



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Poratense Ya Kapa Botjhabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE

IBANGA 12

SEPTEMBER 2024

ISAYENSI YEZOLIMO P2 (AGRICULTURAL SCIENCES)

AMANQAKU: 150

IXESHA: 2½ liyure

Eli phepha lemibuzo linamaphepha ali 14.

IMIYALEZO NENKCUKACHA

1. Eli phepha lemibuzo liqulethe amacandelo AMABINI, angala iCANDELO A neCANDELO B.
2. Phendula YONKE imibuzo KWINCWADI YOKUPHENDULA.
3. Qala umbuzo ngamnye kwiphepha ELITSHA.
4. Nombola iimpendulo ngokwendlela ekunonjolwe ngayo kwiphepha lemibuzo.
5. Unokusebenzisa ikhaltyhuleyitha engacwangcwiswanga.
6. Bonakalisa ZONKE ikhaltyhuleyishini kuquka neefomyula apho zisetyenziswe khona.
7. Bhala ngocoselelo nokucacileyo.

ICANDELO A**UMBUZO 1**

- 1.1 Indlela ezahlukileyo zinikwe njengeempendulo ezichanekileyo kwimibuzo elandelayo. Khetha impendulo echanekileyo ze ubhale unobumba kuphela (A–D) ecaleni kwenombolo yemibuzo (1.1.1 ukuya ku 1.1.10) kwiNCWADI YOKUPHENDULA, umzekelo 1.1.11 D.
- 1.1.1 Ifri makethingi tshaneli apho iprodyusa ithengisela abathengi ngaphandle kwemiddleman yaziwa njenge ... makethingi.
- A stock sales
 - B internet
 - C fresh produce
 - D direct
- 1.1.2 Umthengi ongaqiqiyo nongayikhathalelanga ixabiso.
- A Adopter
 - B Traditionalist
 - C Innovative
 - D Early majority
- 1.1.3 Ezi zilandelayo zii-important aspect zokuba yientrepreneur:
- (i) Ukuchonga ithuba
 - (ii) Engazimisela ukuthatha ibusiness riski
 - (iii) Ukubuyezwa
 - (iv) I-innovation necreativity
- Khetha indibanisela eCHANEKILEYO:
- A (i), (ii) no (iii)
 - B (i), (iii) no (iv)
 - C (i), (ii) no (iv)
 - D (ii), (iii) no (iv)
- 1.1.4 Ibusiness plan inezikhomponenti zilandelayo:
- (i) Title page
 - (ii) Contents page
 - (iii) Executive summary
 - (iv) Feasibility study
- Khetha indibanisela eCHANEKILEYO:
- A (i), (ii) no (iii)
 - B (i), (iii) no (iv)
 - C (i), (ii) no (iv)
 - D (ii), (iii) no (iv)

1.1.5 Ilabour Legislation Act enenjongo zokuphakamisa amathuba alinganayo nokuphathwa kakuhle kwindawo yokusebenza:

- A Skills Development Act
- B Labour Relations Act
- C Unemployment Insurance Act
- D Employment Equity Act

1.1.6 Yeyiphi eNYPE kwezilandelayo eNGEYIYO iekhomonomikhi kharakteristikhi yomhlaba?

- A Umhlaba ungathengwa uthengiswe
- B Umhlaba yiphasivu fektha yeprodakshini
- C Umhlaba uyonakaliswa
- D Umhlaba wohlukile ngezinga leprodakshini

1.1.7 Ukudalwa kwekhapitali ngokuboleka kumaziko email kubizwa ...

- A ikhapitali.
- B igrant.
- C icredit.
- D idebt.

1.1.8 ... asiYO eksithenali fosi enokuchaphazela ishishini/ibhizinesi.

- A lipolitic
- B lcompetition
- C ltechnology
- D leconomics

1.1.9 Uhlobo lwesilekshini olwenzeka xa iselective pressure ichaphazela ireprodakthivu saksesi yeindividyuwali:

- A Mass selection
- B Artificial selection
- C Pedigree selection
- D Natural selection

1.1.10 Ezilandelayo zintlobo zechromosomal mutation ngaphandle ...

- A kweinversion.
- B kwetranslocation.
- C kweduplication.
- D kweinsertion.

(10 x 2) (20)

- 1.2 Khetha ithem/iphrase kuKHOLAM B elihambelana nengcaciso ekuKHOLAM A. Bhala unobumba kuphela (A–H) ecaleni kweenombolo zemibuzo (1.2.1 ukuya ku1.2.5) kwi NCWADI YOKUPHENDULA, umzekelo 1.2.6 J.

COLUMN A		COLUMN B	
1.2.1	Iphucula ukuzithemba kwekhosuma ekuthengeni iiprowudakthi ezinobubele kwienvironmenti	A	Cartel
1.2.2	Intsebenziswano yezaplaya ngenjongo zokonyusa amaxabiso abephezulu ukuthintela ukhuphiswano	B	Monopoly
1.2.3	Ubomi bomhlaba abupheli	C	Risk sharing
1.2.4	Umlinganiselo wokucutha iriski ngokusebenza enye ipati	D	Atavism
1.2.5	Ihomozygous recessive jini ivela ngequbuliso kwipopuleyishini	E	Eco-labelling
		F	Diversification
		G	Durable
		H	Prepotency

(5 x 2) (10)

- 1.3 Nika igama eLINYE ngenkcazelo nganye kwezilandelayo. Bhala ithem KUPHELA ecaleni kweenombolo zemibuzo (1.3.1 ukuya ku 1.3.5) kwi NCWADI YOKUPHENDULA.

- 1.3.1 Imakethi enabathengisi abaninzi kodwa manye kuphela umthengi weprowudakthi
- 1.3.2 Isakhono sokufumana abanye abantu benze umsebenzi ngokudibanisa inzame
- 1.3.3 Ukwahluka kwepopuleyishini ngenxa yefuthe leejenethikhi
- 1.3.4 Ukwahluka phakathi kweindividyuwali zohlobo olunye
- 1.3.5 Iheterozygous ofspringi ibonisa iphenotype exube iphenotype yabazali abahomozygous

(5 x 2) (10)

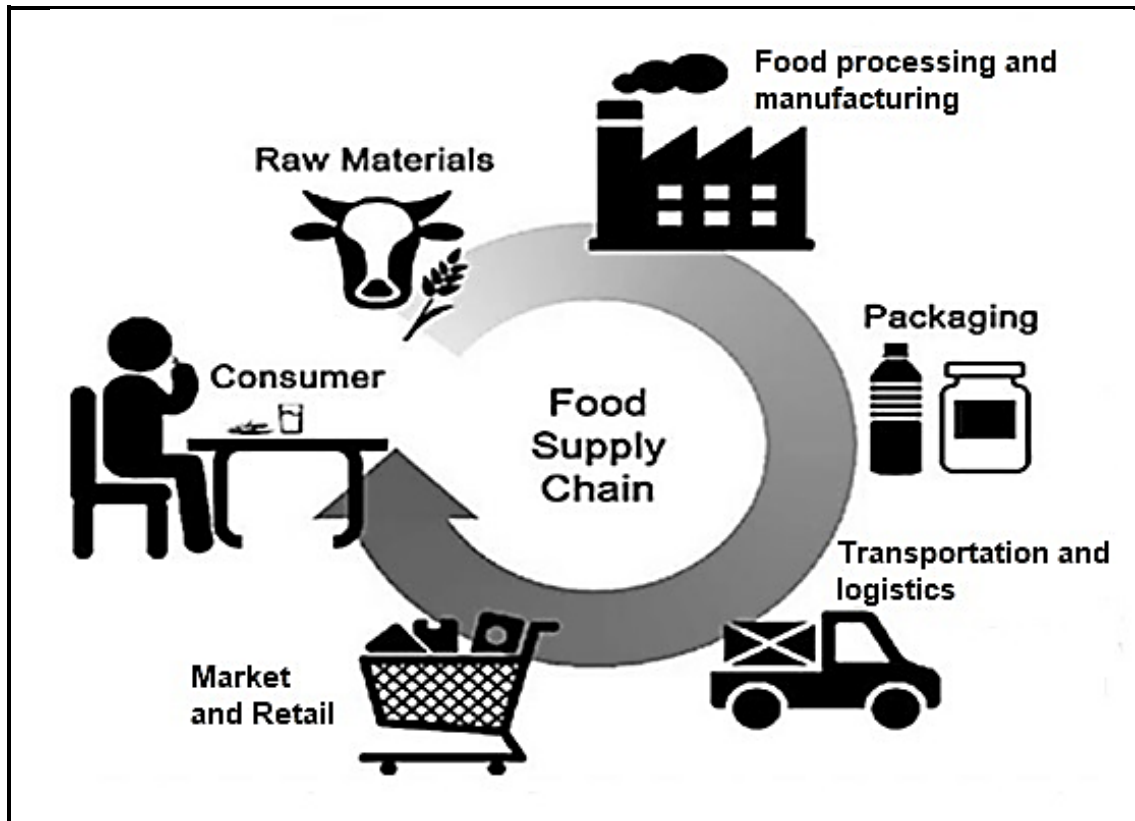
- 1.4 Tshintsha AMAGAMA ANOMGCA NGAPHANTSI kwibinzana ngalinye alandelayo ukuwenza abeYINYANI. Bhala impendulo kuphela ecaleni kweenombolo zemibuzo, (1.4.1 ukuya ku 1.4.5) kwiNCWADI YOKUPHENDULA.
- 1.4.1 Imaneyijimenti sisenzo sokuqalisa, ukuqokelela iirisosi ukuhlokolozisa ithuba lebhizinesi nokwandisa ibhizinesi.
- 1.4.2 Iworking khapitali ziimedium term asset ezisetyenziswa isithuba esingaphezu kweminyaka emibini nelishumi.
- 1.4.3 Idihybrid khrosi yijenethikhi khrosi ephakathi kwabazali abaneallele ezahlukileyo zezini ethile.
- 1.4.4 Idyuplication mutation yenzeka xa ijenethikhi mathiriyeli isuswa kwenye ikhromosom isiwe kwenye.
- 1.4.5 Ijini silencing yinkqubo yokufakwa nokuncanyatheliswa kweejini kwihost yeDNA kusetyenziswa iienzyme. (5 x 1) (5)

EWONKE ECANDELO A: 45

ICANDELO B**UMBUZO 2: IAGRIKHALTSHARAL MANEYIJIMENTI NEMAKETHINGI**

Qala lo mbuzo kwiphepha ELITSHA.

- 2.1 Inkcaza engezantsi ibonisa iimarketing function nendlela ethathwa ziiagrikhaltsharal prodakthii ukusuka kwipoyinti yeprodakshini ide iyokufika kwikhonsuma.



- 2.1.1 Chonga kwinkcaza engentla imakethingi fankshini ehambelana nengcaciso nganye kwezi zilandelayo.

- (a) Ukubeka iiagrikhaltsharal prodakthi kwiikhonteyina. (1)
- (b) Ukwenza iprodakthi ibekhona ngokusebenzisa iindlela ezahlukileyo. (1)

- 2.1.2 Nika iianteyiji eziMBINI zokuprowusesa iiagrikhaltsharal prodakthi kwiikhonsuma. (2)

- 2.1.3 Xela kutheni igreydingi yeeagrikhaltsharal prodakthi ibalulekile. (1)

- 2.1.4 Cacisa ienvironmental concern eziMBINI emaziqatshelwe xa kusenziwa ipakheyijingi matheriyeli yeeagrikhaltsharal prodakthi. (2)

2.2 Ixabiso lokutshintshela kwizaplaya ezitsha nokuthembeka kwebrand kwenze iikhonsuma ezininzi ziqhubeke nokuthenga iprowdakthi enye nangona ixabiso layo lonyuke gqitha.

2.2.1 Chonga isigama soqoqosho esichazwa kukuziphatha kwekhonsuma kumhlathi ongentla. (1)

2.2.2 Nika iifektha zibeMBINI ezingezinye ezibangela ikhonsuma isabele utshintsho lwexabiso ngaphandle kwezi zikumhlathi ongentla. (2)

2.2.3 Sebenzisa idata ekwitheiyibhile engezantsi ukuzoba ilayini grafu ebonisa unxibelelwano phakathi kweprayisi nesixa sesaplayi yenyama. (6)

IPRAYISI (R)	ISIXA SENYAMA EDIMANDIWEYO (KG)	ISIXA SENYAMA ESAPLAYIWEYO (KG)
R40	30	5
R60	25	10
R80	20	15
R100	15	20
R120	10	25

2.2.4 Fumana unxibelelwano phakathi kweprayisi nesixa seprowdakthi esaplayiweyo. (2)

2.2.5 Cacisa ukuba isimo senvironmenti singasichaphazela kakubi kanjani isaplayi. (2)

2.3 Umfanekiso ongezantsi ubonisa ukufikelela kwemass makethingi kwisininzi.



2.3.1 Nika indlela eziMBINI zokupapasha ezinokusetyenziswa kwimass makethingi ukufikelela kwikhonsuma ezininzi. (2)

2.3.2 Xela imakethingi aprowutshi apho umfama akhetha amaqela amabini nangaphezulu emakethi aziwayo ukwenza imakethingi mix ecacileyo. (1)

2.3.3 Nika ifektha ibeNYE eqatshelwayo xa ufumana iprayisi yempahla neeservice. (1)

- 2.4 Umfanekiso ongezantsi ubonisa imakethingi tshaneli apho umfama athengisa iityhukhamba ngqo kwindawo yeprodakshini.



- 2.4.1 Xela imakethingi tshaneli eboniswe ngasentla. (1)
- 2.4.2 Nika iidisadvanteyiji eziMBINI zemakethingi tshaneli engentla kumfama. (2)
- 2.4.3 Cebisa imilinganiselo ibemiBINI yokustrimlayina nokuphucula iagribusiness chain. (2)
- 2.4.4 Cacisa ngokufutshane ukuba umqathango, ubulungu obuvulelekileyo ongezantsi uzenza njani iiagrikhaltsharal cooperative. (2)
- 2.5 Ibusiness plan yeyona dotyhumentu umfama ayifunayo ukulungiselela ncakasana ukuze afumane ifandingi yokukhulisa ibhizinesi. (1)
- 2.5.1 Nika izizathu eziMBINI zokuzoba ibusiness plan. (2)
- 2.5.2 Qulunqa umbuzo onokusetyenziswa ekuvavanyeni uluvo lwebhizinesi. (1)
- 2.5.3 Cacisa kutheni ientrepreneurship ibalulekile kuqoqosho lweSouth Africa/loMzantsi Afrika. (1)

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UMBUZO 3: IIPRODAKSHINI FEKTHA

Qala lombuzo kwiphepha ELITSHA.

3.1 Imveliso yolimo ngo1950 yaphuculwa ngokwandisa umhlaba wokulima. Kodwa ekuqaleni ko2000, ukukhula ngokukhawuleza kwepopulation neurbanisation kucuthe i-arable land/umhlaba wokulima, ngoko ke amafama adinga ukukhangela indlela ezintsha zokonyusa imveliso yomhlaba.

3.1.1 Chonga iekhomikhi kharakteristikhi yomhlaba evezwe/eboniswe kumhlathi ongentla. (1)

3.1.2 Xela iiscientific method eziMBINI amafama anokuzisebenzisa ukonyusa isivuno sezityalo kumhlaba weagrikhaltsha. (2)

3.1.3 Cacisa kutheni umhlaba weagrikhaltsha unezinga elincinci lemveliso. (2)

3.1.4 Nika eziMBINI iekhomikhi fankshini zomhlaba. (2)

3.2 Umfanekiso ongezantsi ubonisa abasebenzi basefama betyala irayisi ngexesha lemvula.



3.2.1 Fumana, kumfanekiso ongentla, uhlobo lwabasebenzi basefama abaqeshiweyo ngokomsebenzi abawenzayo. (1)

3.2.2 Nika izizathu eziMBINI ezinokukhokhelela kwintshukumo yabasebenzi basefama ezichongwe kuMBUZO 3.2.1 ukuya kwezinye i-indastrizi. (2)

3.2.3 Xela uhlobo lwabasebenzi abanesakhono olufunekayo ukwenza lemisebenzi ilandelayo:

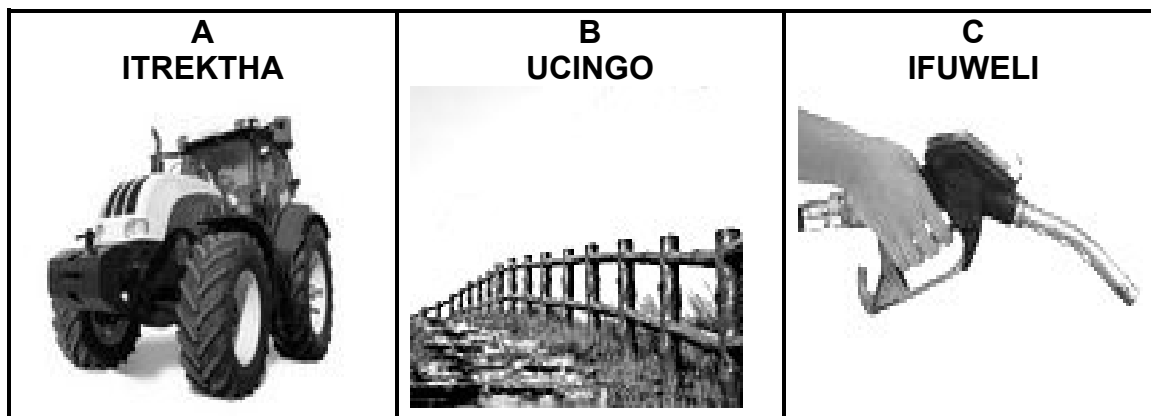
(a) Ukuthsuthsuza usebenzisa iknapsack sprayer (1)

(b) Ukutolika iifam rekhodi (1)

3.2.4 Nika ibeNYESI iadvanteyiji yemekhanizeyishini kumafama.. (1)

3.2.5 Cebisa iimaneyijimenti aspekthi zibeMBINI umfama anokuzisebenzisa ukuqinisekisa ukuba abasebenzi bawugqiba ngethuba umsebenzi wabo. (2)

3.3 Imifanekiso engezantsi, enonjolwe ngo **A–C**, imele iikhapitali ayithem efama.



3.3.1 Cwancisa iiayithem ezingentla ngokohlobo lwekhapitali nganye eliyimeleyo. Bhala kuphela uhlobo lwekhapitali kufutshane nonobumba **A, B** no **C**. (3)

3.3.2 Chonga uhlobo lwefayinensi olufunekayo ukuthenga iikhapitali ayithem **A** no **C**. (2)

3.3.3 Fumana ingxaki yekhapitali enxulumene nekhapitali ayithem **A** emva kwethuba. (1)

3.4 Itheyibhile engezantsi ibonisa iwhole farm budget ezotyelwe ifama.

IWHOLE FARM BUDGET YONYAKA MALI KA 2023			
GROSS MARGIN INCOME		OVERHEAD EXPENDITURE	
ENTERPRISE	INCOME	COSTS	TOTAL
Livestock Sales	R34 500,00	General cost	R4 500,00
Maize sale	R20 000,00		
TOTAL	R54 500,00		
NET FARM RETURNS	...		

3.4.1 Nika zibeMBINI iioverhead expense ezenziwe ngumfama ngasentla. (2)

3.4.2 Sebenzisa ifomyula uze ukhaltyhuleyithe iinet farm return ezinokubakho zalefama usebenzisa idata ekwitheyibhile engentla. Bonisa ZONKE iikhaltyhuleyishini. (3)

3.4.3 Fumana ukuba ifama ivayebli okanye hayi. Xhasa impendulo yakho. (2)

3.4.4 Yohlula phakathi kwecash flow statement neincome statement. (2)

3.5 Izikili zestrategic management zivumela umaneyija wefama achonge ingxaki zebhizinesi adale izicwangciso ezinokwenzeka zexesha ukumelana neemeko ezingentlanga nokucutha amathuba ezenzo.

3.5.1 Nika kumhlathi ongentla kutheni kubalulekile umfama abenezakhono zestrategic management. (1)

3.5.2 Dwelisa zibeMBINI iikhomponenti zempumelelo sestrategic management yefarming enterprise. (2)

3.5.3 Nika zibeMBINI iiekhonomikhi fosi ezinokuchana iiagrikhaltsharal enterprise. (2)

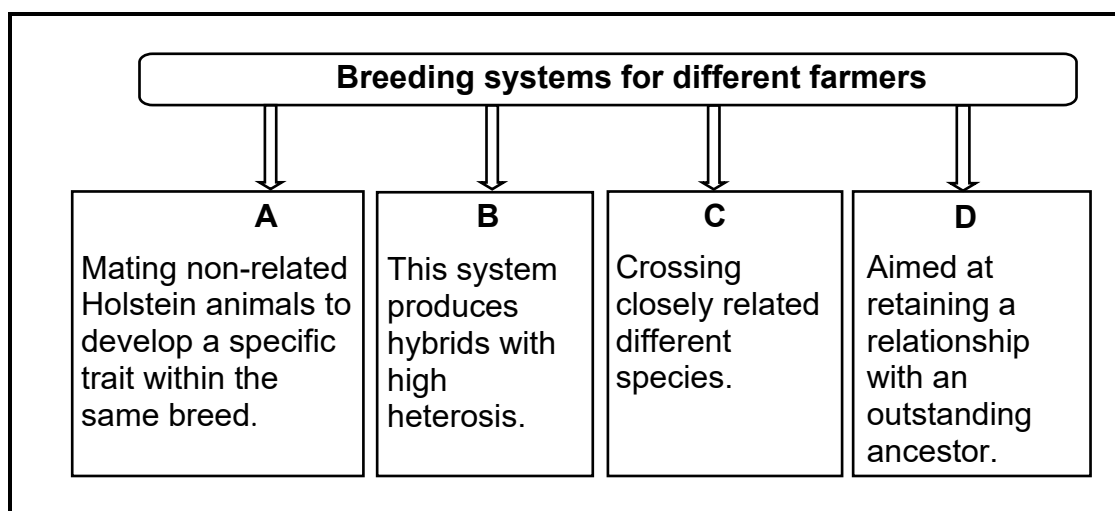
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UMBUZO 4: IIBHEYISIKHI AGRIKHALTSHARAL JENETHIKHI

Qala lo mbuzo kwiphepha ELITSHA.

- 4.1 Kwiinkomo zeshorthorn, umbala wesikhumba omnyama **(B)** nombala wesikhumba omhlophe **(W)** yomibini ibonakaliswe kwi-individyuali eheterozayigosi. Abazali ababini beshorthorn bakhrosiwe.
- 4.1.1 Zoba i Punnet square ukufumana igenotype yekhrosi engentla. (4)
- 4.1.2 Xela i phenotypic reyisho yekhrosi engentla. (1)
- 4.1.3 Khalityhuleyitha i percentage ye ofspringi zika F_1 ezizihybridi. (2)
- 4.1.4 Chonga uhlobo lwedominensi kwikhrosi engentla. Xhasa impendulo yakho. (2)
- 4.1.5 Nika imithetho ka Mendel ye inheritance esebenza kwibinzana ngalinye kwalandelayo.
- (a) Ukubekwa kweeallele zempawu ezahlukileyo kwi gamete azichaphazelani. (1)
- (b) Ii Gamete zineallele enye yomzali ngamnye. (1)
- 4.2 Iisomatic cell kwinkomo zidiploid kwaye zinepere ezi 29 zeautosome kunye nepere enye yegonosome.
- 4.2.1 Fumana ukuba iichromosome kwimale gamete ziyakuba nantoni kwi meiotic division. (2)
- 4.2.2 Yohlula phakathi kwee autosome neegonosome. (2)
- 4.2.3 Xela i beNYE i quantitative trait kwinkomo zobisi. (1)
- 4.3 Iibrida zezilwanyana zikhangela impawu ezinokubaluleka ngoqoqosho ukuze zibride ngokukhethekileyo ezimpawu.
- 4.3.1 Nika zibe MBINI i selection method ezisetyenziswe zibrida zezilwanyana. (2)
- 4.3.2 Chonga zibe MBINI impawu ezithandekayo ezibaluleke ngoqoqosho ekufuneka idairy bridi zizikhethe. (2)
- 4.3.3 Cacisa i meiosis ingayenza njani ivariyeyishini. (2)

4.4



4.4.1 Chonga iibriding sistim **A–D** ezisetyenziswe ngamafama ohlukileyo. (4)

4.4.2 Nika zibeMBINI iadvanteyiji zebridingi sistim **A**. (2)

4.4.3 Nika zibeMBINI iidisadvanteyiji zeinbridingi sistim. (2)

4.5

Iijini zinokuthunyelwa kwii-individyuwali cell ngeprowusesi ebizwa micro-projectile bombardment. Le tekhnikhi iquka ukukhawuleza kwamasuntswana kwiivelocity abenokugqobhozela kwindonga zeplant cell ngefiring mekhanizim.

4.5.1 Chonga isixhobo esisetyenziswe kwigene firing. (1)

4.5.2 Nika isidalwa esineeji eziphazanyisiweyo/altered genes. (1)

4.5.3 Chonga itekhniki esebenzisa umsinga wombane ukonyusa ipermeability yeplasmalemma yejini enomdla. (1)

4.5.4 Cacisa zingancedisa njani izityalo ezigenetically modified ukuthoba iiprodakshini khosti. (2)

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EWONKE KWICANDELO B: 105

AMANQAKU EWONKE: 150