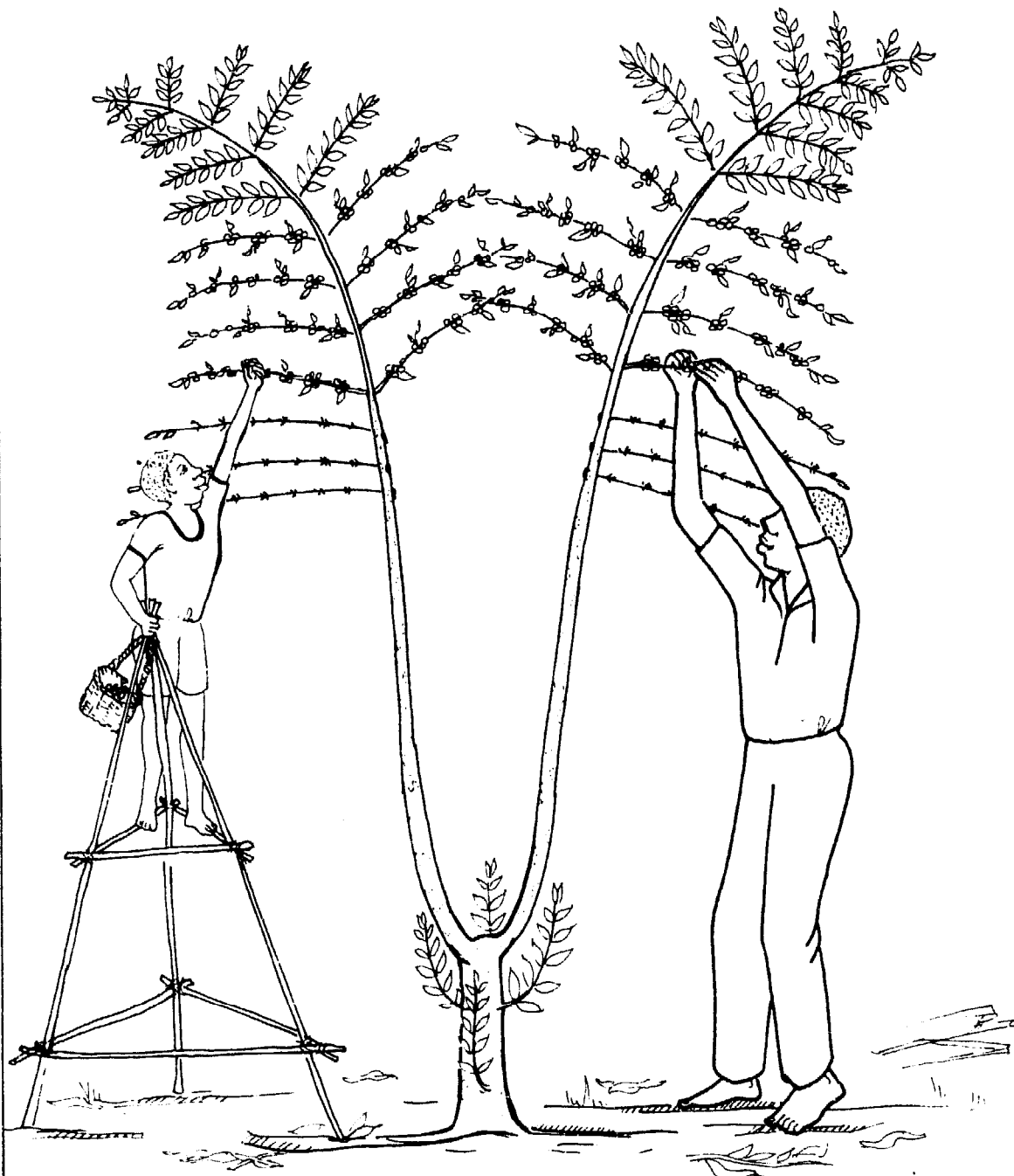
UKUTUNGWILA KWA PAMWAKA - Panuma yakupwisha ukusombola
 ILINGILINE KUTAMPA ILYO IMITI YAKULA UKUFIKA PALI
 180cm BIKENI CIPIMO UKUFUMA PAMULU WAMUTI NOKUPIMA
 UKUYA PANSHI UKUFIKA PALI 110cm PUTULENI IMISAMBO
 YONSE IYA SHALA PANSHI PA 110 cm

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

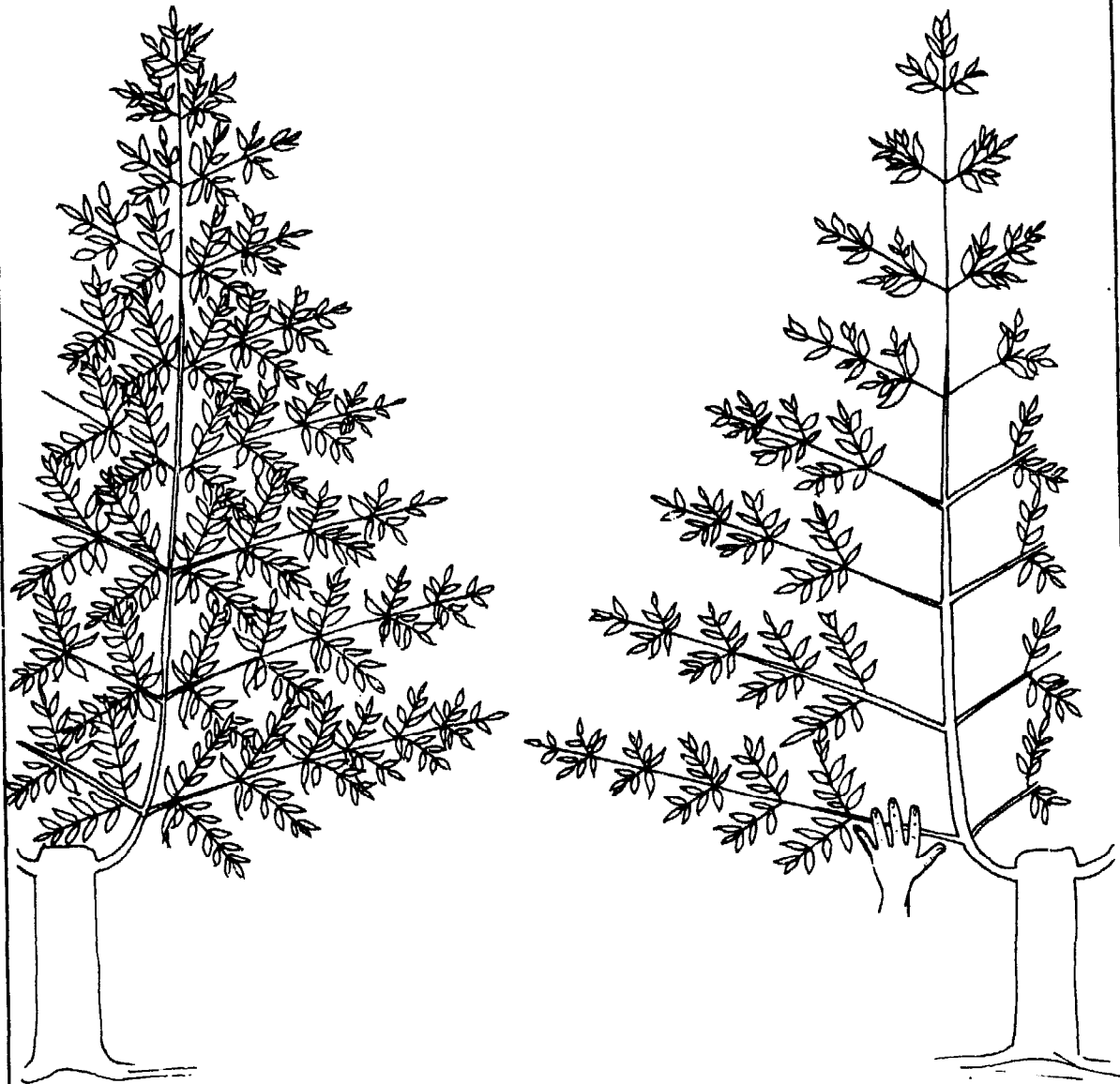


PANUMA YAKUSOMBOLA KWAKULEKELESHA PUTULENI
 IMISAMBO UKUPINDIKA (SAW) PAKUPUTULA IMITI
 IYATUMBA IKATWALA UMWAKA WAKONKAPO

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



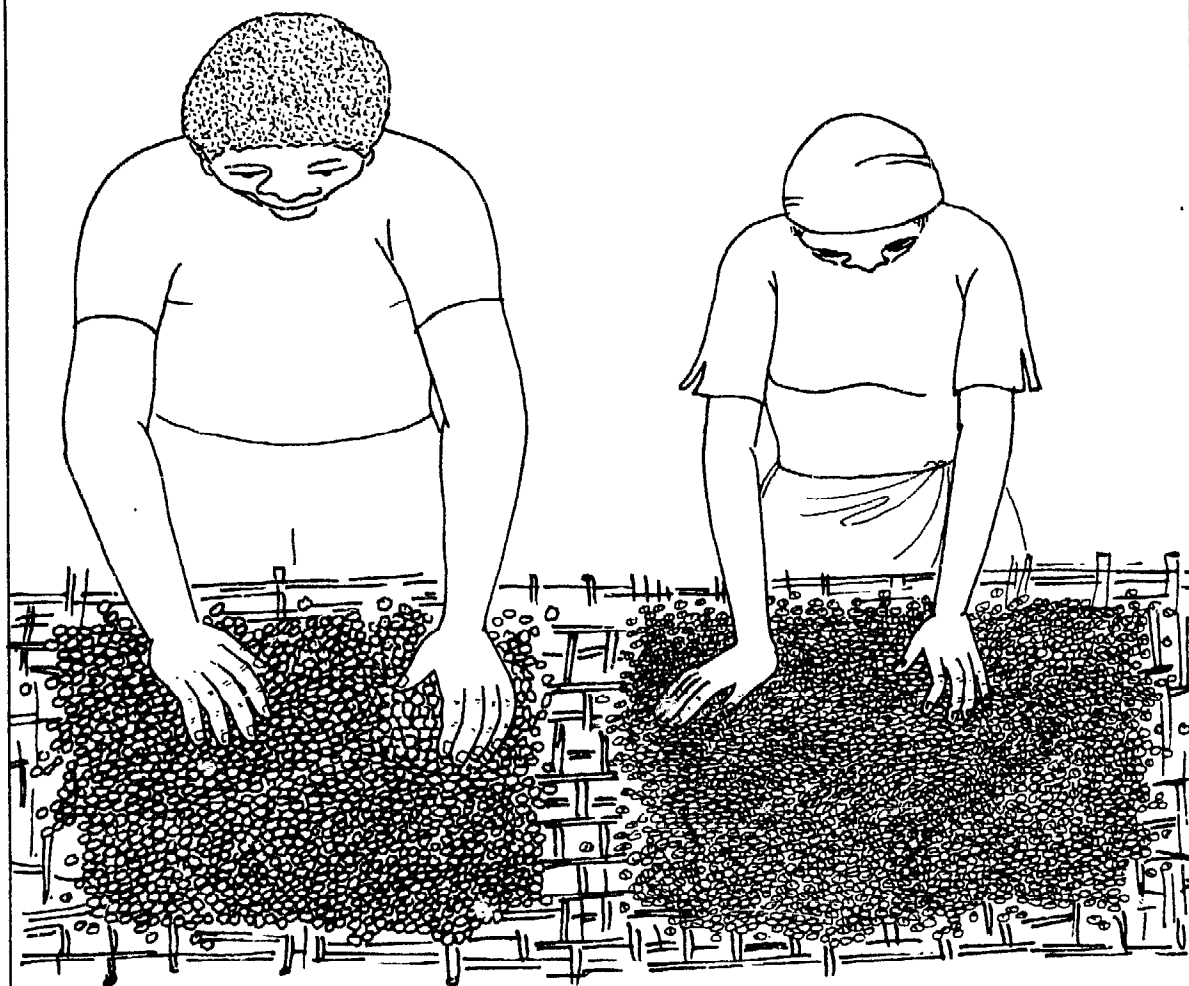
IFITWALO IFIPYA FILEKULA KUMISAMBO YAMUMBALI
NEW CROP GROWING ON LOWER PRIMARIES



UKWANGULA

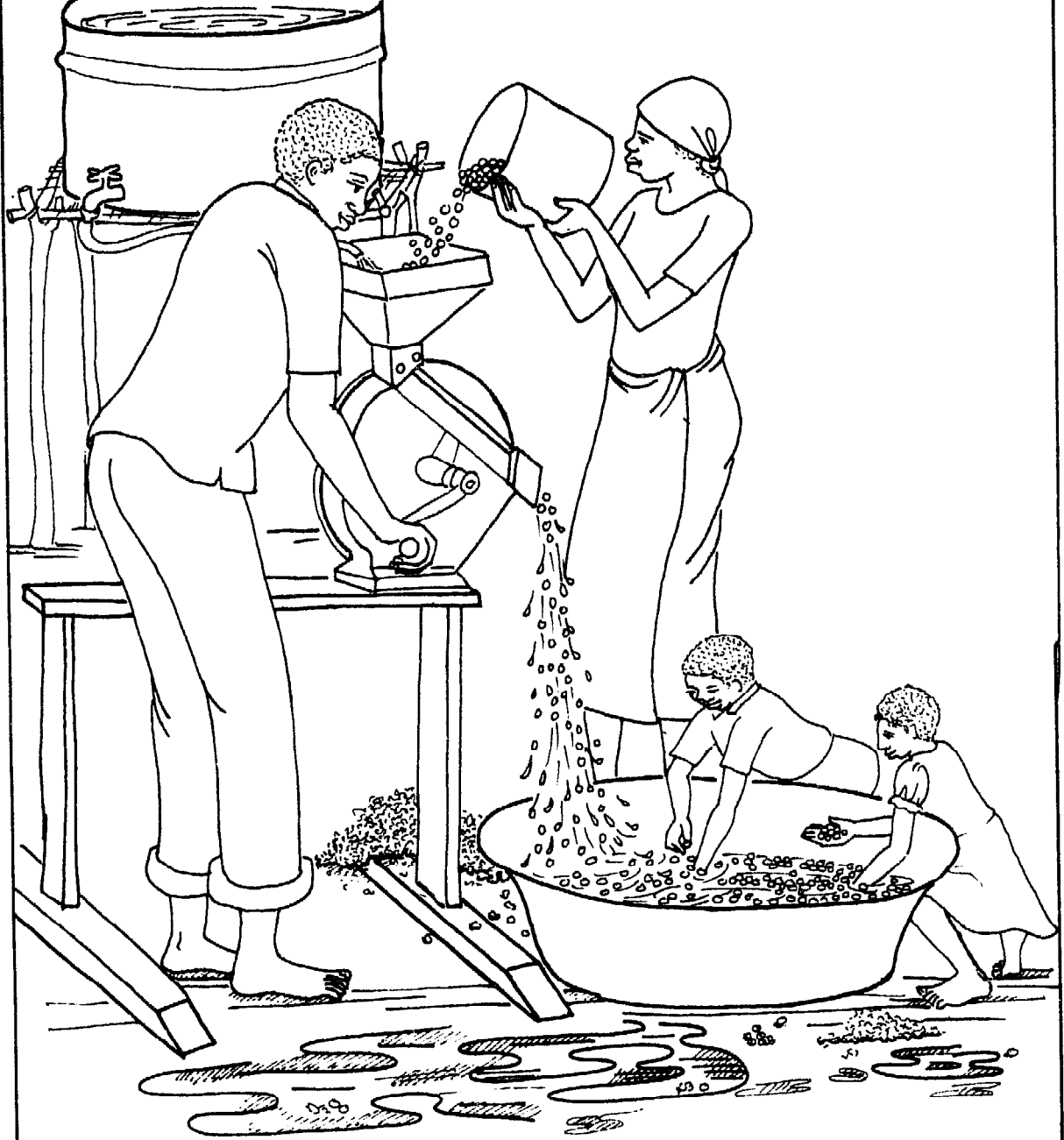
UKULESHA UTUMISAMBO UKUTITIKANA KULENGA UMUTI UKUBA
 UWA SAKALALA PAKATI FUNYENI IMISAMBO INONO KUMISAMBO
 YAMUMBALI UKUPIMA ULUPI LUMO(20cm) UKUFUMA PAKATI KA
 MUTI KWANGULA KWALINGA UKUBA PANUMA YAKUSOMBOLA
 LILYA MAINSA TAYALISA NALILYA YAPWA

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

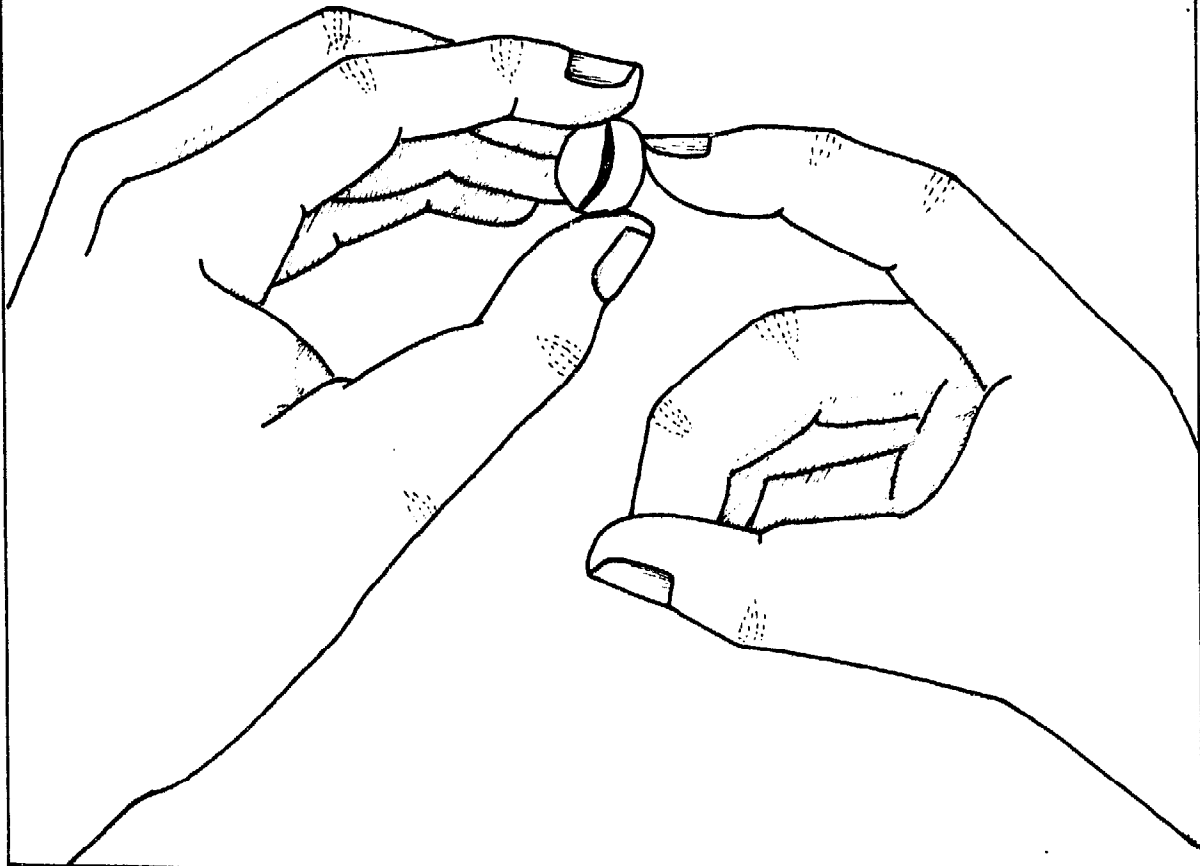
PICK RED RIPE CHERRY AND PULP IMMEDIATELY- WATER
LUBRICATES THE MACHINE-REMOVE ANY SKINS FROM
BEANS



FUNYENI AMENSHI

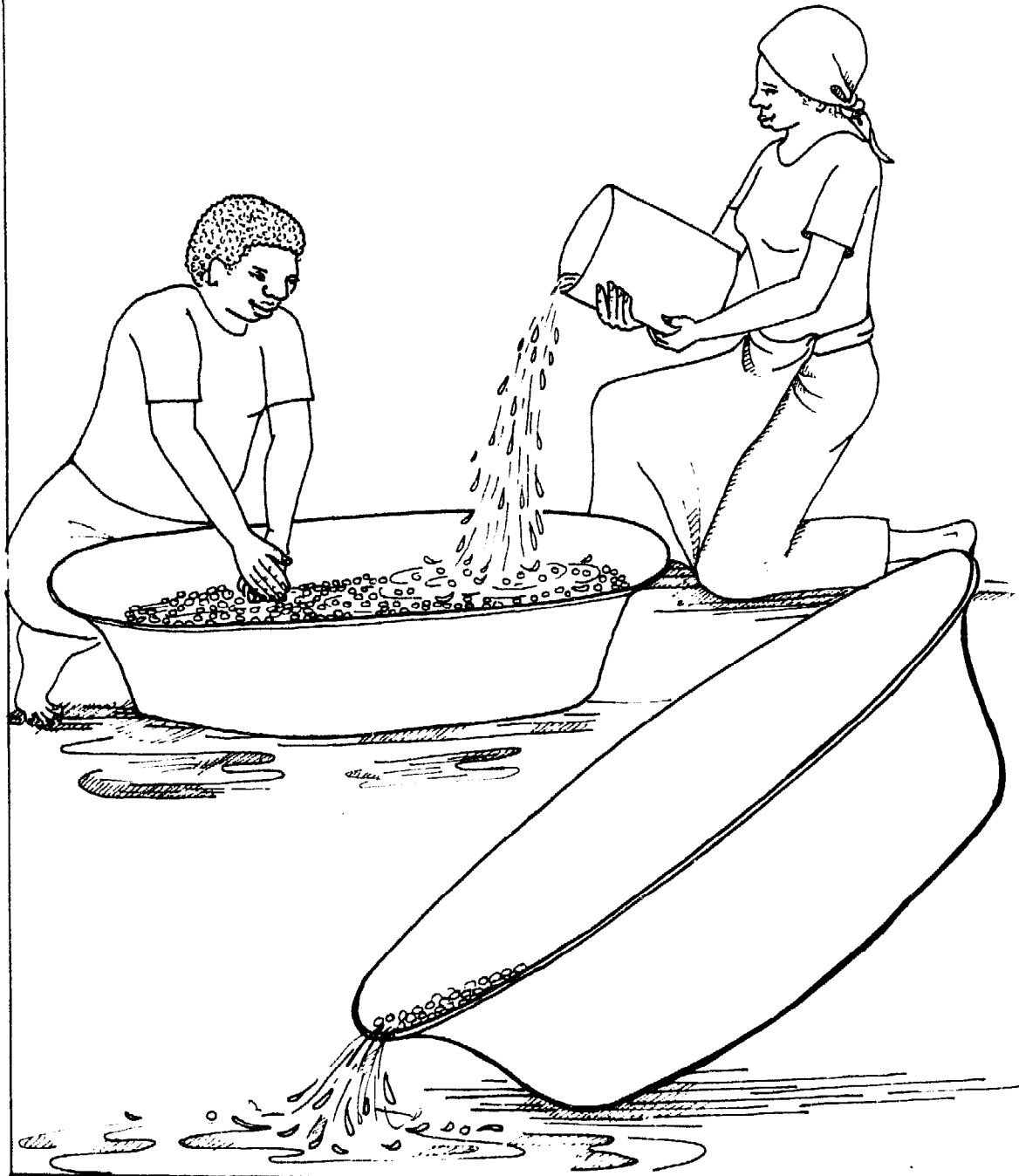
FIMBENI KOFI MULI BAFWA NANGULA BESENI NE SAKA
ILISUMA. LEKENI IFUNDE PANSHIKU SHIBILI PAKUPWISHA
UKUTELELA MWIBONFYA IFINTINI FYA NSHIMBI

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 SUPERSPHOSPHATE 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 / NAMUKA SAKANTOBO.

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 MENSHI 120grams/20LITRES UKUFULA KWA MENSHI.
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.....100 GRAMMES TRIPLE SUPERSPHOSPHATES
OR 100 GRAMMES 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