



LAND O'LAKES  
**VENTURE**37



# BUKA EA TATAISO EA LIKHOHO TSA NAMA

**LESOTHO**  
HLAKOLA 2025



**KWAZULU-NATAL  
POULTRY INSTITUTE**  
POULTRY MANAGEMENT TRAINING CENTRE



**KWAZULU-NATAL  
POULTRY INSTITUTE**  
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## Tlhokomeliso

Tlhahiso ea buka ena ea tataiso e fumane botšehetsi bo matla bo nang le mofuthu ba batho ba Amerika ka leano la Lekala la Temo la Naha ea Amerika la Lijo Molemong oa Ntšetso-pele (Food for Progress). Litaba tse phuthetsoeng kahar'a buka ena ke boikarabello ba mobali, ka hona ha li emele ka kotloloho maikutlo a Lekala la Temo la Naha ea Amerika kapa a 'Muso oa United States.

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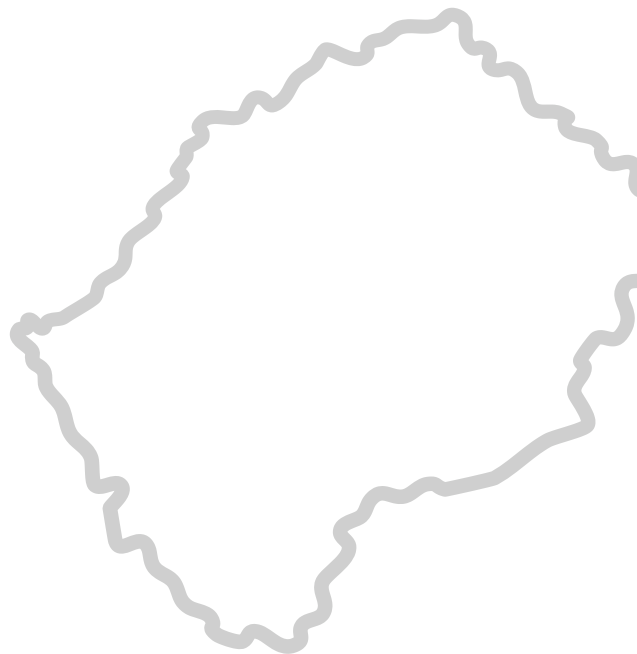
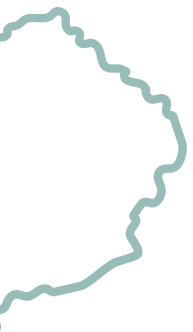
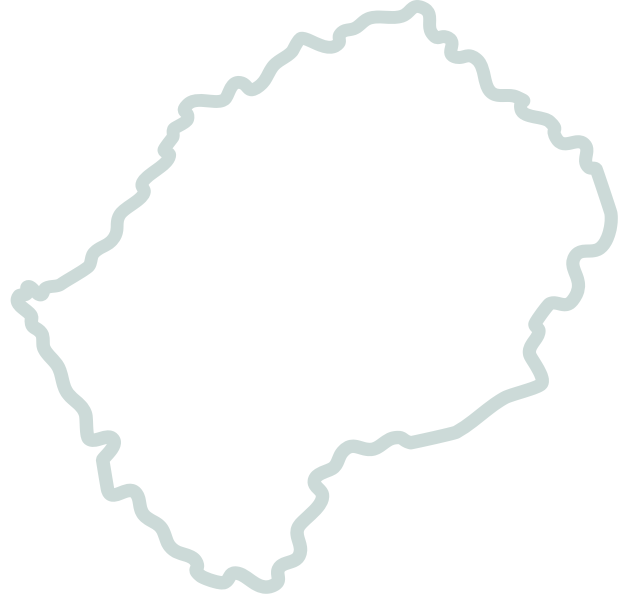
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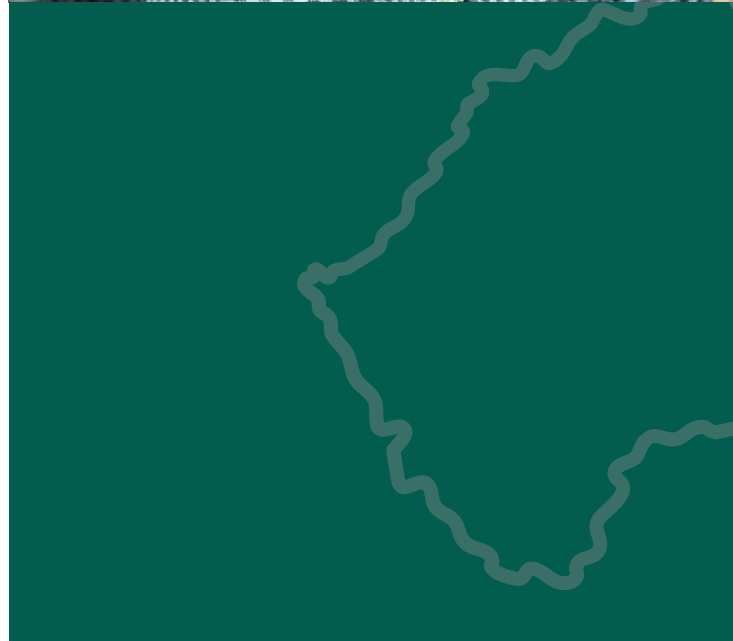
# Selelekela

## Tlhaloso e akaretsang ea morero oa 'STEPS'

Venture37 Ka ts'ehetso ea morero oa Lijo Molemong oa Nts'etso-pele (Food for Progress), Venture37 e thakhola leano la Lekala la Temo la Naha ea Amerika (USDA), le reretsoeng ho tlisa liphetoho tsa moshoelella likhoebong tsa likhoho, 'Sustainable Transformation of Enterprises in the Poultry Sector' (STEPS). Morero ona o reretsoe ho kenngoa ts'ebetsong literekeng tse supileng tsa naha ea Lesotho, e leng Maseru, Berea, Leribe, Butha-Buthe, Mafeteng, Mohale's Hoek le Quthing. Sepheo sa STEPS ke ho matlafatsa tlhahiso le tikoloho e lumellang khoebo le khoebisano ea likhoho ka hara naha ea Lesotho. Sena se fihleloa ka ho hlopha 'maraka oa likhoho ka mekhahlelo, ho hlophisa ba nkang karolo ho sa natsoe bokhoni boo ba leng ho bona, ho hokahanya bahlahisi le bareki le ho khola melemo ea litjeo tsa tlhahiso tse theoloang ka ho hlahisa ka lipalo tse phahameng, ho khotaletsa boqapi leruong le tlhahisong ea likhoho ka morero oa ho fana ka lisebelisoa le 'maraka ho bahlahisi le barui ba likhoho.

## Venture 37

Land Land O'Lakes Venture37 (ho ea pele "Venture37" ke mokhatlo o sa etseng phaello oo itelletseng ho thusa lichaba tsa lefatše ho nyolla moruo ka ho matlafatsa temo boemong ba lehae, ho thusa likhoebo tsa temo ho theha mesebetsi le ho hokahanya lihoai le li'maraka. Ho tloha ka 1981, Venture 37 e hokahantse le ho kenya ts'ebetsong manane a nts'etso-pelea a ka holimo ho 315 tlhahisong ea lebese, liphoofolo, le temo ea lijalo ka har'a bonyane linaha tse 80—ka sena e entse phetoho ea moshoelella ka ho hokahanya lihoai, likhoebo 'moho le makala a sechaba le a ikemetseng boemong ba lehae le ba machaba.





## Mokhatlo oa ba lthusang ho Itšebeletsa Metseng (RSDA)

Mokhatlo oa ba lthusang ho Itšebeletsa Metseng 'Rural Self-Help Development Association' (RSDA) o thehiloe ka selemo sa 1991 e le mokhatlo o ngolisitsoeng Lesotho e le mokhatlo o ikemetseng. Sepheo sa mokhatlo ona ke ho fenyha tlala le ho fetola maemo a boipheliso a Basotho ba phelang mahaeng. Pono ea mokhatlo ona ke ho thusa lihoai le mekhatlo ea Sechaba ho ikemela le ho matlafatsa merero ea bona ea boipheliso ho ipapisitsoe le mekhoha ea temo e sireletsang tikoloho. Mokhatlo ona o fihlela sena ka ho theha merero ea ho iketsetsa e le mohato oa ho netefatsa mekhoha ea boipheliso e tsoelang-pele. RSDA ke molekane oa bohlokoa ka har'a morero oa STEPS, sebabo se seholo sa RSDA ke ho netefatsa kholo le tsoelo-pele ea leruo la likhoho tse rueloang nama le mahe tse tloaelehileng ka hore ke likhoho tsa Sesotho (dual purpose) ka har'a naha ea Lesotho 'moho le ho etella pele koetliso ea lihoai tse ka har'a tšebetso ena.

## Mokhatlo oa Lefatše oa Bo'malits'ibana (WPF)

Mokhatlo oa Lefatše oa Bo'malits'ibana, 'World Poultry Foundation' (WPF) o thehiloe ka sehlopha sa litsebi tsa bo'malits'ibana le ntšetso-pele ea moshoelella, sepheo sa ona ke ho netefatsa phumantšho ea bo'malits'ibana le ho matlafatsa lihoai lefatše ka bophara. Ho e beha ha bobebe, re batho ba bo'malits'ibana ba thusang batho ba bo'malits'ibana—re tsepamisitse tšebetso ea rona ho theheng tšusumetso ea nako e telele sechabeng sa mahaeng ka ho qapa manane a thuo ea bo'malits'ibana a nako e telele.

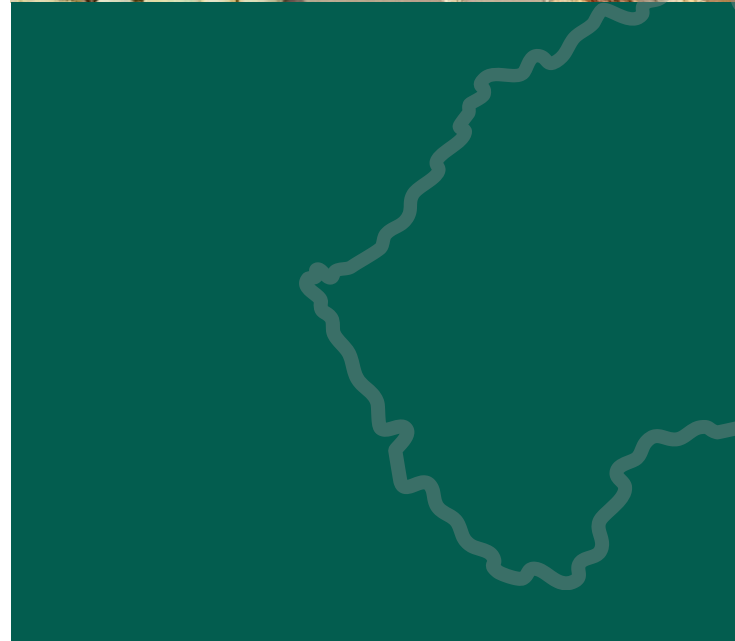
Mona Mokhatlong oa Lefatše oa bo'malits'ibana, re na le tabatabelo ea lefatše iphihletseng le ikemetseng ketaneng e hokahaneng ea phetisetsano ea boleng leruoan la bo'malits'ibana, moo lihoai li fumanang libelisoa ha bobebe, tsebo le ts'ebetso e hlokaalang ho matlafatsa likhoebo tsa bona tseo qetellong li ka ntlafatsang maphelo le bokamoso bo chabileng sechabeng sa lihoai.

## Setsi sa Machaba sa Lipatlisiso ka Liphoofole (ILRI)

The Setsi sa Machaba sa Lipatlisiso ka Liphoofole 'The International Livestock Research Institute' (ILRI) se thehiloe ka 1994 e le Setsi sa Machaba se etsang lipatlisiso ka liphoofole se sa etse phaello. ILRI e sebeletsa ho ntlafatsa kanetso ea lijo le phepo e nepahetseng, le ho fenyha bofuma linaheng tseo e leng hona li ntseng li hola moruong ka lipatlisiso tse iphihletseng tse bolokeileng ebile e le tsa nako e telele tsa liphoofole. ILRI ke setsi sa lipatlisiso sa CGIAR, selekane sa lefatše sa lipatlisiso molemong oa bokamoso ba kanetso ea lijo e phethahetseng. Mahlale a setsi sa CGIAR a retetsoe ho loantša bofuma, ho matlafatsa kanetso ea lijo le phepo e nepahetseng, ho ntlafatsa lihloholoeng le litšebetso tsa tikoloho ea tlhaho.

## KwaZulu-Natal Poultry Institute (KZNPI)

KwaZulu-Natal Poultry Institute e leng mokhatlo o ngolisitsoeng semolao, o ikemetseng, o sa etseng phaello, ke setsi sa koetliso ea likhoho se fumanehang Pietermaritzburg, South Africa. Setsi sena se thehiloe ka selemo sa 1991, 'me maikemisetso a sona ke ho koetlisa le ho tataisa batho ba Afrika ho potolloha ba nang le kobo ea bohali likarolong tsohle tsa bohoai ba likhoho. KZNPI e koetlisa lihoai tse iphelisang ka leruo la likhoho, bahlahisi ba banyenyane ba leruo la likhoho, basebetsi ba likhoebo tse kholo tsa likhoho tse kopaneng. E boetse e koetlisa le baeletsi ba mahlale ba kahar'a lefapha la likhoho.



## | Tlhaloso ea ho Raloa hoa Lenane-thuto

Joalo ka ha e le karolo ea morero oa STEPS, WFP e etelletse pele mesebetsi ea ho ntlafatsa phumantšo ea tlhahiso leseling e nepahetseng ea leruo la bo'malitišibana ea boleng, phahamiso ea tlhahiso ea bo'malitišibana, le ho matlafatsa tlhahiso ea lihoai ea mahe le nama ea bo'malitišibana. Lenane-thuto le etelletsoeng pele ke WFP le etselitsoeng maemo a naha ea Lesotho ho ntlafatsa leruo le mekhoha ea tlhahiso ea bo'malitišibana ho pharalla le mefuta e 'maloa ea bo'malitišibana: likhoho tsa mahe, likhoho tsa nama le likhoho tse ruetsoeng mahe le eona nama (dual-purpose).

Ele ho tšehetsa ntšetso-pele ea lenane-thuto, WFP e thehile sehlopha sa tšebetso (Working Group) (WG) se nang le boemeli ba mafapha ohle a amehang le Makala a 'Musu oa Lesotho. Leha Sehlopha sa Tšebetso se akaretsang se ne se thehiloe ka mahlakore a akaretsang a mafapha a amehang, ho ne ho ntse ho ena le sehlopha sa mantlha se fanang ka Lintlha tse batsi malebana le mokhoa oa ho rala lintlha tsa lenane-thuto. Litho tsena tsa sehlopha sa mantlha li ne li kenyelletsa:

- Department of Livestock Services
- National University of Lesotho
- National Curriculum Development Centre
- Department of Marketing

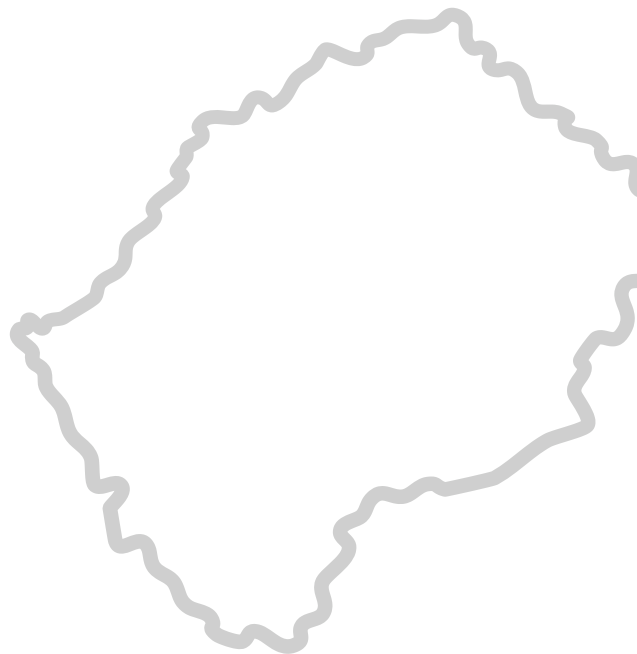
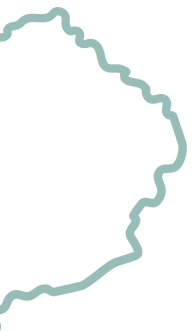
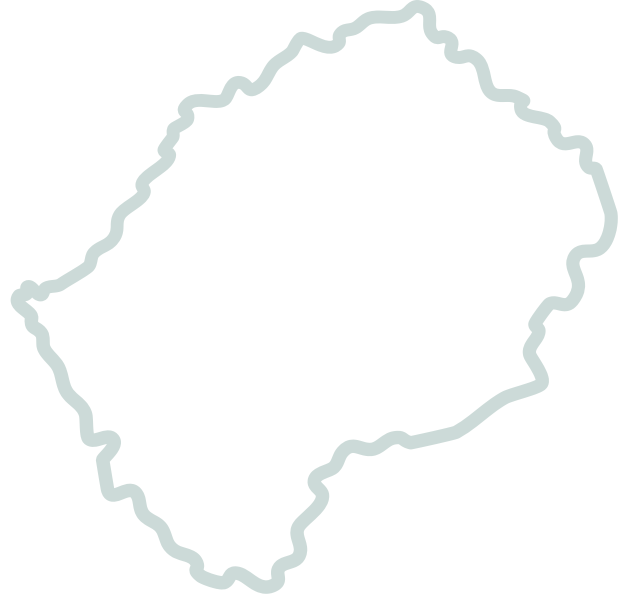
Sepheo sa mantlha sa WFP Le Sehlopha sa Tšebetso sa Ntšetso-pele ea Lenane-thuto sa STEPS ene e le ho etsa lenane-thuto molemong oa lihoai tsa Lesotho ha 'moho. Sena se se thusane ka ho netefatsa hore lenane-thuto le ipapisitse le litlhoko le maemo a leruo la bo'malitišibana Lesotho, ho tšehetsa lihoai ho ntlafatsa litloaelo tsa tlhahiso le litla-morao tsa khoebo. WFP e leboha nako, boikitlaetso, le litlatsetso tsa Sehlopha sena sa Tšebetso boleleleng ba tšebetso ena ea ho etsa lenane-thuto.

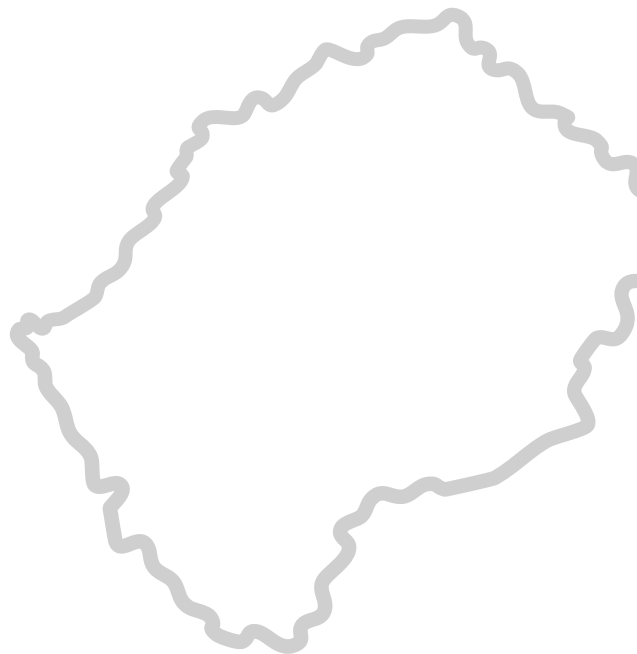
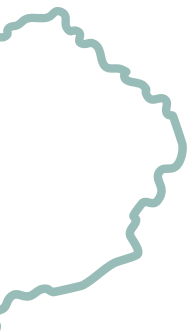
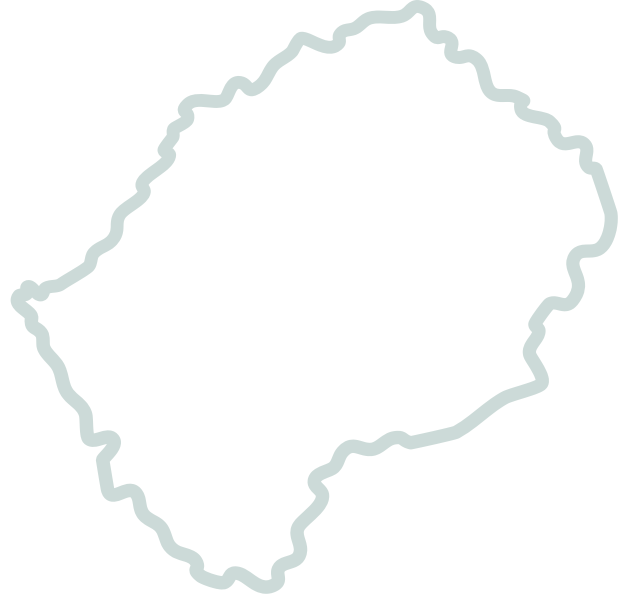
Likateng tsa buka ena li ile tsa hlahlojoa ke litsibi tse 'maloa molemong oa ho netefatsa lintlha tsohle. Likateng tsena li netefalitsoe ka lipuisano le lihoai tsa Basotho. Li boetse li itšetlehile ka botsebi le boiphihlelo ba litho tsa WFP ho ntlafatseng phetsetsano ea boleng leruong la Likhoho tsa Nama le Mahe (Dual-Purpose Poultry Value Chain) ho pharalla le Afrika. Lintlha tsena li tla 'ne li ntlafatsoe ho ea pele ho ipapisitsoe le koetliso e reretsoeng lihoai e reretsoeng selemo sa 2025.

## | Kakaretso ea Buka ea Tataiso

Buka ena ea tataiso e reretsoe ho totobatsa methati eohle ea tlhahiso ea likhoho tse ruetsoeng ho hlalisa nama, ho tloha polasing hoesa ferekong, e le mokhoa kapa karolo ea tlhahiso ea lijo; Khokahano e hlokahalang ho netefatsa hore lijo li ea hlalisoa ebile li fihla ho moji molemong oa ho fenyha tlala. Lihlooho tsa mantlha li akaretsa:

- Selekela ho Likhoho tsa Nama
- Khaho ea Matlo le Tlhokomelo ea Tikoloho
- Tlhokomelo ea Leruo la Likhoho tsa Nama
- Bophelo ba Likhoho le Tširelletso Khahlanong le Mafu
- Litsebo tsa Khoebo Molemong oa Barui ba Likhoho tsa Nama





# 1. Selekela ho Likhoho tsa Nama

Lilemong tse ngata tse fetileng, likhoho tsa nama e sa le li ntlafatsoa ka sepheo sa tlhahiso ea nama. Ke mofuta oa likhoho o ikhethang tse hlajoang pele li fihla boemong ba ho tlolela, 'me ka hona ha li hlahise mahe. Tsona li fapane le likhoho tse ruhetsoeng ho hlahisa mahe le nama. Ka lebaka le na, lihoai li tlameha ho reka litsuonyana tse nang le letsatsi le le leng li qhotsuoe kamehla ha ba kenya leruo le lecha la likhoho. Le ha hole joalo, likhoho tsa nama li na le makhabane a ikhethileng haholo tlhahisong ea nama papisong le likhoho tse ruhetsoeng ho hlahisa mahe le nama.



## Tlhaloso

Likhoho tsa nama ke likhoho tse holang ka sekahla tse hlahisoang ka tsela ea ho kopanya mofuta e fapaneng ea likhoho molemong oa tlhahiso ea nama.

Hangata likhoho tsa nama li ruheloa molemong oa ho hlahisa bakeng sa thekiso moo litjeo tsa lisebelisoa le liqholotso li phahameng, le ha ho le joalo e ba likhoho tsena li hola kapelle li boela li hlahisa nama e ngata. Mokhoa o nao a tšebetso o itšetlehile holima boteng ba litsuonyana tse nang le letsatsi le le leng ho baqhotsisi.

Lilemong tsa ho feta, ntšetsopele ea liphoofole ka ho khetha likarolo tse molemo e phahame. Khoho ea nama e ka fihlela boima ba 2.2 kg (4.85 lbs) ka matsatsi a 34 ha e fumana maemo a lumelang le kholiso e ntle (Setšoantšo 1.1 le 1.2). Sena se etsahala matlong ao serame le mocheso li laoloang, hona le potoloho ea moea, ho butsoe mahlakore. Boima ba 2.2 kg bo ka fihleloa ka matsatsi a 42.



**SETS'OANTS'O 1.1**

Tsuonyana e letsatsi le leng



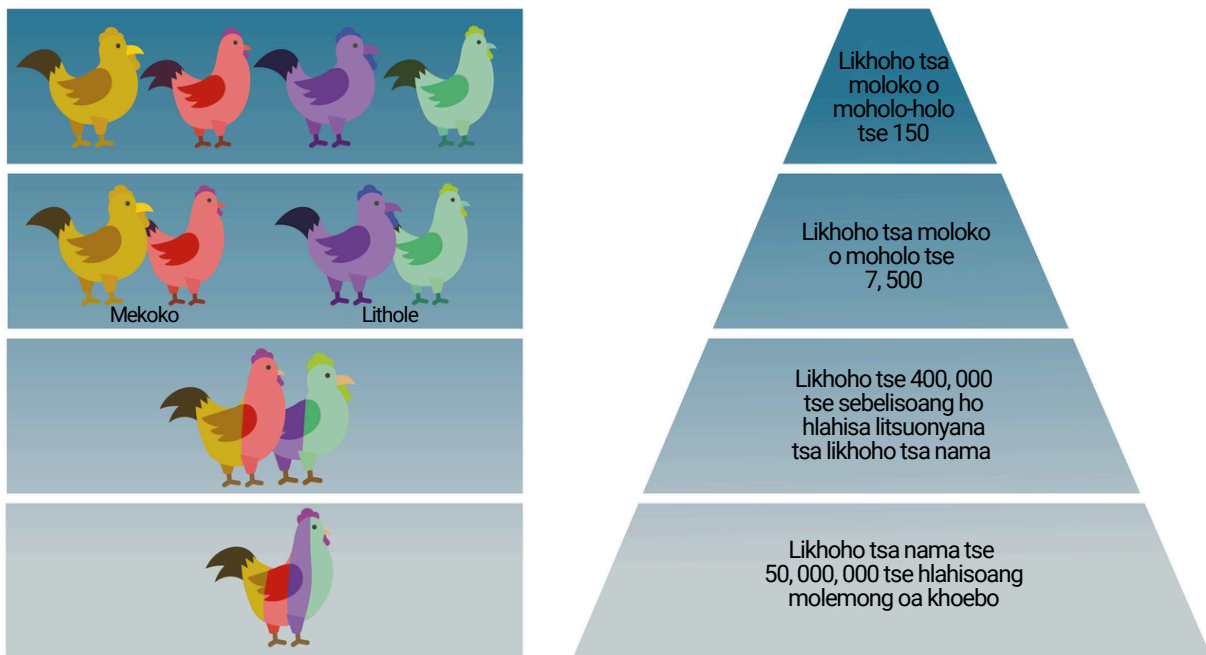
**SETS'OANTS'O 1.2**

Khoho ea nama ea boima ba 2.2kg

## Tlhahiso le Khetho ea Likhoho tsa Nama

Tlhahiso ea khoho ea nama e holang kapele ka katleho ke tšebetso e seng bonolo ea ho hloaea likarolo tse molemo ka har'a meloko e mengata ea likhoho. Ho hloauoa hoa likarolo tse molemo ho etsahala boemong ba likhoho tsa meloko e fetileng bakeng sa qhotsiso ea mahe a tlang ho fetoha litsuonyana tse tla holisoa hore ebe likhoho tsa nama tse tla hlajoa 'me li jooe. Lipalo li eketseha mothating o mong le o mong, 'me sena se etsa se tsejoang ka hore ke piramide ea tlhahiso 'breeding pyramid' (Setšoantšo sa 1.3). Setšoantšo se na se bolela hore lihoai tsa likhoho tsa nama li ka se ruhe likhoho tsa nama ho hlahisa mahe 'moho le ho hlahisa likhoho tse ling tsa nama; empa lihoai li lokela ho reka litsuonyana tse nang le letsatsi le le leng.

Ha mothati oa tlhahiso ea likhoho o fihla pheletsong, likhoho tsa nama lia hlajoa, li romeloa selakheng hore li sebetsoe kapa li rekisoe 'marakeng o bulehileng. Li'maraka tse ling li hloka likhoho li hlajoe selakheng se ngolisitsoeng ka molao 'me se fihlela lipehelo tsa polokeho. Nama e ka rekisoa hang hae qeta ho hlajoa kapa e se e hatselitsoe. Nama e ka boela ea fetoleloa mekhoeng e meng joalo ka ho ntšoa masapo le ho noko. Likhoho tsa nama li ka boela tsa rekisoa li ntse li phela ka morero oa ho tla li hlaba.

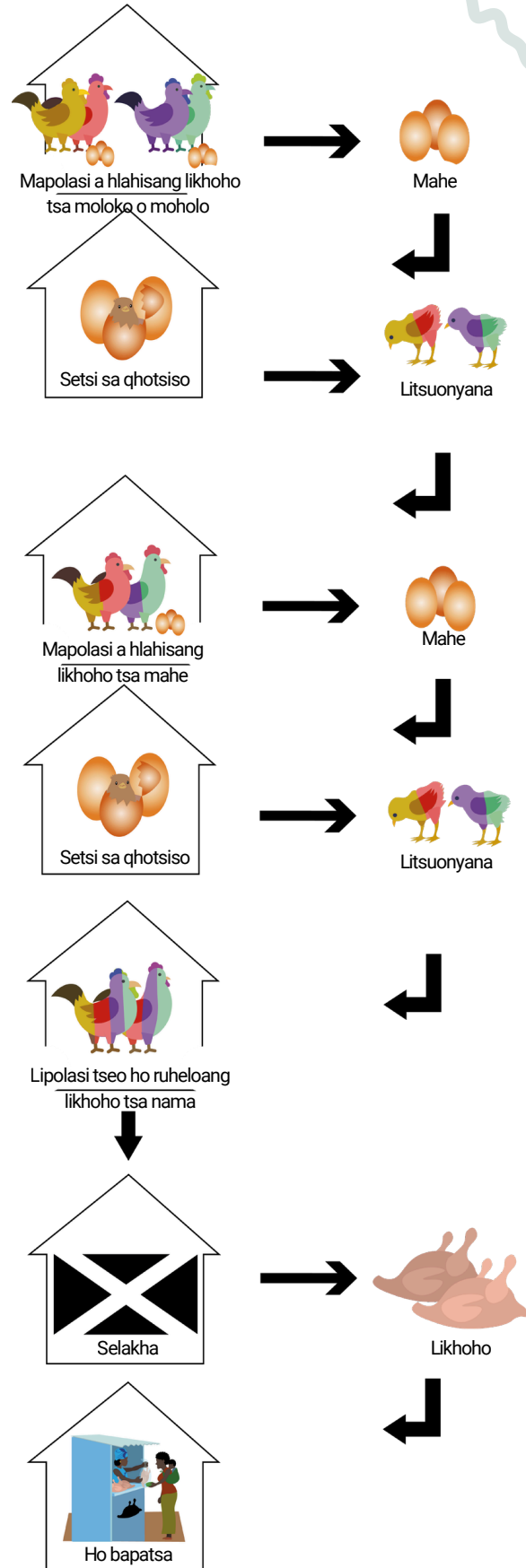


### SETS'OANTS'O 1.3

Mohlala oa katiso ea likhoho tsa nama

Naheng ea South Africa, tse ling tsa likhoebo tse kholo tsa leruo la likhoho li kopane ka botlalo. Ho na ho bolela hore li na le taolo e felletseng holim'a tlhahiso, qhotsiso, lilakhapane, le bahlahisi ba lijo tsa likhoho (Sents'oants'o sa 1.4). Ka lebaka la ho se itšetlehe ka barekisi ba hlahang kantle, likhoebo tse na li khona ho ba le taolo holim'a ho theola litjeho tsa ho hlahisa.

Le ha hole joalo, Lesotho ha hona likhoebo tsa leruo la likhoho tse kopaneng ka botlalo. Lihoai tsa likhoho tsa nama li sebetsa li ikemetse, ba reka litsuonyana le lijo ho barekisi. Ho na ho baka litjeho tse holimo tsa lisebelisoa 'me ho ka ama tlhahiso e nang le boleng. Lihoai tsa Lesotho li itšetlehile haholo ka barekisi ba South Africa, ka ho khetholoha ho reka litsuonyana tse nang le letsatsi le le leng. Ha ho kaba le khokahano thuong ea likhoho le ho thehoa hoa libaka tse ruoang likhoho tse hlahisang mahe a qhotsisoang, se na se ka thusa phumano ea litsuonyana, hoa fokotsa mathata a bakoang ke maeto a malele ha litsuonyana li ilo rekoa. Ka kakaretso, boleng ba litsuonyana e ka ba bo holimo, 'me se na se ka fana ka menyetla ho lihoai ho rua likhoho ka konteraka 'contract farming'.



**SETS'OANTS'O 1.4**  
Ketane e potolohang ea leruo la likhoho tsa nama



### **SETS'OANTS'O 1.5**

Ross 308

*Setšoantšo Credit: Aviagen*



### **SETS'OANTS'O 1.6**

Indian River

*Setšoantšo Credit: Aviagen*



### **SETS'OANTS'O 1.7**

Arbor Acres

*Setšoantšo Credit: Aviagen*



### **SETS'OANTS'O 1.8**

Cobb 500

*Setšoantšo Credit: Cobb*

Naheng ea South Africa mefuta e tloaelehing ea tlhahiso ea likhoho tsa nama ke Ross, Cobb, Arbor Acres le Indian River (Setšoantšo 1.5 - 1.8). Ena ke mefuta ea litsuonyana tse letsatsi le leng eo naha ea Lesotho e li fumanang South Africa. Litsuonyana tsena li na le masiba a masoeu, sena se thusa hore nakong ea ho hlajoa, nama e sale e le makhethe ho se masiba a matšo kamor'a ho tlosa masiba. Papisong le likhoho tsa mahe, likhoho tsa nama li na le maoto a matla, nama e ngata karolong ea matsoele le 'mele o moholo.

## Melemo ea ho hlahisa likhoho tsa nama



### SETS'OANTS'O 1.9

Likhoho tsa nama li fana ka chelete le phumano ea lijo ho lihoai tsa Lesotho

1

#### Phumano ea Lijo

Likhoho tsa nama li hola kapele ka katleho, hona ho atlehisa phumano ea lijo malapeng ka ho fana ka mohloli oa nama o tšepahalang le chelete. Likhoho tsa nama li na le lihaha 'mele tse ngata li boela li hloka mafura a mangata; 'me eba sejo se molemo haholo. Ha bohlahisi ba likhoho tsa nama bo ka phahama Lesotho, sena se ka fokotsa ho itšetleha hoa Lesotho holim'a nama e tsoang kantle ho naha; hona ho ka boela hoa bula menyetla ea ho rekisa nama kantle ho naha. 'Muso oa Lesotho o hloahile tlhahiso ea likhoho e le tšia ea mantlha e lokelang ho holisoa molemong oa ho akofisa phumano ea lijo.

2

#### Kholo ea Kapele

Likhoho tsa nama li hola ka potlako papisong le likhoho tse ruhetsoeng ho hlahisa mahe 'moho le nama, se na se thusa hore nako ea ho ruha likhoho e be khutšoane. Ka lebaka le na, lihoai li khona ho ruha likhoho ka makhetlo a 6.5 selemong.

3

#### Mohloli oa Chelete

Ho rua likhoho tsa nama ke tšebetso e tloaelehileng ea ho hlahisa chelete. Le ha ho le joalo, lihoai li tlameha ho boloka chelete e 'ngoe molemong oa ho reka litsunyana tse nang le letsatsi le le leng le ho lefella tse ling tsa li sebelisoa tse kang lijo. Phaello khohong ka 'ngoe e tlase, empa ha palo ea likhoho e le holimo, phaello e ea eketseha. Tlhahiso ea likhoho tsa nama e boela e theha mesebetsi.

4

#### Bohlokoa ba lihlahisoa tse ling

Manyolo a likhoho tsa nama a bohlokoa haholo tlhahisong ea temo ho matlafatsa limela, ho na ho fokotsa tšebeliso ea manyolo a entsoeng ka likh'emikh'ale. Ho matlafatsa mohato oa temo e ipapisitseng le maemo a leholimo, ho boela ho fokotsa litjeo tsa temo le ho khothalletsa mekhoha e fapaneng ea temo.

## Liqholotso tse ka Behang Tlhahiso ea Likhoho tsa Nama Tlokotsing

Khoho ea likhoho tsa nama e ipapisitse le lintlha tse 'maloa tse kenyelletsang maemo a tikoloho, phepo le tlhokomelo—tsena ke litaba tse tšohloang bukeng ena ea tataiso. Ho ruha likhoho tsa nama ho hloka chelete le lisebelisoa tse ngata ho feta ho ruha likhoho tse hlahisang mahe 'moho le nama. Tlhokahalo ea chelete 'moho le li'maraka likarolong tse ling tsa Lesotho ho ka baka qholotso e khoho.

Likhoho tsa nama li tlokotsing ea ho hlaseloa ke mafu, ka hona li hloka tlhokomelo e matla hore li atlehe. Ka ha hona le baqhotsisi ba fokolang Lesotho, lihoai li itšetlehile ka litsuonyana tse le letsatsi le leng tse tsoang kantle hon aha, hona ho boela ho eketsa liqholotso. Ha litsuonyana li tloha sebakeng se hole li palamisitsoe koloj, li fihla li nyoriloe le bile li na le khatello ea maikutlo. Empa lihoai ha li na boikethelo ka ha baqhotsisi ba fokola.

'Maraka oa likhoho tsa nama ke ntlha e bohlokoa haholo. Ha nako ea thekiso ea likhoho tsa nama e se e fetile, ho boloka likhoho tsena nako e telele empa li lokeloa ho hlajoa ho eketsa litjeo hobane li ja lijo empa ho se na ho ba le keketso holim'a phaello. Haeba li hlajoa, ho hloka hloka mokhoa o nepahetseng oa ho li hatsetsa e le ho qoba tšenyeho ea ho bola.



### SETS'OANTS'O 1.10

Tlhahiso ea likhoho tsa nama e hloka botseteli ba chelete e holimo 'moho le litjeo tse holimo tsa lisebelisoa.

## | Mekhoa e Fapaneng ea Tlhahiso ea Likhoho tsa Nama



Likhoho tsa nama li hlahisitsoe ka tsela eo li nang le bokhoni ba ho atleha haholo ha li fumana tikoloho le tlhokomelo tse nepahetseng. Ka hona, likhoho tsa nama li rueha ka katleho ka hara matlo ho fapana le ho ruheloa moo likhoho li ka bang le bolokolohi ba ho ba kantle ho se tlhokomelo. Le ha likhoho tsa nama li ka rueha ka tsela ea ho li fa bolokolohi ba ho tsamaea kantle ho se thibelo, li hloka lijo tlatsetso haholo e le ho li thusa ho fihlela kholo ea tsona e lebelletsoeng.



### **SETS'OANTS'O 1.11**

Likhoho tsa nama li ea atleha ha li phela tikolohong e lumellang kholo.

## 2. Khaho ea Matlo le Tlhokomelo ea Tikoloho

Matlo a nepahetseng a bohlokoa thuhong ea likhoho tsa nama ka ha li atleha matlong ao ho nang le taolo ea mocheso le serame ho bile ho na le potoloho ea moea. Matlo a tširelletsa likhoho khahlanong le liphoofole tse ka bakang tšenyō, bosholu le likokoana-hloko.

Naheng ea Lesotho ho na le maemo a leholimo a fapaneng—mariha hoa bata ebe hlabula hoa chesa—ka hona khaho ea ntlo e lokela ho ipapisa le maemo a na a fapaneng.

Hona le mefuta e 'meli ea matlo a likhoho tsa nama: e butsoeng mahlakoreng (Setšoantšo 2.1) le e koetsoeng hona le taolo ea maemo a mocheso le serame (Setšoantšo 2.2). Lesotho boholo ba matlo a likhoho ke matlo a butsoeng mahlakoreng ka ha litjeho tsa ho a haha e le tse bobebe. Matlo a na a butsoe mahlakoreng molemong oa khanya le moea, empa a koetsoe mahlakoreng a ka pele le a ka morao. Mahlakore a bulehileng a koahetsoe ka sefe molemong oa ho thibela liphoofole tse ka bakang tšenyō. Likharetene li ka phahamisoa kapa tsa theloa ho ipapisitsoe le maemo a leholimo (Setšoantšo 2.1).



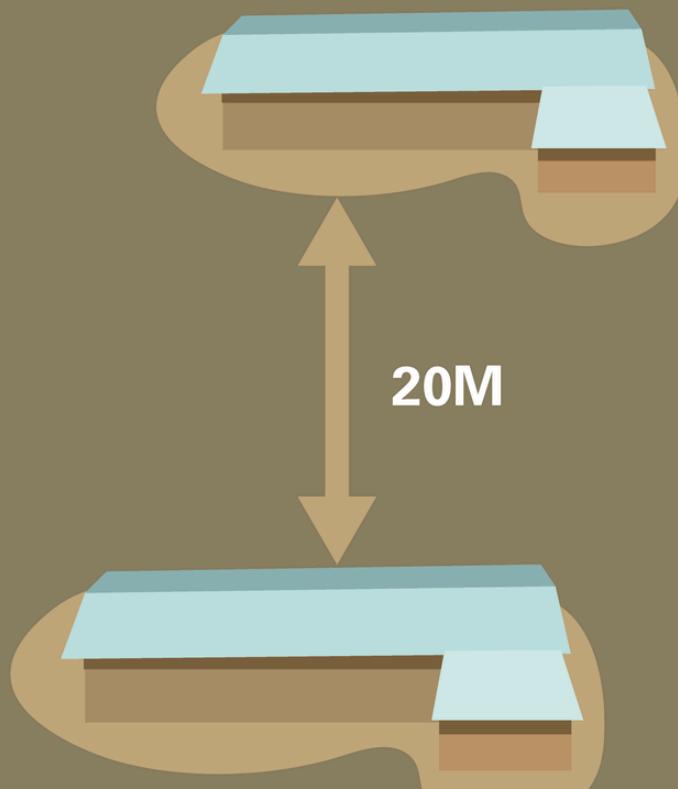
### SETS'OANTS'O 2.1

Ntlo e butsoeng mahlakoreng e na le likharetene



### SETS'OANTS'O 2.2

Ntlo eo maemo a mocheso le serame a laoloang



## SETS'OANTS'O 2.3

Khetho ea sebaka ke karolo e bohlokoa khahong ea ntlo ea likhoho tsa nama.

### | Khetho ea Sebaka

Pele ho hahoa ntlo ea likhoho, ho bohloka ho khetha sebaka se nepahetseng. Matlo a macha a likhoho a lokela ho hahoa hole le libaka tse ling e le ho fokotsa phetsetsano ea mafu ka moea. Likokoana-hloko li ka potoloha ka moea, batho, linonyana tse hlaha kapa ka likoloi tse tsamaeang.

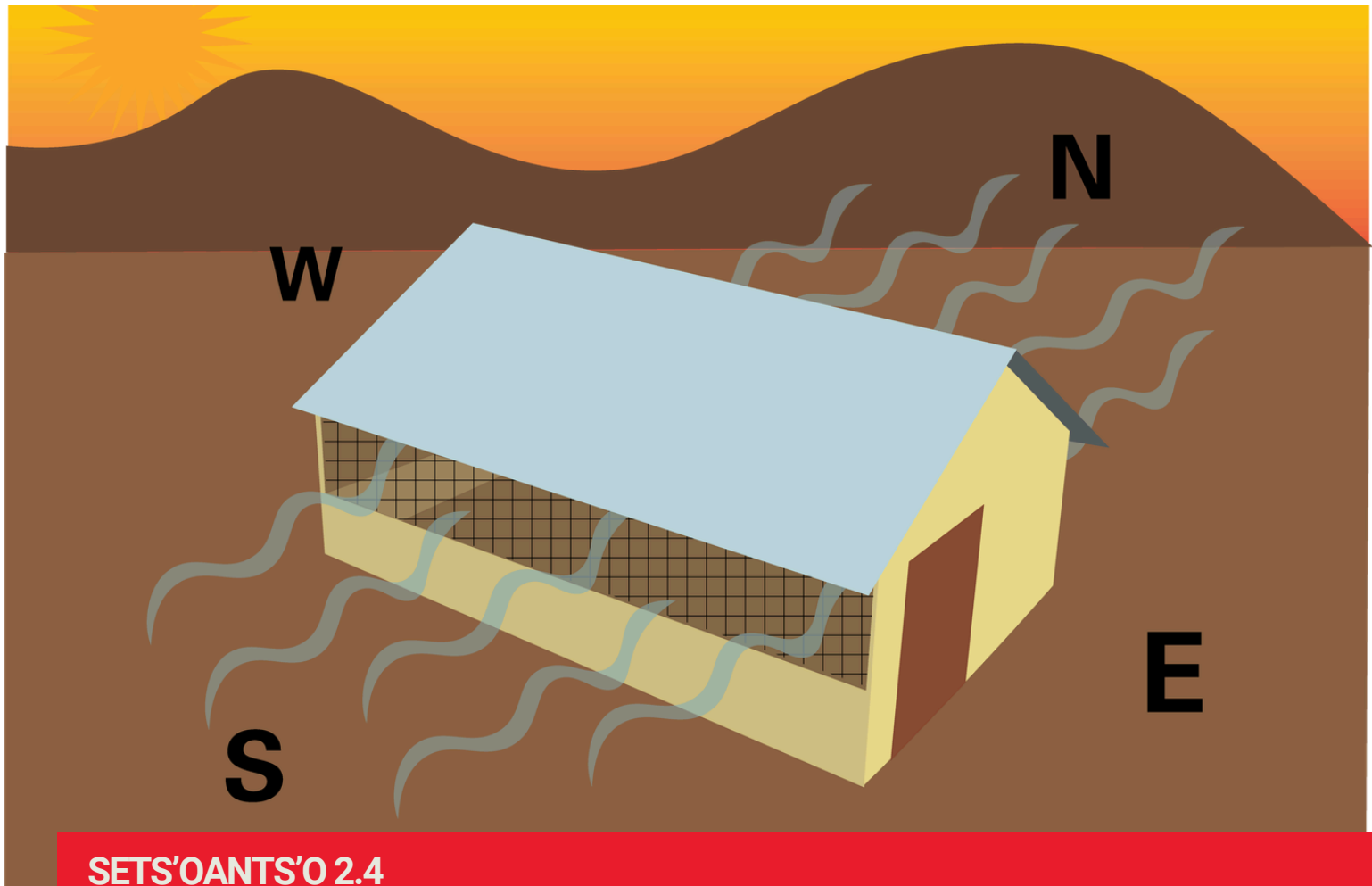
Ha ho hahoa matlo a mangata sebakeng se le seng, matlo a lokela ho **arohana** ka **limithara tse 20 (maoto a 65)** (Sents'oantšo 2.3). Khetha sebaka se nang le motheho molemong oa hore metsi a tle a phalle ho boloka sebaka sena se omme. Mongobo o baka mafu le sentele sa likokoanyana tse fofang. Mobu oa lehlathathe ke ona o kothalletsoang bakeng sa phallo e nepahetseng ea metsi. Mobu o letsopa le le ngata o lokela ho matlafatsoa ka majoe.

Ho bohlokoa hore ho be le potoloho ea moea e lekaneng sebakeng seo ho hahoang ntlo ea likhoho. Libaka tse phahameng li khona ho fumana moea o lekaneng ho feta libaka tse leng tlase. Moea o lokela ho phutlela mahlakoreng a butsoeng a ntlo e seng mahlakoreng a koetsoeng a lebota. Le ha hole joalo, ka ha Lesotho ho na le meea e matla haholo libakeng tsa maluting, ho hloka hahala mehato e tla thusa ho lekanya e le hore ho be le potoloho e lekaneneng ea moea nakong ea hlabula, ho boele ho thibeloe tahlehelo ea mocheso nakong ea mariha. Lihloliloeng tseo e kang lithaba le meru li ka thusa ho thibelletsa matlo khahlanong le meea e matla. Mekhoa e nepahetseng ea **ho tširelletsa matlo (insulation)** e ka thusa ho fokotsa tahleho ea mocheso nakong ea mariha.

Ha ho nepahetse, matlo a likhoho a lokela ho hahoa ho ipapisitsoe **le boemo ba bochabela le bophirima**, hona ho thusa hore matlo a be boemong bo **pholileng nakong ea hlabula** e be a **futhumala nakong ea mariha** (Setšoantšo sa 2.4). Ha e le hlabula, letsatsi le chabela ka holim'a ntlo ka kotloloho, empa ha e le mariha, le chabela ntlo **lehlakoreng le bulehileng**. Ka lebaka la meea e matla naheng ea Lesotho, matlo a ka sekamisoa hanyane ho tloha boemong ba bochabela le bophirima e le mohato oa ho netefatsa ho kena hoa moea. Se na se etsoe ka mokhoa oo likhoho li tla tšireletseha moeeng u ka li tobang.

Ha likhoho li ka futhumala ho feta tekano, li fokotsa mokhoa oa ho ja; se na se baka hore li liehe ho hola. Ka ho fapana, ha likhoho li hatsetse haholo, li ja ho feta tekano, empa lijo tseo li sebetsa molemong oa ho futhumatsa 'mele ea tsona hona le ho sebetsa hore li hole—sena se baka litjeo tse phahameng.

Mapolasi a likhoho a lokela ho hahoa pela libaka tseo ho nang le **mehloli e tšepahalang ea metsi** molemong oa ho nooa le ho hloekisa. Khakanyo e ka ba **400ml ea metsi bakeng sa khoho e le 'ngoe ka letsatsi**, kapa **lilithara tse 400 bakeng sa likhoho tse 1000 ka letsatsi**.



### SETS'OANTS'O 2.4

Pontšo ea ntlo e hahiloeng ho ipapisitsoe le boemo ba bochabela le bophirima

## Sebopeho sa ntlo

Tse latelang ke litlhoko tsa mantlha ha ho hahoa ntlo ea likhoho:

1

### Boholo ba ntlo

Ha hona litekanyetso tsa moshoelella ntlheng ea **bolele** ba ntlo, empa **bophara ba ntlo ha boa lokela ho feta li mithara tse 12** ho netefatsa hore moea oa kena e le hore ho be le potoloho ea moea ka ntlong ea likhoho. **Bolelele** ho tloha fatše ho ea bokatlaseng ba marulelo e lokela ho ba limithara tse 2.5 ho isa ho tse 3.

2

### Metheho

Ho hlokahala metheho e tiileng e **ka holimo ho lefatše** molemong oa ho netefatsa ho tsitsa le ho thibela ho phutlela hoa metsi. **Botebo ba 600mm** ke bona bo khothalletsoeng.

3

### Fatše le Mamati

Fatše ho lokela ho sebelisoa **konkoreiti le samente** ka ha e hloekiseha ha bobebe. Ha fatše ho peperane, ho kotsi hobane **mapatso ao a ka boloka likokonyana le mafu**. Fatše ho tlameha **ho phahame hanyane** ka holim'a lefatše ho boele ho **thulamele hanyane mabapi le monyako** molemong oa phallo ea metsi. Mamati a lokela ho **koaleha ka botlalo, a notlelehe, a boele** a be **boholo ba ho lumella ho kena hoa likiribae le lisebelisoa tse ling**.

4

### Mabota le likharetene

- **Mabota a makhutšoane** (e seng ho feta halofo ea mithara) ka mahlakoreng a bophara ba ntlo a lumella potoloho e nepahetseng ea moea.
- **Sefe** ea hlokahala hore e thibele ho kena hoa linonyana tse hlaha le li phoofotsoana.
- **Likharetene tsa** seili e thata li lokela hore li bulehe ka holimo li leketlela fatše.
- **Mabota a ka qetellong** a ka hahoa ka **masenke** kapa **litene**.



### Ntlha ea Bohlokoa:

Hangata lihoai li araba qholotso ea maemo a batang a mariha a Lesotho ka ho haha mabota a holimo haholo a bulehile hanyane. Ho na ha ho khothalletsoe ka ha ho baka khahello ea potoloho ea moea ka har'a ntlo.

# 5

## Marulelo

Marulelo a lokela ho ba bolele ba limithara tse **2.5 ho isa ho tse 3**, a tlameha a sekamele ho likharata tse **25 ho isa ho 33** 'me a be le katoloso ea mithara e le 'ngoe (maoto a mararo). Lijelo le linoelo li tlameha ho hako marulelong. Lisebelisoa tse fapaneng li ka etsa marulelo. Le ha ele hore joang bo fana ka tšireletseho e nepahetseng bakeng sa mocheso le serame, ha bo oa kothalletsoa ka ha ho se bobebe ho bo hloekisa. Ha tšireletso e ka sebelisoa ho ka thusa. Masenke a thata ho boetse ho bonolo ho a hloekisa, empa hangata a hloka ho alloa ntho e ka tširelletsang likhoho khahlanong le serame le rothi, 'me ho ka sebelisoa polyurethane spray foam, IsoBoard, kapa polystyrene (Setšoantšo 2.5, 2.6, and 2.7) tse fumanehang moo ho rekoang thepa ea mohaho).



### SETS'OANTS'O 2.5

Mohlala oa marulelo a joang



### SETS'OANTS'O 2.6

Mohlala oa marulelo a masenke



### SETS'OANTS'O 2.7

Mohlala oa marulelo a 'foam spray insulation'

# 6

## Bokantle

Khohalletso ke hore ho hahoe setupu sa samente sa mithara e le 'ngoe ho pota-pota mohaho, sona se thusa ho laola mohloa o motelele se be se etse hore ntlo e se fihleloe ha bonolo ke likokonyana. Molemong oa polokeho e nepahetseng (sheba Karolo ea 4), matlo a likhoho a lokela ho tšireletsoa ka terata e potolohang ea li mithara tse 20, ho lokela ho be le letšoao le supang hore ho se kenoe 'No entry'.

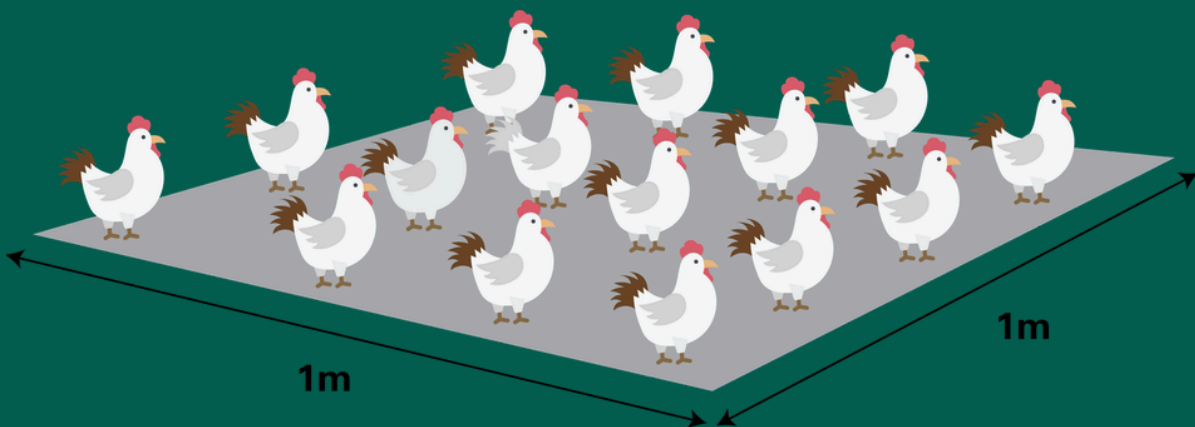
Ho bohlokoa hore sebaka se fatše se lekanele palo ea likhoho. Ha ntlo e le e butsoeng mahlakoreng, ho ka fella likhoho tse 10 ho isa ho tse 18 ka har'a mithara o le mong oa sekoere (likhoho tse 10 – 18/ m<sup>2</sup>). Matlo a nang le taolo e nepahetseng ea mocheso le serame a ka beha likhoho tse 18 ka har'a mithara o le mong oa sekoere, empa haeba hona le khaello ea potoloho ea moea, palo e na e tlameha ho fokotsoa. Le ha ele hore ho ruha likhoho tse ngata ho ka eketsa phaello, ho kenya likhoho ka hara sebaka se senyane ho ka ama kholo ea likhoho, 'me hona hoa fokotsa phaello.

### Liphetoho tsa lenane ho ipapisitsoe le nako tsa selemo

- **Mariha** – Lenane lea eketsoa ka ha likhoho li una molemo oa ho arolelana mofuthu oa 'mele.
- **Hlabula** – Lenane lea fokotsoa hobane palo e fetang tekano ea likhoho e ka li bakela mathata a mocheso le ho fokola.

## Mokhoa oa ho sebetsa palo ea likhoho tse ka ruehang:

- Metha sebaka se teng fatše (mohlala  $10\text{m} \times 15\text{m} = 150\text{m}^2$ ).
- Khetha lenane le nepahetseng (mohlala likhoho tse 15 ka har'a mithara o le mong o a sekoere).
- Sebetsa lipalo tsa hore sebaka se khona ho beha likhoho tse kae:
  - $150\text{m}^2 \times \text{likhoho tse } 15/\text{m}^2 = \text{likhoho tse } 2,250$ .



## Mokhoa oa ho sebetsa lipalo tsa boholo ba ntlo e hahuoang:

- Khetha palo ea likhoho tseo o batlang ho li ruha (mohlala: likhoho tse 1,000).
- Khetha lenane o ipapisitse le maemo a sebaka (mohlala: likhoho tse 10 ka har'a mithara o le mong oa sekoere).
- Sebetsa lipalo tsa sebaka se hlokoang:
  - $\text{Likhoho tse } 1,000 \div \text{likhoho tse } 10/\text{m}^2 = 100\text{m}^2$  ea sebaka se hlokoang.
- Etsa litekanyo tsa boholo (bolelele  $\times$  bophara) tse ka lekanang sebaka (mohlala:  $8\text{m} \times 12.5\text{m} = 100\text{m}^2$ ).

## Mokhoa oa ho boloka matlo a likhoho a hloekile

Mokhoa oa ho ruha likhoho tsa nama ke oa hore **ha li kene ka nako e le 'ngoe li tsoe ka nako e le 'ngoe**, hona ho bolela hore:

- Litsuonyana **li fihla ka nako e le 'ngoe, ha li kopanngoe le likhoho tsa nako e fapaneng**
- Likhoho **li rekisoa ka nako e le 'ngoe**, ntlo e sala e sena letho **e hloekisoa e tlosoe likokoana-hloko.**

### Ho ruha likhoho tsa nama ho na le mekhahlelo e meraro:

1. **Nako ea Tlhahiso** – Ha likhoho li le ka har'a ntlo.
2. **Nako ea tlhoekiso** – Ha ntlo e hloekisoa e tlosoa likokoana-hloko.
3. **Nako ea phomolo** – Ha ntlo e sala e sena letho matsatsi a 10 ho isa ho a 14.

Ho bohlokoa ho hloekisa ntlo ea likhoho **lipakeng tsa mekhahlelo ea ho ruha** ka ha ho thusa **ho qoba mafu.**

### Mehato ea ho hloekisa ntlo ea likhoho kamor'a nako ea ho ruha –

1. **Tlosa lisebelisoa tsohle** joalo ka lijelo le lifuthumatsi
2. **Tlosa mosuela le manyolo a likhoho** –
  - a. Litšila li tšelo e ka mekotleng **li lahleloe hole le ntlo ea likhoho** ho qoba phetsetsano ea mafu.
  - b. Manyolo a ka **tšelo holim'a lijalo.**
3. **Tima motlakase o** koahele masoba a thepa ea motlakase ka polasitiki
4. **Hloekisa ntlo** –
  - a. Fiela ho tlosa mosuela, masiba, manyolo, lijo tsa khale le likokonyana.
  - b. **Motsoako o bolaeang mafu hao sebetse ka botlalo ha lintho tse phelang li le teng.**
  - c. Hloekisa ho tloha **marulelong ho ea fatše**, ho tloha ka morao ho ea ka pele (Setšoantšo sa 2.7 – tlhoekiso ea ntlo).
5. **Hlatsoa ntlo ka metsi ho tlosa lerole.**
6. **Hlatsoa ka sesepa ho tlosa litšila**, boela o pulitsa ka metsi.
7. **Sebelisa motsoako o bolaeang likokoana-hloko** –
  - a. Latela **litaello tse ngotsoeng laboleng** ho etsa motsoako (mohlala **motsoako oa 1:100 o bolela lithara e le 'ngoe ea sebolaea-likokoana-hloko ho lilithara tse 100 tsa metsi**)
  - b. **Apara PPE** joalo ka ha ho hlahisitsoe laboleng.

### Mokhoa oa ho tsoaka sebolaea-likokoana-hloko:

- Sheba mokhoa oa ho tsoaka laboleng ea sebolaea-likokoana-hloko (**motsoako oa 1:100 o bolela lithara e le 'ngoe ea sebolaea-likokoana-hloko ho lilithara tse 100 tsa metsi**).
- Sheba boholo ba sesebelisoa se tšelang seo kopanyetsang ho sona (e.g., lilithara tse 20).
- Metha hore ho tla hloka hahala sebolaea-likokoana-hloko se se kae:
  - Arola boholo ba sesebelisoa se tšelang ka tekanyo ena ea metsi :  $20L \div 100L = 0.2$
  - Thaemesa karolo ea sebolaea-likokoana-hloko ka tekanyo ea :  $0.2 \times 1L = 0.2L(200mL)$
  - **Motsoako o felletseng** : Tšela **200mL ea sebolaea-likokoana-hloko ho 20L ea metsi.**



## SETS'OANTS'O 2.8

Kamor'a ho phethela nako ea ho ruha, ho hlokahala nako ea matsatsi a 10 – 14 ea ho phomola, lisebelisoa tsohle le ntlo li ea hloekisoa ho bolaoa likokoana-hloko.

### N ako ea ho phomola le Mehato ea tšireletso

N ako ea ho phomola e bohlokoa ka ha likokoana-hloko tseo e bang ha lia ka tsa shoa nakong ea tloekiso li tla ichoella. Tšebeliso ea kh'alendara ea meralo e netefatsa ho ipapisa le matsatsi a 10 – 14 a nako ea ho phomola, 'me ho fana ka nako ea ho etsa theko ea litsuonyana tse ncha.

Nakong ea phomolo:

- Etsa litokiso tse hlokahalang ho beha ntlo maemong a nepahetseng.
- Qoba tšilafatso ka ho se khutlisetse litšila kahar'a ntlo.

Pele litsuonyana tse ncha li fihla, ntlo e tlameha e be maemong a nepahetseng lisebelisoa tsohle li le teng li hloekisitsoe.

# Thepa e ka har'a ntlo ea likhoho

Thepa e hlokoang bakeng sa ntlo ea likhoho:

1

## Thepa ea ho fepa

- **Pane ea litsuonyana** (Setšoantšo 2.9)–
  - Litsuonyana ha li le nyane li sitoa ho fihlela lijelo tse tloaelehileng, ka hona li lokela ho fepeloa ka har'a lipane bekeng ea pele hore li khone ho ja.
  - Lithibelletso (grills) li thusa ho qoba tšenyiso ea lijo.
  - Ho aletsa lipampiri fatše eba li fafatsoa ka lijo ho tla khothalletsa litsuonyana ho ja.
  - Ho khothalletsoa lijelo tse tharo ha litsuonyana li le 100.

Lipane tsa litsuonyana li lokela ho nkeloa sebaka ke lijelo tsa mathopo kapa likotlolo tsa lijelo ha litsuonyana ntse li hola.

- **Sejelo sa litsuonyana se masoba** (Setšoantšo 2.10)–
  - Tsona li thusa ho qoba ho qhalana hoa lijo
  - Ho khothalletsoa lijelo tse tharo ha litsuonyana li le 100.
- **Sejelo se sehlo sa litsuonyana** (Setšoantšo 2.11) –
  - Lijelo tse kholo tsa litsuonyana li lokeloa ho nkeloa sebaka ke lijelo tsa mathopo ha litsuonyana ntse li hola
  - Ho khothalletsoa lijelo tse tharo ha litsuonyana li le 100.



**SETS'OANTS'O 2.9**

Lipane tsa litsuonyana



**SETS'OANTS'O 2.11**

Sejelo sa litsuonyana se sehlo



**SETS'OANTS'O 2.10**

Sejelo sa litsuonyana se masoba

## 2

### Thepa ea Linoelo

Ho na le mefuta e fapaneng ea linoelo ho netefatsa hore likhoho li fumana metsi a hloekileng ka phethahalo:

- **Linoelo tse tšeloang metsi** – Tsena ke linoelo tse hloakang ho tšloa metsi letsatsi le letsatsi (tse 3 ha likhoho li le 100) (Setšoantšo 2.12 le 2.13)
- **Linoelo tsa litsuonyana** li netefatsa ho noa ha bobebe empa li lokela ho hloekisoa khafetsa ho qoba tšilafatso (Setšoantšo 2.13)
- **Linoelo tse bopehileng joalo ka tšepe ea sekolo** – li hokeloa mohloling oa metsi empa li lokela ho hloekisoa N akong ea ho ruha (tse 3 ha likhoho li le 100) (Setšoantšo 2.14)
- **Linoelo tse rothisang metsi** – Li hokeloa mohloling oa metsi, ha li hloke ho hloekisoa ka har'a nako ea ho ruha likhoho (e.g. likhoho tse 12 ho senoelo se rothisang metsi ) (Setšoantšo 2.15).



**SETS'OANTS'O 2.12**

Senoelo se tloaelehileng



**SETS'OANTS'O 2.14**

Senoelo se bopehileng joalo ka tšepe ea sekolo



**SETS'OANTS'O 2.13**

Senoelo sa litsuonyana



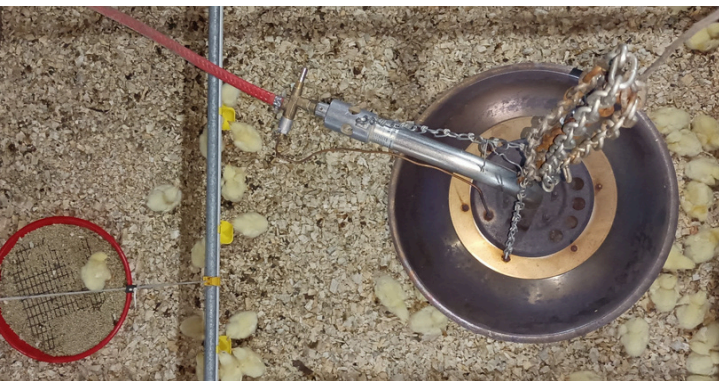
**SETS'OANTS'O 2.15**

Senoelo se rothisang metsi

### 3

## Thepa e 'ngoe

- **Lihuku le liketane** – Li sebelisoa ho haka lijelo le linoelo marulelong.
- **Lifuthumatsi** –
  - Lifuthumatsi tse ngata li ka sebelisoa ho futhumatsa ntlo bakeng sa litsuonyana, li kenyelletsa: lihithara tsa khase tse futhumatsang likhoho, hithara tsa parafine, lipaola, mabone a infrared.
  - Khetho ea sefuthumatsi e etsoa ho ipapisoa le hore na se a fumaneha, bokhoni ba ho sebetsa le polokeho.
    - Lihithara tsa khase tse futhumatsang likhoho li sebetsa ka nepo empa li hloka ho be le phephelo ea khase, li boela li na le lipehelo tsa polokeho (Setšoantšo 2.16)
    - Lipaola li boloka litjeo moo motlakase o leng turu o bile o sena phephelo e tšepahalang. Lipaola li hloka ho sebelisoa ka hlokolosi (Setšoantšo 2.17)
    - Lihithara tsa parafine li boloka litjeho empa ha li fane ka mofuthu o lekaneng bakeng sa leruo le lehlo. Li boetse li na le lipehelo tsa polokeho.
    - Mabone a infrared a sebeliseha ha bobebe empa haa fane ka mofuthu o lekaneng leruong le lengata, a boela a sebetsa ka motlakase (Setšoantšo 2.18)



#### SETS'OANTS'O 2.16

Hithara ea khase e futhumatsang likhoho



#### SETS'OANTS'O 2.17

Paola



#### SETS'OANTS'O 2.18

Lebone la Infrared

- Litširelletso tsa ho laola (Setšoantšo 2.19) hangata ke boto ea mosenaete ea bolele ba 30cm e pota-potang ho koalla litsuonyana ka hare e le hore li se ke tsa khobokana moo mahlakore a kopanang eba li sitoa ho hema. Li boela li bohlokoa ho qoba ho kenela serame sa ho kenela hoa moea.



### SETS'OANTS'O 2.19

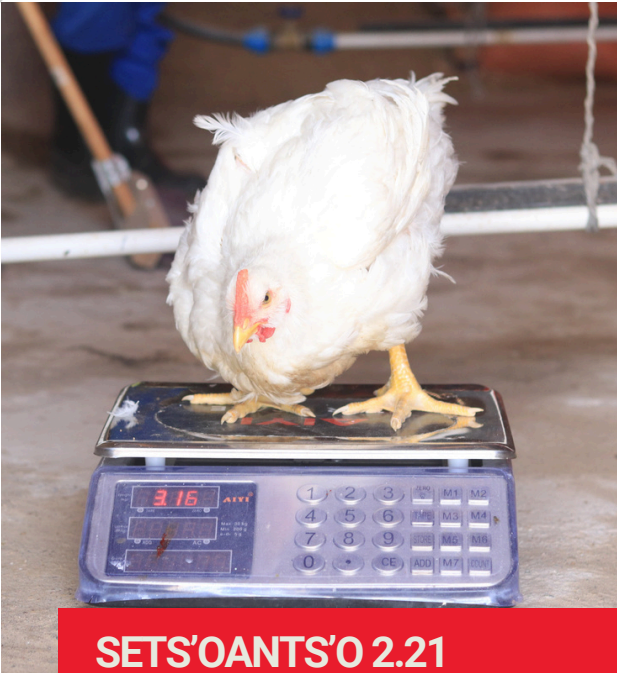
Litširelletso tsa ho laola mofuthu kholisong ea litsuonyana

- **Ho khantša –**
  - Khanya e nepahetseng e thusa likhoho ho tsamaea ka har'a sebaka le hore li je ka nepo. Motlakase oa matla a letsatsi o ka sebelisoa ho theola litjeo tsa motlakase (Setšoantšo 2.20).



### SETS'OANTS'O 2.20

Tšebeliso ea matla a letsatsi ho khantša



### SETS'OANTS'O 2.21

Sekala



### SETS'OANTS'O 2.22

Ho hakanya boima ba likhoho ka ho li kuka

- **Mochini o ntšang metsi ka sekahla** – Bakeng sa tlhoekiso e tebileng.
- **Mokhoa oa phepele le phallo ea moea** – ka har'a ntlo eo ho nang le taolo ea mocheso le moea
- **Sekala** –
  - Se sebelisoa ho bekha likhoho (Setšoantšo 2.21).
  - Se thusa ho latela kholo le ho lekanya nako e nepahetseng ea hore rekisa kapa ho hakanya chelete ea thekiso (haeba ho rekisoa ka kilograme)
- **Themomethara** –
  - Themomethara ha e behiloe mabapi le bolelele ba litsuonyana e thusa ho netefatsa hore mocheso ke o lekaneng. Le ha hole joalo, boitšoaro ba litsuonyana bo thusa ho netefatsa maemo a mocheso.
- **Themomethara ea bongaka ea litsebe** –
  - E metha mocheso oa 'meleng oa litsuonyana ha li fihla.

# 3. Tlhokomelo ea Leruo la Likhoho tsa Nama

## Tokiso ea ntlo ea likhoho pele litsuonyana li fihla

Pele litsuonyana li fihla, tse latelang li tlameha tsa be li lokisitsoe ka har'a ntlo ea likhoho:

- Ho etsoe tlhophiso ea ho reka lijo li be li fihle.
- Etsa motsoako o bolaeang likokoana-hloko bakeng sa ho hlatsoa maoto.
- Aletsa mosuoela oa bophahamo ba 5 – 10 cm fatše. E lokela hoba mosuoela o hloekileng, o ommeng o bile o monya mongobo. Lihlahisoa tse fapaneng li ka sebelisoa (Setšoantšo 3.1 le 3.2). Mosuoela oa lepolanka ke o na o nepahetseng haholo empa ho ka ba thata ho o fumana Lesotho. Mefuta e meng e kaba mohloa o ommeng kapa mahlokoana le pampiri e tabotsoeng (le ha pampiri e tabotsoeng e na le ho ipopa). Lehlabathe e ka ba khetho e 'ngoe—le sebeliseha hangata empa ha le boloke mocheso hantle ha ho bata, le boela le hloka ho bolokoa le omme.
- Beha lijelo tsa litsuonyana le linoelo tsa litsuonyana
- Beha litšireletso tsa ho laola mofuthu kholisong ea litsuonyana
- Tšela lijo ka har'a lijelo
- Besa ka har'a litšireletso bonyane lihora tse 24 pele litsuonyana li fihla. Hona ho thusa ho futhumatsa ntlo 'moho le fatše



**SETS'OANTS'O 3.1**

Mosuoela oa lipampiri



**SETS'OANTS'O 3.2**

Mosuoela oa lepolanka

## Ho tsamaisa litsuonyana

Ho tsamaisa litsuonyana ho bapala karolo e kholo ho boleng ba litsuonyana. Ho nepahetseng ke hore hang kamor'a qhotsiso, litsuonyana li tsamaisoe. Ha ho etsoa tlhophiso ea ho reka litsuonyana, ho bohlokoa ho ela hloko nako eo litsuonyana li tla be li le tseleng le bo hole ba sebaka. Haeba likhoho li tsoa South Africa li tsamaile tseleng, ela hloko linako tsa ho ema borokhong. Ka nepo, likhoho li lokela ho tsamaisoa ka kolo e maemo a eona a mocheso a laoloang e le ho netefatsa hore mocheso o teng o lekana le oa 'mele ea likhoho e leng 39.4 – 40.5°C. Mongobo o lekaneng e lokela ho ba bonyane 50% ho na le potoloho e nepahetseng ea moea o kenang. Le ha ho le joalo, maemo a ka fetoha (Setšoantšo 3.3). Ho bohlokoa ho fokotsa nako eo litsuonyana li e tsamaisoang le bohole ba sebaka, le ntlo e tlameha e be lokisitsoe ka botlalo ho kenya litsuonyana hang ha li kena.



### SETS'OANTS'O 3.3

Mohlala oa mokhoa oa ho tsamaisa litsuonyana

Mocheso o 'meleng oa litsuonyana o ka methoa ha li fihla—ho sebelisoa themomethara ea bongaka ea litsebe (Setšoantšo 3.4). Haeba litsuonyana li rekiloe ho ba tsamaisi, ho metha mocheso oa tsona oa 'mele ho fana ka leseli hore li tsamaisitsoe joang. Litsuonyana tse fumaneng mocheso o mongata li fihla li nyoriloe li na le khatello ea maikutlo. Taba e na e ka bolelloa batsamaisi ba litsuonyana e le keletso ea hore ba lokise maemo a tsamaiso ea litsuonyana.



### SETS'OANTS'O 3.4

Ho metha mocheso o 'meleng oa tsuonyana

Haeba likoloi tse nang le taolo ea maemo a mocheso li le siko, likhoho li lokela ho tsamaisoa hoseng haholo kapa mantsibua. Molemong oa hore litsuonyana li lule li na le metsi 'meleng, ka mabokoseng a litsuonyana ho ka tšeloja sejo-tlatsetlo sa hydrogel, cucumber kapa lehapu. Ho ka boela hoa tšeloja electrolyte kapa stress pack metsing a ka har'a linoelo tsa litsuonyana e le ho thusa litsuonyana kamor'a leeto le li baketseng khatello.

## Ho beha litsuonyana ka hare ho ntlo

Brooding e hlaloso e le nako eo litsuonyana li hlokang ho futhumaletsoa ntlo li bile li hlokomeloa ka kelo tlhoko e holimo. Ka tlholeho, sethole se fana ka mofuthu ho litsuonyana tsa sona ka ha li sitoa ho laola mofuthu oa tsona. Ka har'a ntlo ea likhoho, mofuthu o etsoa ka lifuthumatsi. Libeke tsa pele tsa bophelo ba likhoho li hlokolosi haholo 'me li hloka tlhokomelo e kholo haholo nakong ena ka ha ho ama katleho ea tsona.



### Tlhaloso:

Brooding e hlaloso e le nako ea kamor'a qhotsiso—ke nako eo litsuonyana li hlokang tlhokomelo e kholo.



### Sebaka seo litsuonyana li phuthulohang

Sebaka seo litsuonyana li phuthulohelang ho sona ke sebaka se hloahiloeng ka har'a ntlo ea likhoho 'me se fana ka tlhokomelo e kholo kholisong ea litsuonyana. Sebakeng sena maemo a mocheso kea nepahetseng, ka hona litsuonyana ha li hatsele ebile ha li fumane mocheso o phahameng haholo. Ha litsuonyana li hola, maemo a mocheso ka har'a sebaka seo litsuonyana li phuthulohang a lokela ho theoha empa e seng ka sekhahla. Ha sebaka sena se sa etsoe, litsuonyana ha li na hola ka katleho. Lintlha tse kenyelletsang mocheso, moea, maemo a ntlo le phepo li ama sebaka seo litsuonyana li phuthulohang ho sona.



### Ho fihla hoa litsuonyana le ho li beha

Ha litsuonyana li fihla, latela methati e latelang:

1. **Netefatsa palo ea litsuonyana hang hali fihla** – Bala mabokose a litsuonyana moqhobi oa koloi a sa le teng ho netefatsa hore ke lenane le nepahetseng.
2. **Tšoara ka hlokolosi** – Kuka mabokose ka kelo hloko o a behe katlung, netefatsa hore hona le potoloho ea moea ho ona (qoba ho a palamisana ho ea holimo haholo). Se ke oa siea litsuonyana letsatsing.
3. **Bekha mabokose** – Ke tloaelo e nepahetseng ho bekha mabokose ohle a litsuonyana.
4. **Hlahloba kento ea litsuonyana** – Kopa litokomane tse bontšang liente tse fanoeng qhotsisong. Litsuonyana li lokela ho fihla li se li entetsoe lefu la Newcastle le tšoaetso ea bronchitis.
5. **Hlahloba bophelo ba likhoho** – Ntša likhoho ka kelo hloko o hlahlobe boleng ba tsona. Seke oa boloka litsuonyana tse nang le bokooa kapa tse kulang. Bala palo ea litsuonyana tse shoeleng o e tlalehe ho baqhotsisi/morekisi oa litsuonyana.
6. **Netefatsa palo ea litsuonyana** – Balla litsuonyana ka har'a lebokose le leng pele li behoa ka sebakeng sa kholiso ea litsuonyana. Hona ho nolofatsa mosebetsi oa ho boela li baloa haeba ho hlokahala.

## Ho hlahloba boleng ba likhoho

Boleng ba litsuonyana tse letsatsi le le leng bo ama kholo ea litsuonyana haholo. **Tsuonyana e phetseng hantle** e lokela ho ba le tse latelang:

- Mahlo a hlakileng a bile a khanya.
- Bokatlase bo ommeng, bo le bonolo bo boela bo koelehile (boea bo bosehla).
- Maoto a tiileng, a masehla a hlokang bokooa.
- Letlalo le phetseng hantle la maoto le hloka liso.
- 'Mele o tiileng o hlokang matšoa a edema (ho tlala metsi).
- Mokhubu o koelehileng, o hloekile, o omme (moo ho neng ho hokahane le mothoebe). Mokhubu o sa folang o ka baka tšoaetso ea likokoana-hloko, hona ho ka baka lefu la litsuonyana le etsang hore mpa e ruruhe (mushy chick disease).
- Tsuonyana e tlameha ho bonahala e hlasimolohile e tsamaea. Ha tsuonyana e hema ka thata kapa 'mele oa eona o omelletse hona le ho nona hanyane, hona ke sesupo sa hore hae na metsi 'meleng. Tsela e tatileng ea **ho thusa tsuonyana ho hlasimoloha** – Ha tsuonyana e behoa ka mokokotlo, ha e phetse hantle e lokela ho iphetola ka nako ea **metsotsoana e 'meli**

Boima ba tsuonyana e qetang ho qhotsoa e lokela ho ba bonyane 36 grams. Litsuonyana tse nyane haholo li tla hloka tlhokomelo hore li phele ka katleo. Boima ba tsuonyana ke sesupo se nepahetseng sa boleng, empa hona ho ka boela hoa ipapisa le nako ea likhoho tse sebelisoang qhotsisong. Likhoho tse nyane li behela mahe a manyane, hona ho etsa litsuonyana tse nyane.

## Mokhoa oa ho bekha litsuonyana:

- Bekha lebokose le tletseng litsuonyana (e.g., 8808g).
- Ntšha litsuonyana ka lebokoseng ebe lebokose le bekhoa le sa tšela letho (e.g., 1160g)
- Bala lenane la litsuonyana tsohle tse ka lebokoseng (e.g., 200).
- Tlosa boima ba lebokose le sa tšelang ho boima ba lebokose le tletseng (e.g., 8808g–1160g= 7648g).
- Arola boima bo felletseng ba litsuonyana ka palo ea litsuonyana ho fumana boima bo bohareng ba li tsuonyana
- (e.g.,  $7648g \div 200 = 38.2g$ ).



### SETS'OANTS'O 3.5

Ha litsuonyana li ja ebile li noa

3

### Ho khothalletsa litsuonyana ho ja le ho noa metsi

Ha litsuonyana li se li behiloe katlung, li lokela ho khothalletsoa ho ja le ho noa (Setšoantšo 3.5). Mokhoa o sebetsang ke ho beha litsuonyana hantle pela lijelo. Matsatsing a pele, ho ka thusa ho qhatsetsa tse ling tsa lijo holima pampiri e aliloeng holima mosuela hobane ka tlholeho, litsuonyana li kobola lintho tse leng fatše. Ho phaphatha lijelo le linoelo ho ka thusa litsuonyana ho ba le khahleho 'me tsa qalella ho ja le ho noa.

Le ha ele hore litsuonyana tse letsatsi le leng li ntse li na le mothoebe o ka li phelisang ha nakoana mpeng ea tsona, ho bohlokoa ho qalella ho li thusa ho ja lijo tsa 'starter' e sa le nako. Phepo ena ea ho tloha qalong e thusa hore tšilo ea tsona e qalelle ho sebetsa. Haeba litsuonyana li sa je letsatsing la pele, tšebetso ea

tsona ea tšilo ea emisa, hona ho baka li be le tla ebe li ba le boemo ba ho hloka lijo le metsi 'meleng.

Ho hlahloba hore na tsuonyana e jele, e tšoare kileng, e leng sebaka se ka tlase ho molala ka holim'a lepheo (Setšoantšo 3.6). Kila e beha lijo ha nakoana hore li kopane le metsi li be bonolo. Lihoreng tse 24 litsuonyana li behiloe katlung, li lokela ho ba le lijo ka kileng. Ha kila ea litsuonyana e sa tšela, e ka khothalletsoa ho ja ka ho e beha pela lijo.

Ho boetse ho bohlokoa ho netefatsa hore litsuonyana li fumana metsi. Litsuonyana li noa ka ho kebisetsa lihlooho tsa tsona fatše eba li tla lelala ho koenya metsi. Haeba litsuonyana li shebahala li sena matla kapa li sa noe, li ka rutoa ho noa ka ho kenya molomo oa tsona ka metsing ka kelo hloko.



### SETS'OANTS'O 3.6

Ho hlahloba kila

# Ho laola maemo a tikoloho

## 1

### Ho khantša

- Matsing a pele a supileng, ho khothalletsoa hore ho kkantšoe lihora tse 23 tsa letsatsi e le ho khothalletsa litsuonyana ho ja e sa le qalong.
- Kamor'a beke ea pele, **lihora tse 16 ka letsatsi tsa ho khantša** li nepahetse.
- Haeba sesebelisoa se behang nako ea ho khantša se le siko, ho ka sebelisoa khanya ea letsatsi, empa litsuonyana li tla hola butle.

## 2

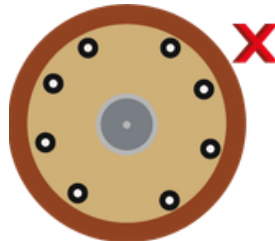
### Mocheso o ka har'a sebaka sa kholisetso ea litsuonyana

- **Theola mocheso kholisetsoeng ea litsuonyana ha litsuonyana li ntse li hola** (Tafole 3.1).
  - Ho futhumatsa kapa ho se futhumatse ho tla ipapisa le maemo a mocheso a kantle. Hlabula, lifuthumatsi li ka tingoa haele motšhare haeba ho chesa.
- **Theola mocheso o ka har'a sebaka sa kholisetso ea litsuonyana hanyane ha litsuonyana li ntse li hola** (Tafole 3.1).
- Ho futhumatsa kapa ho se futhumatse ho tla ipapisa le maemo a mocheso a kantle. Hlabula, lifuthumatsi li ka tingoa haele motšhare haeba ho chesa.
- **Eketsa litširelletso tsa ho laola mofuthu ha litsuonyana li ntse li hola.**
- **Lekola boitšoarō ba litsuonyana ho tseba boiketlo ba tsona (Setšoantšo 3.7):**
  - Khobokano sefuthumatsing → Li hatsetse haholo
  - Ho tloha sefuthumatsing → Li chesa haholo.
  - Ho khobokana → Hona le moea o hlabang.

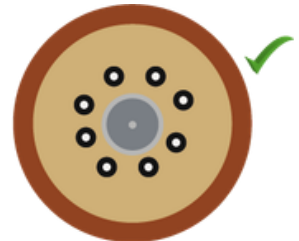
### TAFOLE 3.1

Mocheso o khothallelitsoeng kholong ea likhoho tsa nama

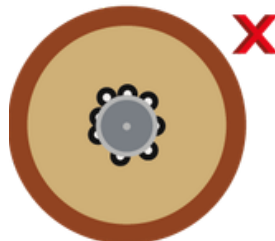
Nako	Mocheso (celcius)
Nako ea matsatsi	32
3	30
6	28
9	27
12	26
15	25
18	24
21	23
24	21
27	20



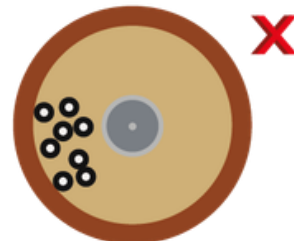
Mocheso o phahameng haholo



Mocheso o nepahetseng



Mocheso o tlase haholo



Moea o batang

### SETS'OANTS'O 3.7

Tekolo ea boitšoarō ba litsuonyana



## SETS'OANTS'O 3.8

Phepelo ea moea e bohlokoa nakong ea tlhahiso ea likhoho tsa nama

3

### Phepelo ea moea

Nakong ea kholiso ea litsuonyana, ho bohlokoa ho netefatsa hore hona le motsamao oa moea katlung. Carbon dioxide e tla ba teng 'me e lokela ho nkeloa sebaka ke moea o hloekileng oa oxygen. Potoloho e nepahetseng ea moea e thusa ho boloka mosuela o omme. Le matsatsi ao ho batang haholo, ho lokela ho buloe hanyane ho lumella moea o hloekileng ho kena. Matlong ao ho nang le lisebelisoa tse fehang moea (fans), ho lokela ho sebelisoa tse nyane feela ka matla a tlase; hona ho bitsoa phepelo ea moea e mahareng

#### Phepelo ea moea e bohlokoa nakong ea kholiso

- ✓ Potoloho ea moea e thibela pokello ea carbon dioxide, e kenya moea o hloekileng.
- ✓ Moea o thusa ho omisa mosuela, ho fokotsang mathata a ka bakoang ke mongobo.
- ✓ Ha ho bata, moea o lekaneng o lokela ho kena ho qoba ho bokellana hoa moea.
- ✓ Libakeng tse phahameng joalo ka Lesotho, oxygen e fokolang e eketsa bohlokoa ba phepelo ea moea .

Phepelo ea moea e bohlokoa ho boloka ntlo ena le moea o hloekileng le ho boloka bophelo bo botle ba likhoho. Mariha ha ho bata, bohlo ba lihoai li atisa ho koala matlo ka tsela tsohle, empa hona ho ka lebisa hore ho be le pokello ea meea e kotsi. Le ha litjeo tsa ho futhumatsa li ka phahama ha moea o batang o kena ka tlung, ho bohlokoa hore ho be le phepelo ea moea. Ho tširelletsa marulelo le mabota ho ka thusa ho boloka mocheso le ha ho ntso kena moea o lekaneng.

Ka lebaka la hore likarolo tse ling tsa naha ea Lesotho li phahame, moea oa oxygen oa fokola libakeng tsena ho feta libaka tse mabalane, sena se etsa hore phepelo ea moea e be bohlokoa ho feta matlong a likhoho. Ha ho sena moea oa oxygen o lekaneng, likhoho li tlokotsing ea ho ba le boemo ba ho ruruha limpa (ascites), e leng boemo bo tloaelehing ka hore ke ho tlala hoa metsi ka mpeng (water belly).

## Tsebo e batsi ea sehoai ea ho hlokomela leruo ka nepo

Tsebo e batsi ea sehoai ea ho hlokomela leruo ka nepo ke karolo ea bohlokoa tlhokomelong ea likhoho tsa nama. Hona ho bolela hore leruo le lokela ho hlokomeloa ho sebelisoa maikutlo 'ohle ho lekola boitšoaro, bophelo le maemo a tikoloho a leruo. Ho hlokomela boitšoaro ba likhoho le maemo a ka ntlong ho ka thusa supa moo bothata bo hlahang teng.

**Ho utloa** – Mamela molumo le ho hema hoa likhoho 'moho le melumo e emeng ka tlung

**Ho bona** – Lekola boitšoaro ba likhoho le maemo a tikoloho

**Ho nkha** – Lemoha boemo ba moea, joalo ka boteng ba moea oa ammonia

**Ho latsoa** – Hlahloba boleng ba metsi le lijo ka ho li latsoa

**Ho tšoara** – Tšoara likhoho ho hlahloba lijo ka kileng ho litsuonyana tse nyane, hlahloba le maemo a likhoho tse kholo, le maemo a tikoloho a hlahlojoe.

### 4

## Mongobo o leng moeeng

Mongobo o moeeng o ka methoa ka sesebelisoa sa hygrometer ka ha mongobo o nka karolo ea bohlokoa tseleng eo litsuonyana li utloang maemo a tikoloho. Ha mongobo o le holimo, litsuonyana li utloa moea o chesa ho feta ka moo o leng ka teng. Ka ha litsuonyana li tsoa ka har'a sesebelisoa se qhotsisang mahe (incubator) moo maemo a mongobo a leng holimo, li tsietsing ea khaello ea metsi 'meleng haeba mongobo o ka ba tlase haholo. Matsatsing a pele, mongobo o lokela ho ba 60 – 70%. Naheng ea Lesotho moo mongobo o moeeng o leng tlase, sesebelisoa sa ho fafatsa metsi leboteng (backpack sprayer) se ka sebelisoa ho etsa mabota a be mongobo. Haeba mongobo o le tlase, maemo a mocheso a khotlalletsoeng Tafoleng ea 3.1 a ka eketsoa hanyane. Haeba hygrometer e se

teng, boitšoaro ba litsuonyana bo ka fana ka leseli la hore na maemo a nepahetse hore li be le boiketlo. Haeba mongobo o le holimo haholo, boleng ba mosuela boa thefuleha ka ha mongobo o mongata o etsa hore o be metsi.

Mongobo o nepahetseng bakeng sa likhoho o lipakeng tsa 45% ho isa ho 65%. Haeba moea o omelletse haholo ho bile ho le lerole, likhoho li ba tsietsing ea ho tšoaroa ke mafu a matšoafu. Ka letsohong le leng, haeba moea o ka har'a ntlo o le mongobo haholo, manyolo haa ome ka botlalo, 'me hona ho baka manyolo a metsi. Ho na ho ka baka maemo a phahameng a moea oa ammonia, maqeba a karolong ea sefuba, maqeba maotong le lefu le hlaselang mala a likhoho (coccidiosis). Phepelo e nepahetseng ea moea, haholo ha mongobo o le holimo haholo e bohlokoa ho boloka maemo a nepahetseng a manyolo. Manyolo a metsi a lokela ho lula a ntšoa katlung, empa le ha hole joalo manyolo ha a lokela ho omella haholo le ho ba lerole.

Phepelo ea moea ke karolo ea bohlokoa haholo molemong oa ho etsa tikoloho e nang le bophelo bakeng sa likhoho. Matlong a butsoeng, likharetene li lokela li phahamisoe kapa li theloae ha ho hlokakala lo laola ho kena hoa moea. Moea o pholileng o kenang o lokela ho kopana le moea oa khale o chesang o ka har'a ntlo. Hona ke molemong oa ho qoba libaka tse batang ka tlung.

### Mongobo o bohlokoa nakong ea kholiso ea likhoho

- ✓ Mongobo o nepahetseng: 45–65%
- ✓ Mongobo o holimo: O thefula boleng ba manyolo, o eketsa ammonia, o baka mafu a matšoafu
- ✓ Mongobo o tlase: O ka baka ho hloka metsi 'meleng
- ✓ Ha ho hlokahala, ho ka fafatsa mabota ka metsi ka sesebelisoa se nyanysang
- ✓ Lekola boitšoaro ba litsuonyana ke sesupa sa bolokolohi ba tsona

## Taolo ea lijo, ho fepa le metsi

Lijo tsa likhoho ke motsoako oa lihlahisoa tse bitsoang lijo-thollo. Bahlahisi ba lijo ba reka lijo-thollo ebe ba etsa metsoako e ikhethileng molemong oa likhoho tse fapaneng ka ho fapana le ka nako ea tsona. Lihlahisoa tsena li kopanyoa ka litekanyetso tse qaqileng ho etsa lijo tse fihlelang litlhoko tsa likhoho e leng ho phela le ho hola. Litekanyetso tsena li etsoa ho ipapisoa le mofuta oa khoho le nako ea eona, hona ho bolela hore lijo tsa likhoho tsa nama le lijo tsa likhoho tsa mahe li kopantsoe ka tsela tse fapaneng. Ho bohlokoa ho sebelisa lijo tse khothalletsoeng li bile li tsoa ho morekisi ea tsebahalang. Se ke oa sebelisa lijo tsa likhoho tsa mahe ho fepa likhoho tsa nama.

1

### Mefuta ea Lijo

Lijo tsa likhoho li hlahisoa ka mefuta e fapaneng e kenyelletsang lijo tsa mash, crumbles le li pellet (Setšoantšo 3.9, 3.10 and 3.11). Likhoho tsa mahe li feptjoa mash hobane litjeho tsa eona li se holimo, 'me likhoho tsena li ja mash o lekaneng ka letsatsi ho fihlela litlhoko tsa tsona tsa phepo. Ka ho fapana, likhoho tsa nama li hloka ho ja khafetsa lijo tse ngata ho li thusa ho hola kapele. Ho bonolo ho likhoho tsa nama ho ja li pellet li ba li li koenya ho feta mash le ha ele hore li pellet li phahame ka theko. Kholo ea kapele eo li pellet li e tlisang e fana ka lebaka la ho tura hoa tsona. Litsuonyana tse nang le letsatsi le le leng li feptjoa li crumble—e leng li pellet tse nyane—ho fihlela li holile li le boemong ba ho ja li pellet tse tloaelehileng ha li le nako ea matsatsi a 16.

#### Mefuta ea lijo le tšebeliso ea tsona

- ✓ **Mash:** E tloaelehile phepong ea likhoho tsa nama, e litjeho li tlase empa e nka nako ho jeha
- ✓ **Li crumble:** K e li pellet tse nyane tse nepahetseng ho litsuonyana, li ka angoa ke mongobo
- ✓ **Li pellet:** Li nepahetse molemong oa likhoho tsa nama, li jeha kapele, li tlisa kholo kapele



**SETS'OANTS'O 3.9**

Mash



**SETS'OANTS'O 3.10**

Li crumble



**SETS'OANTS'O 3.11**

Li pellet

## 2

### Taolo ea Lijo

Tlhalisong ea likhoho, lijo ke tsona tse litšenyehelo li holimo haholo, kakaretsong ea litjeho, lijo li nka 70%. Litšenyehelo tse ling li kenyetleisa theko ea litsunyana tse letsatsi le leng, ho futhumatsa, motlakase, metsi, mosuela, li ente, li hlahisoa tsa tlhoekiso, le ho patala basebetsi.

Ka ha lijo li turu, ho bohlokoa ho leka ka litsela tsohle ho fokotsa tšeny. Ha lijo li qhalana kapa li jeoa ke litali kapa linonyana tse hlaha, hona ho theola monyetla oa hore ho be le phaello khoebong. Lijelo li se ke tsa tlatsoa ho feta tekano ka ha likhoho li atisa ho phahamisa lihlooho tsa tsona eba lijo li tla qhalanela fatše. Theko ea lijo e lokela ho reroa ka hlokolosi ho netefatsa hore lijo li sebelisoa nakong ea likhoeli tse tharo li sa bolokoe nako e telele.

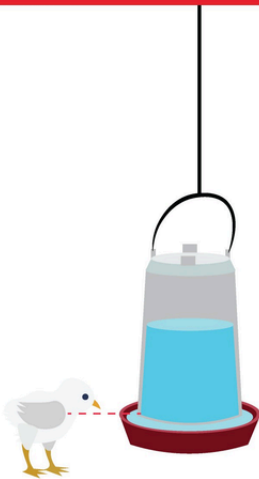
## 3

### Bophahamo ba lijelo

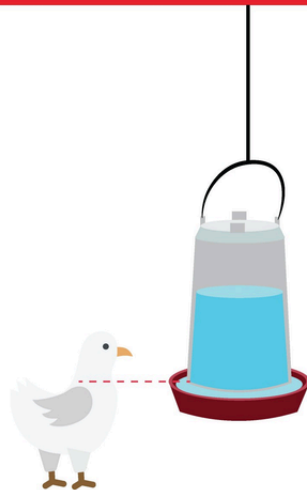
Netefatsa hore lijelo tse ka har'a ntlo ea likhoho li behloe bophahamong bo lokelang likhoho (Setšoantšo 3.12). Haeba lijelo li le holimo haholo, likhoho li ka nna tsa sokola ho fihlela lijo. Haeba li le tlase haholo, likhoho li tla tlameha ho kebisa lihlooho haholo—hona ho ka etsa lijo li qhalane. Ha lijelo li le tlase haholo li ka silafatsoa ke masiba kapa mantle a likhoho.

#### Litataiso bophahamong ba lijelo

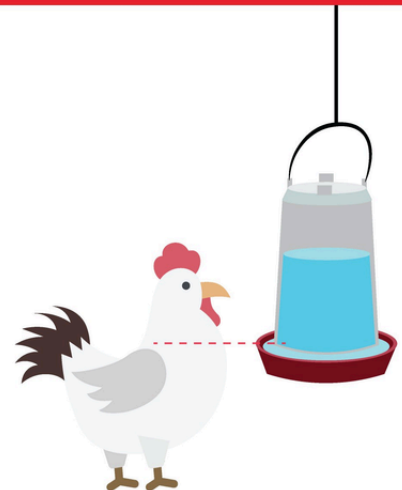
- ✓ Beha lijelo hore li lekane le bophahamo ba bo kamorao ba likhoho
- ✓ Qoba ho beha lijelo tlase haholo ho qoba tšila fa leho qhalana
- ✓ Lijelo li lokela ho hlahlojoa khafetsa li behoa maamong a kholo ea likhoho



Tse letsatsi le leng ho isa ho a mahlano



Tse matsatsi a 6 ho isa ho a 28



Tse matsatsi a 29 ho ea holimo

### SETS'OANTS'O 3.12

Bophahamo bo nepahetseng ba linoelo le lijelo

**4**

## Boteng ba lijo

Lijo li lokela ho lula li le teng ho likhoho tsa nama ho netefatsa hore li fihlela bokhoni ba tsona ba kholo. Ho laola nako ea likhoho ea ho ja ha oa kothalletsoa. Empa ka lebaka la maemo a bophahamo ba naha ea Lesotho, ho ka ba bohlokoa ho fokotsa sekahla sa kholo ea likhoho ka ha li ka ba tsietsing ea ho ba le pokello ea metsi ka mpeng (ascites). Se na se ka etsoa ka ho fokotsa ho ja hoa likhoho le ha ntse li fuoa li pellet tse fokolang.

**5**

## Ho thibela hlobo

Lijo tse metsi li baka hlobo, hona ho etsa lijo li seke tsa jeha hoo li ka bang kotsi. Lijo tse letseng hloho li lokela ho qhaloa. Thibela hlobo ka ho netefatsa hore ha ho moo ho lutlang metsi pela libaka tseo ho behiloeng lijo. Ha ho bonolo ho qoba hore mathe a likhoho a seke a etsa lijo li be metsi, le ha hole joalo, lijo le lokela ho lula li hlahlojoa ho tlosa lijo tse ipopileng ke ho ba metsi ka har'a lijelo kapa mathopo.

**6**

## Ho fepa lijo tse ling tse fapaneng

Molemong oa kholo e nepahetseng, lijo tsa likhoho tsa nama e lokela ho ba tsona feela tse sebelisoang phepong ea likhoho. Ho kenyelletsa meroho kapa mohloa kapa lijo tse ling ho ka baka phepo e sa nepahalang, sena se ka fokotsa kholo ea likhoho. Lijo tsa likhoho li entsoe ka limatlafatsi tsohle tse bohlokoa ka litekanyetso tse nepahetseng, ho na ho tlosa tlhoko ea lijo tlatsetso.



### Keletso:

Ha hona tlhoko ea ho fana ka lijo tlatsetso ho lijo tsa likhoho tse tsoang ho morekisi ea tsebahalang

**7**

## Peho ea lijo

Lijo tse rekiloeng li tšetsoe ka mekotleng li lokela ho behoa sebakeng se omemeng, mekotla ena e behoe holima mapolanka (pallets). Ntlo ea polokelo ea lijo e lokela ho hloka lifestere, mapatso kapa ho nela ho boloka lijo li omme li bile li sireletsehile letsatsing. Mongobo le mahlaseli a letsatsi a bolaea limatlafatsi tse hlokahalang. Ho paka mekotla holima mapolanka hole le lefatše le batang le mabota ho thibela pokello ea metsi le ho fufuleloa. Ha lijo li rekiloe ka bongata, li lokela bolokoa ka hara tanka e kholo e koaelehang e sa kenele pula.

### Peho e nepahetseng ea lijo:

- ✓ Lijo li bolokoe sebakeng se ommeng, se na le potoloho e nepahetseng ea moea
- ✓ Ho sebelisoa mapolanka (pallets) ho paka mekotla hole le lefatše
- ✓ Beha lijo hole le mahlaseli a letsatsi ho qoba ho senyeha hoa limatlafatsi
- ✓ Sheba ho nela kapa rothi, e leng lintho tse ka bakang hlobo lijong



## Thibelo ea liphoofotsoana le linonyana tse hlaha

Litali le linonyana ha lia tlameha ho fihlela libaka tseo ho bolokiloeng lijo ka ha li na le mafu a ka bakang tšilafalo ea lijo 'me likhoho tsa kula. Litšoasi tsa litali li lokela ho behoa ka moralo o hlophisitsoeng ho pota sebaka ho beha liphoofotsoana tlasa taolo. Lijo tse qhalaneng li tlameha ho tlosoa hang-hang ho thibela ho tla hoa linonyana tse hlaha tseo le tsona li ka tsamaisa mafu (bona karolo ea Tširelletso khahlanong le mafu).



## Metsoako ea lijo tsa likhoho tsa nama

Lijo tsa mantlha tsa likhoho ke starter sa likhoho tsa nama, grower ea likhoho tsa nama, finisher ea likhoho tsa nama le finisher ea ho qetela ea likhoho tsa nama. Barekisi ba ka ba le likhakanyo tse fapaneng ho ipapisitsoe le nako e lebelletsoeng ea ho hlaba (sheba mohlala o ka tlase – Tafole 3.2). Matsatsi a fanoang ke likhakanyo 'me ho molemo ho se tlohele ho fepa ka mekotla e se ntse e butsoe le ho se fetole linako e le teko ea ho ikamahanya le litekanyetso tseo. Haeba lijo li na le moriana, mofuta oa lijo oa finisher ea ho qetela o ka hlokahala ho netefatsa hore nama e bolokehile ho jeoa ke batho. Haeba likhoho li lokela ho nka nako e telele ho feta e lebelletsoeng, mofuta oa lijo oa phepo—o se nang limatlafatsi tse ngata—o ka sebelisoa ho fokotsa litjeho, empa hona ha oa khothalletsoa molemong oa kholo ea likhoho. Ho boloka likhoho nako e fetang e lebelletsoeng ho ka ba le litjeho tse holimo hobane likhoho tse kholo li ja lijo tse ngata.

Lijo tsa mash ha lia khothalletsoa molemong oa ho fepa likhoho tsa nama ka ha li le lerole. Haeba tšabo e le hore likhoho li tla ba le pokello ea metsi ka mpenng (ascites), ho molemo ho li fepa lijo tsa li pellet, empa ho etsoe phokotso ea phepo e le ho fokotsa sekhahla sa kholo

### TAFOLE 3.2

Mehlala ea mofuta ea lijo le likhakanyo bakeng sa likhoho tsa nama

Mofuta oa lijo	Matsatsi	Lijo tse jeoang (kg/khoho)	Kg ea lijo ho likhoho tse 1000	Palo ea mekotla ea 50 kg
Starter Crumble (20% CP)	Ho isa ho 21	1	1000	20
Grower Pellet (18% CP)	22-35	1.5	1500	30
Finisher Pellet (16% CP)	36-42	1	1000	20

## Taolo ea Metsi

Litsuonyana li ka se phele kante ho metsi. Metsi a thusa ho laola mocheso oa tsona oa 'mele, a thusa molemong oa tšilo, a thusa ho boloka lera la mamina (lera le ka hanong le ka matšoafong) le le mongobo, lera le na le thibela likokoana-hloko tse bakang mafu ho kena 'meleng. Ha litsuonyana li sa noe metsi, mantle a tsona a ba thata ebe kamor'a lihora tse fokolang li emisa ho ja. Hona ho baka li emise ho ntša mantle ka ho felletseng. Metsi a bohlokoa molemong oa bophelo ba letsatsi le letsatsi ka ha karolo ea ona ke 80% 'meleng oa tsuonyana ha 'meleng oa khoho e khoho e le 65%.

Ha likhoho li sa fumane metsi, hob a le liphetohe tse khoho tsebetsong ea 'mele ea tsona li hlaha ka nako ea lihora, hona ho baka ho theola khoho ea tsona. Khoho e lahleheloang ke 20% ea metsi 'meleng oa eona e ea shoa. Likhoho li ka phela nakoana e telele kante ho lijo ho feta ho phela kante ho metsi.

Hangata metsi a tsoang mehloling ea tlhohleho joalo ka linoka, matamo le lipompo tse hulang metsi fatše a silafalitsoe ke likokoana-hloko tse kang E. coli, haholo ha metsi a na a ba le kopano le manyolo. Mehloli ena ea metsi e ka boela ea ba le limela tse nyane 'moho le likokonyana tse sa boneheng ka mahlo, lehlabathe le lona le ka ba teng. Metsi a 'masepala a bolokehile hore a sebelisoa ke batho le likhoho.

### Pele metsi a sebelisetsoa ho noa, a lokela a:

- ✓ Sefuoe ho tlosa masalla a qitileng
- ✓ Tšeloe chlorine ho bolaea likokoana-hloko. Sena se ka etsoa ka ho:
  - ✓ Beha lipilisi tsa chlorine ka har'a tanka
  - ✓ Tšela khaba e nyane ea bleach ka har'a lilithara tse 20 tsa metsi

Metsi a ka boela a ba le liminerale tseo e kang calcium, letsoai, flourine le tšepe (iron) tse qhibilihileng ka hare ho ona ka bongata bo ka bakang kotsi. Limenerale tsena li ka kiba liphaephe tsa metsi le linoelo tse rothisang metsi ka har'a ntlo ea likhoho kapa li bake rusi. Haeba ho sebelisoa linoelo tse rothisang metsi, ha ho hlatsuoana ntlo ea likhoho, liphaephe li lokela ho hlatsuoana khafetsa ka sehlahisoa se tlosang masalla a liminerale. Lisefe tsa metsi tse nyane haholo kapa lihlahisoa tse nolofatsang metsi li ka thusa ho thiba pokello ea limenerale ea letsatsi le letsatsi.

Fumana libotlolo tse hloekileng ho tsoa ho bolaoli ba metsi ba lehae, u li tlatse ka disampole tsa metsi, ebe u li khutlisetsa teng bakeng sa tlhahlobo. Lisampole tsena li lokela ho isoa nakong eo metsi a ntseng a sebelisoa ho tsoa linoelong e seng pompong e ka ntle. (Mohlala oa tlhahlobo ea metsi alikhoho o fanoe Qhoalleng ea i).

### Mehato ea Bohlokoa ea Taolo ea Boleng ba Metsi:

- ✓ Sefa metsi ho tlosa seretse le litšila (sediment).
- ✓ Bolaea likokoana-hloko ka chlorine (lipilisi kapa motsoako oa bleach)
- ✓ Hlahloba metsi khafetsa nakong eo a nooang
- ✓ Haeba ho sebelisoa linoelo tse rothisang metsi, liphaephe li lokela ho hlatsuoana khafetsa ka sehlahisoa se tlosang masalla a liminerale

# 1

## Ho Laola Tšebeliso ea Metsi

Ha likhoho li ntse li hola, bolele ba sebaka seo li noellang ho tsona kapa linoelo bo lokela bo lule bo fetoloa (Setšoantšo 3.13 le 3.14). Ha linoelo tse rothisang metsi li le holimo haholo, likhoho li sitoa ho li fihlela, empa linoelo tse tlase haholo li ka baka ho qhalana hoa metsi le hore a silafale. Karolo ena ea taolo ea metsi e na le seabo ho tšoaneng hoa likhoho, ho netefatsa hore likhoho tsohle li fumana metsi a hloekileng ka tsela e tšoanang.

Linoelo tsa bell (bell drinkers) li lokela ho hloekisoahabeli ka beke ka ho sebelisa lesela le hloekileng ho hlatsoa ka hare ho molomo le ho tlosa metsi a litšila. Linoelo tsa fount (fount drinkers) li lokela ho hloekisoa kamehla ha li tlatsoa metsi hape. Sena se thibela likokoana-hloko tse kotsi hore li se ke tsa bokellana.



**SETS'OANTS'O 3.13**

Senoelo sa litsuonyana ha se le bophahamong bo nepahetseng



**SETS'OANTS'O 3.14**

Senoelo sa bell ha se le bophahamong bo nepahetseng

# 2

## Ho hloekisa libaka tseo likhoho li noellang metsi ho tsona

Nakong ea mekhahlelo ea tlhahiso, minerela oa lime, pokellano ea liminerale, rusi, litšila le algae li bokella ka har'a liphaephe tsa metsi, hona ho fokotsa phallo ea metsi le ho susumetsa kholo ea likokoana-hloko. Likhoho tsa nama tse noang metsi ho tsoa libakeng tse litšila li ja likokoana-hloko tse kotsi, tse ka bakang mathata a bophelo bo botle.

Nako e lipakeng tsa mekhahlelo ea tlhahiso, libaka tseo likhoho li noellang metsi ho tsona li lokela ho hloekisoa ka botebo ka:

1. **Ho hlatsoa** libaka tseo likhoho li noellang ka metsi a khatello e phahameng ho tlosa litšila.
2. **Ho tlatsoa** libaka tsa ho noella ka motsoako o hloekisang, o tloheloe ka hare **lihora tse 3–6**.
3. **Ho hlatsoa hape** ka metsi a hloekileng pele li sebelisoa hape.

### 3

## Ho ja Lijo le ho Noa Metsi

Metsi a nooang ke khoho ea nama ka letsatsi (ml/khoho/letsatsi) a kaba habeli ho lijo tseo e lijang (g/khoho/letsatsi)

### **Mohlala, ho 28°C (82°F), khoho ea nama e libeke li 5 e tla:**

- Ja 150g ea lijo
- Noa 280ml ea metsi

### **Ho 30°C (86°F), khoho e tšoanang e tla:**

- Ja 128g ea lijo (e fokotsa ho ja lijo ka lebaka la khatello ea mocheso).
- Noa 300ml ea metsi (e eketsa ho noa metsi ho boloka mocheso o tlase).

Ho kenya li mithara tsa metsi matlong a likhoho ho thusa ho beha leihlo tsela eo likhoho li noang metsi le ho hlokomela mathata kapele. Limithara li boetse li fana ka tlhaiso-leseling bakeng sa tšebeliso ea metsi, kaha lipalo tsena li ka tlosoa ho metsi a ka har'a libaka tseo likhoho li noellang ho tsona, hona hoka fana ka lipalo tse hlakileng tsa metsi ao likhoho li a noeleng.

Boteng ba metsi bo tlameha ho hlahlojoa letsatsi le letsatsi, leha ho sebelisoa linoelo tse rothisang metsi. Haeba likhoho li sa fumane metsi, li tla emisa ho ja. Metsi a pholileng, a hloekileng, e bile e se metsi a khale a lokela ho lula a fumaneha. Mocheso oa metsi o phethahetseng bakeng sa likhoho ke 10–13°C (50–55°F).

### **Mekhoa ea ho ja lijo le ho noa metsi**

- ✓ Likhoho li noa metsi a mangata ho feta lijo
- ✓ Ha ho chesa, lijo tse jeoang lia fokotseha empa metsi a nooang a eketseha
- ✓ Ho hlahloba metsi ka letsatsi ho thusa ho fokola hoa metsi 'meleng le mathata a kholo
- ✓ Li'mithara tsa metsi li thusa ho bona ho nooa hoa metsi ho sa tloelehang



### **SETS'OANTS'O 3.15**

Boteng ba metsi ke e 'ngoe ea likarolo tse bohlokoa haholo leruong la likhoho

## Mokhoa oa ho Tšoara Likhoho le ho li Hlokomela Pele li Hlajoa

Ha mokhahlelo oa ho ruha o filha pheletsong, likhoho li ka rekisoa li phela kapa tsa isoa selakhapane. Ha hoa khothalletsoa hore likhoho li hlabele moo li ruheloang teng hobane litšila tse sallang li ka tlisa likokoana-hloko tse ka amang leruo la nako e tlang.

Kamor'a hore likhoho li hole li be li hlokomeloe ka kelo hloko, ho bohlokoa ho li tšoara ka nepo ho qoba likotsi tseo e kang:

- Matetetso
- Mengoapo
- Ho robaha hoa mapheo

Likhoho li lokela ho tsamaisoa ka koloi li le ka har'a macrate (crates), palo ea macrate a hlokahalang e lokela ho tsejoa pele likhoho li qalella ho tšoaroa. Palo ea likhoho tse kenngoang ka har'a lecrate le le leng e ipapisitse le:

- **Boholo ba kholo** – Ha likhoho li le kholo ho tšelo a palo e fokolang ka lecrateng
- **Maemo a ho tsamaisa likhoho** – Fokotsa palo ha ho chesa kapa ha leeto e le le letelele
- **Ho tsitsa** – Likhoho ha li le nyane ka palo ho ka hlokahala botsitso ha li tsamaisoa, hona ho eketsa maemo a likotsi.

Ho bohlokoa ho se tšose likhoho nakong eo li nkoang. Mekhoa e ka sebelisoang ke:

- **Ho tima mabone (lights)** e le ho li theola khatello ea maikutlo
- **Ho nka likhoho hoseng haholo kapa mantsibua haholo**

Likhoho ha li tšoaroa, li lokela ho nkoa ka nepo (Setšoantšo 3.16)

- **Kuka ka bokatlase ba maotoana** kapa **bohareng ba 'mele ka matsoho a mabeli**
- Boloka mapheo a le **pela 'mele** ho qoba hore a ee holimo le tlase.
- Se ke oa tšoara likhoho ka molala kapa mapheo



### SETS'OANTS'O 3.16

Ho tšoara khoho ka nepo

## LENANE LA TLHAHLOBO 3.1

Tokiso ea ntlo molemong oa litsuonyana tsa nama

	Mosebetsi	Ho entsoe	Letsatsi	Lebitso la motho
1	Tšela sebolaea-likokoana-hloko ka har'a sebaka sa ho hlatsoetsa maoto.			
2	Ala mosuoela fatše bophahamo ba 5-10 cm			
3	Beha lijelo le linoelo ka har'a ntlo ka bophahamo bo nepahetseng bakeng sa litsuonyana tse letsatsi			
4	Beha lifuthumatsi ka hare, li behoe ka bophahamo bo nepahetseng			
5	Haka lithemometha lehlakoreng la lifuthumatsi, li be pela litsuonyana			
6	Beha litšireletso ho pota-pota lifuthumatsi			
7	Tlatsa linoelo ka metsi a hloekileng			
8	Tšela li crumble tsa starter ka har'a lijelo			
9	Futhumatsa lihora tse 24 pele litsuonyana li fihla			
10	Nka lipalo tsa mofuthu oa moea o pela lifuthumatsi			
11	Netefatsa mabone a sebetsa, beha nako ka sebali sa nako ho lihora tse 23 haeba se le teng			

## LENANE LA TLHAHLOBO 3.2

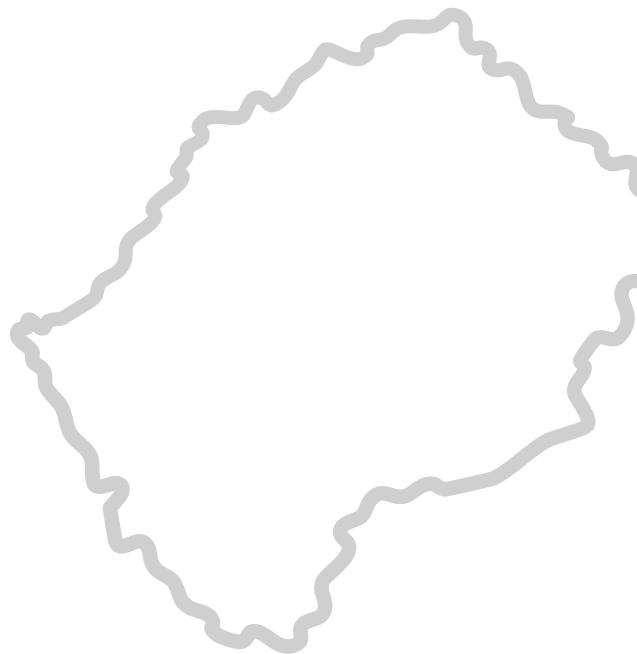
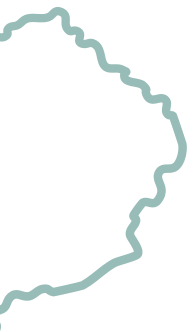
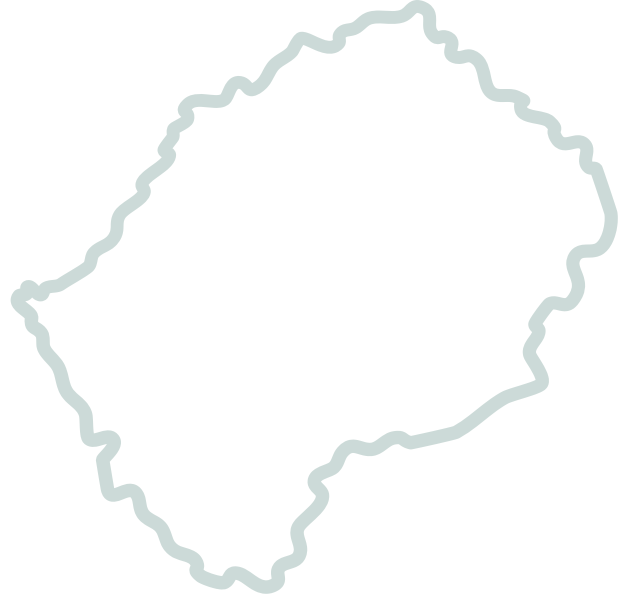
Ho beha le ho futhumatsa litsuonyana

	Mosebetsi	Ho entsoe	Letsatsi	Lebitso la motho
1	Nkela mabokose ka hlokolosi ntlong ea likhoho			
2	Bala mabokose			
3	Ntša litsuonyana ka har'a mabokose o li behe ka har'a litšireletsi tsa ho futhumatsa			
4	Tšoara likhoho ka hlokolosi ho qoba ho li roba mapheo le masapo a maoto			
5	Bala litsuonyana tse shoeleng			
6	Tlosa litsuonyana tse kulang kapa tse nang le bokooa			
7	Tšela lijo holim'a pampiri ebe u e beha holim'a mosuela			
8	Shebella hore na litsuonyana lia ja. Beha litsuonyana tse sa jeng pela lijelo			
9	Tšoara kila ho utloa hore na e na le lijo			
10	Shebella na litsuonyana lia noa. Kenya melomo ea litsuonyana tse sa jeng ka har'a metsi			
11	Sheba boitšoaro ba litsuonyana ho bona hore na li lokollohile har'a mocheso o teng			
12	Fetola mocheso oa sefuthumatsi haeba ho chesa haholo kapa ho bata haholo			

## LENANE LA TLHAHLOBO 3.3

Ho hlokomela likhoho tsa nama le tikoloho ea tsona

	Mosebetsi	Ho entsoe	Letsatsi	Lebitso la motho
1	Fetola musuela ho o omisa ka tlase. Tlosa likaralo tsa mosuela tse metsi			
2	Utloa hore na hona le monko oa ammonia ka har'a ntlo			
3	Sheba hore na moea o foka o hlaha lehlakoreng le feng			
4	Phahamisa kapa u theole likharetene ho kenya moea katlung ho ipapisitsoe le boemo ba leholimo			
5	Sheba na likhoho li na le khatello ea mocheso kapa likhobokane 'moho ka lebaka la serame			
6	Hloekisa linoelo u li tlatse ka metsi a hloekileng			
7	Beha linoelo bophahamong bo nepahetseng ho likhoho			
8	Beha lijelo bophahamong bo nepahetseng			
9	Tšela motsoako o nepahetseng oa lijo tsa likhoho tsa nama ka har'a lijelo			
10	Hlahloba switch e laolang nako ea ho bonesa			
11	Bekha likhoho beke le beke. Ngola boima ba tsona bo mahareng			
12	Tlosa likhoho tse shoeleng (letsatsi le letsatsi). Ngola palo ea likhoho tse shoeleng. Tšela likhoho tsena tse shoeleng ka har'a sekoti.			



# 4. Bophelo ba Likhoho le Tširelletso Khahlanong le Mafu

Thibelo ea mafu e bohlokoa haholo, 'me mehato e matla ea tširelletso leruong la likhoho le mekhoa e nepahetseng ea taolo ea sebaka sa ho ruhela likhoho li bapala karolo ea bohlokoa ho fokotsa kotsi ea khahlamelo ea mafu. Haeba likhoho li ka hahlameloa ke mafu, ho bohlokoa ho lemoha kapele hore lia kula le ho nka mehato e nepahetseng hang-hang.

1

## Tširelletso Khahlanong le Mafu

Tširelletso khahlanong le mafu (biosecurity) e bolela ho sireletsa likhoho ka ho thibela ho ata hoa likokoana-hloko tse bakang mafu (li-virus, libaktheria, li-fungi le li-protozoa). Likokoana-hloko tsena li fumaneha hohle, 'me ho ke ke hoa khoneha ho li felisa kaofela. Leha ho le joalo, ka mehato e nepahetseng ea tširelletso, likhoho li ba tsietsing e nyane ea likokoana-hloko, 'me li ba le monyetla o motle oa ho lula li phetse hantle. Likokoana-hloko tse ngata li bolaoa ke khanya ea letsatsi le ka ho hloekisa le ho bolaea likokoana-hloko hantle ka ntlong ea likhoho (joalokaha ho hlalositsoe pejana). Liente (vaccinations) li fa likhoho boitšireletso ba 'mele, 'me ho fokotsa khatello (stress). Ho boloka maemo a tikoloho a loketseng likhoho ho matlafatsa likhoho khahlanong le mafu.



### SETS'OANTS'O 4.1

Ho bohlokoa ho nka mehato e matla ea tširelletso leruong la likhoho ho boloka likhoho li phetse hantle

2

## Ho enta

Bongata ba libaka tse ngata tsa qhotsiso tsa South Africa, moo hangata litsuonyana li tsoang teng, li enta litsuonyana khahlanong le mafu a Newcastle le Bronchitis. Leha ho le joalo, sena se lokela ho netefatsoa kamehla, kaha ka linako tse ling ente e fanoa e le tšebeletso e 'ngoe e fapaneng. Ho bohlokoa hore litsuonyana li fihle li se li entiloe. Ho boela ho khothaletsoa ho enta bakeng sa lefu la Newcastle ha litsuonyana li le matsatsi a 8–10, le bakeng sa lefu la Infectious Bursal (Gumboro) ha li le matsatsi a 18–20. Ikopanye le ngaka ea liphoofole setsing sa heno sa lisebelisoa bakeng sa tlhaiso-leseling e eketsehileng mabapi le ho enta.

## 3

## Mekhoa ea ho tsamaisa mafu

Hona le litsela tse ngata tse ka tsamaisang mafu (Setšoantšo 4.1), empa taolo e nepahetseng e ka thusa ho fokotsa kotsi ena.



## SETS'OANTS'O 4.1

## Litsela tse ka tsamaisang mafu

Mekhoa ea ho fokotsa lintho tse ka isang likokoana-hloko likhohong tsa nama:

- Hloekisa le ho bolaea likokoana-hloko katlung lipakeng tsa mekhahlelo ea tlhahiso (joalokaha ho hlahositsoe pejana).
- Thibela baeti ba sa hlokaleng ka ho teratela sebaka, ho notlela ntlo ea likhoho, le ho beha matšoao a hore "ho se kenoe."
- Fokotsa kopano pakeng tsa bareki le likhoho.
- Re Netefatsa hore baeti bohle ba apara Personal Protective Equipment (PPE)—li-overall le lieta tsa li boot. Lisebelisoa tse ka lahloang kapa lieta tsa li sandal tsa polasetiki tse ka hlatsuoang habonolo le tsona lia sebetsa.
- Ho be le sebaka sa ho hlatsoa lieta le sebolaea-mafu sa matsoho ka ntle ho ntlo ka 'ngoe.
- Sebelisa masela a nang le sebolaea-mafu ho hloekisa liphone haeba li kena ka ntleng ea likhoho.
- Ha u hloela matlo, qala ka likhoho tse nyane pele, ebe u ea ho tse holileng.
- Boloka joang bo potolohileng ntlo bo le bo khutšoane, 'me u tlose litšila ho qoba likokoanyana.
- Thibela linonyana tse hlaha le litoeba ho kena ka ho kenya terata ea mesh moo ho nang le masoba.
- Kenya tšebetsong mehato ea taolo ea litšintši.
- Tlosa likhoho tse shoeleng kapele, li lahle ka sekoting sa litopo se nang le kalaka kapa ka ho li chesa.
- Tlosa matlakala ka mor'a mokhahlelo o mong le o mong, a behe hole le ntlo ea likhoho.
- Thibela likoloi ho kena ntle le haeba ho hlokalala.
- Bolaea likokoana-hloko lisebelisoeng tse sebelisoang ka hare le ho potoloha ntlo.
- Lahla lijo tsa khale kapa tse nang le hlobo, 'me u tlose lijo tse qhalaneng hang-hang.
- Lekola boleng ba metsi khafetsa.
- Sebelisa liteishene tsa chefo ea litoeba (rat bait stations) khafetsa (Setšoantšo 4.2).

# 4

## Lintlha tsa ho hlokomela sebaka sa ho ruhela likhoho

Tikoloho e hloekileng e na le bophelo e bohlokoa haholo ho thibela mafu. Ho ela hloko lintlha tse latelang ka hare ho ntlo ea likhoho ho thusa ho boloka leruo le phetse hantle:

- Lokisa bophahamo ba lijelo le linoelo tsa metsi ha likhoho li ntse li hola.
- Netefatsa hore ho na le lijelo le linoelo tse lekaneng ho latela palo ea likhoho.
- Ho khobokellana haholo ho ka baka likotsi.
- Hlahloba hore lijo li boemong bo nepahetseng (li nkhe le ho li latsoa ho netefatsa) le hore metsi a hloekile (a lokela ho ka nooa ke motho).
- Fana ka moea o lekaneng ho tlosa lerole, moea o chesang le ammonia. Maemo a phahameng a ammonia a ka baka mathata a ho hema.
- Fetola mosuela khafetsa 'me u tlose libaka tse mongobo ho thibela pokello ea ammonia.
- Ruha lenane le lekaneng. Likhoho tse petetsaneng li ka kobolana.
- Hlokomela hore leruo le hola ka tekano—khoho e sa lekaneng e ka supa mafu kapa maemo a sa nepahalang a tlhokomelo.
- Laola litšintši ka hare ho ntlo (Setšoantšo 4.3).
- Qoba lerata le lehoho le ka bakang khatello ho likhoho.

### Lintlha tsa Bohlokoa tsa Tlhahlobo ea Letsatsi le Letsatsi ka Ntlong ea Likhoho:

- ✓ Ho fumaneha hoa lijo le metsi tse nang le boleng
- ✓ Ho lokisoa ha bophahamo ba lijelo le linoelo
- ✓ Ho kena hoa moea le maemo a ammonia
- ✓ Boemo ba mosuela
- ✓ Boitšoarō ba likhoho le ho lekana hoa leruo



**SETS'OANTS'O 4.2**

Seteishene tsa chefo ea litoeba



**SETS'OANTS'O 4.3**

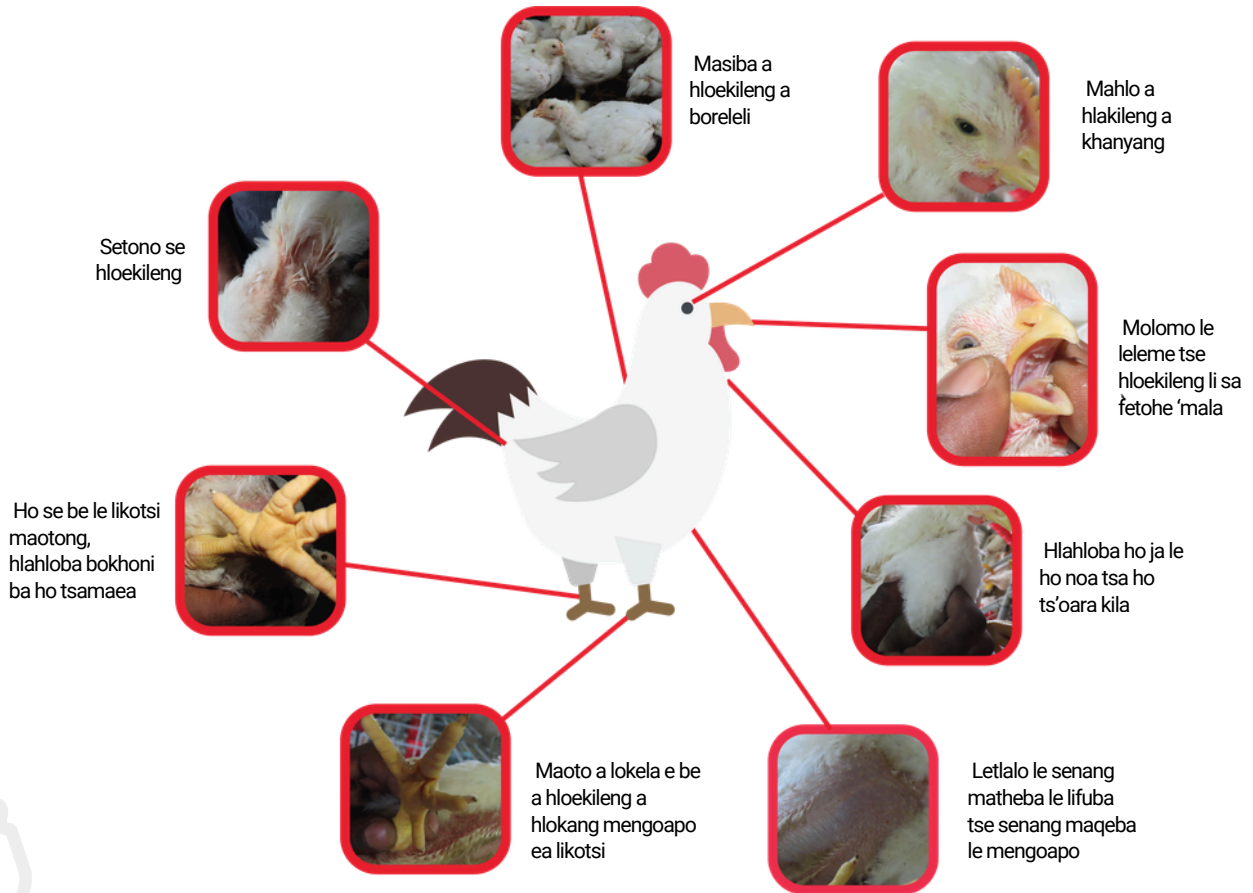
Setšoasi sa litšintši

# Mafu a likhoho tsa nama

## 1

### Ho Hloaea Likhoho tse Kulang

Ho bohlokoa ho nka nako letsatsi le letsatsi ka ntlong ea likhoho tsa nama e le ho ithuta hore na likhoho tse phetseng hantle li shebahala joang le hore na li itšoara joang. Sena se thusa ho lemoha mathata kapele, 'me se nolofatsa ho bona khoho e kulang 'me e sa bontše boitšoaro bo tloaelehileng. Ho bohlokoa ho ba le litsebo tsa ho hlokomela le ho khona ho bona lintlha ka botebo hobane ho ka thusa ho eelloa mathata pele a mpefala. Ha u tsamaea har'a leruo, sebelisa lintlha tse boletsoeng ho Setšoantšo sa 4.4 ho hlahloba hore likhoho li phetse hantle.



### SETS'OANTS'O 4.4

Matšoao a khoho e phelang hantle

*E nkiloe ho Tsela ea ho hlokomela khoho ea Ross 308*

Letlalo le masiba li sebetsa e le tšireletso ea mantlha khohong khahlanong le likokoana-hloko tse bakang mafu. Ho tšoara likhoho hampe ka tsela eo li ka bang le maqeba kapa mengoapo letlalong ho ka fana ka monyetla oa hore likokoana-hloko li kene 'meleng.

Nakong eo litsuonyana li leng nyane, hlahloba hore mabone a sebetsa ka nepo hobane li hloka nako ea ho tseba ho ikamahanya le tikoloho ea tsona.

Hangata, letšoao la pele la bokuli ba likhoho ke ho fokotsa ho ja lijo le ho noa metsi. Haeba ho hlokomeloa hore likhoho ha li je, hlahloba lijo bakeng sa mathata a kenyelletsang letsoai le lengata, hlobo kapa ho senyeha. Haeba likhoho li sa noe, hlahloba hore na liphaephe ha lia koaleha, hlahloba hore na metsi haa chese haholo kapa ho ba litšila. Ka kakaretso, likhoho li noa metsi a mangata hofeta lijo tseo li li jang. Ha tsela eo li noang metsi ka eona e fokotseha, mantle a tsona e ba a omelletseng kapa e ba li ka emisa ho ntša mantle ka botlalo. Ha likhoho li sa noe metsi, li ka shoa nakong ea matsatsi a 2 ho isa ho a 3.

### **Mathata a ka Bakoang ke Boleng bo Tlase ba Metsi**

Boleng ba metsi bo ka ama bophelo ba likhoho ka kotloloho, hape bo ka sitisa katleho ea tšebetso ea sesepa, sebolaea-likokoana-hloko 'moho le meriana. Haeba metsi a na le maemo a pH e sa nepahalang kapa tšepe (iron) e ngata, ho ka ba le tšenyeho ho marang-rang a khokelo ea metsi. Ho ka ba le khobokellano ea likokoana-hloko le ho koaleha hoa liphaephe. Ha mantle a likhoho a le metsi, ho na ke sesupo sa hore ho ka ba le lintho tse qhibilihetseng ka metsing, ho silafatsoa ke likokoana-hloko, kapa maemo a sa nepahalang a letsoai. Maemo a phahameng a nitrate kapa kokoana-hloko ea coliform ke sesupo sa hore metsi a silafalitsoe ke mantle, taba e na e tlameha ho nkeloa khato hang-hang.

### **Boleng ba Mosuoela le Moea**

Mosuoela o ka boloka likokoana-hloko, chefo le litšila. Mosuoela o mongobo o baka pokello ea ammonia, 'me eona e ka senya matšoafo le ho eketsa kotsi ea hore likhoho li be tsietsing ea mafu. Khaello ea moea o lekaneng e ka mpefatsa bothata hobane lerole le ka jara likokoana-hloko. Likhoho li ka bontša bothata ba ho hema ha li etsa molumo o tšoanang le ho thimola kapa ho hema ka thata.

### **Matšoafo a tloaelehing a mafu**

- Letšollo
- Mantle a nang le mali
- Li tlopo tse putsoa
- Ho thimola
- Ho sitoa ho tsamaea

Haeba ho bonoa a mang a matšoafo ana, ho bohlokoa ho nka mehato ea ho thibela ho ata hoa lefu ka potlako. Likhoho tse kulang kapa tse shoeleng li lokela ho isoa setsing se haufi sa ngaka ea liphoofole bakeng sa tlhahlobo ea kamor'a lefu molemong oa ho tseba lefu leo. Ha ho bonolo hore lihoai li hlahlobe mafu ka nepo, ka hona ho hlokoa liteko tsa litsebi ho netefatsa hore likhoho li fuoa pheko e nepahetseng.

## 2

### Mafu a tloaelehileng

Ho bohlokoa ho hloela ngaka ea liphoofole nako eohle molemong oa ho tseba lefu le likhothalletso tsa pheko e nepahetseng. Matšoao a mafu a tloaelehileng a hlalositose ka tlase:



#### SETS'OANTS'O 4.5

Pokellano ea metsi ka mpeng (Ascites)

Image: Dr Billy Hargis from MSD Vet Manual

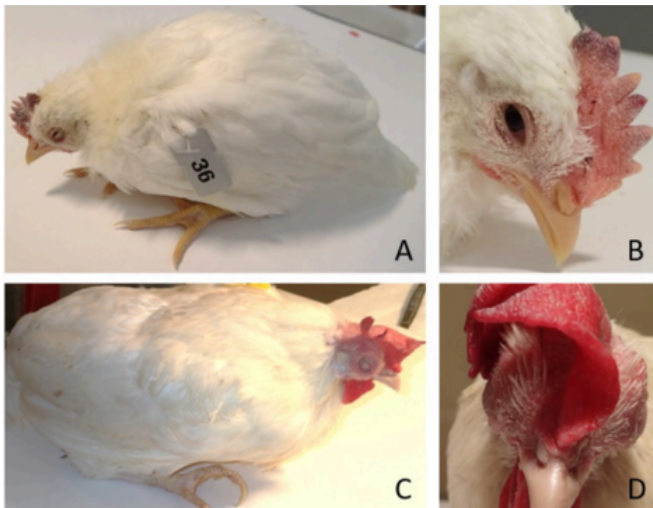
#### Ho bokellana metsi ka mpeng (Ascites)

(Setšoantšo 4.5)

- Ha se lefu le tšoaetsanoang.
- Le amahanngoa le kholo e potlakileng le ho ja lijo tse ngata, le atile libakeng tse phahameng le maemong a batang moo ho seng moea o lekaneng.
- Le baka ho se bopehe le ho sebetsa hantle hoa pelo le matšoafu.
- Le tloaelehile ho likhoho tsa nama tse libeke li 5.
- Mpa e tlaa mokelikeli o hlakileng.
- Ha ho na ente kapa pheko e teng.
- Mokhoa oa ho laola lefu le na ke ho fokotsa sekhahla sa kholo ea likhoho tse kotsing ka ho fokotsa phepo ea lijo.

#### Lefu la Newcastle (Sets'oants'o 4.6)

- Le bakoa ke kokoana-hloko
- Le ka bolaea likhoho kaofela tse sa entoang.
- Le thibelo ka liente:
  - Liente tsa Hitchner B1 le La Sota: li fanoa ka spray sa moea (aerosol), ka metsing a nooang kapa ka marotholi a mahlo.
  - Ente ea oli (oil-based): ke ente e fanoang mesifeng (intramuscular injection).
- Matšoao a amanang le methapo: mapheo a kokobaneng, taolo ea motsamao, ho oela, melala e sothehileng
- Matšoao a amanang le ho hema: likhoho li sitoa ho hema
- Likhoho li emisa ho ja le ho noa
- Ha ho na pheko e teng



#### SETS'OANTS'O 4.6

Lefu la Newcastle

A) Mokhathala ho khoho e nyane

B) Ho tsoa mali tlopong ea khoho e nyane

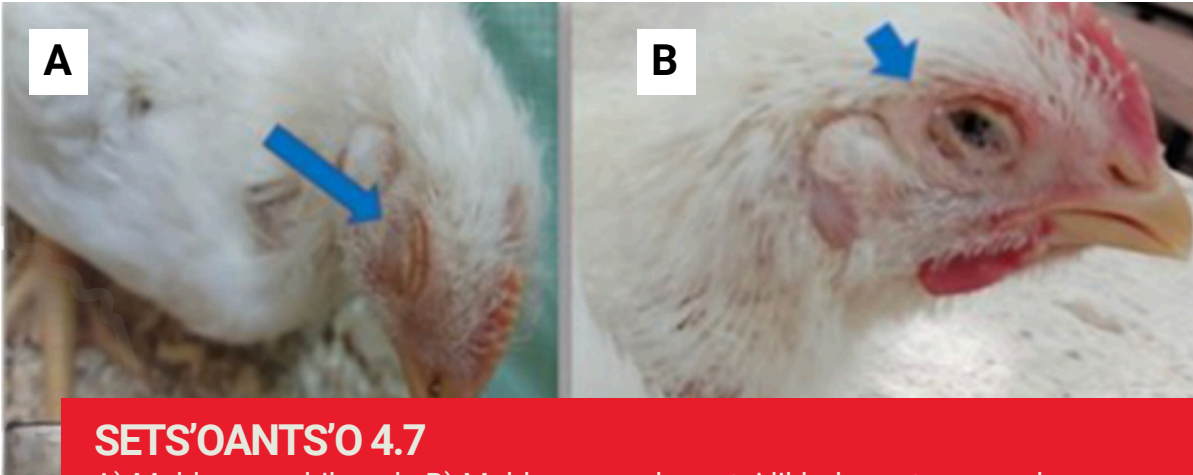
C) Mokhathala o kopantseng ho ruruha mahlo ho khoho e kholo

D) Hlooho e ruruhileng khohong

Image: Kiril Dimitrov, MSD Veterinary Manual

### Bronchitis e Ts'oaetsanoang (Sets'oants'o 4.7)

- E bakoa ke kokoana-hloko e atang kapele.
- Matšoao a ho hema: ho hema hanyane, ho thimola, ho hema ka boima, mahlo a metsi, hlooho e thothomelang, ho tsoa mamina linkong
- E eketsa ho lipalo tsa ho shoa hoa likhoho.
- Likhoho li ka fola nakong ea libeke tse 1–2 bosikong ba likokoana-hloko tse ling
- Likokoana-hloko tse tloaelehileng joalo ka *E. coli* li ka itlhalisa
- Hangata ho sebelisoa liente tse phelang bakeng sa thibelo.



#### SETS'OANTS'O 4.7

A) Mahlo a ruruhileng le B) Mahlo a nang le metsi likhohong tse nang le bronchitis e tšoaetsehang

Image: Elbasuni et al., 2023.

### Gumboro (Infectious Bursal Disease; IBD)

(Sets'oants'o 4.8)

- Le bakoa ke kokoana-hloko eo ho leng thata ho e bolaea ka sebolaea-likokoana-hloko.
- Hangata le ama likhoho tsa nama tse nyane
- Le hlaha ka tšohanyetso.
- Le senya boits'ireletso ba 'mele ka ho hlasela Bursa of Fabricius.
- Matšoao: Keketseho ea sekhahla sa ho shoa, ho lahlehela ke takatso ea lijo, kholo e liehang, ho sithabela, ho khobokana, masiba a phahameng, ho kobola, letšollo, ho thothomela le ho hloka taolo ea motsamao
- Le ka thibeloa ka ente e tšeloang ka metsing a nooang
- Litšoaetso tse ling tsa likokoana-hloko li ka phekoloa ka lithibela-mafu



#### SETS'OANTS'O 4.8

Khoho e bontšang mokhathala o matla, masiba a phahameng le ho kotlobana matsatsi a 4 ka mor'a tšoaetso ea IBDV).

Image: Dr. Julia R. Blakey from MSD Vet Manual

### **Lefu la Colisepticaemia**

- Le na ke lefu le tloaelehileng haholo ho likhoho tsa nama
- Le bakoana ke kokoana-hloko ea baktheria ea E. coli.
- E. coli e teng ka kahar'a mala ka tl holeho, likhoho tse phetseng hantle li khona ho mamella tšoaetso.
- Khatello e bakoang ke tlhokomelo e mpe kapa kokoana-hloko e fe kapa e fe ho ka atisa likokoana-hloko haholo
- Lefu le na le ka phekoloa ka lithibela-mafu

### **Lefu la Coccidiosis**

- Ke lefu le bakoang ke liprotzoa tse phelang kahar'a mala a likhoho.
- Likhoho tsa nama tse holisetsoang fatše 'me li kopana le mantle a tsona li kotsing e kholo ho feta likhoho tsa mahe tseo tsona li lulang kahar'a mekoallo (cages).
- Matšoa: mantle a nang le mali, phokolo ea mali, masiba a phahameng, kholo e seng ntle (ka lebaka la limatlafatsi ke fokolang), phokolo ea 'mele, sekahla se holimo sa lefu
- Lefu le na le behoa tlasa taolo ka ho sebelisa coccidiostats tse kopantsong le lijo (ntle le lijo tsa ho qetela e leng finisher hobane tšebeliso ea coccidiostats e lokela ho emisa nako pele ho hlajoa).

### **Lefu la Salmonella**

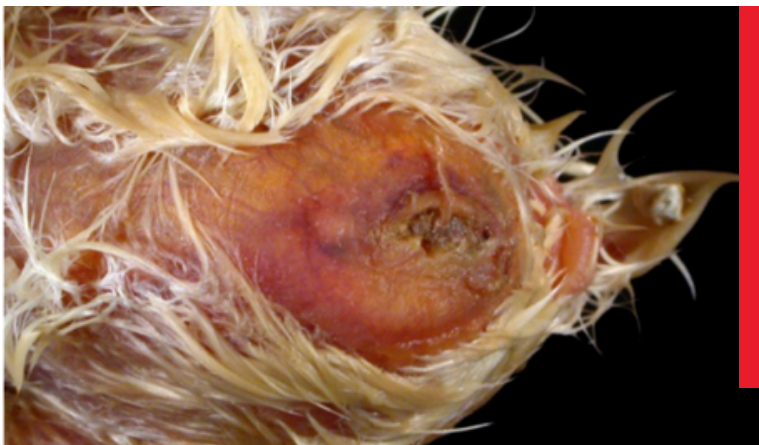
- Le bakoana ke kokoana-hloko ea baktheria
- Le ka baka chefo ea lijo ho batho.
- Matšoa: ho shoa hoa likhoho, ho khobokellana 'moho, ho lahlehela ke takatso ea lijo, ho lla khafetsa, ho ruhua mpa, letšollo le lesoeu
- Likhoho tse fumaneng tšoaetso li tlameha ho behelloa ka theko
- Ho bohlokoa ho pheha nama ea khoho ka nepo ho qoba tšoaetso ho batho

### **Lefu la Aspergillosis**

- Le bakoana ke fungus e atang maemong ao ho nang le hlobo le mongobo.
- Mahe a nang le tšoaetso e na a ka phahloha ha a le ka har'a sebaka sa qhotsiso.
- Litsuonyana li ka fumana tšoaetso li sa le qhotsisong kapa ka mosuela o mongobo.
- Matšoa: matšoa ao e kang pneumonia (ho sitoa ho hema), lipalo tse holimo tsa likhoho tse shoang
- Lefu lena le ka tsoa ho mosuela o silafetseng oa makhehebu a lepolanka.
- E tsa bo 'nete ba ho reka makhekhebu a lepolanka ho morekisi ea tšepahalang.
- Bohloeki ba sebaka sa qhotsiso bo bohlokoa haholo.
- Pheko hae eo molemong oa litsuonyana; fungus e felisoa ka mokhoa o tibileng oa ho hloekisa

### Mushy Chick Disease (Setšoantšo 4.9)

- Mushy Chick Disease (Setšoantšo 4.9)
- Ke tšoaetso ea lera la mothoebe litsuonyaneng tse sa tsoa qhotsoa.
- Le iponahatsa ha mokhubu o sa koaleha hantle kamor'a ho qhotsoa.
- Le tliša sek'hahla se phahameng sa lefu, litsuonyana li shoa letsatsing la bobeli.
- Litsuonyana tse shoeleng li utloahala li le bonolo 'me li ba le monko o mobe.
- Lera la mothoebe le ba le mokelikeli o motala kapa le bonahala le le lekhubelu ebile le ruruhile.
- Ha ho pheko bakeng sa litsuonyana tse seng li fumane tšoaetso.
- Ho tšela lithibela-mafu metsing a nooang ke litsuonyana ho ka thusa ho thibela ho ata hoa tšoaetso.



### SETS'OANTS'O 4.9

Tsuonyana e bonolo, mokhubu o sa folang ho tsuonyana e letsatsi le leng, mokhubu o sa folang o bohareng ba mpa har'a masiba. Cloaca e ka morao ho mokhubu

*Image: Dr. H. John Barnes MSD Vet Manual*

### Likokoana tse noang mali (Parasites)

- Matsetse le linta li ka baka phokolo ea mali (anemia) le ho hlohlona likhohong.
- Matsetse a makhubelu a ipata mapatsong motšoare, e be bosiu a noa mali a likhoho.
- Matsetse a Northern fowl a phela holim'a likhoho, haholo-holo ho potoloha ka setonong.
- Matšoa: Likhoho li kobolana masiba a tsona khafetsa, likotsing letlalong, tahlehelo ea mali, phokolo ea mali

### Malebela Taolong ea Likokoana tse Noang Mali:

- Hlahloba likhoho ka tlas'a masiba, mapheong le ho potoloha litono.
- Phekola likhoho ka phofo ea kalafo (mohlala, Karbadust), e tšele holim'a likhoho le mosuela.
- Etsa hore ho be le sebaka sa hore likhoho li itlhoekise ka tlhaho (dust bath)
- Hloekisa le ho bolaea likokoana-hloko ka botlalo kahar'a ntlo pele ho kenngoa sehlopha se secha sa likhoho.

## Mafu a Lokelang ho Tlalehoa

Lefu le lokelang ho tlalehoa ke lefu leo ka molao le TLAMEHANG ho tsebisoa balaoli ba 'muso. Mafu ana a ka ata ka sek'hahla se phahameng, ho na ho ka baka sek'hahla se holimo sa mafu a likhoho, maphelo a batho a ka ba kotsing, ho ka boela hoa ba le tšitiso e akaretsang khoebong ea likhoho. Ho tlaleha kapele ho thusa balaoli ho laola le ho thibela ho ata hoa seoa.

### Mafu a likhoho a lokelang ho tlalehoa naheng ea Lesotho ke:

1. Lefu la Newcastle Disease
2. Lefu la Avian Influenza (Bird Flu)
3. Lefu la Salmonellosis

### Mehato ea ho Tsebisa ka Lefu le Lokelang ho Tlalehoa

#### 1. Lemoha Matšoa:

- o Lemoha matšoa a lefu

#### 2. Behella Likhoho Tse Kulang ka Theko:

- o Behella ka theko likhoho tse bontšang matšoa a ho kula hore li tlohe likhohong tse phetseng hantle.

#### 3. Ikopanye le ngaka ea liphoofole boemong ba setereke:

- o Tlaleha maemo a lefu ho ngaka ea liphoofole e sebakeng se haufi
- o Ba tla etsa lipatlisiso tsa mathomo

#### 4. Latela litaello tsa Balaoli:

- o Balaoli ba tla fana ka lisebelisoa molemong oa liphuputso le ho beha maemo tlasa taolo

#### 5. E ba le tšebeliso 'moho le mehato ea ho laola mafu

- o Ho ka etsoa mehato ea ho thibela ho kena le ho tsoa sebakeng sa thuo ea likhoho.
- o Likhoho tse nang le tšoaetso kapa tse hahlametsoeng li tlameha ho behelloa ka theko.
- o Ho ka ba le tlhoko ea ho bolaea likokoana-hloko ka botebo sebakeng sa ho ruhela likhoho.

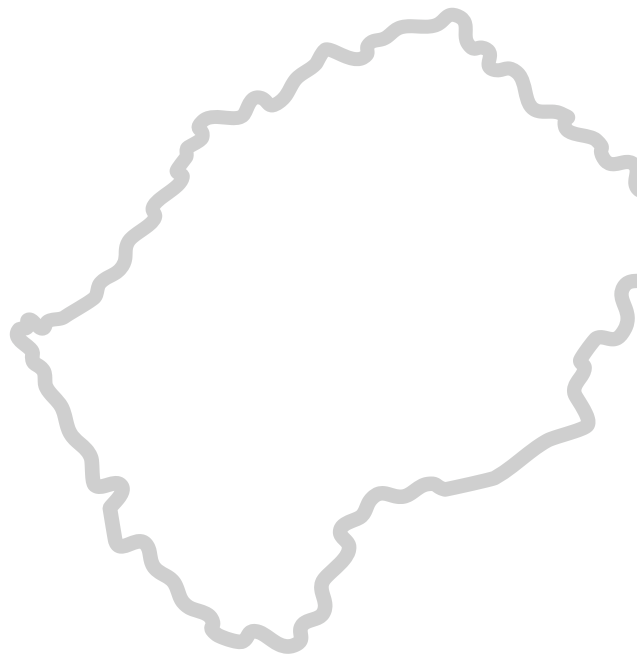
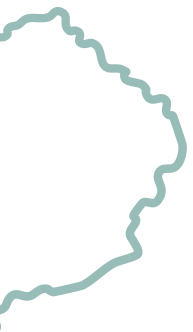
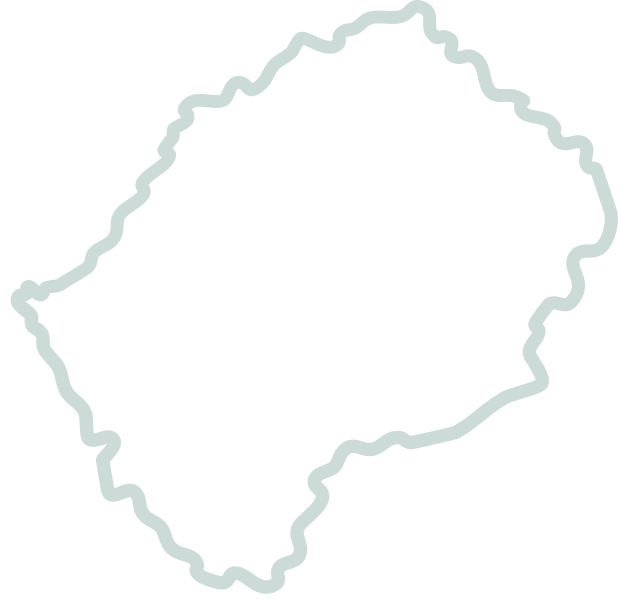
#### 6. Tlaleha Boteng ba Mafu a Macha:

- o Tsoela pele ho tsebisa balaoli ka mafu a a fe kapa a fe a macha kapa likhoho tse shoang nakong ea liphuputso.

## LENANE LA TLHAHLOBO 4.1

### Bophelo ba Likhoho

	Mosebetsi	O entsoe	Letsatsi	Lebitso la motho
1	Sheba hore likhoho lia ja			
2	Hlahloba bophahamo ba lijelo			
3	Sheba ha likhoho li noa metsi			
4	Hlahloba bophahamo ba linoelo			
5	Netefatsa hore metsi a hloekile			
6	Hlahloba na mabone a sebetsa			
7	Tlosa libaka tse metsi tsa mosuela			
8	Hlahloba hore likhoho li lokolohile maemong a mocheso o kahar'a ntlo			
9	Bula le ho koala likharetene bakeng sa ho kenya moea			
10	Netefatsa hore ha ho na monko oa ammonia kapa lerole le lengata moeng			
11	Sheba boitšoaro ba likhoho o hlahlobe matšoao a mafu			
12	Sheba likokoana tse noang mali ho likhoho			



# 5. Litsebo tsa Khoebo Molemong Oa Barui ba Likhoho tsa Nama

Pele ho ka qaloa khoebo ea likhoho tsa nama, ho bohlokoa ho lekola bokhoni ba katleho ea projeke. Sena se ka etsoa ka ho hakanya chelete e ka kenang khoebong ha ho rekisoa nama ea likhoho. Ho etsa joalo, ho ka hlahlojoa theko ea nama mabenkeleng kapa hoa etsoa lipatlisiso ka har'a tikoloho ka theko ea khoho e phelang. Boholo ba likh'amphani tse ngata tsa tlhahiso ea likhoho li phatlalatsa ho marang-rang a tsona lipheo tsa tšebetso. Sena se etsetsoa ho thusa ho hakanya boima, mokhoa oa ho ja lijo, le sekhahla seo lijo li ka fetohang limatlafatsi tse ka holisang likhoho mekhahlelong e fapaneng ea nako ea tsona ha li holisetsoa maemong a nepahetseng. Maemong a naha ea Lesotho, tšebetso e ka ba ka tlase hanyane ho feta lipheo tsena, haholo-holo matlong a bulehileng ka mahlakoreng moo ho kenang moea oa tlhaho. Sepheo se amoelehileng e ka ba ho hlahisa khoho ea boima ba 2.2 kg ka matsatsi a 42. Ha ho kenyetsetsoa libeke tse peli tsa ho hloekisa ntlo, sena se bolela hore ka selemo ho ka ba le mekhahlelo e 6.5.

## **Tseba ka botlalo seo khoebo ea hau e se etsang**

- E ba le tsebo e batsi ea hore na khoebo ea hau e kenyetsetsa eng, mohlala, tlhahiso ea likhoho tsa nama tse 100 ka beke tse rekisoang li phela sechabeng sa motse.

## **E ba le Kutloisiso ea Sehlahisoa sa Hao:**

- E ba le tsebo ea hore sehlahisoa sa hao ke khoho e phelang kapa khoho e fetotsoeng nama hoo e hlokang lisebelisoa le tlhokomelo. Netefatsa hore tsebo le bokhoni li teng tsa ho e hlahisa ka katleho.

## **Khetha Sebaka se Nepahetseng:**

- Haeba o se o ntse o na le polasi kapa ntlo ea likhoho, nahana ka sebaka seo ho tla rekisetsoa ho sona. Haeba ke hona ho ntse ho etsoa merero ea khaho, nahana ka bohole ho tloha matlong a mang a likhoho, bokhoni ba ho fihlela metsi le motlakase, le hoba haufi le limmaraka le litsela.

## **Etsa Lipatlisiso ka Mmaraka:**

- Ho kotsi ho qala khoebo ntle le mmaraka. Etsa lipatlisiso ho bareki ba ka bang teng ka chelete eo ba ka bang le bokhoni ba ho e lefa. Etsa pokello ea tlhahisoleseling e tsoang ho barekisi ba litsuonyana, ba lijo, ba lisebelisoa le tse ling.

## **Itlhute ka ba Qhothisanang Lehlokoa le uena Khoebong:**

- Moahisani oa hau o hlahisa likhoho tse kae ka palo? O rekisa bo kae le ka boima bo bo kae? Na tlhoko ea nama ea fetoha boleleleng ba nako ea selemo?

## **Tseba seo Khethollang Khoebong Khahlanong le ba Bang:**

- Tseba hore na bareki ba batla eng e fapaneng, mohlala, likhoho tse seng li sebelitsoe hore e be nama. Tsena ke lintlha tse ka u khethollang ho ba tlholisanong le uena.

Ha ho qaloa khoebo ea likhoho tsa nama ho hloka chelete ea ho qala khoebo molemong oa mohaho le ho reka lisebelisoa. Tafole 5.1 e bontša mehlala ea litšenyehelo tse hakanyelitsoeng bakeng sa mokhahlelo o le mong oa ho rua likhoho polasing e seng e ntse e le tšebetsong. Litšenyehelo tsa sehaoi ka nngoe li ka fapana ho latela mokhoa oa ho bapatsa likhoho tsa nama. Mohlala, haeba likhoho li rekisoa li phela, ha ho na litšenyehelo tsa ho hlaba. Haeba likhoho li hlabilo, ho hlaba ho ka etsoa ka hore ho fanoe ka likahare bakeng sa ho patalla litšenyehelo tsa ho hlaba. Hona ho tlosa tse ling tsa li tšenyehelo.

## Poloko ea Libuka tsa Khoebo

Ho bohlokoa ho ba le tlaleho e nepahetseng ea libuka molemong oa ho ba le leseli la hore na khoebo e etsa phaello kapa tahlehelo, hona ho boetse ho thusa ho nka liqeto tse nepahetseng tsamaisong ea khoebo. Tlaleho e nepahetseng ea libuka e thusa ho lemoha mathata kapele molemong oa hore mehato ea tokiso e kenngoe tšebetsong. Papiso ea litlaleho le mefuta ea likhoho ho thusa lihoai ho lekanya tsebetso ea tsona.

### 1

#### Litlaleho tsa Lichelete:

##### Khakanyo ea lichelete

Khakanyo ea lichelete ke e 'ngoe ea litlaleho tse bohlokoa. Khakanyo ea lichelete e sebelisoa ho rera litšenyehelo tsa nakong e tlang le ho thusa ho etsa liqeto mabapi le bokhoni ba ho lefella litlhoko. Khakanyo ea lichelete e etsoa ka ho thathamisa litšenyehelo tsohle tse etsoang nakong e itseng. Ho sehoai se se ntse se le tšebetsong, sena se ka kenyelletsa litšenyehelo tse sa fetoheng le litšenyehelo tse fetohang joalo ka tse bontšitsoeng ho Tafole 5.1. Ha khakanyo ea lichelete e sebelisoa ka nepo, lihoai li ka khona ho nka liqeto tse hlakileng pele li kenngoa likhoho sebakeng sa ho rua, hona ho ka thusa ho fokotsa likotsi tsa tahlehelo.

#### TAFOLE 5.1

Khakanyo ea litšenyehelo le chelete e kenang mokhahlelong oa leruo la likhoho

Tšenyehelo	Theko	Palo	Kakaretso
Mosuela			
Litsuonyana tse letsatsi le leng			
Lijo			
Litjeho tsa ho futhumatsa			
Meriana/Liente			
Motlakase le Metsi			
Lisebelisoa tsa likokoana-hloko			
Setšoasi sa likhoto			
Litjeo tsa ho tsamaisa likhoho			
Litjeo tsa ho letsa			
Lisebelisoa tsa office le tse ngollang			
Meputso			
Liaparo tsa tšebetso			
Litjeo tsa banka			
Khutliso ea kalimo			
Litokiso le Lintlafatso			
Litjeo tsa ho hlaba			



## Litlhaloso tsa Mantlha

**Litšenyehelo tse sa fetoheng** - Ke litšenyehelo tse sa fetoheng ho sa natsoe palo ea likhoho. Mehlala: Matlo, lisebelisoa, mangolo a khoebo le meputso

**Litšenyehelo tse fetohang** - Ke litšenyehelo tse fetohang ho latela palo ea likhoho. Mehlala: Lijo, liente, ho tsamaisa likhoho ka lipalangoang

**Theko e lekanang le litšenyehelo** - Ke theko e tlase ka ho fetisisa e lokelang ho lefisoa khoho ka 'ngoe hore chelete e kenang e lekane le litšenyehelo tsohle ho sa be le phaello kapa tahlehelo.

Ha theko e lekana le litšenyehelo (break-even), ke ha chelete e kenang khoebong e lekana le litšenyehelo, ho bolellang hore ha hobe le phaello kapa tahlehelo. Sehoai se tlameha ho khona ho rekisa ka holim'a ntlha ena hore ho be le phaello. Ho tseba mothati oa ha theko e lekana le litšenyehelo ho thusa lihoai ho beha theko e ka bang tlase ea likhoho tsa bona. Ho boela ho fana ka leseli la hore na liphetofo tsa litšenyehelo kapa boholo ba tlhahiso ho ka ama thekiso joang. Ho tseba ha theko e lekana le litšenyehelo ho boetse ho thusa ho rera phaello le ho tsitsa hoa khoebo ea likhoho.

Ho etsa hore theko e lekane le litšenyehelo (break-even), ho lokela ho tsejoe palo ea litšenyehelo tse sa fetoheng le ea litšenyehelo tse fetohang. Litšenyehelo tse sa fetoheng li kenyelletsa litšenyehelo tse kang meputso, empa litšenyehelo tse fetohang li chenchana ha ho ipapisoa le palo ea likhoho, 'me li kenyelletsa lijo le litsunyana. Mokhoa o ka sebelisoang ho etsa lipalo tsa ho fumana palo ea ha theko e lekana le litšenyehelo ke o na:

## Tsela ea lipalo ea ho fumana ntlha ea ha theko e lekana le litšenyehelo:

**Theko e lekanang le litšenyehelo ea khoho ka 'ngoe = (Litšenyehelo tse sa fetoheng ÷ palo ea likhoho tse rekisitsoeng) + Litšenyehelo tse fetohang khoho ka 'ngoe**

### Mohlala:

Ha re re u ruile likhoho tsa nama tse 500

**Ha re re u ruile likhoho tsa nama tse 500**

**Litšenyehelo tse sa fetoheng** (matlo, ho bonesa, ho felloa ke boleng hoa thepa, etc.) = 2600

**Litšenyehelo tse fetohang khoho ka 'ngoe** (lijo, meriana, ho tsamaisa khoho ka lipalangoang) = 33

Leha ho le joalo, tebello ke hore ho tla rekisoa likhoho tse 485 (ho kenyelletsoa tahlehelo)

### Joale ha re sebetse lipalo:

**Theko e lekanang le litšenyehelo ea khoho ka 'ngoe = 2,600 ÷ 485 + 33**

= 5.36 + 33

= 38.36 khoho ka 'ngoe

### Ho na ho bolela hore:

U lokela ho rekisa khoho ka 'ngoe bonyane 38.36 molemong oa hore u fihlele theko e lekanang le litšenyehelo

- Haeba u rekisa khoho 45, u fumana phaello ea 6.64 khoho ka 'ngoe.
- Haeba u rekisa khoho 35, u lahlehela ke 3.36 khoho ka 'ngoe

## Liphoso tsa Lichelete tse Tloaelehileng tse Bakang Tahlehelo Likhoebong tsa Likhoho tsa Nama

### a. Ho bohlokoa ho behella chelete e 'ngoe ka theko bakeng sa ho ntlafatsa ntlo le ho reka lisebelisoa

Ho bohlokoa ho hopola hore ntlo e hloka lintlafatso, le lisebelisoa li tla senyeha kapa li tsofale 'me ho hloka hahale tse ling, se na se tla hloka chelete e behiloeng ho tsoa ho phaello.

### b. Ho boloka likhoho nako e telele haholo ho fokotsa monyetla oa ho etsa phaello

Katleho ea khoebo ea likhoho tsa nama e itšetlehile ka ho phetha mekhahlelo e mengata ea ho ruha likhoho selemong. Le ha hole joalo, ha likhoho li bolokoa ho feta matsatsi a kothallelitsoeng a 35, ho ba le phokotseho mekhahlelong ka selemo, ho boela ho ba le keketseho ho lijo tse jeoang ke likhoho. Ka lebaka la hore lijo ke tšenyehelo e kholo haholo tlhahisong ea likhoho, ho boloka likhoho nako e telele ho fokotsa phaello haholo.

### c. Phaello e tsoang mokhahlelong o mong e tlameha ho lefella litjeo tsa mokhahlelo o tlang

Nakong eo sehoai se fumanang chelete ho tsoa leruong le hlahisitsoeng, ho ka bonahala eka ke phaello e ngata. Leha ho le joalo, karolo ea chelete e na e lokela ho bolokoa molemong oa ho patalla lisebelisoa tsa mokhahlelong o tlang oa ho rua.

### d. Mekhoa e sa nepahalang ea tlhokomelo e eketsa litšenyehelo tsa tlhahiso

Mathata a kenyelletsang moea o sa lekanang, mocheso o phahameng haholo kapa serame, ho petetsana, khaello ea phepo le mafu a ka ama bophelo le kholo e nepahetseng ea likhoho. Ha likhoho li sa atlehe ho fihlela boima ba 'maraka ka nako e reriloeng, sehoai se lokela ho li boloka nako e telele. Sena ha se eketse litšenyehelo tsa lijo feela empa se boela se baka tšitiso ho moralo oa tlhahiso, 'me ho baka ho fokotseha hoa mekhahlelo ea ho rua. Ka lebaka le na eba phaello e ba tlase.

### e. Ho se boloke libuka ka nepo ho baka ho nka liqeto tse hlokanang tsebo

Ho boloka libuka ka tsela e nepahetseng ho bohlokoa molemong oa ho hlahloba tšebeliso ea chelete le likarolo tsa tlhahiso khoebong ea likhoho. Ha lihoai li sa e le hloko lisebelisoa, thekiso, sekhahla sa kholo le litšenyehelo, ho ba thata ho hlahloba tšebetso ea khoebo kapa ho lemoha tahlehelo. Poloko e nepahetseng ea libuka e thusa ho nka liqeto tse nang le motheo ka nako tse thusang ho fokotsa sekhahla sa tahlehelo, ho akofisa katleho ea khoebo le fana ka tšehetso botsitsong ba nako e telele ba khoebo.



### SETS'OANTS'O 5.1

Sehoai se nkile sehlahisoa sa nama ea khoho se loketseng ho rekisoa 'marakeng

## 2

### Poloko ea Manane a Tlhahiso

Manane a tlhahiso a bohlokoa molemong oa hlahloba tšebetso ea khoebo. Mefuta e fapaneng ea likhoho tsa nama e na le lipheo tsa tšebetso tse ka bapisoang le manane a sehoai ho lekola hore na ke likarolo li feng tse hlohang ho ntlafatsoa. Manane a nepahetseng a boetse a thusa ho bona mathata; mohlala, ha likhoho li sa hole hantle ho eketsa boima, hona e kaba sesupo sa hore likhoho ha li je ka nepo kapa lijo li hloka limatlafatsi tse lokelang.

Poloko ea manane a lintho tseo e kang ho ja lijo hoa likhoho ho thusa ho etsa merero ea bokamoso le ho etsa likhakanyo tsa lichelete. Ho boetse ho thusa ho hlokomela litaba tsa bosholu kapa lijo tse ka bang siko.

#### Mehlala ea Manane a Tlhahiso (Sheba Qhoaelo iii)

- Palo ea litsuonyana tse keneng
- Liente le meriana e sebelisitsoeng
- Letsatsi la nyaliso ho etsa mofuta oa khoho le qhotsiso
- Likhoho tse shoang letsatsi le letsatsi le tse behelletsoeng ka theko
- Lijo tsa likhoho
- Boima ba khoho e phelang
- Tsela ea ho noa metsi
- Mocheso oa letsatsi le letsatsi kahar'a ntlo

Ho boloka manane a nepahetseng a tlhahiso ho thusa ho etsa lipalo tsa meoloane ea mantlha e bontšang tšebetso (Key Performance Indicators). Mekhoa e meng ea ho sebetsa lipalo tsena ho bona tšebetso li bontšitsoe ho Tafole 5.2.

### TAFOLE 5.2

#### Tšebeliso ea Lipalo ho Hlahloba Katleho ea Likhoho tsa Nama

Ho fumana lipalo tsa:	Uniti	Fomulara	Mohlala	Karabo
Boima bo bohareng	kg	Kararetso ea boima ba likhoho/palo ea likhoho	Boima ba likhoho tse 250 ke 394.25 kg	$394.25 / 250 = 1.577 \text{ kg}$
Boima ba khoho e phelang/ka letsatsi	grams	(boima bo bocha - boima ba khale =	Boima letsatsing la bo 7: 179g; Letsatsi la bo 12: 371g	$(371 - 179) / 5 = 38.4\text{g}$
Lijo	grams	Boima ba qetellong - Boima ba letsatsi la pele	Boima ba tsuonyana e letsatsi le leng 39g; Boima ba qetellong 1997g	$1997 - 39 = 1958\text{g}$
Litjeho tsa ho futhumatsa	g/d	$(\text{kg ea lijo} \times 1000) / (\text{palo ea likhoho} \times \text{palo ea matsatsi})$	2990 kg e jeloe ke likhoho tse 7000 ka beke	$(2990 \times 1000) / (7000 \times 7) = 61.0$
Meriana/Liente	kg/kg	kg ea lijo / kg ea ho eketseha hoa boima ba khoho e phelang	Likhoho tse 400 tsa nama le ekelitse boima ka 109 kg ebile li jele lijo tsa 145 kg	$145 / 109 = 1.33$
Motlakase le Metsi	%	$(\text{Palo ea likhoho tse shoeleng} / \text{Likhoho tseo ho qaloang mokhahlelo oa ho rua ka tsona}) \times 100$	Likhoho tse 14 li shoele bekeng ea pele; ho kentsoe litsuonyana tse 400	$(14 / 400) \times 100 = 3.5\%$
Lisebelisoa tsa likokoana-hloko	%	$(\text{Palo ea likhoho tse phelang tse rekisitsoeng} / \text{Palo ea litsuonyana tse kentsoeng}) \times 100$	Litsuonyana tse letsatsi tse 550 tse kentsoeng, likhoho tse 503 tse rekisitsoeng	$(503 / 550 \times 100 = 91.5\%)$

# 3

## Meoloane ea Mantlha e Bontšang Tšebetso (Key Performance Indicators)

### Ho ja Lijo

Lipalo tsa tsela eo likhoho li jang lijo li ka sebetsoa molemong oa mokhahlelo oa tlhahiso ea likhoho, bakeng sa mokhahlelo oa phepo (starter, grower, and finisher), kapa ho bona ho ja hoa likhoho beke le beke. Ho bohlokoa ho hlahloba palo ea lijo tse neng li le teng qalong, lijo tse rekiloeng nakong ea mokhahlelo, lijo tse setseng le palo ea likhoho ho sa natsoe hore ke nakong e feng. Haeba ho na le mekotla ea lijo e butsoeng, e ka bekhoa. Haeba sekala se le siko, boima ba lijo bo ka hakanyoa (mohlala, mekotla halofong kapa o kotareng).

### Mokhoa oa ho sebetsa lipalo tsa khakanyo ea ho ja hoa khoho e le 'ngoe bekeng:

- 1. Ngola palo ea lijo tsa likhoho tse qalang beke**
  - o Mohlala:  $2 \frac{1}{2}$  mekotla ( $2.5 \times 50\text{kg} = 125\text{kg}$ )
- 2. Kopanya le lijo tse rekiloeng boleleleng ba beke**
  - o Mohlala:  $5$  mekotla ( $5 \times 50\text{kg} = 250\text{kg}$ )
- 3. Ngola lijo tse setseng mafelong a beke**
  - o Mohlala:  $3 \frac{1}{4}$  mekotla ( $3.25 \times 50\text{kg} = 162.5\text{kg}$ )
- 4. Sebetsa lipalo tsa lijo tse jeloeng:**
  - o Lijo tse jeloeng = Lijo tse qalileng + Lijo tse rekiloeng – Lijo tse setseng
  - o Mohlala:  $125\text{kg} + 250\text{kg} - 162.5\text{kg} = 212.5\text{kg}$
- 5. Arola ka palo ea likhoho le palo ea matsatsi bekeng**
  - o Khakanyo ea ho ja hoa khoho ka 'ngoe = Lijo tse jeloeng/ palo ea likhoho  $\times 7$
  - o Mohlala:  $212.5 / (180 \times 7) = 0.168\text{kg/khoho ka 'ngoe ka letsatsi}$  (168g/khoho/letsatsi)

### Boima ba 'mele

Lipalo tsa boima ba 'mele ea likhoho li hlokoa 'moho le tsa ho ja lijo molemong oa ho sebetsa lipalo tsa sekhahla sa phetolelo ea lijo 'meleng

### Mokhoa oa ho sebetsa lipalo tsa boima ba 'mele

- 1. Bekha likhoho ka macrate:**
  - o Bekha sehlopha sa likhoho (e.g., likhoho tse 30), tse 10 ka nako e le 'ngoe kahar'a lecrate.
  - o Ngola boima ba macrate a tletseng. - Mohlala: 19.5kg, 20.05kg, le 20.1kg
- 2. Bekha lecrate le sa tšelang:**
  - o Mohlala: 1.5kg
- 3. Thaemesa boima ba lecrate le sa tšelang ka palo eo le sebelisitsoeng ka eona:**
  - o Mohlala:  $1.5\text{kg} \times 3 \text{ crates} = 4.5\text{kg}$
- 4. Kopanya boima ba macrate a tletseng ebe u tlosa kakaretso ea boima ba crate a sa tšelang:**
  - o Boima = (Boima ba macrate a tletseng) - (Boima ba macrate a satselang)
  - o Mohlala:  $(19.5 + 20.05 + 20.1) - 4.5\text{kg} = 55.15\text{kg}$
- 5. Arola ka palo ea likhoho tse bekhiloeng**
  - o Boima ba khoho ka nngoe = Boima/ Palo ea likhoho
  - o Mohlala:  $55.15\text{kg} / \text{likhoho tse } 30 = 1.83\text{kg khoho ka 'ngoe}$

## Sekhahla sa phetolelo ea lijo 'meleng - Feed Conversion Ratio (FCR)

Sekhahla sa phetolelo ea lijo mmeleng se sebetsoa tjena  
: FCR = kg ea lijo tse jeloeng / kg ea boima bo teng

### Mokhoa oa ho sebetsa lipalo tsa sekhahla sa phetolelo ea lijo mmeleng

#### 1. Kopanya lijo tsohle tse jeloeng mokhahlelong

- Starter: ½ mokotla (25kg)
- Grower: 1 ½ mekotla (75kg)
- Finisher: 2 mekotla (100kg)
- Mohlala: Lijo tsohle tse jeloeng: 25kg + 75kg + 100kg = 200kg

#### 2. Arola ka palo ea likhoho ho fumana lijo tse jeloeng ke khoho ka nngoe

- Lijo tse jeloeng ke khoho ka nngoe = Lijo tse jeloeng / Palo ea likhoho
- Arola ka palo ea likhoho ho fumana lijo tse jeloeng ke khoho ka nngoe
- Mohlala: 200kg / 50 likhoho = 4kg khoho ka nngoe

#### 3. Arola lijo tse jeloeng ke khoho ka nngoe ka boima bo mahareng

- **FCR = Lijo tse jeloeng ke khoho ka nngoe / Boima bo mahareng**
- Haeba boima bo mahareng ke 2.1kg, arola ka boima bo mahareng.
- Mohlala: 4kg / 2.1kg = 1.9

Ka hare ho mosebetsi o fe kapa o fe oa likhoho, ho bohlokoa ho ba le chebelo pele. Taba e bohlokoa haholo ke ho kenngoa ha likhoho le mokhoa oa ho li ntsha. Theko ea litsunyana tse letsatsi le leng e lokela ho etsoa likhoeli pele e le ho li behelletsa. Ka lebaka lena, ho bohlokoa hore sehoai se tsebe hore na matlo a likhoho a tla be a le boemong ba ho amohela leruo le lecha la likhoho. Qetellong ea mokhahlelo oa tlhahiso, pele mokhahlelo o mong oa likhoho o kena, likhoho li lokela ho rekisoa ho fana ka sebaka sa hore ho hloekisoa ho boele ho bolaoe likokoana-hloko. Ho ntsha likhoho le ho kenya likhoho ka ntlong ea likhoho bekeng e le nngoe ha hoa khothalletsoa ho ipapisitsoe le mehato ea ho tshirelletsa likhoho khahlanong le mafu.

#### Tse lokelang ho tsejoa pele ho qaloa khoebo ea leruo la nama ea likhoho

- ✓ U tseba mmara oa hau?
- ✓ U entse liphuputso tsa litjeo tsa li sebelisoa?
- ✓ Sebaka sa hau sa ho ruhela se nepahetse?
- ✓ U utloisisa tlhahiso le tlhokomelo ea likhoho tsa nama?

## | Ho bapatsa

Haeba sepheo sa ho rua likhoho tsa nama e le ho etsa khoebo e lokelang ho hlahisa phaello, tlhokomelo e nepahetseng le boleng bo holimo ba sehlahisoa feela ha lia lekana. Kantle ho 'maraka, ho ke ke hoa eba le phaello. Ho bapatsa ke karolo e kholo haholo tsamaisong ea khoebo ea likhoho ka katleho. Ha likhoho tse phelang li sa rekisoe ka nako e lebelletsoeng, hona ho baka keketso ea litšenyehelo tsa lijo, 'me hona ho fokotsa phaello. Taba ena e boela e baka tiehiso ea ho kenya mokhahlelo o mong oa likhoho, sena se fokotsa bokhoni ba ho ba le mekhahlelo e 6.5 selemong. Haeba sehoai se khetha ho hlaba likhoho, lintlha tse kang polokelo sehatsetsing li lokela ho eloa hloko. Ka lebaka la hore likhoho ke sehlahisoa se ka senyehang kapele – e le tse phelang kapa tse hlabiloeng – ho bohlokoa ho ba le mehato ea ho bapatsa.

### **Tlhahlobo ea SWOT (Strengths, Weaknesses, Opportunities, Threats 'Matla, Mefokolo, Menyetla, Liqholotso')**

Ho etsa tlhahlobo ea SWOT ke mohato o thusang ho lekola lintlha tse amang khoebo ea hau. SWOT e thusa mohoebi ho ba le khakanyo ea mathata a ka hlahang, ho ba le meralo ea litharollo, le ho eelloa menyetla e ka tlang kholo khoebong.

#### **Mohlala oa Tlhahlobo ea SWOT:**

- **Matla:** Tšebeliso e phahameng ea nama ea likhoho; tlhokahalo e tsitsitseng 'marakeng
- **Mefokolo:** Phokolo ea lisebelisoa; ho tsamaisa sehlahisoa, khaello ea polokelo libakeng tsa mahaeng
- **Menyetla:** Sebaka sa thekiso ea lijo se haufi se hloka ho rekisetsoa nama ea khoho
- **Liqholotso:** Lioa tsa mafu, litjeo tse fetohang tsa lisebelisoa

#### **Lipotso tse lokelang ho nahanisoa nakong ea Tlhahlobo ea SWOT:**

- ✓ Kelintlha li fe tse matla tseo nka ahellang holim'a tsona?
- ✓ Ke lintlha li fe tse tlang mefokolo tse tlamehang ho lokisoa?
- ✓ Ke menyetla e feng e nka e sebelisang ho tisa kholo?
- ✓ Ke liqholotso li feng tseo ke tlamehang ho itokisetsoa tsona?

## 1

### **Metheo ea ho bapatsa**

Ho bapatsa ho kenelletsisa likarolo tsa ho etsa lipapatso, ho rekisa le ho tsamaisa sehlahisoa hore se fihle ho bareki. Ho bohlokoa hore mohoebi a lule a hlahloba mokhoa oa hae oa ho bapatsa ka ho ipotsa lipotso tse latelang:

- **Ke bapatsa eng?** – Tseba sehlahisoa sa hau hantle, 'me u nahane litsela tsa ho ntlafatsa kapa ho eketsa boleng ba sona
- **Ke rekisetso mang?** – Tseba bareki ba hau 'moho le lithahasello tsa bona.
- **Hobaneng ke rekisa?** – Molemong oa phaello le ho netefatsa kholo ea nako e telele!
- **Ke bapatsa neng?** – Ka linako tsohle! Ho aha khoebo le ho boloka seriti sa eona ke tšebetso e sa emiseng.
- **Ke lokela ho bapatsa joang?** – Mokhoa oa hau oa ho bapatsa o lokela o tšoane le mofuta oa bareki.



## SETS'OANTS'O 5.2

4P's Li thusa ho theha mekhoha e sebetsang ka katleho ea ho bapatsa

Bakeng sa ho theha mokhoa o sebetsang ka katleho oa ho bapatsa, ho na le leoa le sebelisoang la 4P's, e leng Product, Place, Price and Promotion, ka Sesotho e leng Sehlahisoa, Sebaka, Theko le Papatso.

### **Sehlahisoa (Product):**

Sehlahisoa ke khoho ea nama ka bo eona, 'me eona e lokela ho fihlela litlhoko tsa bareki ka boholo le chabhalo ea eona. Haeba e halabiloe e lokela ho ba le boleng, e be maemong a nepahetseng, e bolokoe ka makhetha, e be likarolo tse boholo bo nepahetseng. Hona ho ka kenyelletsa hore sehoai se rekise nama ka likarolo tse fapaneng (mohlala, khoho e felletseng, lifuba tsa khoho, lirope, mapheo. Ho ka boela hoa nahanoa ka mekhoha ea tlhahiso e kang likhoho tse sa koalloeeng kapa likhoho tse holisitsoeng ka mekhoha ea tlhaho.

### **Theko (Price):**

Theko e behoa ho ipapisitsoe le lintlha tseo e kang litšenyehelo tsa tlhahiso, tlholisano ho barekisi le tlhoko ea bareki. Thekising ea likhoho tsa nama, mekhoha ea ho beha theko e kenyelletsa ho beha theko e khonang ho hlolisana le ba bang (ho beha theko e seng hole haholo le ea bao o hlolisang le bona). Mokhoa o mong ke ho beha theko e thusang sehlahisoa ho kenella 'marakeng (ho beha theko tse tlase ho hohela bareki). Mokhoa o mong e ka boela ea eba ho beha theko e phahameng (mona ke molemong oa sehlahisoa se boleng bo holimo). Theko e lokela e behoe ka tsela ea ho lekanya hore hobe le phaello bakeng sa bahlahisi le hore bareki ba be le bokhoni ba ho reka.

### **Sebaka (Place):**

Sebaka se bolela mekhoha ea ho aba sehlahisoa, e leng tsela eo lihlahisoa tsa likhoho tsa nama li ka fihlang ho bareki. Mekhoa ena e ka kenyelletsa li shopo tse kholo (supermarkets), lishopo tsa lilakha tse rekisang nama, li'maraka tsa lihoai, kapa ka kotloloho ho bareki. Molemong oa hore boleng ba sehlahisoa bo bolokehe le ho qoba tšenyeho, ho bohlokoa hore ho be le mokhoa oa ho tsamaisa sehlahisoa ka katleho, polokelo ea sehatsetsi le bokhoni ba ho fihlisa sehlahisoa ka nako

### **Papatso (Promotion):**

Ho bapatsa ke mokhoa oa ho fetisa molaetsa ka melemo ea sehlahisoa sa nama ea khoho ho bamameli ba hloahiloeng. Hona ho ka fihleloa ka ho etsa lipapatso (mohlala, telefishineng, ho marang-rang (social media) likoranteng), ho bapatsa ka lishopong, ka ho etsa litheolelo tse ikhethileng, kapa ho kopana le bareki ka kotloloho. Mekhoa ea ho bapatsa e ka boela ea hatiselletsa ho lintlha tse kang ho kholisa bareki ka boleng ba sehlahisoa, tlhahiso e ikamahanyang paballo ea tikoloho, le tlhokomelo e nepahetseng ea liphoofo. Bareki ba mehla ena ba utloisisa le ho rata lintlha tsena.

## 2

### Mecha ea ho Bapatsa Lesotho

Ka kakaretso, 'maraka oa Lesotho o arotsoe ka 'maraka o hlophisitsoeng (formal market) le 'maraka o sa hlophisoang (informal market). Li'maraka tsena ka bobeli li na le melao e fapaneng ka mekhahlelo ea poloheho ea lijo, haholo-holo ho likhoho tsa nama tse hlabiloeng. Ho boetse ho na le bokhoni ba ho rekisa likhoho tse phelang kaha'ra 'maraka o hlophisitsoeng—mohlala ho sebetsa ka tlasa tumellano ho hlahisetsa khoebo e kholo likhoho. Tumellano ea semolao e kenyelletsa ho tekena konteraka e hlakisang boleng bo lebelletsoeng ba sehlahisoa le theko. Ho ka ba thata ho lihoai ho khona ho kena 'marakeng oa ho rekisetsa likhoebo tse kholo, empa boholo ba likhoebo tse kholo li ananetse maano a ho reka nama ea bahlahisi ba lehae e le ho ba kenyelletsa khoebong. Leha theko e le tlase 'marakeng o hlophiloeng, chelete e kenang khoebong ke e tšepahalang.



#### Tlhaloso:

Lihoai tsa konteraka ke lihoai tse ikemetseng tse hlahisetsang khoebo e kholo likhoho tsa nama li le tlas'a konteraka. Melemo eo lihoai tsena e fumanang ke ho hlahisa ba kenyellelistsoe ketaneng ea tlhahiso, 'me ba fumana botataisi le ho reka lijo ka theko tse tlase. Le ha likhoebo tse na tse kholo li sa fane ka theko e holimo joalo ka theko ea 'maraka o sa hlophisoang, molemo ke hore sehoai ha se hloke ho bapatsa likhoho ka mor'a tlhahiso. Konteraka e tla totobatsa palo le boima ba likhoho bo lebelletsoeng.

#### 'Maraka o hlophisitsoeng:

- ✓ O kenyelletsa barekisi ba baholo-holo, barekisi ba baholo le lisuphamakete.
- ✓ O hloka likonteraka tse hlakisang litebello tsa sehlahisoa le theko.
- ✓ O ka fana ka chelete e kenang ka botsitso, empa hangata theko e ba tlase ka lebaka la litheolelo le thekiso ka bongata.
- ✓ Barekisi ba bang ba baholo ba ka beha ka holimo ho reka ho bahlahisi ba lehae, ho etsa menyetla bakeng sa lihoai tse nyane



#### SETS'OANTS'O 5.3

Sehoai sa likhoho tsa nama se tlisa khoho 'marakeng o sa hlophisoang

'Maraka o sa hlophisoang o kenyelletsa barekisi ba banyenyane (small wholesalers) lishopo tsa lehae, lispaza shopo le barekisi ba seterateng. Likonteraka ha lia tloaeleha kahar'a selika-likoe sena, ho na ho bolela hore ha hona boitlamo bo boholo ba bareki le botsitso ba theko. Ka mabaka a na, ho bohlokoa ho haha likamano le bareki le ho haha seriti se nepahetseng e le hore khoebo e tsoelepele. Ho bohlokoa ho boloka lenane la bareki le ho theha sehlopha sa WhatsApp molemong oa ho fana ka litsebiso tsa boteng ba likhoho le theko. Hona ho thusa ho akofisa thusa ho atlehisa thekiso ea likhoho.

#### 'Maraka o sa hlophisoang:

- ✓ O kenyelletsa barekisi ba banyenyane, lishopo tsa lehae, lispaza shopo le barekisi ba seterateng.
- ✓ Ha ho na likonteraka, ka hona theko e tsitsitseng hae eo, empa phaello e ka ba holimo.
- ✓ Likamano tse matla le bareki le seriti li bohlokoa haholo bakeng sa katleho.
- ✓ Mekhoa ea puisano e kang lihlopha tsa WhatsApp li ka thusa ho tsebisa bareki ka ho fumaneha ha likhoho le litheko

O mong oa melemo ea 'maraka o sa hlophisoang ke hore thekiso ea khoho ka 'ngoe e holimo ho feta 'marakeng o hlophisitsoeng. Ho boetse ho na le melemo oa hore bahlahisi ha ba patale lekhetho. Ho khetha libaka tse batho ba bangata joalo ka libaka tseo ho palangoeloang makoloi e ka ba mohato o bohlokoa ho rekisa likhoho tse phelang tsa nama. Ntle le mono, bareki ba ka khothalletsoa ho tla sebakeng sa ho ruhela likhoho. Empa ha ho ipapisoa le maemo a tširelletso ea likhoho ho mafu, ha hoa khothalletsoa ho memela batho ba bangata ho tla sebakeng sa ho ruhela likhoho. Ka tsela e tšoanang, likhoho tse sa rekoang 'marakeng li ka tlisa mathata ho tširelletso ealikhoho ho mafu.

Lekala la Marketing Lesotho le boela etsa litlhophiso tsa likopano tse fapaneng molemong oa khokahanyo ea bareki le bahlahisi. Li kenyelletsa lipuisano le lipontšo tsa khoebo. Ho ha le joalo, lekala la Marketing la RSDA le tšebetsong ea ho thakhola sebaka sa marang-rang se tla sebelisoa e le sethala sa ho arolelana tlhahiso-leseling tabeng tsa li 'maraka le ho hokahanya ba nang le kobo ea bohali.

Taba ea bohlokoa e lokelang ho hopoloa ke hore—haeba u sena bareki, ha u na khoebo!



#### **SETS'OANTS'O 5.4**

Li'maraka tse sa hlophisoang hangata litheko li holimo ho feta li'maraka tse hlophisitsoeng



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## Liteboho

Re lakatsa ho isa teboho ea rona e tsoang boteng ba pelo ho boohle ba nkileng karolo ho etseng buka e na ea tataiso.

Re lebisa teboho e khethehileng ho Lehotetsa Visuals ka litšoantšo tsa bona tse nang le bokhabane, tseo ka tsona litaba tsa buka ena li bileng le bophelo. Re boela re lebisa liteboho ho mekhatlo e meng e mengata le batho ka bo mong ba tlatleliseng bukeng ena ea tataiso ka litšoantšo.

Re boetse re leboha botšehetsi ba Ufulu ka thuso ea bona ea ho ntlafatsa chebahalo ea buka ena ea tataiso.

Re leboha ho tsoa boteng ba pelo lihoai tse faneng ka tumello ea ho hlahisoa litšoantšong, 'me ba re fa monyetla oa ho bontša mekhoha e nepahetseng kahar'a buka ena ea tataiso.

Ha re phethela, re leboha boohle ba nkileng karolo tlhahisong ea buka ena ea tataiso. Boitelo ba lona bo bile bohlokoa haholo.

# Tse Qhoaelletsoeng

i

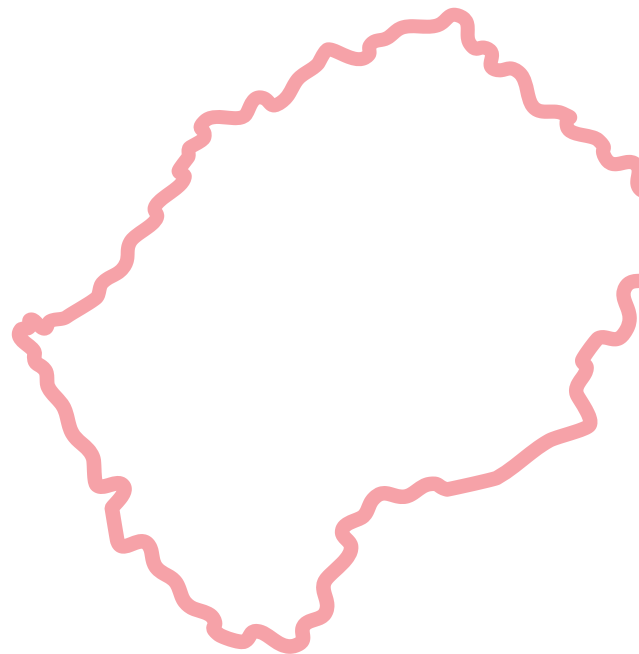
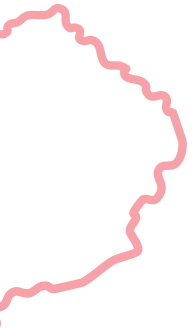
Mohlala oa Tlhahlobo ea Metsi

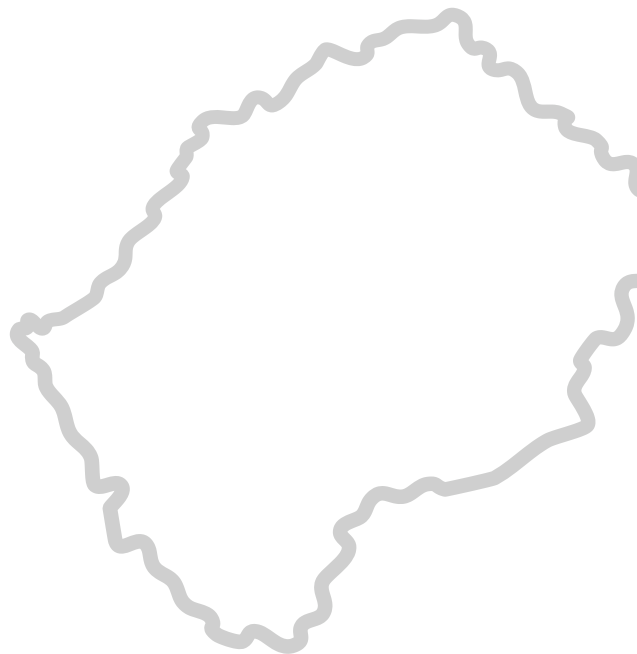
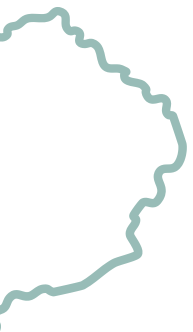
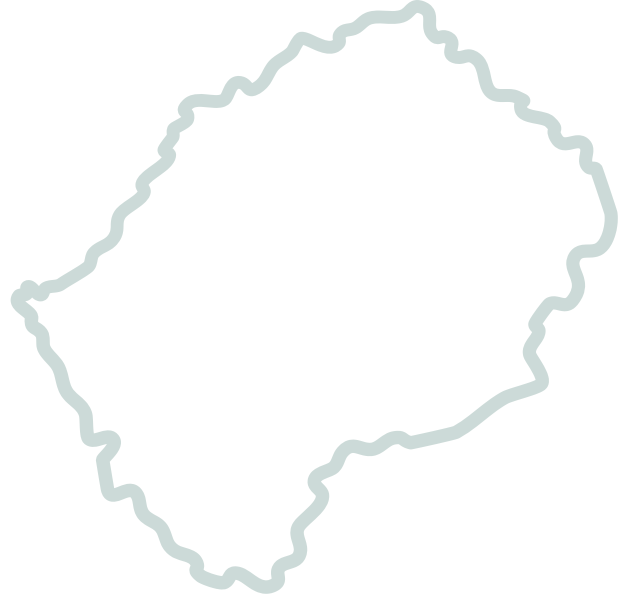
ii

Khakanyo ea Lichelete ea Likhoho tsa Nama

iii

Karete ea ho Etsa Lirekoto tsa Likhoho tsa Nama





# Qhoaelo ea i

Mohlala oa Tlhahlobo ea Metsi

Mekhoa	Lintho tse hlalojoang (Determinands)	Li-uniti	0105053/24
			Sampole ea metsi a tsoang senoelong
			09.05.2024
Likh'emikh'ale (chemicals)			
93	Calcium e qhibilihileng	mg Ca/ℓ	8.24
93	Magnesium e qhibilihileng	mg Mg/ℓ	2.60
93	Sodium	mg Na/ℓ	4.63
94	Copper e qhibilihileng	µg Cu/ℓ	13.9
94	Iron e qhibilihileng	µg Fe/ℓ	43
94	Lead e qhibilihileng	µg Pb/ℓ	<10
94	Zinc e qhibilihileng	µg Zn/ℓ	<10
16G	Chloride e qhibilihileng	mg Cl/ℓ	7.91
65Gc	Nitrate e qhibilihileng	mg N/ℓ	3.32
65Gb	Nitrite e qhibilihileng	mg N/ℓ	.06
1B	pH ea 25°C	pH units	7.7
67G	Sulphate	mg SO <sub>4</sub> /ℓ	<2.5
Calc.	Kakaretso ea Hardness	mg CaCO <sub>3</sub> /ℓ	31
Likokoana-hloko (Microbiological)			
32	Kakaretso ea Coliforms	MPN/100mℓ	5
31	Standard Plate Count	colonies/mℓ	>1000

## Litekanyo tse amohelehileng

Lintho (Determinands) tse fumanoeng	Litekanyo	Lintho (Determinands) tse fumanoeng	Litekanyo
Calcium e qhibilihileng	$\leq 60 \text{ mg}/\ell$ ( $\leq 60000 \mu\text{g}/\ell$ )	Nitrate	$\leq 10 \text{ mg}/\ell$ ( $\leq 10000 \mu\text{g}/\ell$ )
Chloride	$\leq 14 \text{ mg}/\ell$	Lead e qhibilihileng	$\leq 0 \text{ mg}/\ell$ ( $\leq 0 \mu\text{g}/\ell$ )
Kakaretso ea Chlorine	$\leq 0 \text{ mg}/\ell$	pH ea 25°C	$\geq 6.8$ to $\leq 7.5$
Copper e qhibilihileng	$\leq 0.002 \text{ mg}/\ell$ ( $\leq 2 \mu\text{g}/\ell$ )	Sulphate	$\leq 125 \text{ mg}/\ell$ ( $\leq 125000 \mu\text{g}/\ell$ )
Iron e qhibilihileng	$\leq 0.2 \text{ mg}/\ell$ ( $\leq 200 \mu\text{g}/\ell$ )	Standard Plate Count	$\leq 0 \text{ Count}/1\text{m}\ell$
Kakaretso ea Hardness	$\geq 60$ to $\leq 180$	Kakaretso ea Coliforms	$\leq 0 \text{ Count}/100\text{m}\ell$ ( $\leq 0 \text{ MPN}/100\text{m}\ell$ )
Magnesium e qhibilihileng	$\leq 14 \text{ mg}/\ell$ ( $\leq 14000 \mu\text{g}/\ell$ )	Zinc e qhibilihileng	$\leq 1500 \mu\text{g}/\ell$ ( $\leq 1.5 \text{ mg}/\ell$ )
Sodium	$\leq 32 \text{ mg}/\ell$ ( $\leq 32000 \mu\text{g}/\ell$ )		

Nitrate e phahameng e fokotsa sekahla sa ho hola, e ka baka ho hloka taolo

Sulphates tse phahameng li ka kopana le matsoai a mang tsa baka letšollo likhohong le mosuoela o mongobo

Nitrate e phahameng e fokotsa sekahla sa ho hola, e ka baka ho hloka taolo

Sulphates tse phahameng li ka kopana le matsoai a mang tsa baka letšollo likhohong le mosuoela o mongobo

Ha Sodium kapa Chloride li phahame, likhoho li tla noa metsi haholo, mosuoela o tla ba mongobo

Iron ha e phahame haholo e ka fana ka maemo a lumellang kholo ea baktheria e bakang letšollo

Ho phahama hoa pH ho ka baka tatso e mpe ea metsi ea ba likhoho ha li noe metsi ka nepo

Ha metsi a silafalitsoe ke baktheria, ho ka ba le mafu a ka amang bophelo ba likhoho.

# Qhoaelo ea ii

## Mohlala oa Phaello le Tahlehelo

	Item	Detail	Quantity	Cost/Price	Kakaretso	Ngola kakaretso ea hau mona
Chelete e kenang kahar'a khoebo	Likhoho	Thekiso ea likhoho tse phelang/likahare/khoho e hlabiloeng ea ba ea hatsetsoa	485	100	48,500	
Chelete e kenang kahar'a khoebo	Thekiso ea lintho tse ling	Manyolo	-	-	-	
<b>Kakaretso ea thekiso</b>					<b>48,500</b>	

Tse fetohang	Mosuoela	Mosuoela oa patsi	60	35	2,100	
Tse fetohang	Tsuonyana e letsatsi le leng ea khoho ea nama		15	500	7,500	
Tse fetohang	Lijo	Lijo tsa starter (50kg)	390	8	2,925	
Tse fetohang		Lijo tsa grower (50 kg)	385	16	6,160	
Tse fetohang		Lijo tsa finisher (50 kg)	384	28	10,560	
Tse fetohang	Ho futhumatsa	Litjeo tsa ho futhumatsa matsatsi a 14	1,176	1	1,176	
Tse fetohang	Metsi	E sebelisoang linthong tsohle	60	3	180	
Tse fetohang	Ho sebetsa khoho (haeba ho hlokahala)	Ho hlaba khoho le ho e paka	475	7	3,325	
Tse fetohang	Meriana	Moriana o loans'ang likokoana-hloko oa Fosbac (pakete ea 25g)	60	2	120	
Tse fetohang		Motsoako oa li vitamin tse fapaneng (pakete ea 100g)	47	2	94	
Tse fetohang		Moriana oa cossioat (ESB3) oa 100g	50	2	100	
Tse fetohang	Ho tsamaisa lihlahisoa tse rekisoang ka koloi	Koloi ea van	150	4	600	
Tse fetohang	Lekhetho la thekiso	Haeba ho hlokahala				
<b>Kakaretso ea litjeo tse fetohang</b>					<b>34,840</b>	

<b>Phaello (lihlahisoa tse rekisitsoeng - litjeo tse fetohang)</b>	<b>13,660</b>
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Semi Tse fetohang	Ho khants'a	Motlakase oa li uniti tse 50 @ 105	105	6	630	
Semi Tse fetohang	Lisebelisoa tse hloekisang	Sesepa se hlatsoang sa 2kg	70	1	70	
Semi Tse fetohang		Sebolaea likokoana-hloko sa madubula sa 200ml	18	2	36	
Semi Tse fetohang	Sets'oasi sa litoeba	Superkill sa 100g	130	1	130	
Tse sa fetoheng	Liphahlo tse ts'irelletsang	Phahlo ea overall/lieta tsa likhohlopo	950	2	1,900	
Tse sa fetoheng	Basebetsi	Basebetsi ba hiriloeng nako eohle	500	2	1,000	
Tse sa fetoheng	Litokiso le lintlafatso	Mela le thepa le tse ling	1,000	1	1,000	
<b>Kakaretso ea lits'enyehelo (litjeo tse sa fetoheng le litjeo tse kenyelletsang tse fetohang le tse sa fetoheng)</b>					<b>4,766</b>	

<b>Chelete e keneng khoebong pele ho tlosoa litsoala, lekhetho kapa ho fokotseha hoa boleng ba thepa (Phaello - Litjeo tse fetohang)</b>	<b>8,894</b>
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	Ho fokotseha hoa boleng ba thepa	Thepa le matlo				
	Ho fokotseha hoa boleng ba thepa	Birds				
	Tsoala	Tsoala, mohlala 15% ea chelete e kalinngoeng				
	Lekhetho le sa amaneng le thekiso					
<b>Kakaretso</b>						
<b>Phaello</b>					<b>8,894</b>	

## Boleng ba thekiso ka 'ngoe

A		Kakaretso ea thekiso	48,500
B		Bongata ba thekiso	485
C		Boleng ba thekiso	100
D		Litjeo tse fetohang	34,840
E		Litjeo tse sa fetoheng	4,766
F		Tsoala, lekhetho le ho fokotseha hoa boleng ba thepa	-
G	A-D	Phaello e akaretsang	48,015
H	G-E	Chelete ea khoebo pele ho tlosoa litsoala, lekhetho, ho fokotseha hoa boleng ba thepa le tefo ea sekoloto	43,249
I	H-F	Phaello e setseng ha ho nts'oa lits'enyehelo kaofela	43,249
Theko e lekanang le lits'enyehelo (Ha palo e sa fetohle)			
L	B/D	Litjeo tse fetohang	72
M	$((E+F)/B)+L$	Thekiso ea lihlahisoa e sa bakeng phaello kapa tahlehelo	82
Palo e hlokoang ea thekiso ea lihlahisoa hore ho lekanngoe le lits'enyehelo (ka theko e sa fetoheng)			
N	C-L	Pokello	28
O	$(E+F)/N$	Theko e sa bakeng phaello kapa ts'enyehelo	169

**Chelete e setseng ha ho ntšoa lits'enyehelo tsa tlhahiso (Gross margin)** Ke phapang pakeng tsa chelete e keneng khoepong le lits'enyehelo tsa tlhahiso kapa kakaretso ea litjeo. E bontša chelete e setseng khoepong kamor'a ho lefella lits'enyehelo tse e tobileng tsa tlhahiso.

**EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)** Ke mokhoa oa ho etsa tlhahloho ea lichelete tsa khoebo o bontšang phaello ea khoebo pele ho tlosoa litsoala tsa lits'enyehelo, lekhetho, ho fokotseha hoa boleng ba thepa

**Phaello (Net profit)** (e boela e bitsoa phaello e ntšitseng tsohle) ke phaello e setseng kamora hore lits'enyehelo tsohle li tlosoe ho lekeno lohle. Tsona ke tse kenyelletsang lits'enyehelo tsa ts'ebetso, seabo, lekhetho, ho fokotseha hoa boleng ba thepa, le phokotso ea mokoloto

**Tsoala (Interest)** ke tefiso e lefuoang ke khoebo hobane e ile ea alima chelete. Tsoala ke lits'enyehelo tseo khoebo e li lefang holim'a mekoloto kapa likalimo tse ling tsa lichelete tse sebelisoang ke khoebo.

**Ho fokotseha hoa boleng ba thepa (Depreciation)** ke kabo ea lits'enyehelo tsa thepa e sa fetoheng nakong ea ts'ebeliso ea eona, thepa e na eona e kenyelletsa mechini, mehaho le makoloi. E bontša ho fokotseha hoa boleng ba thepa ka mabaka a ho sebelisoa, ho senyeha le ho felloa ke nako.

# Qhoaelo ea iii

Karete ea rekoto ea likhofo tsa nama

Nomoro ea ntle \_\_\_\_\_ Letsatsi la ho qhotsoa \_\_\_\_\_

Setsi sa  
qhotsiso \_\_\_\_\_

Palo ea likhofo  
tse fihlileng \_\_\_\_\_

Liente \_\_\_\_\_

Tse fihlileng li shoele \_\_\_\_\_ Palo ea litsuonyana tse kentsoeng \_\_\_\_\_ Mofuta \_\_\_\_\_ Boima ba letsatsi le le leng \_\_\_\_\_

Letsatsi la beking	Likhofo				Lijo		Boima ba 'mele			Metsi		Maikutlo
	Palo ea tse shoeleng	% ea tse shoeleng	Palo e setseng	% ea likhofo tse phetseng	tse jeloeng (kg)	tse jeloeng (g/ka letsatsi)	boima bo mahareng	ho eketseha hoa boima	Sekhahla sa phetolelo ea lijo 'meleng	a noeloeng (l)	a noeloeng (ml/khofo ka 'ngoe	
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												

Letsatsi la bekeng	Letsatsi la alemanaka	Likhoho				Lijo		Boima ba 'mele			Metsi		Maikutllo	
		Palo ea tse shoeleng	% ea tse shoeleng	Palo e setseng	% ea likhoho tse phetseng	tse jeloeng (kg)	tse jeloeng (g/ka letsatsi)	Palo e setseng	ho eketseha hoa boima	Sekhahla sa phetolelo ea lijo 'meleng	a noeloeng (l)	a noeloeng (ml/khoho ka 'ngoe		
12														
13														
14														
15														
16														
17														
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21														
22														
23														
24														
25														
26														
27														

Letsatsi la bekeng	Letsatsi la alemanaka	Likhoho				Lijo		Boima ba 'mele			Metsi		Maikutllo	
		Palo ea tse shoeleng	% ea tse shoeleng	Palo e setseng	% ea likhoho tse phetseng	tse jeloeng (kg)	tse jeloeng (g/ka letsatsi)	Palo e setseng	ho eketseha hoa boima	Sekhahla sa phetolelo ea lijo 'meleng	a noeloeng (l)	a noeloeng (ml/khoho ka 'ngoe		
28														
29														
30														
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