

Kurimwa kwembeu yechibage cheHyoma neOpen Pollinated Varieties (OPVs)



 CIMMYT™

Kurimwa kwembeu yechibage cheHybrid neOpen Pollinated Varieties (OPVs)

*Gwaro rakanyorwa na; P. S. Setimela¹, X. Mhike², J. F. MacRobert¹ na D. Muungani²
Gwaro rakazonyorwa kuiswa muchishona na; G. Tore², K. Kwezira² na C. Mutimaamba².*

Gore: 2006

¹ CIMMYT –Zimbabwe, P. O. Box MP 163, Mount Pleasant Harare, Zimbabwe.
E-mail: p.setimela@cgiar.org

² Department of agricultural Research and Extension, AREX, P. O. Box CY 550,
Causeway, Harare, Zimbabwe.

Mavambo

Mbeu yechibage inowanikwa mumhando mbiri dzinoti *hybrid* ne *Open Pollinated Variety (OPV)*. *Hybrid* imbeu inowanikwa mushure mekuuchika vabereki (**inbred lines**) vaviri, vatatu kana vana. *OPV* imbeu inowanikwa mushure mekuuchika vabereki (**inbred lines**) vanodarika gumi. Mbeu ye*hybrid* inosiyana neye *OPV* pakuti inokura yakaenzana. Goho remurimi rinodzikira zvikuru kana akadyara mbeu ye*Hybrid* yaanenge akakohwa mumwaka wapfuura. Heinoi tsanangudzo izere yekusiyana kwembeu mbiri idzi.

Chibage CheHybrid

Chibage ichi chinowanikwa mushure mekuuchika marudzi maviri, matatu kana mana echibage. Mukume (*Pollen*) wemumwe mubereki, mukono, (*inbred line*) unouchika rebvu remumwe mubereki, mai, (*inbred line*), kuburitsa *Single-cross hybrid*

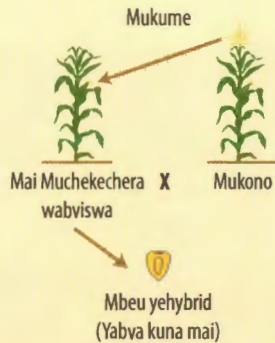
(Mufananidzo 1). Mbeu inowanikwa panenge pauchikwa vabereki vatatu inodaidzwa kunzi *three-way hybrid* (Mufananidzo 2). Panenge pashandiswa vabereki vana, mbeu iyi inodaidzwa kunzi *double-cross hybrid* (Mufananidzo 3). Pambeu ye*three-way hybrid*, mai (madzinde emiguri) vanoshandiswa vanenge vabva parudzi rwe*single-cross hybrid*. Mukume unosevzeswa unofanirwa kubva pamubereki akauchikwa (**Inbred line**). *Double-cross hybrid* inowanikwa mushure mekuuchika mbeu *dzesingle-cross hybrid* mbiri. Pane imwe mhando yembeu ye*hybrid* inonzi **Top-cross**. Mbeu iyi inowanikwa mushure mekuuchika mbeu ye*OPV* neye*single-cross hybrid*.

Vauchiki vembeu vanouchika nekusarudza mbeu inozopa muguri (mai) kana mukume (mukono) kwemakore akawanda. Vauchiki vanosarudza mbeu vakatarisana nenguva yainotora kusvika pukohwa, kusabatwa nezvirwere, kushingirira

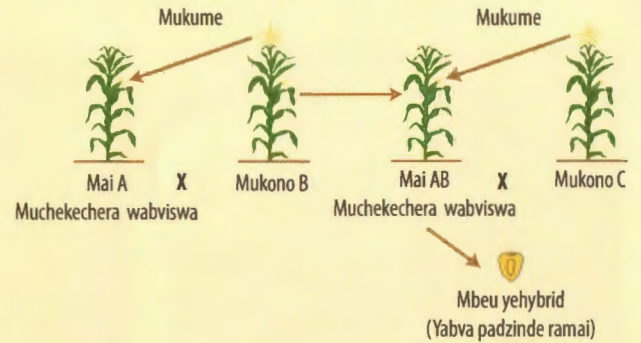
kwadzo mumwaka wemvura shoma uye uwandu hwegoho radzinopa. Rudzi rwechibage runowanikwa rwakakodzera ndirwo runozosarudzwa kuti ruzorimwa sembeu nemakambani embeu. Mbeu iyi ndiyo inozotengeserwa varimi muzvitoro. Kuchengetedza rudzi rwembeu, mai kana mukono wembeu vembeu vanofanira kurimwa kuchitivedzerwa mitemo nematanho akatarwa nenyanzvi dzezvekurimwa kwembeu.

Kurimwa kwembeu yeHybrid

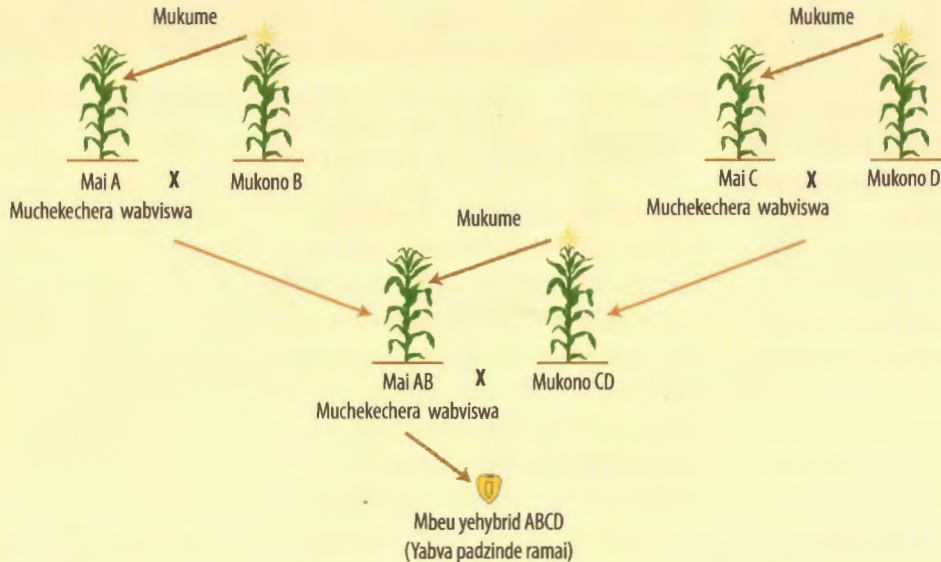
Mbeu iyi inofanirwa kurimwa mumunda uri kure neimwe minda yechibage. Izvi zvinoitirwa kuti kusazova nemukume werumwe rudzi unozokanganisa rudzi rwembeu iyi. Mitsara mitatu kusvika mitanhatu yakateedzana yamai inodyarwa ichiteerwa nemutsara mumwe kana miviri yemikono (madzinde ane muchekechera)



Mufananidzo 1: Mbeu ye Single-cross hybrid inowanikwa pauchikwa vabereki vaviri. Dzinde ramai rinofanirwa kubviswa ngara



Mufananidzo 2: Mbeu ye Three-way cross hybrid inowanikwa pauchikwa single-cross hybrid nemumwe mubereki (Inbred-line)



Mufananidzo 3. Marimirwo embeu inonzi double-cross hybrid kuchishandiswa maSingle-cross hybrid maviri.

inozopa mukume. Muchekechera wese wemadzinde amai unofanirwa kubviswa uchangobuda uye usati wadonhedza mukume. Izvi zvinoitirwa kuti mai ava vasazviuchike vega asi kuti vauchikwe nemukume unobva kumukono chete.

Muchekechera wese unobuda pamadzinde amai unofanirwa kudamburwa usati wadonhedza mukume uye hapafanirwe kunge paine mumwe munda wechibage uri pedyo ungangozokanganisa rudzi rwembeu. Izvi zvinokwanisika chete kana murimi akapatsanura minda yake (*isolation distance*) nemamita anoita mazana mana (400m). Mitsara yemikono inofanirwa kutemwa kana yangopedza kudonhedza mukume kuitira kuti miguri yayo isazosangana nemiguri yamai (mbeu) pakukohwa.

Mbeu yakanaka inowanikwa chete kana mai nemukono vaburitsa rebvu nemukume panguva iyo inoita kuti rebvu rwemiguri ruwane mukume



Mufananidzo 4. Munda wembeu yehybrid uchiratidza mitsara yamai (isina ngara) neyemukono (inengara).

wakawanda (*nicking*). Kupotsana kwekubuda kwerebvu nemukume kunoita kuti goho ridzikire kana kuti mai vauchikwe nemukume unobva kune rumwe rudzi rusingadikanwe.

Vabereki (*inbred lines*) vembeu yesingle-cross hybrid vanokura zvishoma nezvishoma saka varimi vanofanirwa kuona kuti minda yavo

inechikafu nehunyoro hwakakwana uye isina sora nezvirwere nguva dzese. Kunyange zvazvo mbeu inobva pathree-way cross hybrid nedouble cross hybrid ine mubereki mumwe anenge ari single cross hybrid uyo anokura nekukasika uye achipa goho rakakura, varimi vanofanirwa kuona kuti mbeu iyi yakura ichiwana zvose zvinodiwa pakurimwa kwayo.

Zvakaita chibage chehybrid

- Chineruvara rwemashizha rwakafanana
- Chinotora nguva yakafanana kusvika pakukohwa
- Chakareba zvakaenzana kana kuti zvakafanana (Mufananidzo 5)
- Chinopa goho rakakura zvichienzaniswa nechemaOPV

Kufanana nekureba zvakaenzana kwembeu yehybrid kunoita kuti mabasa akafanana nekukohwa nemichina avenyore uye aitwe panguva imwe chete, murimi asingaraisikirwe negoho.

Hazvikurudzirwe kuti varimi vatore mbeu yekudyara mwaka unotevera kubva mugoho rehybrid remwaka wapfuura sezvo goho ravo richizodzikira nezvikamu makumi matatu kusvika makumi mashanu kubvamuzana (30-50%). Izvi zvinokonzerwa nedambudziko rinonzi *Segregation* pachirungu.

Zvakanakira mbeu yehybrid

Mahybrids anopa mukoho wakapfuura wemaOPVs. Ongororo yenyanzvi yakaburitsa kuti *mahybrids* anogona kupa mukoho wakapfuura nezvikamu gumi nezvishanu kubva muzana (15%) kupinda maOPV (Mufananidzo 6). Asi mamwe maOPV akauchikwa anokwanisa kupa mukoho wakapfuura mukoho wemamwe *mahybrids* zvichienderana nemwaka nezvimbo.

Chibage chemaOpen Pollinated Varieties (OPVs)

OPV imbeu inowanikwa mushure mekuuchika vabereki (*inbred lines*) vanodarika gumi. Imwe yembeu iyi inowanikwa iri yakauchikwa nenyanzvi kwemakore uye iine mazita. Murimi anogona kutora mbeu kubva pagoho rake kuti azoidyara mumwaka unotevera kana munda wake wanga wakataramuka



Mufananidzo 5. Madzinde echibage chehybrid. Chakaenzana chese kureba uye chine ruvara rwakafanana

zvatarwa kubva kuneimwe minda yechibage cherumwe rudzi. Anofanirwa kutora miguri yembeu iyi kubva pakati pemunda. Mbeu iyi inogona kupa goho rakangofanana neramai vayo. Tichienzanisa

nembeu *yehybrid*, mbeu yema *OPV* haikure yakaenzana pakureba, (Mufananidzo 7), uye inopa goho rakadzikira pane remahybrids zvisinei kuti yawana zvese zvinodiwa. Zvisinei, mbeu iyi yakanakira kuti hainyanyi kukanganiswa nekushaya mvura nezvimwewo zvinodiwa pakukura tichifananidza nembeu *yehybrid*.

Matanho ekurimwa kwembeu

Kana murimi achirima mbeu ingava *yehybrid* kana yema *OPV*, zvinokurudzirwa kuti airime achiteedzera matanho matatu akatarwa mukurimwa kwembeu (Mufananidzo 8).

Danho rekutanga nderekurima mbeu inotanga kuuchikwa nemuuchiki, (*breeder's seed*). Mbeu iyi inenge iri shoma-shoma asi iri yemhando yepamusorosoro munezvese zvinotarisirwa. Mbeu

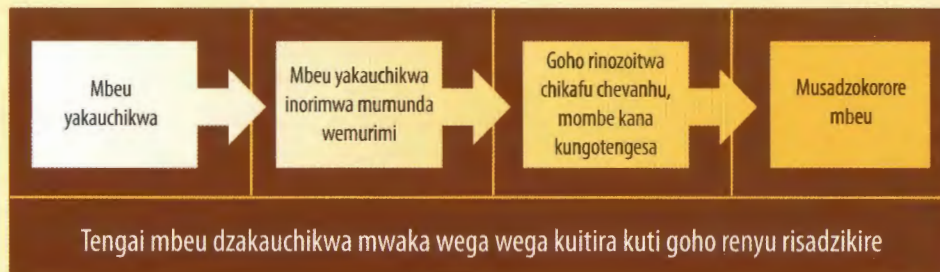
Tebhuru 1.1 Murimi angazive sei kuti orima mbeu *yehybrid* here kana yema *OPV*

Kuti azorima mbeu *yehybrid*

- Kana murimi achitarisira kuwana goho rinodarika matani maviri pahekita (2t/ha) kana kuti masaga gumi nemashanu paeka (15bags/acre).
- Kana murimi achida kuti mari yaanenge ahandisa pakutenga mbeu idzoke mushure mekutengesa goho rake.
- Kana murimi achirima ari munzvimbo inonaya mvura zvakanaka iine ivhu rinekudya kwakakwana uye achikwanisa kutenga fotireza nemishonga yesora neyetumbuyu tunodya nekukanganisa chibage.
- Kana achikwanisa kuwana rudzi rwembeu inoenderana nenzvimbo yake.
- Kana murimi achiwana mbeu yake paine nguva

Kuti azorima mbeu yema *OPV*

- Kana murimi achitarisira kuwana goho riri pasi pematani maviri pahekita (2t/ha) kana kuti masaga gumi nemashanu paeka (15bags/acre).
- Kana murimi aine tarisiro yekungowana goho rekudya chete
- Kana murimi ari munzvimbo inonaya mvura shoma uye asingazokwanise kutenga fotireza nemishonga yesora neyetumbuyu tunodya nekukanganisa chibage.
- Kana murimi asingawane mbeu *yehybrid* inoenderana nenzvimbo yake.
- Kana murimi asingawane mbeu yake paine nguva



Mufananidzo 6. Marimirwo embeu *yehybrid*.

iyi inorimwa mutuminda tudikidiki tunoita kuti vauchiki vakwanise kupa nguva nekuongorora zvose zvinodiwa pakukura kwembeu iyi uyezve kuitira kuti pasawanikwe mukume inobva kune chimwe chibage ungangozokanganise rudzi rwembeu iyi. Ibasa revauchiki kuchengetedza rudzi rwembeu yavo.

Kana murimi arima *breeder's seed* anowana mbeu yakawanda zvikuru inonzi **faundesheni** (*foundation seed*). Mbeu iyi inofanirwa kurimwa iri kwakataramuka chaizvo nemimwe minda inenge inechibage kuitira kuti isauchikwe nemukume usingadiwe. Mbeu yefaundesheni inogona kurimwa nemuuchiki kana makambani embeu. Makambani aya anokwanisa kusarudza varimi vanogona kurima, vaine minda yakataramuka zvinodiwa nemitemo yekurimwa kwembeu. Izvi zvinoitwa pasi pechibvumirano (*contract farming*) pakati pekambani nemurimi.



Mufananidzo 7. Chibage chemaOPV. Onai kuti hachina kuenzana.

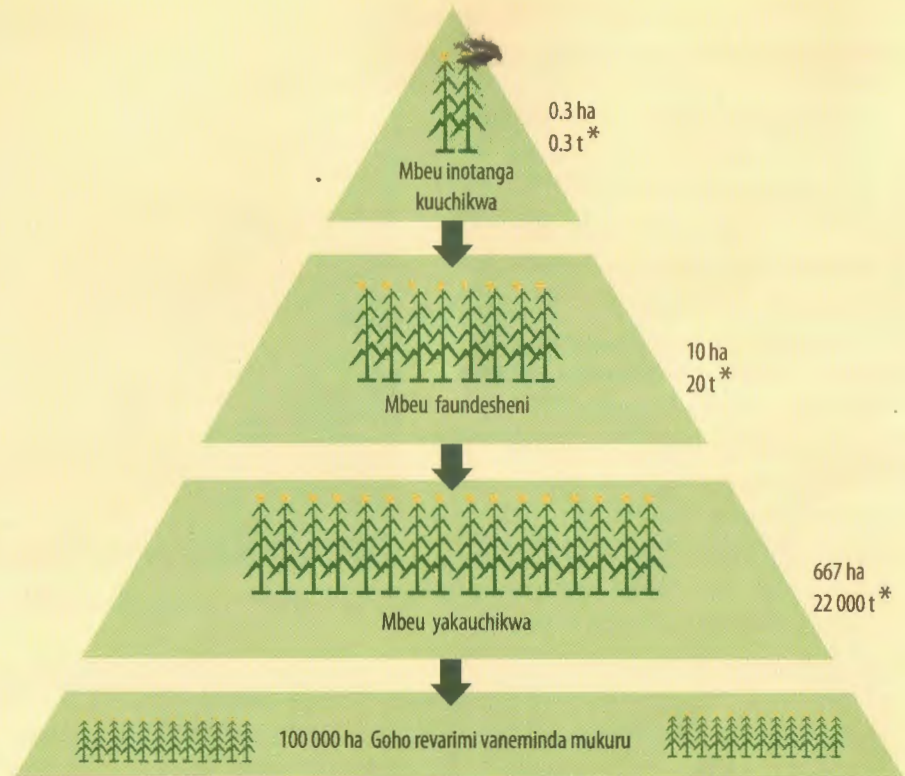
Mbeu inowanikwa padanho retatu inonzi *certified seed*. Makambani anorima mbeu anopa varimi vakakodzera mbeu yefaundesheni kuti varime pagowanikwa mbeu yecertified seed yakawanda zvikuru. Mbeu iyi ndiyo inozoiswa mushonga

pamwe nekuiswa mumapapekiti isati yatengeserwa varimi muzvitoro. Mbeu iyi inofanirwa kurimwa ichiongororwa kuitira kuti isazokanganiswa nemukume werumwe rudzi nezvimwewo zvinokanganisa mbeu.

Uwandu hwembeu inowanikwa hunoramba huchiwanda kubva padanho rekutanga kusvika retatu. Mbeu shoma-shoma ndiyo inowanikwa padanho rekutanga rekurimwa kwe**breeder's seed**. Danho repiri rinopa mbeu inonzi faundesheni (*foundation seed*). Iyi imbeu inenge iri shoma zvichienzaniswa neye padanho retatu rinozopa mbeu inozotengeserwa varimi (*certified seed*) (Mufananidzo 8)

Zvinotarisirwa pakurimwa kwembeu ye**Certified Seed**

Nechinangwa chekuda kuona kuti varimi vechibage havasi kuzotengeserwa mbeu dzenhando, hurumende ine mitemo inokurudzira kuti mbeu yese yarimwa inofanirwa kuongororwa nenyanzvi dzekurimwa kwembeu dzehurumende isati yatengeswa. Nyanzvi idzi dzinoongorora mbeu kubvaisati yadyarwa, yava mumunda, yakohwewa uye yave kutengeswa.



*Chikamu chiripakati nepakati pegoho rose chinochengetedzwa sembeu yemakambani inozorimwa mwaka inotevera kuti kuwanikwe imwe mbeu.

Mufananidzo 8. Zvikamu zvitatu zvinotevedzwa pakurima mbeu

Izvi zvinoitwa panguva dzakatarwa mukukura kana kurimwa kwembeu kusvika pakukohwa. Mukuongorora, nyanzvi dzembeu dzinoona kuti varimi vembeu vadyara mbeu yavo vachitevedzera mitemo yose inodiwa tichitarisa kutaramuka kweminda yembeu kubva kuneimwe minda yechibage, kusakura pamwe nekubvisa madzinde echibage ese anongomera ega muminda. Kana vaongorori ava vakaona kuti murimi arikutyora mitemo iyi vanokwanisa kupa mutongo wekuti chirimwa chese chirimirwe pasi kana kuti chibage chinozokohwewa chacho chisazoitwa mbeu asi kuti chiitwe chekudya. (Mitemo inosiyana zvichienderana nenyika)

Marimirwo embeu yema OPV

Varimi vasingakwanise kuwana mbeu ye*hybrid*, varikure nezvitoro zvinotengesa mbeu kana kuti vasingawane mbeu nenguva

vanokwanisa kurima mbeu yema*OPV*. **Varimi vanogona kudzokorora mbeu yema*OPV* kwemwaka mitatu yakatevedzana goho ravo risingadzikire zvikuru.** Goho rinodzikira zvakananyanya kana varimi vakadzokorora mbeu yavo kwemwaka inodarika mitatu nekuti mbeu iyi inenge yanyanya kukanganiswa nemukume unobva kune mamwe marudzi echibage.

Kurima mbeu ye*OPV* kuri nyore pane *hybrid* nokuti rudzi rumwe ndirwo runodyarwa pasina basa rekubvisa muchekechera. **Zvisinei kurimwa kwembeu yema*OPV* kunofanirwa kutevedzera mitemo yakatarwa kuitira kuchengetedza rudzi rwembeu.**

Kupatsanurwa kwembeu yechibage kuti isauchikane kunogona kuitwa nenzira mbiri, kutaramutsa **minda nekushandisa nguva.** Minda yembeu yema*OPV* inofanirwa kunge yakataramuka

kubva paneimwe minda yechibage nemamita mazana maviri ane makumi mashanu kusvika mazana matatu ane makumi mashanu (**250-350m**) kutenderedza munda wese. Murimi anogona kudyara mbeu yake pamazuva akasiyana nemasvondo mana kusvika matanhatu (**4-6 weeks**) kuitira kuti chibage chake chitumbuke panguva yakasiyana. Izvi zvinoitirwa kuti chibage ichi chisazotapurirana mukume. Mufananidzo uri pasi unotsanangura kuti murimi anofanirwa kudyara mbeu yake sei kuti isazotapurirana mukume.

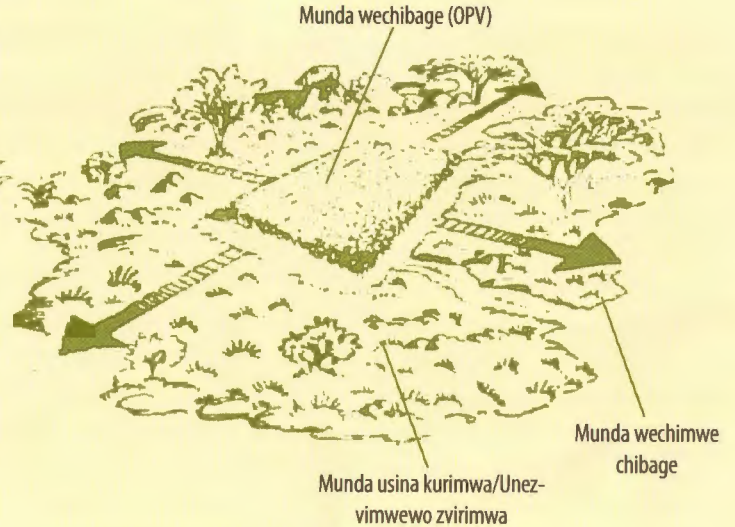
Zvinoitwa pakukohwa, kuomeswa, kutonongora pamwe nekuchengetwa kwembeu

Kuchengetedza rudzi rwembeu, murimi anofanira kukohwa miguri inodarika mazana mashanu (500) yembeu yema*OPV*. Miguri iyi inofanirwa kukohwewa iri pahunyoru hwetsanga hunosvika zvikamu

Chibage chakatanga kudyarwa



Chabage chakadyarwa mushure
memwedzi kana kudarika



Munda wechibage (OPV)

Munda wechimwe
chibage

Munda usina kurimwa/Unez-
vimwewo zvirimwa

a) Kudyara uchisiyanisa nguva

b) Kudyara uchitaramutsa minda

Mufananidzo 9. Kudzvirira kutapurirana mukume tichishandisa kusiyana nguva yekudyara kana kuti kutaramutsa minda

gumi nezvitanhatu kusvika makumi maviri kubvamuzana **(16-20% moisture content)**. Apa ndipo panenge paoma mashizha emiguri. Mbeu inofanira kufururwa yosarudzwa kubvisa miguri yakaora neisina kusvika isati yaomeswa. Miguri iyi inozoomeswa pazuva zvakare kusvikira yave nehunyoro hunosvika zvikamu gumi nezvina muzana (14%) yozobva yatonongorwa. Miguri iyi inofanirwa kupindurwa nguva nenguva painenge ichiomeswa pazuva. Izvi zvinodzivirira utsva-itsva (*sun burn*) hwezuva nekuora kwetsanga zvinozoita kuti dzisazomera zvakana.

Murimi anogona kuona kuti miguri yake yave neunyoro hunosvika 14% nekuita zvinotevera. *Tonongora muguri mumwechete wobva watora*

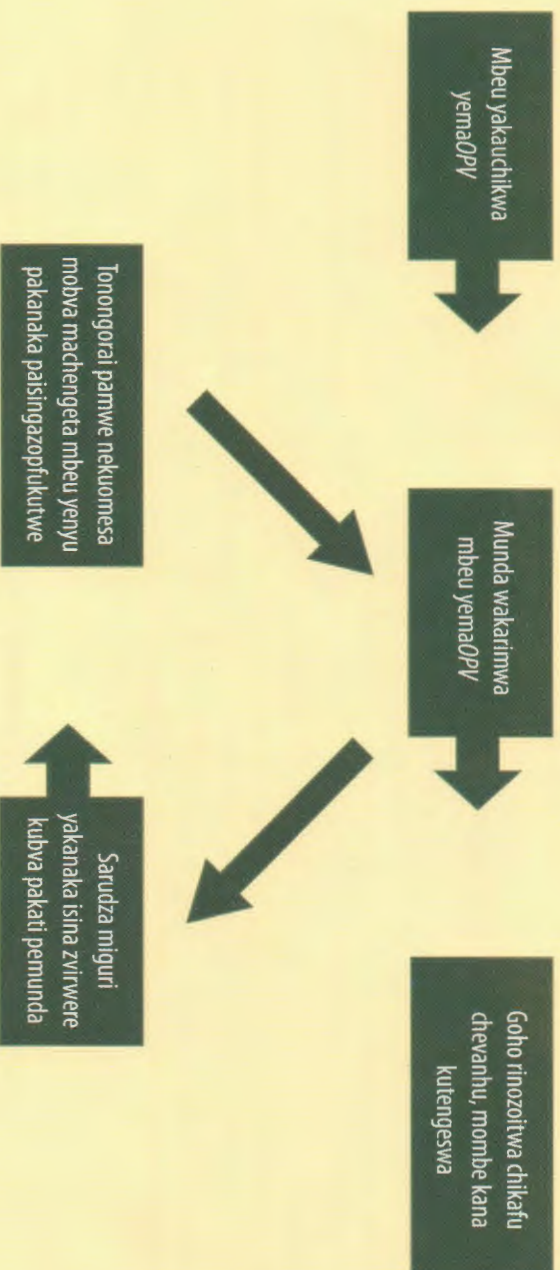
tsanga dzinosvika zana. Sanganisa tsanga idzi ne gramu rimwe (1gram) remunyu kwemaminitsi mashanu. Ukaona munyu wako wawe nehunyoro zvinoreva kuti chibage chako hachisati chawe nehunyoro hunosvika 14%, chiomese zvakare. Asi ukaona munyu usina hunyoro zvinoreva kuti chaoma zvakakwana.

Kutonongora nemaoko kwakanakira kuti tsanga hadzitsemuke zvakanyanya, asi nzira iyi inononoka. Kana murimi akashandisa muchina wekutonongora chibage, haafaniri kumhanyisa muchina kuitira kuti usatsemure tsanga. Musvo unofanira kupepetwa nemaoko kana muchina kubvisa tsanga dzese dzinenge dzatsemuka.

Mbeu inofanira kuiswa mishonga inodzivirira zvipfukuto nezvirwere, inoshevedzwa kunzi ma*Insecticides*

nema*Pesticides* pachirungu. Varimi vanofanira kuverenga nekutevedzera zvakanyorwa pamagaba emishonga wavanenge vachishandisa sezvo mishonga iyi ichigona kukuvadza. Mbeu yese inofanira kuzodzwa mushonga zvakaenzanirana uye haifanire kudyiwa nevanhu kana zvipfuyo. Mbeu iyi inofanira kuchengetedzwa panzvimbo isingapinde mhopo inovhuvhuta, zuva uye pasina unyoro. Tsanga dzembeu idzi dzinofanira kuva nehunyoro hunosvika zvikamu gumi nezviviri kubva muzana **(12% moisture content)** padzinenge dzaakuchengetwa. Izvi zvinoita kuti chibage ichi chizomera zvakana uye chigare kwenguva refu chakachengetwa sembeu.

Kurima mbeu yemaOPV ichibva mudura



Mufananidzo 10. Marimirwo embeu yemaOPV tichibva tachengereta mbeu

