



Gwaro Rekudzidzisana Kurima Bhinzi

(Training Guide for sugar beans production)



Zimbabwe Government



Food and Agriculture
Organization of the
United Nations



Zviri mukati

Kutenda	5
Mabatirwe ezvidzidzo.....	5
Chitsauko chekutanga - Nhanganyaya	7
Kugadzirira chidzidzo	7
Zvinangwa zvichidzidzidzo	7
Zvakakoshera bhinzi	7
Ivhu rakanyanya kunakira bhinzi nderipi?.....	7
Kuvhara chidzidzo.....	7
Chitsauko chechipiri: - Kugadzira munda vekurima bhinzi.....	9
Kugadzirira chidzidzo	9
Zvinangwa zvichidzidzidzo	9
Kusarudza munda	9
Zvakanakira kugadzira munda nenguva	9
Nguva yokugadzirira munda.....	10
Kugadzira migero yekudyara	11
Kuvhara chidzidzo.....	12
Chitsauko chechitatu:- Kuisa lime nefetiraiza yepasi	13
Kugadzirira chidzidzo	13
Zvinangwa zvichidzidzidzo	13
Kukosha kwelime	13
Kuisa lime mumunda	14
Kuisa manyowa nefetiraiza yepasi	14
Kuvhara chidzidzo.....	15
Chitsauko chechina: - Kudyara mbeu yebhinzi.....	16
Kugadzirira chidzidzo	16
Zvinangwa zvechidzidzo	16
Nguva yekudyara	16
Kudzivirira mbeu iri kuda kudyarwa kubva kuzvirwere nehudyi.....	17
Kudyara bhinzi	17
Kuvhara chidzidzo.....	17
Chitsauko chechishanu – Kuisa fetireza yepamusoro (top dressing) muminda ye bhinzi	18
Kugadzirira chidzidzo	18



Zvinangwa zvichidzidzo	18
Kuisa yefetiraiza yepamusoro mubhinzi.....	18
Kuvhara chidzidzo.....	18
Chitsauko chechitanhatu - Kurwisana nesora muminda ye bhinzi.....	19
Kugadzirira chidzidzo	19
Zvinangwa zvechidzidzo	19
Nzira dzinogona kushandiswa kurwisana nesora.....	19
Kushandisa mishonga yemasora	19
Kupima mushonga wemasora (knapsack calibration).....	20
Kuvhara chidzidzo.....	21
Chitsauko chechinomwe – kudiridzira bhinzi	22
Kugadzirira chidzidzo	22
Zvinangwa zvechidzidzo	22
Kudiridzira bhinzi	22
Kuvhara chidzidzo.....	23
Chitsauko chechisere – Kurwisana nezvipembenenene nezvirwere.....	24
Kugadzirira chidzidzo	24
Zvinangwa zvichidzidzidzo	24
Kushandiswa kwenzira dzakasiyana siyana pamwe chete nekurwisana nezvirwere nezvipembenenene (Integrated Pest and Disease Management).....	24
Zvipembenenene zvinonyanya kuwanikwa mubhinzi	24
Zvirwere zvinonyanya kuwanikwa mubhinzi.....	29
Kuvhara chidzidzo.....	33
Chitsauko chechipfumbamwe – kukohwa bhinzi nekugadzira bhinzi	34
Kugadzirira chidzidzo	34
Zvinangwa zvichidzidzidzo	34
Nguva yekukohwa bhinzi	34
Kukohwa, kuomesa, kupura, kupepete nekusarudza bhinzi	34
Kuomesa bhinzi dzichiri mumakwande	35
Kupura bhinzi.....	35
Kuomesa bhinzi dzapurwa.....	35
Kupepete nekusarudza	35
Kuisa mushonga mumbeu	36



Kuchengetedza bhinzi.....	38
Kuvhara chidzidzo.....	38
Chitsauko chegumi – Kutengesa bhinzi	39
Kugadzirira chidzidzo	39
Zvinangwa zvechidzidzo	39
Misika yebhinzi nemashandisirwo ebhinzi	39
Kuvhara chidzidzo.....	39



Kutenda

Iri gwaro rakanyorerwa chirongwa cheLivehoods and Food Security Program (LFSP), Agricultural Productivity and Nutrition (APN) Componemt inotungamirirwa nebazi reFood and Agriculture Organization of the UN (FAO). Mari yekuti basa reLFSP rifambe yakapiwa neveDepartment for International Development (DFID) pasi pechirongwa cheUnited Kingdom Aid (UKAID). Kuburikidza nekushanda pamwechete neFAO INSPIRE (Improved Nutrition for Sustainable Production, Increased Resilience and Economic) yakatungamira kunyorwa kwegwaro rino rinoshandisa muzvidzidzo zvevarimi vekumaruwa. INSPIRE mubatanidzwa we mapoka anoshanda munezvebudiriro mukurima anosanganisa Goal Ziombabwe, Practical Action, Sustainable Agriculture Technology and Technoserve. Chinangwa cheLFSP ndecekuti kurimwa kwebhinzi kusimudzirwe kubva patiri ikozvino uye kuti zviripe mari yekushandisa mumabasa emumhuri. Pasi pechirongwa cheLFSP-APN INSPIRE irikushanda mumatunhu anoti Mutare, Mutasa and Makoni ari muManicaland Province. Tinovimba kuti zvinyorwa izvi zvichashandisa nevarimi varimumatunhu iwaya kana vari kunenzvimbo dzakafanana nematunhu iwaya kuti goho rerebhini nemari yacho zwiwande. Tinotenda INSPIRE nevese vakabata basa rakanaka kudai rekuitira kuti varimi vasimudzirike mukurima bhinzi. Kukohwa bhinzi, kukohwa mari!

Mabatirwe ezvidzidzo

1. Gwaro rino rinotarisirwa kushandisa nevarimisi kana malead farmers (vatungamiriri vezvidzidzo) ari kushanda neboka revarimi vane chido nekurima bhinzi zvakanaka.
2. Vatungamiriri vezvidzidzo vanotarisirwa kudzidzisa vamwe varimi veboka ravo vachitevedza marongerwe ezvidzidzo ari mubhuku vachitevedza mwaka vekurima.
3. Vatungamiriri vezvidzidzo vanotarisirwa kudzidzisa varimi, nguva yekuita basa racho mumunda isati yakwana kuitira kuti panozokwana nguva yacho varimi vange vava kuziva zvinoda kuitwa. Rongai mazuva ekupota muchisangana neboka renyu kuti muite zvidzidzo uye sarudzai pekuitira zvidzidzo pakasunungukira vanhu vese vari muboka renyu pamwe nenguva yakasununguka.
4. Torai nguva isingadariki maawa mairi panguva yese yamunosangana.
5. Onai kuti makagara makaita denderedzwa zvinoita kuti vadzidzi vese vadzidze vachionana.
6. Zvidzidzo zvisati zvatanga bvunzai varimi zvavanenge vachinyanya kuda kunzwa pamusoro pechidzidzo ichocco kubva pazvinangwa zvechidzidzo moedza kunyanya kubatsirana nevarimi ipapo.
7. Pane zvidzidzo zvinenge zvichionekwa nemudzidzisi kuti zvingadewo rubatsiro rwemumwewo munhu garai maronga kuti murimisi venyu kana vamwewo varimisi vazouya kunotsigira musi wechidzidzo.
8. Mudzidzisi anokurudzirwa kunge achinzwisa zvidzidzo zvaanenge achitungamirira zvakadzama. Mudzidzisi ngaatore nguva yekumboverenga kuti chidzidzo chichazoda kufambiswa sei musi wacho wechidzidzo usati wasvika, uye chidzidzo kana chichazoda kuti varimi varatidzwe maitirwe ebasa, mudzidzisi ngaasarudze pekudzidzira pakasununguka nekuunganidza zvese zvichazodiwa musi wechidzidzo usati vasvika
9. Uku kudzidza kwevakuru vanogarobata mabasa avari kudzidzisa nezvawo muhupenyu. Nokudaro kurudziro ndeyekuti tinzwe mafungiro nemaitiro avo uye zvikonzero zvacho



10. Vadzidzi vose vanokurudzirwa kutaura vachipawo pfungwa dzavo. Zvikadaro zvinoita kuti vose vasununguke kutaura maonero avo. Kuti vawane mukana wakakwana vanopota vachiiswa mumapoka akasiyana siyana kuti vapindure mibvunzo inenge yabvunzwa
11. Mushure mekunge boka roga roga rapakurira vamwe zvarawana, vamwe vanofanira kupihwa mukana wekubvunza mibvunzo uye kutaurawo pfungwa dzavo. Mudzidzisi anokurudzirwa kuzokwenenzvera hurukuro.
12. Kudzidza kuzhinji ngakuve kunosanganisira kuratidzira varimi maitirwe ebasa racho chaiwo nekuti vanhu vakuru vanodzidza nekuona nekuita.
13. Pamusoro pema activities (pezviitwa) zvakaiswa muzvidzidzo itaiwo mitambo yakaita sema drama, kuimba, nhetembo kana quiz pamusoro pechizvidzidzo zvamunenge muchiita.
14. Kana paine zvinenge zvabvunzwa kana kukurukurwa zvisingakwanise kuti mudzidzisi ape mhindiro ipapo, anokurudzirwa kunotsvaga mhinduro kuvarimisi ozopa mhinduro kuvadzidzi muchikamu chinotevera.
15. Pamusoro peizvi, rongaiwo mazuva ekunoona zviri kuitwawo nevamwe varimi vari kurimawo zvamuri kurima zvepamusoro kuti munodzidzawo ikoko. Zvakare kana paitawo murimi abudirira zvakanyanya muboka renyu kudarika vamwe rongaiwo zuva rekuungana pamunda pake (field day) kuti mudzidzewo kuti akazvifambisa sei. Njere moto, unogokwa.



Chitsauko chekutanga - Nhanganyaya

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika

Zvinangwa zvichidzidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziwa zvinotevera:-

- Zvakanakira bhinzi
- Ivhu rakanakira bhinzi

Zvakakoshera bhinzi

Activity 1

Bvunza varimi kuti bhinzi dzakakosherei? Kana wapihwa mhinduro tsigira nezvinotevera:-

- Bhinzi dzinodywa semuriwo. Dzinogona kudywa dzakaomeswa kana dziri nyoro.
- Bhinzi dzine protein, *folic acid*, *dietary fibre* pamwe nemacarbohydrates, Bhinzi dzinopawo *iron* inowanikwa munyama.
- Bhinzi dzinotipa mari tikadzitengesa. Dzinotipa mari yakawanda pa tonne imwe chete zvichienzanisa nechibage, nyemba, nyimo, soyabeans, mapfunde nezvimwewo zvirimwa zvihinji zvakajairika kurimwa pamusha.
- Bhinzi dzinosiya chikafu cheNitrogen muvhу chinozoshandisa nembesa dzimwe dzinozorimwa mumashure mechirimwa chebhinzi.
- Bhinzi dzinogona kurimwa dzega kana mukati mezvimwe zvirimwa zvakaita sechibage kuti dzi dzivirire sora, kutorwa kwevhu, nekurasikirwa nehunyoro muvhу.

Activity 2

Inzwa kune varimi kuti ndezvipi zvinopa goho rakawanda, kurima bhinzi dziri dzega kana kuti kudzisanganisa nedzimwe mbesa dzakaita sechibage. Ngavape zvikonzero kuti sei vachifunga kudaro.

Ivhу rakanyanya kunakira bhinzi nderipi?

Activity 3

Inzwa kune varimi kuti ndezvipi zvinhu zvavanocherechedza maererano nemhando yevhu kana vachisarudza munda wekurimira bhinzi. Unogona kutsigira hurukuro iyi nezvinotevera:-

- Bhinzi dzinokura pamhando yevhu rakasiyana siyana sezvinongodawо zvirimwa zvihinji zvakaita sechibage.
- Dzinonyanya kuda paivhu rakati korei zvishoma (>15% clay content).
- Bhinzi hadzidiwo ivhu rinowawa (*acidic*). Ivhu rinofanira kunge riine pH iri pakati pe5.0-5.5
- Ivhu harifanirwi kunge richinjenga mvura. Musarima munzvimbo dzine unyoro hwakanyanya.

Kuvhara chidzidzo



1. Ipa varimi mukana wekubvunza mibvunzo. Ipa vamwe veboka vanzwisisa chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechipiri: - Kugadzira munda vekurima bhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
2. Gara waronga kuti uzoratidzire varimi magadzirirwe nemataramutsirwe emigero yebhinzi

Zvinangwa zvichidzidzido

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziwa zvinotevera:-

- Kusarudza munda wakanaka wekurima bhinzi
- Zvinoreva kugadzirira munda
- Zvakanakira kugadzira munda nenguva
- Nguva yekugadzira munda
- Kugadzira migero yekudyara bhinzi

Kusarudza munda

Activity 1

Varimi ngavadome zvinhu zvavanotarisa kana vachisarudza munda vekurima bhinzi. Pane zvabuda wedzera nezvinotevera:-

- Sarudzai munda unevhu rinoenderarana nezvakurukurwa muchitsauko chekutanga
- Bhinzi dzinovhiringidza zvakanyanya dzikarimwa mumunda makamboiswa mishonga yemasora inogara muvhu kwenguva yakareba uye ichishanda muzvirimwa zvemhando yehuswa chete zvakaita sechibage. Muenzaniso vemushonga uyu iAtrazine. Musadzirma mumunda wakamboshandiswa mushonga yakaita seAtrazine mumwaka pasati padarika mwaka miviri.
- Dzinoda kuchinjanisa nezvirimwa zvakaita sechibage nemapfunde. Ngapave nemusiyano wemwaka miviri kubva pamunorima bhinzi nepamunozodzirimazve.

Activity 2

- Tauriranai neverimi kuti minda yenu munoigadzirira sei uye kuti zvingadiwa ndezvipi. Izvi zvingasanganisira zvinotevera:-
 - (a) Kubvisa mabundo
 - (b) Kurima negejo tisinga pepeti kana kupindura ivhu zvakanyanya
 - (c) Kuchera migero
 - (d) Kuisa mupfudze pamwe nemafotireza
 - (e) Kuunganidza zvekuchengetedza mwando zvakaita sehuswa kana mashanga embesa dzemwaka vapfuura dzakakohwewa (Mulching)

Zvakanakira kugadzira munda nenguva

Activity 3

Tauriranai zvakanakira kukurumidza kugadzirira pekurima uye kupagadzirira zvakanaka. Izvi zvinosanganisira zvinotevera:-



- (a) Kugadzirira munda zvakanaka kunokosha pakubatsira kumera kwakanaka kwembesa nekukura kwadzo kwakanaka.
- (b) Kukurumidza kugadzirira munda kunobatsira kuti murimi akurumidze kudyara mbesa nekuti dzikurumidze kubata mwando wekutanga nekuushandisa mukukura kwadzo.
- (c) Kukurumidza kugadzirira munda kunobatsira kuchengetedza mvura nekudzikisira kukukurwa kwe ivhu.
- (d) Kuchengetedza kwemvura muvh u nekudzivirira kukukurwa kwevhu kunoita kuti goho risimukire zvikuru.
- (e) Tsangadzi nezvirwere hazvizonetsi kurwisa nekudzivirira.
- (f) Zvinoitawo kuti ivhu rive neunyoro hwakanaka uye kuzobatapo fetereza yepasi.
- (g) Varimi havanyanyi kutimba mumunda. Izvi zvinochengetedza mari, nguva pamwe nesimba.

Nguva yokugadzirira munda

Activity 4

Tsanangura zvinotevera:-

- Kugadzirira munda kunofanira kutanga nguva iyo munhu paanongo pedza kukohwa mbesa dzake uye kunofanira kupera Gumiguru (October) asati asvika pakati kana kuti mvura isati yatanga kunaya.
- Varimi vanokurudzirwa kugadzira munda vachishandisa nzira dzeconversation agriculture dzinokurudzira kusapindura pindura ivhu zvakanyanya. Izvi zvinosanganisira kugadzira migero, pamunda musina kumbotanga marima.
- Kana izvi zvikakwanisa kuitwa mvura isati yanaya, panonganaya mvura munenge mavakukwanisa kutanga nekutodyara. Izvi zvinodzivirira kurasika kwe mamwando unodiwa pakumera nekukura kwembesa.

Activity 5

Varimi ngavadome zvigozhero zvingaita kuti vatadze kупедза kugadzirira minda nenguva. Kurukuraiwo zvimwe zvezvinhu zvingaite kuti zvireruke kuti varimi vapedze kugadzirira minda nenguva. Zvimwe zvinotarisirwa kubuda munhaurirano yenu ndeizvi:-

1. Varimi ngavaite mapoka mapoka okugadzirira minda yavo, batsiranai muchiita majana muchienda kumunda komumwe nomumwe muchikurudzirana kuita basa renyu nguva ichipo uye yakafanira. Mapoka evarimi vari munharaunda imwe chete, vanogona kuita makwikwi okuona kuti vanotanga kупедза kugadzira ndima dzawo ndevapi.
2. Muri mumapoka gadzirai karenda rekukuyeuchidzai kuti basa rimwe nerimwe rinoitwa nguva ipi yegore. Garai muchiyeuchidzana basa rinofanirwa kunge richiitwa panguva imwe neimwe. Mafoni anogona kushandiswa kutumira yeuchidzo kuvanhu vakawanda nguva imwe kuti vanhu vachitanga kuchera makomba avo.
3. Kana varimi vachiona kuti zvekushandisa mapadza kugadzira minda zvinovanetsa varimi vanogona kushandisawo michina yakaite semagejo akasungirwa maripper tynes. Varimi vanogonawo kushandisa ma direct seeders panguva yekudyara. Madirect seeders anogona kushandiswakudyara mbeu pasina kumbobvira parimwa.
4. Varimi vanoonawo kuti kugadzira munda nenzira yeconversation agriculture kunoita kuti pazoita masora nekuti munda unenge usina kupidigurwa. Nekudaro kurudziranai kushandisa mishonga yemasora.
5. Panoitwa dzidziso yakaite seiyi, nemamwe magungano evarimi akaite sema field days, varimi vanofanira kukurudzirwa kutsanangura nekupa huchapupu hwezvavakaonavo zvakanakira kugadzira munda nenguva kune vamwe varimi. Zvakanakawo kuti vataure mashandire avanoita semapoka kana nemhuri



dzawo kuti vamwe varimi vaone kuti zviri nyore kупедза kugadzirira minda nenguva yakanaka nekuti kazhinji varimi vanotoregedza kutanga kugadzira minda nekuti vanoona zviri zvinhu zvinorema.

6. Mitambo nekuimba senzira yekufadzana panodzidzisiwa varimi zvinobatsirawo kuratidza vanhu kuti hapana chinombonetsa pakurima kwe mhando iyi. Mitambo iyi nekuimba uku zvinofanirwa kuratidza kuti zviri nyore kugadzira minda nguva iripo kana varimi vakatanga nguva iripo, vakaita izvi mumapoka, vakashandisa maripper tynes pamwe nemadirect seeders. Zvinofanirwa kuburitsawo kuti varimi vanodai vanowana goho rakakura, vasingaiti izvi vanowana goho rakadzikira zvikuru.

Kugadzira migero yekudyara

Activity 6

Tsanangura pamwe nekuratidzira zvinotevera:-

- Mitsara yebhinzi ngaitaramutswe 45cm kubva pane umwe mutsara kusvika pane umwe mutsara. 45cm dzinokurudzirwa nekuti patinoita crop rotation tichiunza bhinzi mumashure mechibage chinenge chakataramutswa 90cm kubva pane mutsara kusvika pane umwe mutsara, zvinotibvumidza kuti tidzoke mumitsara yechibage asi tichiisa umwe mutsara zvakare pakati pemitsara yekare.
- Migero inogona kugadzirwa nebadza, gejo rine ripper tyne kana tichirima tichishandisa nzira yeconservation agriculture inokurudzira kusarima negejo, kana tichida kutara mitsara pakarimwa, nechikoforo (*cultivator*) kana direct seeder asi direct seeder inobva yadonhedzera fetiraiza, mbeu pamwe nekubva yatovhara.
- Kana uchida kuisa manyowa mumugero, mugero vacho unogona kuudzikisa kusvika pa 15cm asi kana usingadi kuzoisa manyowa unogona kudzikisa migero 5cm-7.5cm.

Mufananidzo vemigero yakagadzirwa zvakanaka



Kuvhara chidzidzo

1. Ipa varimi mukana vekubvunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vataadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisia neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechitatu: - Kuisa lime nefetiraiza yepasi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
2. Gara waronga kuti uzoratidzire varimi maisirwe elime, manyowa pamwe nefetiraiza uye kuweka kuti inoiswa yakawanda sei mamita imwe neimwe yemugero.

Zvinangwa zvichidzidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziwa zvinotevera: -

- Kukosha kwe lime, chii chinonzi pH, pH yakanakira bhinzi, mhando dzelime uye huwandum hwe hwelime hunodiwa kuiswa mumunda
- Maisirwe elime mumunda
- Kuisa manyowa nefetiraiza yepasi mumunda

Kukosha kwelime

Bvunza varimi zvinotevera: -

Activity 1

Bvunza varimi zvinotevera mukurukure mhinduro dzavo.

1. Lime yakakosherei?
2. Chii chinonzi pH?
3. pH yakanakira bhinzi ndeipi?
4. Mhando dzelime dzinozivikanwa nevarimi ndedzipi uye mhando imwe neimwe inoshanda papi?
5. Unoziva sei kuti woisa lime yakawanda zvakadii mumunda?

Zvimwe zvinotarisira kukurukurwa ndezvinotevera: -

- Lime inoderedza kuvava kwevhu kunokonzerwa nekuramba tichiisa fetiraiza ine nitrogen gore nnegore, kutorwa kwechikafu chiri muvhmu nemvura chichidzika pasi (leaching) nekufufunuka kwematombo achiita ivhu
- Ivhu rikavava (acid) kana kutapirisa (alkaline) zvinoita kuti zvirimwa zvitadze kutora chikafu chiri muvhmu zvichishandisa konyangwe chikafu ichi chirimo chakawanda.
- pH zvinoreva kuvava kana kutapira kwevhu. Kana pH ichiyerwa inobva pa 0 kusvkika pa 14. Kubva pa 0 kusvika pa 6.9 zvinoreva kuti ivhu rinovava. Kuvava kunoderera kubva ku 0 kusvika pa 6.9. Pa7 pakati nepakati. Kubva pa 7.1 kusvika pa 14 ivhu rinenge richitapira. Kutapira kwevhu kunowedzera kubva pa 7.1 kusvika pa 14.
- Bhinzi dzinoda pH iri pakati pe 5.0 ne 5.5.
- Kune mhando mbiri dzelime. Calcitic lime ne dolomitic lime. Calcitic lime ine calcium asi dolomitic lime ine magnesium inowanikwa iri shoma muvhmu rakaita jecha. Saka ndiyo inonyanya kukurudzirwa kuiswa muvhmu rakadai.
- Lime inogona kuwanikwa yakaita upfu kana kuti iri magodo (granulated lime). Dzimwewo fertilizer dzepasi dzava kugadzirwa dziine lime. Kurukurai kuti ndezvipi zvinganakire kana kushatira mhando imwe neimwe.
- Kana muchida kuwedzera pH yevhu ne 0.1 munoisa 150kg yelime pa heactare muvhmu rakaita jecha. Asi kana ivhu rakakora kuti muwedzera pH ne 0.1 munoisa 250kg yelime pahectare imwe. Saka murimi



anotoziva chete kuti oisa lime yakawanda zvakadii nekunge aendesa ivhu rake kunoongororwa oudzwa kuti pH yevhu rake yakamira sei.

Kuisa lime mumunda

Activity 2

Tsanangura izvi uchiratidza varimi maitirwe azvo: -

- Lime inofanirwa kuiswa mumunda pachiine mwedzi inokwana kuita mitatau mbesa isati yasimwa.
- Lime inogona kumwaiwa pamusoro pemumunda wabva kurimwa nemaoko akadzivirirwa. Munogona kushandisawo muchina unionzi lime spreader kana muchida kumwaya lime pamusoro pemunda vakarimwa. Kana muchishandisa nzira yemaoko munofanirwa kudimbura munda wenyu muzvidimbu zvidimbu zvakaenzana zvinoenderana nenhamba yemasaga amunofanirwa kuisa mumunda menu. Kana mapedza isai saga pandima imwe neimwe mochimwaya sagarelime zvakaenzana pandima iyoyo kusvika mapedza munda wese. Mumashure maizvozvo pindai mumunda nehara (harrow) inosanganisa ivhu nelime.
- Imwe nzira inogona kushandisa kuisa lime ndeyekutoisa mumugero uri kuda kudyarwa mbeu. Onai kuti migero yenu yese ingareba zvakadii moonawo kuti huwandum hwlime huri kudiwa hwakadii. Chiwekai kuti munda wese uiswe lime yakaenzana mungaise magrams (kana kuti kakapu kefetiraiza kenhamba ipi) elime akawanda zvakadii pa meter imwe chete. Kana mapedza munogona kushandisa badza kusanganisa lime nevhu iriri mumugero. Lime haifanirwi kusara ichionekera kunze kwemigero nepamusoro pevhу.

Kuisa manyowa nefetiraiza yepasi

Activity 3

Tsanangura uchiratidza varimi zvinotevera: -

- Munogona kuisawo manyowa emudanga kana emucompost mumugero unoda kudyarwa bhinzi musati maisa fertilizer yepasi asi mapedza kuisa lime. Pametre imwe munogona kuisa zvanza zviiri kana zvitatu zvermanyowa zvichienderana nehuwandum hwemanyowa amuinawo, fertiliser yepasi yamuinayo pamwe nesimba ramunofunga kuti ririmo mumanyowa enyu.
- Bhinzi dzinoda kuisawo fertilizer yepasi. Shandisai huwandum nemhando yefetiraiza inenge yayambirwa navanenge vaongorora ivhu renyu.
- Mubhinzi munogona kuisa fetiraiza yepasi ye Compound ‘D’, ‘S’ kana ‘C’ asi kazhinji kana dzisingadiridziwi shandisai compound ‘D’ nekuti goho ramunotarisira rinenge ririwo pasi zvishoma kudarika repanodiridzirwa saka mukashandisa ‘S’ kana ‘C’ profit inoderera.
- Kazhinji munoshandisa 200kg – 300kg pahectare imwe chete yebhinzi yefetiraiza yepasi. Onai kuti migero yenu yese ingareba zvakadii moonawo kuti huwandum hwefetiraiza huri kudiwa hwakadii. Chiwekai kuti munda wese uiswe fetiraiza yakaenzana mungaise magrams (kana kuti kakapu kefetiraiza kenhamba ipi) efetiraiza yakawanda zvakadii pa meter imwe chete. Kana mapedza kuisa fetiraiza munofanira kuivhara zvishoma nevhu kuti isabatane nembeu dzamuchazodyara nekuti mbeu inopiswa nefetiraiza. Zvakare ikarambawo isina kuvharwa, inopera simba.



Kuvhara chidzidzo

1. Ipa varimi mukana vekubunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vataadza kupindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisiwako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisia neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechina: - Kudyara mbeu yebhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
2. Gara waronga kuti uzoratidzire varimi masanganisirwe embeu nemishonga yekuidzivirira kubva kuhudyi nezvirwere isati yasimwa, madonhedzerwe embeu mumugero vekudyara pamwe nemavhariro emugero vabva kudyarwa bhinzi.

Zvinangwa zvechidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Nguva yakanaka kudyara bhinzi
- Kudzivirira mbeu isati yadyarwa kubva kuhudyi pamwe nezvirwere
- Kudyara bhinzi zvakanaka

Nguva yekudyara

Activity 1

Tsanangurira varimi zvinotevera uchivaratidzira maitirwe azvo (demonstration):-

- Nguva yekudyara yakakosha nekuti ikasacherechedza zvinokanganisa kubuda kwebhinzi nekunaka kwemhando yebhinzi.
- Unofanira kuziva nekuona nguva yekudyara kuitira kudzivirira kuti dzisavhiringidzwe neunyoro pakubuda kwadzo, kubuda kwemaruva pamwe nekunge makoko akutanga kuita bhinzi mukati. Zvikasaongororwa unorasikirwa nebhinzi. Mvura ikawandisa panguva inotanga kubuda maruva inoita kuti maruva adonhe izvi zvinoderedza goho rinowanikwa. Mvura inofanira kuita shoma kana kushaikwa. Kana kukanaya bhinzi dzakuda kusvika dzinosviba izvi zvinokanganisa unaku hwebhinzi
- Temburicha kana kudziya kunodarika pa32°C kunoita kuti maruva anobuda adzikire kana kudonha. Kukazoitawo kachando zvekare bhinzi dzinokanganisika. Zvese zvinoita kuti goho ridzikire. Sarudza nguva yekudyara zvakangwarira
- Bhinzi dzinokura nekunaiwa nemvura dzinoda mvura iri pa300 kusvika 600 mm inonaya panguva yakareba kubva pamazuva90 kusvika pamazuva120
- Mazuva ekudyara bhinzi dzinodiridzirwa nemvura yekunaya ndeaye anoti kupera kwaZvita kusvika vhiki rekutanga raKukadzi. Mazuva aya ndeembeu inodyarwa munguva yezhizha munzvimbodziri kuHighveld neMiddleveld. Kana manonokesa modyara musiwa 31 Kurume kuti dzisabatwa nechando.
- Bhinzi dzinodyarwa pakati pezhizha kana zhizha rakunopera dzinoita goho rakanaka nekuti zvirwere zvinenge zvave zvishoma. Asi dzinenge dzave kutoda kudiridzirwa uye izvi zvinodhura.
- Bhinzi dzinogona kudyarwa munguva yechando asi muchidiridzira munzvimbodzisingabatwe nechando dziri kumaLowveld. Dyarai kubva pakati paKubvumbi kusvika kupera kwaChivabvu. Mukanonokesa munofanira kudyara kupera kwaChivabvu kuti dzisabatwe nechahuvhi uye kuti dzisazonaiwa nemvura inosvibisa bhinzi dzacho.



Kudzivirira mbeu iri kuda kudyarwa kubva kuzvirwere nehudyi

Activity 2

Tsanangurira varimi zvinotevera uchivaratidza maitirwe azvo (demonstration):-

- Mbeu inogona kutadziswa kumera nezvirwere zvinogona kuibata kana zvipembenene zvepasi pevhу zvinogona kuidya. Zvakare panogona kuita zvipembenene zvinodya mbesa dzichangomera. Zvese izvi zvinoderedza huwandu hwemiti yebhinzi inozovamo mumunda zvinova zvinoderedzawо goho zvakanyanya.
- Inzwa kune varimi kuti kune nzira here dzavanoshandisa kuchenetedza mbеса dzavo dzavanodyara kubva kune zvadonongorwa pamusoro.
- Mbeu inogona kuiswa Thiram muchiisa 35 grammes pa 50kg yega yega yembeu kuti mudzivirire nekuuraya zvirerwe zvinobata mbeu iyi. Munogona kushandisawo apron star muchiisa 10 grammes pa 4kg dzega dzega dzembeu. Kuti mudzivirire nekuuraya makonye anopinda mudzinde rebhinzi shandisai Cruiser muchiisa 125 grammes pa 50kg yembeu kana Gaucho muchiisa 250 grammes pa 50kg yembeu.

Kudyara bhinzi

Activity 3

Tsanangurira varimi zvinotevera uchivaratidzira maitirwe azvo (demonstration):-

- Vavarira kuwana madzinde 150 000 kusvika 200 000 pahactare imwe chete zvchienderana nemhando yebhinzi.
- Kana uchishandisa mitsara yakapatsanurana 45cm siyanisa tsanga imwe neimwe yebhinzi ne 10 – 15 cm.
- Huwandu hwebhinzi mumunda hunoitirwawо kuti masora/bundo asanyanye kuwanda.
- Kana mapedza kudonhedzera bhinzi, vharai nevhu rese rakabuda mumugero iwoyo. Musasiye mugero uchionekera nekuti mvura inogona kuerera nemugero ichienda nevhu kana mbeu uyewo mvura inogona kujenga mumugero zvinokanganisa kumera kwembeu. Zvimwewo zvinogona kuitika ndezvezkuti panooma mvura iyoyo inosiya goko rakaomarara pamusoro pemugero zvinoita kuti mbeu itadze kumera zvakanaka.

Kuvhara chidzidzo

1. Ipa varimi mukana vekubvunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechishanu – Kuisa fetireza yepamusoro (top dressing) muminda ye bhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
2. Gara waronga kuti uzoratidzire varimi maisirwe efetiraiza yepamusoro mubhinzi

Zvinangwa zvichidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Mhando yefetiraiza yepamusoro inoiswa mubhinzi
- Maisirwe efetiraiza yepamusoro mubhinzi

Kuisa yefetiraiza yepamusoro mubhinzi

Activity 1

Tsanangurira varimi zvinotevera:-

- Bhinzi dzinoda kuiswa fetiraiza yepamusoro yemhando ye ammonium nitrate (AN).
- Bhinzi hadzidi fetiraiza yepamusoro yakanyanya.
- Zvichienderana nezbabuda paongororo yevhu isai 80 -100kg pahactare yeAmmonium Nitrate (AN).
- AN inoiswa maruva ava kuda kubuda asi asati abuda.
- Munoiisa paivhu rine hunyoro.
- Munoisai AN padivi mosiya 5 cm pakati pechirimwa nefetereza kuitira kuti chisatsva.
- Musaita AN yekumwaya.
- Mukaona kuti pangangoita njodzi yekuti fetiraiza yenu inga ende yese nemvura yemudenga, isai chidimbu pakutanga, mozoisazve chimwe kwapera masvondo 2-3.

Kuvhara chidzidzo

1. Ipa varimi mukana vekubunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisia neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechitanhatu - Kurwisana nesora muminda ye bhinzi

Kugadzirira chidzidzo

3. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
4. Gara waronga kuti uzoratidzire varimi mapimirwe emishonga yemasora

Zvinangwa zvechidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Nzira dzasiyana-siyana dzinogona kushandiswa kurwisana nesora mubhinzi
- Kushandisa mishonga yemasora mubhinzi
- Kupima mishonga yemasora

Nzira dzinogona kushandiswa kurwisana nesora

Activity 1

Bvunza varimi kuti nzira dzvanoziwa dzinogona kushandiswa kurwisana nesora/bundo, ramera kana risati ramera. Zvimwe zvinogona kukurukurwawo ndezvinoti:-

- Kurwisana nemasora kuri nyore kana varimi vakashandisa nzira dzasiyana-siyana pamwe chete (integrated weed management) pane kungoshandisa nzira imwe chete.
- Dzimwe nzira dzinogona kushandiswa kurwisana nemasora inzira dzekutodziwirira sora racho kuti risabude (preventive methods). Idzi inzira dzakareruka pane kuzorwisana naro ramera kana rakura. Nzira idzi inzira dzakaita sekugeza zvinoshandiswa mumunda zvakaita semagejo kubvisa mbeu yemasora, kudyara mbeu yakauchikwa isina mbeu yemasora, kushandisa manyowa anobva mothermal compost anenge asina mbeu yesora, nekutogara munda nzira pamwe nepamukowa pasina sora.
- Varimi vanofanirwa kushandisawo nzira dzekurima zvirimwa dzinoita kuti mumunda muite sora shoma dzakaita sekuona kuti chirimwa chavana zvese zvachinoda kuti chikure chakasimba kudarika masora. izvi zvinosanganisira kutevedzera zvinobuda muongororo yevhu (soil test), kushandisa mhando yembeu inokurudzirwa pamwe nekuenderana nenzimbo yenu nemarimire enyu, kudyara mbesa dziine huwandu dzakawanda zvine huwandu hunokurudzirwa pazvirimwa izvozvo kuitira kuti zvikwanise kuvhunga sora, kugara muchitarisa mumunda kuona kuti sora, zvirwere nezvipembene zvavamo here uye hazvisi kukanganisa zvirimwa here uye hazvisati radarika huwandu kana zera rekuti rinourayika zviri nyore here nekuitao crop rotation.
- Kana sora ramera munogona kushandisawo nzira dzinoti:- kurimira pasi negejo kana disc harrow kana munda usati vadyarwa asi kana mavwa mumunda mune zvirimwa, varimi vanogona kudzura nemaoko, kushandisa mapadza kusakura, kushandisa karivheti/chikoforo kana kuwaridza huswa kana mishonga zvinova zvinotadzisa masora kukura zvakanaka.
- Mishonga yemasora inogona kushandisawo kudzivirira mbeu yemasora kuti isamere kana kuuraya masora akamera kare asi achiri madiki.

Kushandisa mishonga yemasora



Activity 2

Tsanangura zvinotevera:-

- Mishonga yemasora inogona kuiswa mumunda kudzivirira kuti sora risabude kana kuuraya sora rinenge rabuda.
- Zvimwe zvezvinhu zvinogona kutadzisa mishonga yemasora kushanda zvakanaka ndeizvi:- kusaverenga zvakanyorwa pamushonga, kushandisa nozzle isiyo, kuisa mushonga usivo uye pasipo, mashanga pamusoro pevh u zvinotadzisa mushonga kupinda muvh, mamwe masora anogona kunge asinga urayiwi nemhando yemushonga vashandiswa (mishonga inogona kusanganisira kuti iuraye mhando dzemasora dzakati wandei), ivhu rinogona kunge risina hunyoro hwakakwana kana kuti panoshaiwa mvura inonaya kana kudiridzirwa kumashure kwekunge mushonga wamwaiwa, kuisa mushonga mushoma pane huwandumunokurudzirwa zvichikonzeresa nekutadzisa kupima mushonga (calibration) kana kuda kuchengetedza mari kana kumwaya mushonga masora akurisa.
- Pane mishonga inogona kushandiswa kuuraya masora akamera kare asi pamunda pasati padyarwa yakita reparaquat neround-up inowa mishonga. Iyi mishonga yekuti ikaiswa pane zvinhu zvakamera inouraya zvese kusanganisira mbesa dzese.
- Imwe yemishonga yemasora inogona kushandiswa muchangodyara ndeinoti: - Metalachlor, Metribuzin, Bateleur gold. Munofanirwa kucherechedza kuti mishonga iyi ishande zvinoda ivhu riine mwando wakati wandei kana kuti muchizodiridzira zvishoma mumashure mekunge maisa mushonga kuti mushonga ufambe kupinda muvh. Pakumwaya mishonga iyi, shandisa flat fan nozzle.
- Imwe yemishonga inogona kushandiswa kana sora rameri ndeinoti:- Fusilade, Basagran, Agyl.

Kupima mushonga wemasora (knapsack calibration)

Activity 3

Ratidzira varimi uchivatsanangurira zvinotevera. Itai izvi muchishandisa mienzaniso yemishonga yakasiyana siyana inoda kumwaiwa nehuwandu hwakasiyana siyana paectare, kusvika munhu wese ari muboka revadzidzi avakuzvigona:-ishonga yemasora inenge yakanyorwa huwandumunokurudzirwa hunodiwa paectare zvichireva kuti mushonga unofanirwa kumwayiwa zvakanaka uye zvakaenzana munda wese kuti mushonga upererane nemunda. Kumwaya mushonga kunoda kuti ari kumwaya mushonga afambe zvakafanova kubva pakutanga kusvika pakunopedza (constant speed) pamwe nekumwaya zvakafara (swath) zvakaenzana kuti mushonga uiswe zvakanana zvakaenzana munda wese. Zvinhu izvi zviri zviiri zvinofanirwa kuonekwa kuti zvichange zvakadii, musati matanga kumwaya.

1. Gezai knapsack, mastrainers nemanozzles
2. Onai kuti hapana pari kuduza here uye chinjai manozzles kana asiri kumwaya mvura zvakanaka.
3. Pimai chinhambwe chakafanira (chakaita 50m)
4. Pimai nguva yamunotora kufamba chinhambwe ichocco semunhu ari kufamba makarimwa uye akatakura achange achifamba kwenguva yakati rebei.
5. Pombai knapsack modzikisa nozzle kusvika pamunofunga kuti munopedza munda wese iri. (Hamuzofanirwi kuzokwidza kana kudzikisa – kazhinji munokurudzirwa kushandisa 50cm) momwaya pasi makamira, mopima kuti knapsack pairi kumwaya pakafara sei.
6. Isai mvura muknapsack womwaya mvura mugaba kwenguva yakareba zvakafana nenguva yazvinotora kufamba chinhambwe chavasarudza (se50m)
7. Chiweka zvinotevera kuti uone kuti muknapsack yega yega munoda kuiswa mushonga wakawanda zvakadii kuti mushonga unatse kupererana nemunda wako maererano nemafambire auchaita (speed), mabudire ari kuita mushonga muknapsack (flow rate) pamwe nemafarire ekumwaya kwedu (swath).



- Area sprayed (m^2) = Swath (m) x Distance(m)
- Discharge Rate (l/ha) = [Amount of measured water (litres) ÷ Area Sprayed (m^2)] x 10 000
- Amount of Herbicide/Knapsack (litres) = [Recommended Rate (l/ha) ÷ Discharge Rate (l/ha)] x Tank Capacity (litres)

Kuvhara chidzidzo

1. Ipa varimi mukana vekubvunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vataadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechinomwe – kudiridzira bhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika

Zvinangwa zvechidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Kudiridzira bhinzi zvakanaka

Kudiridzira bhinzi

Activity 1

Tsanangurira varimi zvinotevera:-

- Midzi mizhinji yebhinzi iri mu200mm (20cm) dzekumusoro kwevhу, naizvozvo kana tichidiridzira bhinzi tinofanira kuisa mvura shoma panguva imwe neimwe.
- Kazhinji panguva imwe diridzirai 35 – 40mm muvhу rakati simbei ne 25 – 30mm paivhу rakaita jecha panguva imwe chete.
- Huwandum hwemvura hunosiyawo nenguva inenge yakadyarwa bhinzi nemhando yevhu sezvinotevera:-

Mhando yevhu	Madiridzirwe ebinzi dzinenge dzadyarwa chando chava kunopera (Late winter)		Madiridzirwe ebinzi dzinenge dzadyarwa zhizha rava kunopera (Late summer)	
	Kubva pakumera kusvika pakutanga kuita maruva	Kubva pakutanga kuita maruva kusvika pakukohwa	Kubva pakumera kusvika pakutanga kuita maruva	Kubva pakutanga kuita maruva kusvika pakukohwa
Ivhу rakakora	40 mm pamazuva mapfumbamwe 9 ega ega	40 mm pamazuva mashanu5 ega ega	40 mm pamazuva gumi10 ega ega	40 mm pamazuva masere 8 ega ega
Ivhу rakaita jecha	30 mm pamazuva manomwe 7 ega ega	30 mm pamazuva mana 4 ega ega	30 mm pamazuva masere 8 ega ega	30 m pamazuva 6 matanhau ega ega



Activity 2

Bvunza varimi mibvunzo iyi mukurukure mhinduro dzinobuda:-

1. Huwandum hwemvura huri kusiyana sei maererano nenguva yekudyara? Sei zvakadai?
2. Huwandum hwemvura huri kusiyana sei maererano nemhando yevhu? Sei zvakadai?
3. Kusiyana kwemazuva kubva patinodiridza nepatinozotarisira kudiridza zvakare kuri kusiyana sei maererano nenguva yekudyara? Sei zvakadai?
4. Kusiyana kwemazuva kubva patinodiridza nepatinozotarisira kudiridza zvakare kuri kusiyana sei maererano nemhando yevhu? Sei zvakadai?

Kuvhara chidzidzo

1. Ipa varimi mukana vekubvunza mibvunzo. Ipa vamwe veboka vanzwisa chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo wozobvunza murimisi vako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana pane pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechisere – Kurwisana nezvipembenenene nezvirwere

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika

Zvinangwa zvichidzidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Kushandiswa kwenzira dzakasiyana siyana pamwe chete kurwisana nezvirwere nezvipembenenene (Integrated Pest and Disease Management)
- Zvipembenenene zvinonyanya kuwanikwa mubhinzi mamarwisirwe azvo
- Zvirwere zvinonyanya kuwanikwa mubhinzi mamarwisirwo azvo

Kushandiswa kwenzira dzakasiyana siyana pamwe chete nekurwisana nezvirwere nezvipembenenene (Integrated Pest and Disease Management)

Activity 1

Tsanangurira varimi zvinotevera:-

- Varimi vebhinzi vanokurudzirwa kuti vashandisewo pamwe chete nzira dzakasiyana siyana dzekudzivirira nekuuraya zvipuka nezvirwere vasingashandisi mishonga yekutenga chete.
- Garai muchiita crop rotation
- Musape mukana kumasora kuti akure mumunda
- Deredzai kuvhiringidzwa kwezvirimwa nezvirerwe nezvipembenenene nekukurumidza.
- Dyaraiwo zvirimwa zvese nenguva dzinotenderwa uye kukasika kurima mumwaka kuitira kuti zvirwere nezvipembenenene zvisabate mbesa ichiri diki isati yabereka.

Zvipembenenene zvinonyanya kuwanikwa mubhinzi

Activity 2

Varimi ngavadome zvipembenenene zvavano sangana nazvo mubhinzi pamwe nemamirie azvo pamwe nezviratidzo zvinoratidza kuti chipembenenene chapinda mumunda. Ita uchiratidza varimi mifananidzo iri padzasi pamwe nekutsigira nezviri mutable iri padzasi pemifananidzo:-

1. Bean stem maggot

Mufananidzowebbean stem maggot nezvainoita kuzvirimwa





2. Cutworm

Mifananidzo yecutworm necutworm pabhinzi



3. Nhata (aphids)

Mifananidzo yenhata mubhinzi





4. Bean folige beetle

Mifananidzo ye bean foliage beetle nezvainoita mubhinzi



5. Blister beetle (CMR beetle)

Mifananidzo yeblister/CMR beetle iri mubhinzi



6. Zvipembenene zvinoboora makanda ebinzi (Pod borers)



Mifananidzo yezvipembenenene zvinoboora makanda ebbinzi



7. Zvipembenenene zvinosveta muto mubhinzi (sap sucking pests) – Giant coreid bug, Spiny brown bug, Green stink

Mufananidzo wezvipembenenene zvinosveta muto mubhinzi



Zvipembenene	Zviratidzo nemakanganisirwe anoitwa zvirimwa nezvipembenene	Mushonga kana nzira dzinogona kushandiswa kudziirira kana kuuraya zvipembenene
Bean stem maggot	Mbesa dzichangomera dzinosvava Gonye racho rinogara kudzasi kwedzinde rembeu rokanganisa kufamba kwechikafu	Isai mbeu yenu Apron Star pakudyara Mwayai Diazinon pamazuva 3, 6, 13 ne 20 mbeu yabva kumera
Cutworm	Inodya nekudimbura dzinde rembesa dzichangobva kumera nechekuzasi kwaro	Shandisai cabaryl
Nhata (Aphids)	Nhata sviba dzinomwa muto pamwoyo wechirimwa	Unogona kushandisa Dimethoate kana Malathion 50% kana Endosulfan 35%.
Bean foliage beetle	Dzinonyanya kuonekwa muhuwandumumashure memvura yekutanga Munoona kuti dzava mumunda nekutsemuka kana kuboorwa kwakanyanya kwemashizha. Makonye acho anodya midzi zvinozooonekwa nema kamba makamba eyellow pamashizha	Shandisai cabaryl
Blister beetle/CMR beetle	Anodya maruva. Mateko ebbinzi haazari zvakakkana nevana	Shandisai cabaryl
Zvipembenene zvinoboora makanda ebbinzi	Makonye anoboora odya vana vari mukati memakanda asi anogona kusapinza muviri wese mumakanda	Crop rotation inogona kubatsira zvakanyanya kudzivirira zvipembenene izvi Shandisai cabaryl kana monocrotophos
Pod sucking bugs (Giant coreid bug, Spiny brown bug, Green stink)	Zvino boora makanda ebbinzi, zvosveta muto uri mukati mevana vari mukata. Izvi zvinooresa nekusvavisa vana kana makanda acho ese. Zvinoitawo kuti mbeu iyi ikadyarwa itadze kumera.	Shandisai Monocrotophos kana Endosulfan kana Cypermethrin
Heliothis bollworm	Inoboora moyo vechirimwa	Shandisai Endosulfan
Red spider mite	Inogadzira dandemutande pasi peshizha rinoita kuti shisha rite ruvara rwe silver vozooona shisha raaku kokonyara.	Shandisai Malathion 25%
Makonye (Loopers)	Zvinodya mashizha nevana vebhinzi	Shandisai Cabaryl



Zvirwere zvinonyanya kuwanikwa mubhinzi

Activity 3

Varimi ngavadome zvirwere zvavanosangana nazvo mubhinzi pamwe nezvinoratidzo zvazvo. Ita uchiratidza varimi mifananidzo iri padzasi pamwe nekutsigira nezviri mutable iri padzasi pemifananidzo:-

1. Anthracnose



2. Bacterial blight

Mufananidzo webhinzi dzine bacterial blight



3. White mould

Mufananidzo webhinzi dzine white mould



4. Powdery mildew

Mifananidzo yebhinzi dzine powdery mildew



Zvirwere	Zviratidzo nemakanganisirwe anoitwa zvirimwa nezvirwere	Mushonga kana nzira dzinogona kushandiswa kudziirira kana kупедза zvirwere
Anthracnose	<p>Chinotanga semavara matema anotevedza tsinga pasi pemashizha.</p> <p>Panoitawo mawara pamateko akatenderedzwa neruvara rutema rakapoteredzwavo neruvara rwutsvuku</p> <p>Mateko madiki anogona kusvava ooma asati asvika</p>	<p>Varimi vanogona kuisa mishonga inodzivirira yakaita se Ridomil gold kana Mancozeb</p> <p>Shandisai mbeu yakauchikwa isina zvirwere</p> <p>Itai crop rotation nguva nenguva</p>
Bacterial blight	<p>Pasi pemashizha nemateko ebbinzi anoita mavara akatenderera anoita seanokonzerwa nemvura yagara ikaomera ipapo</p> <p>Kutsukuruka kwemashizha</p> <p>Dzinde rinogona kuora panobatira mashizha ekutanga pamwe nekutyoka</p>	<p>Shandisai mbeu isina chirwere yakauchikwa. Mbeu inogona kuiswawo mishonga ine Copper Sulphate yakaita seMicronized, Basicop 53WP, Blue stone.</p> <p>Itai crop rotaion nguva nenguva Munogona kumwayawo mishonga yakaita se Copper Oxychloride kudzivirira chirwere ichi kanawo Micronized, Basicop 53WP, Kocide 4.5LF and Streptomycin mumunda wese kana panzvimbo pane chirwere chete.</p>
Rust	Mavara akaita brown pamashizha epasi akatenderdzwa nekuvara rweyellow	Shandisai Mancozeb kana Score
White mould	<p>Chirimwa chinoita mawara akaita greyish-green anoita sekunge pakaendwa nemvura ikaomerapo.</p> <p>Zvirimwa zvinogona kungotanga nekungooma kumashizha.</p> <p>Vana vanokanganiswa vari mukati memakwati</p>	Taramutsai mbeu yenu zvakafanira kuitira kufamba zvakanaka kwemhepo.
Powdery mildew	Mashizha anocheneruka seane dota	<p>Kurima mhando (varieties) dzisingabatwi nyore nechirwere ichi</p> <p>Kurima mhando dzebhinzi dzinokasika kusvika</p> <p>Mafungicides eneSulphur</p>

Kudzivirira zvirwere zvebhinzi varimi vanokurudzirwa kumwaya Copper oxychloride ne Dithane M45 vachiti vakamwaya imwe vhiki rino, vhiki rinouya vomwaya imwe yacho. Vanofanirwa kumwayawo bravo panopera



mavhiki mairi ega ega. Kumwaya uku kunofanirwa kutanga papera mavhiki mairi, mbeu yamera kana kuchinge kuchipisa uye mumhepo muine mwando vakawanda, asi kana kwakanaka, zvinogona kuzotanga mbeu yati kurei. Kudzivirira zvirwere zvemashizha kwakakosha nekuti mashizha ndivo anogadzira chikafu chinoenda kumbesa.

Kuvhara chidzidzo

3. Ipa varimi mukana wekubvunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo vozobvunza murimisi wako pamunosangana.
4. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chechipfumbamwe – kukohwa bhinzi nekugadzira bhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika
2. Gara varonga kuti uzoratidzire varimi masanganisire emushonga vekuchengetedza mbesa mudura nembesa

Zvinangwa zvichidzidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Nguva yekukohwa bhinzi
- Kukohwa, kuomesa, kupura, kupepete nekusarudza bhinzi zvakanaka
- Kuisa mushonga wekuchengetedza bhinzi dzakohwewa
- Kuchengetedza bhinzi

Nguva yekukohwa bhinzi

Activity 1

Muzvikwata zviiri varimi ngavakurukure kuti ndezvipi zvinoratidza kuti mbesa iri mumunda yaibva. Kana vanhu vapedza ngavataurire vammewo zvavabuda nazvo: - Tsigira zvabuda muhurukuro nezvinotevera:-

- Mbeu inowanzosvika mazuva 90-120 kubva painenge yadyarwa.
- Kana bhinzi dzaibva, mashizha anoita ruvara rwe yellow odonha
- Makoko mazhinji anenge ava kuratidza ruvara chairwo rwe mhando yembeu
- Bhinzi rinoparatzana negoko mukati
- Kana chikamu 95% chemakoko acho chava neruvara rwekuibva munda unofanira kukohwewa.

Kukohwa, kuomesa, kupura, kupepete nekusarudza bhinzi

Activity 2

Isa varimi mumapoka mashanu. Ipa boka rimwe nerimwe kuti vakurukure zvinofanirwa kucherechedza pakukohwa bhinzi mumunda, kuomesa dzichiri mumakwande, kupura, kuomesa bhinzi dzapurwa, kupepete nekusarudza bhinzi. Hurukuro yenu inogona kusanganisirawo nzvinotevera:-

Kukohwa bhinzi

- Kana beans dzenyu dzichitambarara kana kuti dziri dzemhando iye inoti ikawana mvura inotanga zvakare kubereka (indeterminate variety) kohwai vana vacho vari mumakwati musingadzuri dzinde racho. Vakohwei pamunongoona kuti vasvika.
- Kohwai bhinzi kuchiri kuseni zuva risati rakwira kuitira kuti mateko acho asabaduke zvinozoita kuti murasikirwe nebhinzi pakukohwa.
- Itai zvekudzura madzinde acho muchiaunganidza mumunda. Onai kuti hadzigari pavhu chaipo nekuti dzinogona kutora zvirwere.
- Musasiye bhinzi dzichiomera mumunda nekuti dzinogona kubatwa nezvirwere kana kudyiwa nezvipembene, zvipfuyo kana mhuka dzesango.
- Musaite kuti bhinzi dzigarise mumunda musati madzitakura kuenda kumba nekuti dzikaomesa dziri mumunda dzinozobaduka pakutakura uye tsnag dzacho dzinozotsemuka nyore pakupura



Kuomesa bhinzi dzichiri mumakwande

- Kupura bhinzi dzichangobva mukukohwewa kunoita kuti dzipwatike nekuti dzinenge dzisati dzaoma zvakakwana.
- Kana muchiomesa bhinzi, itai kuti dziome dziri mumakwande atanhaulwa kubva padzinde.
- Musawaridze bhinzi pasi nekuti dzinotora mavhu, dzinogona kutora hunyoro kna kudyiwa nezvipfuyo. Varidzai tende pasi kana kuyanika pakavakirwa pakakwirira paine simende, pakatsvairwa pakachena.
- Munogona kuomesera bhinzi dzenyu mumatara ekuomesera chibage.
- Kana pekuomesera pagadzirwa onai kuti maparatzira bhinzi dzenyu zvakanaka kuti dzese dziwane mukana wekuoma wakaenzana.
- Pamunenge muchiparatzira bhinzi dzenyu, munogona kutora mukana uyu kubvisawo zvimwe zvinhu zvakaita semasora zvinenge zvakabatana nebhinzi dzenyu kunyangewo nemakwandi ebhinzi amunoona kuti haana kusvika zvakaenzana nedzimwe.

Kupura bhinzi

- Vakai dara rekupurira bhinzi rakana rinoita kuti bhinzi dzisarasikire kure kunonetsa kuzodzidyorera.
- Onai kuti bhinzi dzamunoda kupura dzaoma zvakakwana uye hadzina kuomesesa.
- Pakupura shandisaiwo simba rine mwero wakafanira zvinoita kuti tsanga dzebhinzi dzisatsemuke
- Onaiwo kuti tsanga dzebhinzi hadzisi kurasikira pasi pane ivhu.
- Cherechedzai kuti hapana marara ari kupindira pane mbeu.

Kuomesa bhinzi dzapurwa

- Kana bhinzi dzapurwa dzinofanirwa kuomeswa zvakare.
- waridzai tende pasi kana kuyanika pakavakirwa pakakwirira paine simende, pakatsvairwa pakachena.
- warirai bhinzi dzenyu dzisina kunya kuturikidzana kuti kuti mhepo inoomesa ifambe zvakanaka nemutsanga dzese dzebhini.
- Kana padarika kachinguva, munofanirwa kumbopindura bhinzi dzacho kuti dzinenge dziri pasi dzimboendawo pamusoro kuitira kuti bhinzi dziri pamusoro dzisanyanye kutsva nezua.
- Kuti muone kuti bhinzi dzenyu dzaoma zvakakwana munogona kushandisa nzira dzinotevera
 1. Munogona kuruma tsanga pakati pemazino.
 2. Munogona kuedzawo kuidzvanyidzira tsanga yebhinzi pakati pezvigumwe.
 3. Munogona kuisa bhinzi shoma mugaba rine sauti, movhara, mochukucha. Mukaona sauti ichinamira kumadziro kwegaba zvinoreva kuti bhinzi dzenyu dzichine hunyoro hwakanyanya. Asi mukaona sauti isina kunamira kumadziro kwebhodhoro zvinoreva kuti hunyoro hwanaka kuti dzipurwe. dzisisina

Kupepete nekusarudza

- Tinopepete kuti tibvise hunde nemamwe marara anogona kunge apindira mumbeu
- Kana mapedza kupepete, bvisai tsanga dzisina kunatsa kusvika, tsanga dzine chirwere, tsanga dzakapaduka, netsanga dzinoratidza kuti ndedzeimwewo mhando yebhinzi isiri yamuri kuda.
- Izvi zvinogona kuitirwa pane kadara kakagadzirwa ne wire mesh nekuti dzimwe mbesa dzisina kusvika sezvinodiwa nemarara, zvinobva dzangodonhera pasi zvega.



Kuisa mushonga mumbeu

Activity 3

Tsanangurira varimi kuti tinoona sei kuti toshandisa mushonga wakawanda sei. Kana vapedza izvozvo ipa mapoka mana huwandumwembesa hwakasiyana-siyana vakuudze kuti hunoda mapaketi mangani emushonga. Kana mapedza izvi, ratidzira varimi masanganisirwe emushonga nembesa sezviri muchitsauko 2 chendima ino.

1. Toshandisa mushonga wakawanda sei?

- Gaba kana bepa romushonga rakanyorwa kuti makirogiramu mangani embesa angasanganiswa nemushonga uyu somuenzaniso. "mushonga uyu unokwanisa kuiswa pa100kg dzembesa".
- Kana une 50kg dzembesa zvino unofanira kushandisa hafu yemushonga uri mugaba rako kana une 200kg dzembesa unenge woda magaba maviri omushonga mumwe chete iwoyo zvichiyenda zvakadaro.
- Munogona kuweka huwandumwembesa hwemapakiti anodiwa muchishandisa zvinoti:-

Nhamba yemapaketi = Nhamba yema kg embesa arikuda kuchengetedzwa

Nhamba yema kg embesa anochengetedzwa nepaketi imwechete



2. Kusanganisa mbesa nemushonga

(a) Bvisa mbesa dzako musaga rimwe kana maviri woita dutu panzvimbio yakachena Pakaita sepasamende, patende kana bepa etc. paivhu chaipo.



(b) Mwaya mushonga pamusoro pembesa wakafanira padutu rembesa yako uchicherechedza kuti hapana mhepo inotora kwete mushonga



(c) Chishandisa foshoro kusanganisa mbesa dzako nemushonga wanyatsoona kuti zvasangana zvakanaka.



(d) Bvisa dutu rembesa yako pariri kusvika uchiisa pane rumwe rutivi nefoshoro



(e) Dzorera mbesa paya payambobva



(f) Chifoshorera kwawambotanga kufoshorera



(g) Paunenge wapedza hapafaniri kumboonekwa mushonga wakaungana panzvimbo imwe chete pambesa. Uchishandisa foshoro yako zvineungwaru, chiisa mbesa yaiswa mushonga mumasaga kana painofanira kuchengeterwa. Geza maoko ako zvakasimba uchishandisa sipo



Kuchengetedza bhinzi

Activity 4

Tsanangurira varimi zvinotevera:-

- Bhinzi dzinochengetwa kuti dzizodywa pamba, kuita mbeu kana kuona kuti mitengo yakadii kumisika dzozotengeswa.
- Chengetai zvakanaka kuti dzirambe dzakawanda uye mhando yacho irambe yakanaka.
- Kudereda mukana wekuti dzinganyorove kana kushata chengeterai munzvimbo dzakaoma (dziine unyoro huri pa11% kusvika pa13%) dziine hutano uye dzakachena musina zvipuka.
- Varimi ngavazive kuti mishonga iyi ine njodzi kuvanhu. Nyatsokuchenesa bhinzi musati madzidya. Kana muchinge machengeta bhinzi munofanira kupota muchitarisa pamakadzichengetera kuti hadzisi kukanganisika here.
- Rambai muchidzigadzirira nguva dzose.

Kuvhara chidzidzo

1. Ipa varimi mukana wekubvunza mibvunzo. Ipa vamwe veboka vanzwisia chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo wozobvunza murimisi wako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisia neruzhinji rwevarimi, panoda kudzokororwa zvakare.



Chitsauko chegumi – Kutengesa bhinzi

Kugadzirira chidzidzo

1. Verenga zvakazara unzwisise zviri muchidzidzo nezvinoda kuitwa, zuva rechidzidzo risati rasvika

Zvinangwa zvechidzidzo

Tsanangurira varimi kuti panozopera chidzidzo ichi varimi vanenge vava kuziva zvinotevera:-

- Matengeserwe ebinzi

Misika yebhinzi nemashandisirwo ebinzi

Activity 1

Tsanangurira varimi zvinotevera:-

- Garai muchiziva kuti misika yebhinzi yakasiyana siyana inodawo mhando dzakasiyana-siyana dzebhiniyi zvichienderana nekushandiswa kwadzo bhinzi idzi. Mitengo inosiyana zvichienderana nemhando yebhinzi dzacho uye nenguva yadzinotengeswa.
- Tsvagai ruzivo rwekumusika kubva kune mapoka evarimi, AMA, Agritex kana kuEcofarmer Call Centre panhamba dzinoti 144 (Econet Lines).
- Panogona kuitawo mari yakati wandei pakutengeswa kwebhinzi nyoro. Tsvagai ruzivo mutsvage musika bhinzi dzisati dzakura kana muine urongwa hwekudzitengesa dziri nyoro.
- Munogona kukohwa modya henyu bhinzi nyoro dzisati dzanyatsooma. Kazhinji kana dzakadai dzinokurumidza kuibva izvi zvinochengetedza magetsi kana huni. Munogona kudziisa muchando kuti muzodzidya henyu kana modzida henyu
- Kana varimi vachinge varima pamwe chete vakakohwa mhando yebhinzi yakafanana yakawanda vanofanira kutengesa vakabatana. Mukana wekuwana mutengi ane mari yakawanda unenge uripo. Bhinzi dzakawanda dzinogona kuita kuti muwane mari yakati wandei sezvo mari yekutakurisa kuenda kumiska inenge yakaderera uye zvekare hazvinetse kuti mutengi atengewo.
- Kana muchirongedza bhinzi zivai kuti misika inotevera mitemo inogona kutarisa makuriro akaita bhinzi dzacho, unyoro hwebhinzi dzacho, zera, kuchena dzakanangisika uye kufanana, nemhando yebhinzi. GMB inoda bhinzi dzegrade A dzinenge dzine unyoro huri pasi 11%, matombo ariwo pasi pe0.5%, dzine ruvara rwepurple dziri pasi pe1%, dzisiri dzemhando imwe chete dziri pasi pe2% dzakatemuka dziri pasi pe10%, dzakanganisika dziri pasi pe2.5%.

Kuvhara chidzidzo

1. Ipa varimi mukana wekubunza mibvunzo. Ipa vamwe veboka vanzwisisa chidzidzo kuti vapindure. Kana vatadza pindura. Asi kana iwe watadza nyora pasi mubvunzo wozobunza murimisi wako pamunosangana.
2. Dzokera pazvinangwa zvechidzidzo ubvunze varimi zvavabata pachidzidzo maererano nechinangwa chimwe nechimwe. Kana paine pasina kunzwisiswa neruzhinji rwevarimi, panoda kudzokororwa zvakare

