



GOVERNMENT OF MEGHALAYA A.H & VETERINARY DEPARTMENT



A MANUAL ON DAIRY CATTLE REARING & FODDER PRODUCTION



TALATCHENGANI:

Meghalaya ara game ge.e aro jila-kaaniko dake cha.gipa state ong.a jeon jilla kaani aro gama ge.aniko brine janggitangani chol apsan daka. 2013-14 o see rakkiani gitade, state ni dut man.ani 82.16 hajal tonnes ong.a. Dutna mancha, farming ko dakaniara Meghalayaode gital gita ong.a aro da.alo dutna matchu jilenggiparangara skanggipa changna dakgiparang ong.a. 2012 ni Livestock Census ni gitade Meghalayao million 1 matchurang donga. Unoni 30,000 mangsan dut on.gipa matchu (Cross breed) ong.a aro ua matchurangko a.a chi bang.pagija, game cha.giparang aro Dairy Cooperative Societies ni manderang jilbata. Ua matchurangan Statena 90% dutrangko on.gilpaa. Meghalayani sin.a-ding.ani aro sam bolrangni chaani ara, matchu jilna nambegipa ong.a. Matchu jile cha.aniara namen nambegipa chol mingsa ong.a aro uani gimin agantalate on.ronganiora mamungba gualani dongja. Matchu jilon jeng ge.aniko skie ra. aniba mongsonggipa ong.a. Uni gimin namnambegipa aro cha.tobegipa jenrangni giminba matchu jilgiparangna uiatna nanga. Ia chonbegipa ki.tapkoara matchu jilgipa manderangna aro chadambe skia pora donggiparangna (Educated Youths) jemangan matchu jilaniko dakengachim, uamangna uidapaniko on.e dakdilna, nambata gadango lap man.e matchurangko jilchina (Scientific way) ine miksonge seaha. Meghalayao matchu jilaniara dut ko on.mangmangaiasan ong.gija, songni nokni manderangni cha.a ringani gadangko namdapatna dakchakenga.

Bang.bata matchu jilgiparagon namnamgipa, gipin a.songoniko ra.bagipa matchurang donggenchimoba, uarangni dut on.aniara on.rongana bate komia. Iani a.selrangko ka.mao mesokatenga.

1. Matchuna simsakani mongsongbate cha.ani on.ani chu.ongjani gimin.
2. Matchuni an.seng-baljokanina simsakjani gimin.
3. Pal ra.ate bi.sa duataniko simsakgijani a.sel, matchu bi.sa dutaina ru.ute somoi ra.ani.
4. Matchuo nikramramaigipa sabisirangko aro uarangko champengani cholrangko uijani gimin.

KATTA BICHONGRANG:

- 1. MATCHU JILANI BEWAL**
- 2. BIAP BASEANI**
- 3. NOL RIKANI**
- 4. MATCHUNI JATRANG**
- 5. NAMGIPA MATCHUKO BASEANI**
- 6. MATCHU BIMANA, SARONGNA ARO BI.SARANGNA SIMSAKANI**
- 7. ONGRONGGIPA SABISIRANG ARO UARANGKO CHAMPENGANI CHOL**
- 8. TIKA SU.ANI**
- 9. SEE JOTE RAKKIANI (RECORD KA.ANI)**
- 10. SEE JOTE RAKIANIO NANGCHAPGIPARANG**

CHAPTER 1

MATCHU JILANI BEWAL:

Meghalaya o matchu jilaniko ming 3 bewalo dakaronga.

- I) CHA.AMATGIJA JILANI (ZERO GRAZING) :** Ia bewalo matchurangko nolon chipkame jila aro matchuni cha.a ringaniko nokgipa jilgipaona ra.bae on.a. cha.amatgija jilo bang.bata dutko man.a ama mangprako (15-30 lts).



II) DIKDIKPRAK CHA.AMNA ON.E NOLO CHIPE JILANI (SEMI-ZERO GRAZING):

Matchurangko nolo chiipe jiloba, salgimiko baditaba kantarangna samsiko ch.amchina watbrange dona.



III) WATE JILANI: Iano matchurangko, samsirangko cha.china, cha.amram samsi namao watbrange donaiia aro chi aro mineralrangko cha.amram biaponan ra.bae on.a.



Bang.bata matcgu jilgiparangan an.tangtang matchurangko cha.amramo wate jilbata. Jedakgipa bewalo matchuko jilgenchimoba, cha.ani on.aniko name simsakanian mongsonggipa ong.a.

CHAPTER II

Matchu nol rikna biap baseani:

Nol rikna biap baseaniara mongsonggipa ong.a maina namgipa a.ako baseosa, uno nol ko name rikna man.a aro matchuna name simsakbatna man.a.

Namgipa biapko baseon ka.mao janapgiminrangko gisik ra.na nanga:

1. Matchu nolko riknasigipa biap a.timbo dakgipa ong.na nanga jedakode mikka chi aro ki.i su.buko name wate galna man.gen.
2. A.a agre ran.gipa ong.na nangja maina indakgipa a.arangde wachio gijelemung, ran.joko bretskaa.
3. Bang.bata salni teng.aniko man.na amna gita, nolko salgro- salgipeng dake rikna nanga .
4. Matchu nolko agre sorok sambao rikna nangja.
5. Rongtalgipa chiko chu.onga gita man.na nanga.
6. Kakketgipa, komia damo salanti kam ka.gipa (labour) manderangko man.gipa biap ong.na nanga.
7. Je biapon dut ko aro dutoniko tarigipa bosturangko altuae aro nama damo palna man.gen, indakgipa biaprangosa matchuko jilna nanga.
8. Rama jal.ang donggipa aro bijoli donggipa biap ong.na nanga.

NOL RIKANI ARO NOL-NI LAY-OUT PLAN RANG:

Gitalgipa matchu nolni rokomrang:

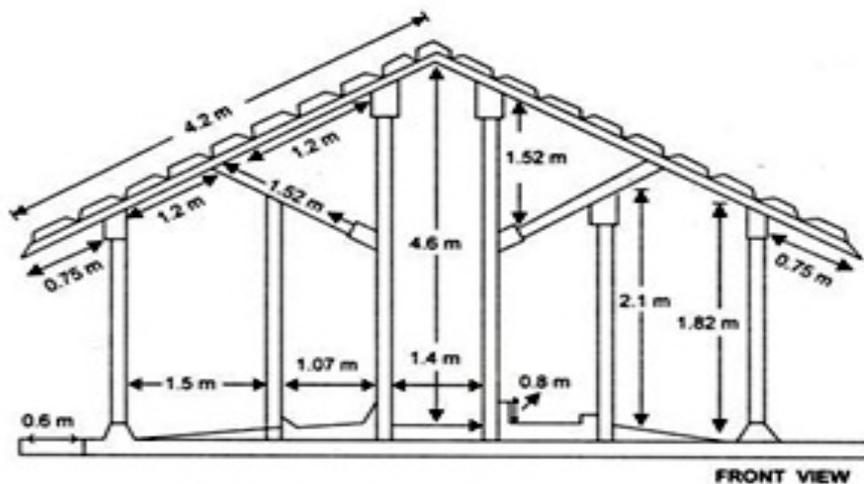
1. Nolo Chipkamgija jilani ba Loose Housing:
2. Nolo Chipkame jilani/ Conventional System
 - a) Mikkanggrike donani (head to head)
 - b) Ki.sanggrike donani. (tail to tail).



NOLO CHIPKAMGIJA JILANI



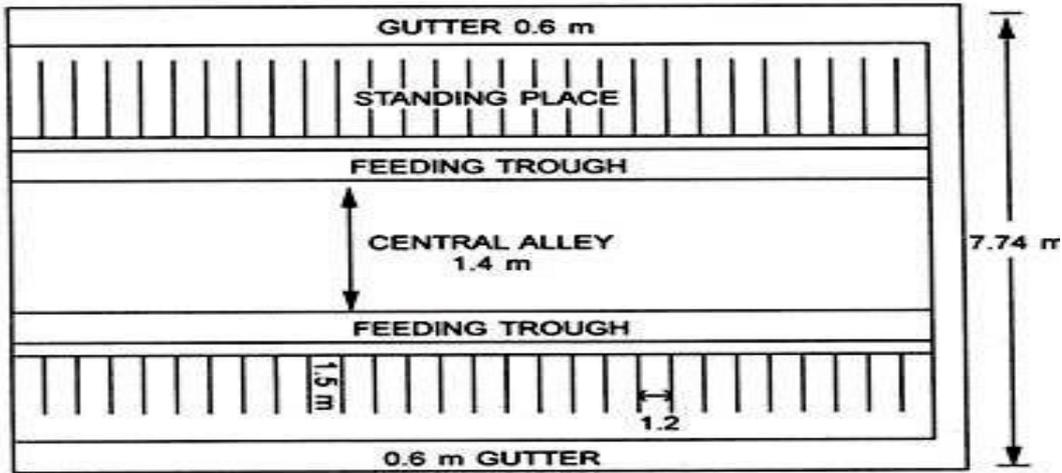
MIKKANGGRIKE MATCHUKO RAKKIANI



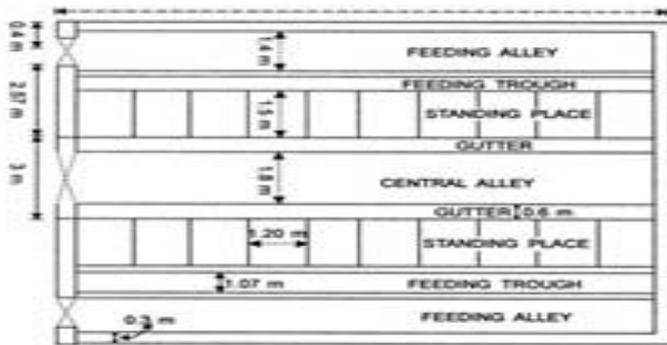
MIKKANGCHAKGRIKE DONNA NOL RIKGIPA MIKKANGCHINI BAK./(FRONT VIEW)

Mikkangchakgrike donna rikgipa nolni namgni:

1. Apchongipa matchu nolna nambata.
2. Salni teng.suaniko ki.sangchipak man.bata.
3. Cha.ani on.na altubata.



MIKKANGCHAKRIKE DONNA RIKGIPA NOLNI TARIGIMIN NOKSA.



KI.SANGTIKGRIKE DONNA RIKGIPA NOLNI TARIGIMIN NOKSA.

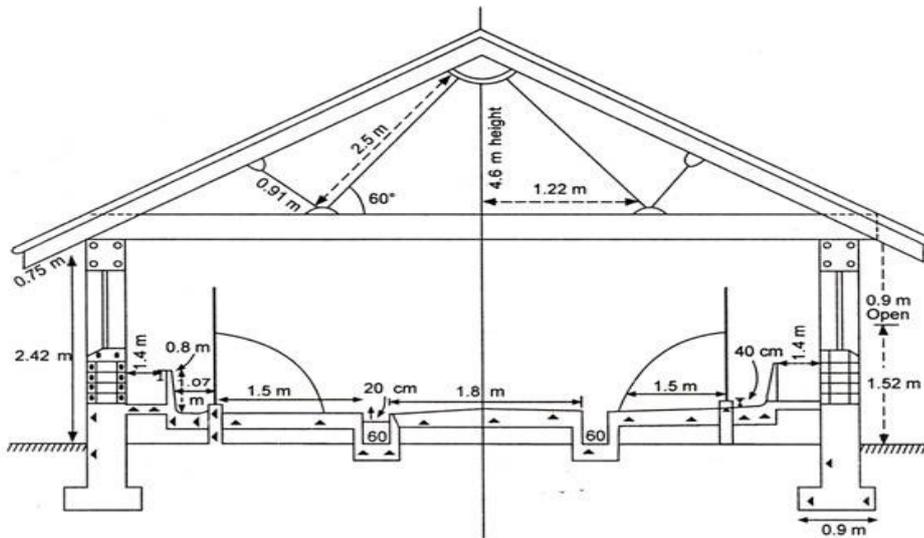


Fig. 44.4. Sectional View of Tail to Tail Barn

KI.SANGTIKGRIKE DONNA RIKGIPA NOLNI MIKKANGCHI NIKGIPA BAK/ (FRONTVIEW).

Ki.sangtikgrike donna rikgimin nol ni namgnirang:

1. Jangchio donggipa rama dal.gipa, matchu dut ko sepna aro nolko rongtalatna namen dakchakbeani ong.a.
2. Matchu mangsaoni manggipinona sabisi altue batrikrikna man.ja.
3. Matchu a.palni rongtalgipa balwako man.a ama.

MATCHU NOLO BIAP NANGANI:

Ja/ bils	Cha.ani on.chakram biap (sqm)	Ning.ogipa biap (sqm)	A.palogipa biap (sqm).
Ja 4-6	0.1 – 0.3	0.8 – 1.0	1.6 – 2.0
Ja 7-12	0.3 – 0.4	1.2 – 1.6	2.4 – 3.2
Bils 1 -2	0.4 – 0.5	1.6 – 1.8	3.2 – 3.6
Matchu bima	0.8 – 1.0	4.0	8.0
An.o donggipa matchu	1.0 - 1.2	10 -12	20 - 24

MATCHU JILANIO DAKNA NANGGNIRANG:

SOMOI	KAM KA.GNIRANG
4:00 – 4:30 AM	NOL RONGTALATANI. DANA ARO CHI ON.ANI
5:00 – 6:00 AM	MATCHU SOK SU.GALE DUT SEPANI ARO DUT NI MITIM (FAT) KO TEST KA.ANI (PRINGO)
6:00 – 6:30 AM	DUT ARO DUTONIKO TARIGIMIN BOSTURANGKO PALANI
7:00 – 9:00 AM	MATCHUKO RONGTALATANI, BIPA AM.AMA AM.JA UKO SANDIANI, SAGIPARANGKO SANA-BANANI
9:00 – 11:00 AM	SAMSI ON.ANI/MATCHU CHA.AMATANI/ JENG GE.ANI.
11:00-1:00 PM	NENG.TAKANI
1:00-2:00 PM	DANA ARO CHI ON.ANI, SAGIPARANGKO SANANI.
3:00 – 4:00 PM	DUT SEPANI ARO DUT MITIM (FAT) KO NIANI (ATTAMNI)
4:00 – 5:00 PM	DUT PALANI/ JENG ON.ANI/ ARTIFICIAL INSEMINATION KA.ANI

CHAPTER III

MATCHUNI JATRANG:

An.chingo man.batgipa matchuni jatrangko ka.mao mesokatenga.

THE HOLSTEIN FRIESIAN)



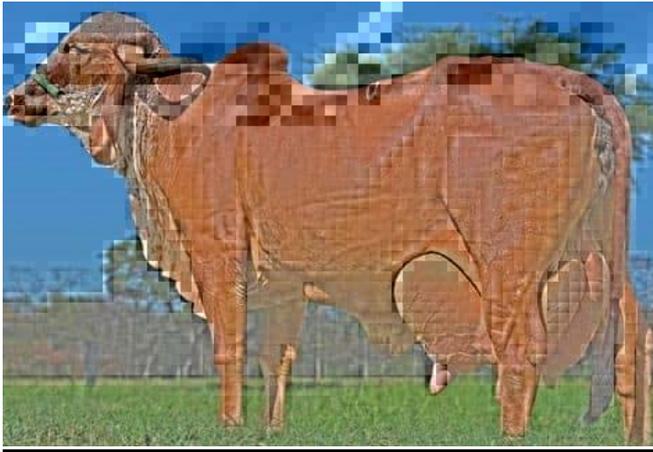
Ia matchuara sal 305 o 7000 lts dut ko on.a. Dutni mitim 3.5 % aro snf 8 – 8.5% ong.a. Matchuni jrima 500 – 550 kg mang ong.a. Matchuni rong gisim aro gipok ong.a, kimil kan.dika aro grong ba ro.ja.

THE JERSEY:



Ia jatni matchu sal 305 o 5000 lts dut ko on.a. aro dutni mitim 4% ong.a.

INDIAO NIKRONGGIPA MATCHUNI JATRANGARA GIR, THARPARKAR. SAHIWAL, RED SINDHI etc ong.a. Ia jatni matchurang salprako dut litre 5-10 ko on.a aro ia matchurangni dutara namen nambegipa, ringtobegipa aro be.enna nanggipa cha.ani bang.gipa ong.a. Uarangna jeng komikale i.e 15-20 kg salprako nanga aro ia jatni matchurangara be.enni aro sutikrangchi ong.atgipa sabisiko man.rongbreja. Uarangara bilsa 3 rango bi.sa dua aro bilsisa ja6 mangni ja.mano bi.sa dutaia.



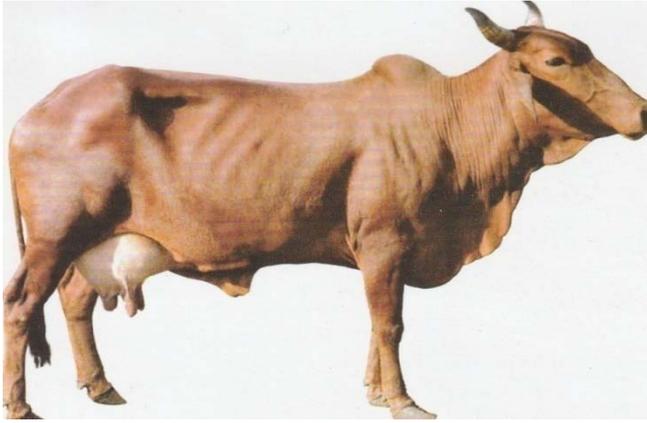
BREED	GIR
Origin	Saurashtra, Gujarat
Appearance	Dark brown skin with white patches and half moon shaped horns, pendulous ears
Milk Yield	1250-1800 kg
Age at first calving	45-54 Months

Matchuni JAT	GIR
Bano nikchenga	Saurashtra, Gujarat
Bimang	A.mangni rong chikgipa, badiaba badiaba be.enni bako gipokchi toka, grongrangara adha-jajongni bimang daka aro nachil goma.
Dut on.ani	1250-1800 litres
Skanggipa bi.sa duani	Ja 45 - 54



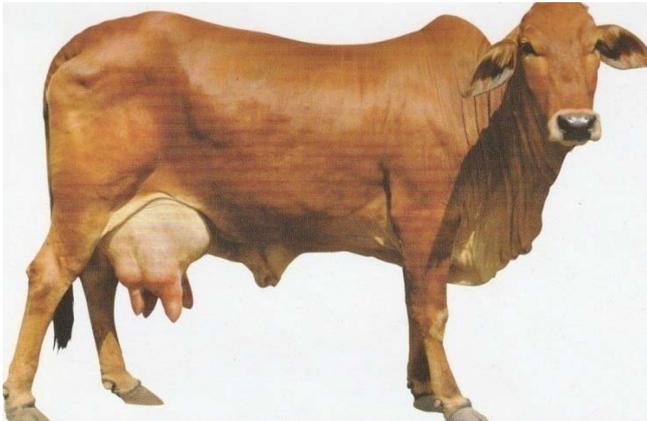
BREED	THARPARKAR
Origin	Tharparkar, Pakistan
Appearance	White to light grey skin and compact body
Milk Yield	1800-2500 kg
Age at first calving	38-42 Months

Matchuni JAT	THARPARKAR
Bano nikchenga	Tharparkar, Pakistan
Bimang	Gipok aro taprani rong daka aro bimang ma.skota.
Dut on.ani	1800 – 2500 litres
Skanggipa bi.sa duani	Ja 38 – 42.



BREED	RED SINDHI
Origin	Karachi, Pakistan
Appearance	Pale red uniform skin with upwardly curved horns and drooping ears
Milk Yield	1250-1800 kg
Age at first calving	39-50 Months

Matchuni JAT	RED SINDHI
Bano nikchenga	Karachi, Pakistan
Bimang	Gitchakmrang , grongrang kom.a aro nachil goma.
Dut on.ani	1250 – 1800 litres
Skanggipa bi.sa duani	Ja 39 – 50.



BREED	SAHIWAL
Origin	Sahiwal, Punjab
Appearance	Dark brown loose skin with symmetrical body
Milk Yield	1400-2500 kg
Age at first calving	37-48 Months

Matchuni JAT	SAHIWAL
Bano nikchenga	Sahiwal, Punjab
Bimang	A.mangni rong, bigil doldrue bimang rikeng ritchak daka
Dut on.ani	1400 – 2500 litres
Skanggipa bi.sa duani	Ja 37 – 48.

CHAPTER IV

NAMGIPA MATCHU BIMAKO BSEANI:

Namgipa, dut on.gipa matchu jatko baseaniko ka.mao mesokatenga.

- a) Matchu baseon, ma.a-ambini, ma.a paani aro ua bimani gimin see rakkigiminko nichengna nanga.
- b) Namgipa matchu bimani sok ku.teni dal.ani, ro.ani (shape, size) apsan ong.na nanga.
- c) Matchuni sok ja.ongija, ja.skuni kosako ong.na nanga aro oko name ma.gapna nanga.
- d) Matchuni bigil namgipa aro bimang silgipa ong.na nanga.
- e) Ja.a jakrango mamung saknaani ba ripomani dongna nangja.
- f) Mikron rongchingna nanga aro gitok ram.na (lean) nanga.
- g) Matchu sokni bigilo an.chi ja.dilrangko name bang.e nikna nanga.



CHAPTER V

MATCHU BI.SAKO JILANI:

MATCHU BI.SAKO JILANI ROKOMRANG:

1. Matchu bi.sako ma.a baksa done jilani
2. Ma.watatani rokom
 - a) Atchian bukan ma.watatani
 - b) Matchu bi.sako ma.a baksa sal 2-3 na donenba, bi.sako dongipa biapona jitatani.

MATCHU BLSA ATCHIO SIMSAKANI:

1. Matchu bi.sa atchiani ja.mano, bi.sa rang.sitama rang.sitjaenga nina nanga. Matchu bi.sa rang.sitja ine nikode, uko dakchakna nanga (gingtingni moilako ipake galna nanga aro unoba rang.sitjaode, matchu bi.sani ja.tengko rim.enba skoko ka.machi done, alamala gowingwangatna (swing) nanga.
2. Gandilko ratenba, bangki dongrikenggipa gandilo Iodine ba Copper Sulphate ko nongna nanga.
3. Atchiani ja.mano matchu bi.sa sok cha.na man.gija nom.ode, uko dakchakna nanga. Skanggipa matchu ni sok (colostrum) ko matchu bi.sana antisana kingkingde uni nangnika gita chana on.na nanga aro gitachagipakode gipin matchu bi.sarangna on.na nanga ba tarie (store) donna nanga.
4. Matchu bi.sani oko donggipa jo.ong Ascaris ko ong.katatna, namgipa jo.ongni sam ba anthelminthic ko on.na nanga.
5. Ma.ani skanggipa sok (Colustrum) ko atchiani adha kantani ja.manan bi.sana on.na nanga.
6. Matchu bi.sako skanggipa anti 3-4 na kingkingde dingtang kuturio mangsan dake donna nanga.

MATCHU BLSANA CHA.ANI ON.ANI:

Matchu bi.sa an.senge dal.rorochina gita simsakanian mongsonggipa ong.a. Matchu bi.sana cha.ani on.aniko ka.mao mesokatenga.

Bilsi	Dut (kg)	Dut mitim gri (Kg)	Calf starter/Matchu bi.sani dana(kg)
Sal 1-3	Nangnika gita		
Anti 2 ona kingking	5-6 lts	Nangnika gita	
Anti 3 ona kingking	6 lts	--	Nangnika gita
Anti 4 ona kingking	5 lts	--	--
Anti 5 ona kingking	4 lts	--	--
Anti 6 ona kingking	3 lts	--	--
Anti 7-8	2 lts	--	0.5 kg
Ja 3	--	--	0.75 kg
Ja 4-5	--	--	1 kg
Ja 6-7	--	--	1.25 kg
Ja 8-16	--	--	2 kg

CALF STARTER/MATCHU BLSANI CHA.ANIKO TARIGIPA BOSTURANG:

BOSTURANG	BAK
■ MISI/ME.RAKKU/ CHANA/ JOB MI(BNEKATGIMIN)	40
■ GNC/MOC/TNC	25
■ SOYABEAN/DODIM	25
■ DUT POWDER	8
■ MINERAL MIXTURE	1.25
■ KARI	0.5
■ YEAST/WANTI	0.25



MATCHU BLSAKO DONRAM



MATCHU BLSANI KUTURI



A.PALOGIPA ARO NOKNINGOGIPA MATCHU BLSAKO DONRAM NOL.

MATCHU BI.SAKO DONRAM BIAP:

Matchu bi.sako donram nolko man.adipetde sambajolo man.gipa bosturangchi rikna man.ode nama. Nolko rikon ka.mao janapatgiminrango pangchake rikna nanga:

- i) Matchu mangsa manggipinoni 2 sqm (1.2 X 1.5 m) chel.grike donna
- ii) Name nala tarina man.e aro matchu bi.sana tuchakna name tuchakaniko tarie
- iii) Nol namen jasenggipa ong.na nanga (natural or artificial).
- iv) Balwa jokrurana man.gipa ong.na nanga.
- v) Matburunrang napna man.gijagipa ba nol mangrakgipa ong.na nanga.
- vi) Matchu bi.sarangko a.palogipa nolo (paddock) rona on.mangmangari, nolon chipe donna nanga.
- vii) Matchu bi.sani nol ara baikamgipa ba dikdixanasan ba de.jitna man.gipa ong.na nanga.
- viii) Baikamgipa(permanent) nolko rikon, rongtalatna altuna gita rikna nanga.
- ix) Nolni a.palogipa biapo matchu bi.sarang sal chake ba be.enko ranta ka.e rona gita man.a.

CHADALDALGIPA GRONGKO RATANI:

Grong ro.rogipa matchurangara nolo kam ka.gipa manderangnasan kengni ong.aigija, uarangni grongko rataniara matchurangko nambate nitobate nikata. Grongko dingtang dingtang cholrangchi ratna man.a.

SILKO DING.ATE: Ding.pretgipa silko anti 4-6 ong.gipa matchu bi.sarangni chabaenggipa grongko tapenba nosto ka.na jakkala. Indakgipa ko matchu bi.sa ja 3 ona kingkingde jakkalna man.a indiba iako dakengon, chabaenggipa grong ko name ding.gipa silchi tapna nanga ong.jaode grong chapilaigen.

SAMKO JAKKALE: Caustic soda ba Caustic potash ko jakkala.

DINGTANGGRIKATANI: Atchiani bakan, matchu bi.sako name uina man.na gita, uarangni nachilo number tapna ba natapsi ganatna nanga. Natapsi ganataniko dingtang dingtang bewalo dakna man.a.



NACHILKO SU.PONGA. Nachilni badiaba bakko an.tangtang ma.sina gita code done rata. Iade dongkamgipa ong.a.



NATAPSI GANATA: Applicator ba machine ko jakkale number ko matchu bi.sani nachilo ganata. Iako poraina altua.

CHAPTER VI

MATCHU DAMBEKO JILANI:



TALATCHENGANI:

1. Bang.bea matchu damberanko jilgenchimode, ua matchurantonikon nambata matchu damberanko jiltaigipa stock (replacement stock) na basena altubata.
2. Gipinchiko matchu dambeko ba matchuko brena nangjani gimin farmo matchu baridapatna koros komia.
3. Replacement stock na nanggijagipa matchu damberanko palna nanga maina uarantoniko ta.rake tangka paisako man.piljani gimin, sarong matchurangko jile donganiora, cha.anina, nirokgipa mandena, sana-bananina bang.en korosrangko nanga.

4. Matchu dambeko jilanio koros ong.gipa tangkarangko bi.sa duani ja.manosa man.pilna gita man.a. Uni gimin matchu dambeko jilon, komia somoio dal.ate, A.I ka.e, bi.sa man.atna joton ka.na nanga.
5. Farm o matchu dambeko jilanio, dana ba feed na koros ong.batgipa ong.a maina dana ni dam rakbea. Uni gimin matchu dambeko komia somoio dal.ate, oko keate, senggnang bi.sa duatianian farm ni miksongani ong.na nanga.

BIMA DAMBE(HEIFER) KO BIPA RAATE BLSA MAN.ATANI:

Bilsi jegitaba ong.china, matchu dambe jensalo uni be.enni jrima 40% ona soka, unon bipa am.a indiba jensalo uni jrimna nangani 60% ona sokaha, unosa uarangna bipa on.na nanga . Matchu dambe an.seng-baljokgipa ong.ode ja 14-16 mangon bipa am.a. Chonggipa jatni matchurangko, dal.gipa jatni matchurangna ja 1-2 skang bipa roatna man.a maina uarang ta.rakbate bi.sa oko kena gita bribata. Milgipa aro name nirok-simsake jilgipa matchurang, ram.gipa aro simsakgija jilgipa matchurangna bate bipa am.ani chinrangko nambate mesoka aro ta.rakbate oko kena man.a. Nanga ba kraa gita milgija/dal.gija, mildugagipa matchurang baditaba chang bipa on.osa oko keskaa.

Matchu dambena cha.ani nanga. – 2 kg dana (conc feed), tangsekgipa jeng – 10-15 kg salprako aro me.gap/mikel –5kg salprako.

CHAPTER VII

MATCHU BIMANA CHA.ANI ON.ANI ARO SIMSAKANI:



DANA



MATCHURANG CHA.AMENGA.

MATCHUNI DANA O BRINGIPA CHA.ANI ROKOMRANG:

1. **Macro ingredients:** Iarangara Carbohydrates aro Protein ko on.gipa cha.anirang ong.a. Bilakatgipa (Energy) matchu ko il.engna siksakna dakchaka , matchuko ding.e- tange rakkia aro dutko bang.e on.na dakchaka. Bilakataniko on.gipa cha.anirangan matchuni cha.anio mongsonggipa ong.a. Protein ara dambe matchu ko dal.atna, bilakatna aro an.seng-baljokgipa bi.sarangko man.na dakchaka aro dut bang.e on.na dakchaka.
2. **Micro ingredients:** Mineral aro Vitamin matchuni grengko bilakatna, uarangni sa.tip ni bakrangko name rakkina dakchaka. Indiba iarangko matchu bang.gijasan nangaia. Indake matchuni cha.anio bilakatani, protein, mineral aro vitamin donggipa ong.na nanga.

Bilakatani tangsekgipa bijakrang , me.su-samjak (forages) aro tangsekgipa cha.amram rang (pastures)-jeng megap, me.rakku, me.rakkuni cha.che (maize bran), gom-mi, chapot (wheat bran), mi-ni cha.che aro mi ginde.

Plant by products : besual to jetani bidek (mustard oil cake), to jetani bidek (groundnut cake), spin to ni bidek (til oil cake).

Animal origin : na.kam ginde (fish meal).

1. Cha.ani cha.aniara matchuni dut on.anina nangenggipa energy ko on.a aro matchuni jrimaniko bariata.
2. Dut on.ani somoi bon.angachipak (late lactation)o, matchuko milatanian, dut sepjमितing (dry period) o milatana bate nambata. Ia somoimitingode matchu bi.sani oko dal.oroani gimin matchu bimaba milpaiaia.
3. Bi.sa duna skang (late lactation) matchuna cha.aniko name simsake on.aniara, changgipino dut on.aniko baridapata aro Milk Fever aro Ketosis sabisi man.aniko komiata.
4. Dut on.jamiting (dry period)ni somoiode matchuna oko donganiko maintain ka.na gitasan cha.aniko on.na nanga indiba bi.sa duna anti2 skangmangmansan, changgipino dut bang.bate on.china, namgipa conc. dana ko on.na nanga.

5. Calcium aro Phosphorousko, dut on.jamiting somoiode, 0.4% oniko 0.25% kosan on.na nangaia jedakode matchu Milk Fever saaniko man.jawa.

MATCHU BIMANA CHA.ANI ON.ANI:

Dana/Conc feed : 1.5 kg maintenance na + 1kg dana (dut litre 2.5 prakna).

Jeng : 20-25kg

Mikel/Megap: 10-15 kgs

Silage/ Ripenge dongimin jeng : 5-10 kg.

CHAPTER VIII

JENG GE.ANI ARO UKO RIPENGE RAKIANI:

Matchu jilanio, jeng ge.chapaniba mongsonggipa kam ong.a. Matchu jilna chanchiengon, namgipa jengrangko bang.e man.anikoba nina nanga.

“Fodder” ine aganon, bijak cha.na namgipa bol aro je jengrangko jilla-kaanina, mongsongbate matchuna cha.na on.na man.a.

- (A) **FODDER CULTIVATION/ JENG GE.ANI:** Bilsa gimik chotchanggihija jengrangko man.na amna gita, namgipa jatni jengrangko ge.aniara mongsonggipa ong.a. An.chingni jolrango ge.na namgipa samsirangko ka.mao mesokatenga.

1. **Me.rakku:** Ian nutrients bang.gipa jeng ong.a aro ia jolo namen silbea. Ia sam-bolo chi bang.ani gimin, jamano on.na ripenge donna nambegipa ong.a.

Ge.ani somoi: February – May.

Bitchilko badita ge.na man.a : 40kg acre prako.

Ratani somoi: Ge.ani ja3 ni ja.mano.

Chi ruani (irrigation) : Mikka chi.

2. **Oats/JOB MI:** Ia sin.kario ge.on namen sila maina ian sin.karini jeng ong.a

Ge.ani somoi: September – November.

Badita bitchilko ge.gen : 50 kg acreprako.

Ratani somoi: Ge.ani ja 2-3 ni ja.mano.

Badita chang ratgen: Chang 2-3, japrak wachange.

Chi Ruani (irrigation) : Chi on.na man.genchimode, ia jeng (fodder) namen sila.

3. **Tangkamaigipa sam-bol:** Je jengrangan bilsa a.na joljol dongkamaia. Uarangara:

a) **Congo grass:** Ian ja.dil chom.bak chom.bak dake ro.ninggipa (1.8m mang ning.achi ja.dil suna man.a) aro bilsa gimikan man.kamaigipa jeng ong.a.

b) **Guinea grass:** Ian ding.gipa biaprango name dal.na man.gipa, ramram nikna man.gipa jeng ong.a. Iani changroa 2m mang ong.a aro iara bilsa antin man.aigipa jeng ong.a.

c) **Napier grass:** Ian mongsonggipa aro ding.gipa biapo silrorona man.gipa jeng ong.a. Ja.dil rataoniko ge.e ia jengko jelrroatna man.a .

- d) **Para grass:** Ian wachio, ta.rake jelrororona man.gipa, tangkamaigipa jeng ong.a. Ja.dil aro ga.teng rataoniko ia jengko ge.e jelroroatna man.a.
 - e) **Sal.a bipang ba mingsa tangkamaigipa jeng ong.a.**
4. **Fodder bolrang:** Samsiko man.na neng.miting somoirango , ia bolrangni bijakko matchuna on.na gita man.a. Jekai prap (pipli bol,) sojina bipang, cherry pul ni bijak etc.

(B) JENGKO RIPINGE DONANI (FODDER PRESERVATION) :

Hay tariani: Ian jengni chi ko 15% mang ran.ate, soatgija ba dadimit chaatgija jengko ripinge ba preserve ka.e dongipa ong.a. (jengko ran.ataniara microbes/ jo.ongrangni dal.roroaniko champenga).

JENGKO RATANI ARO TARIANI:

1. Jensalo samsirang bibal balani 50% mang ong.aha, ua somoio jengko rate ranate ripinge donna nanga. Ia somoiosa jengo protein ni bang.ani aro digest ka.na man.ani bangmiting ong.a, jean briroroangahaode bon.angskaa.
2. Jengko mikka wagijani sal 2-3 ni ja.mano ratna man.ode nama maina ua somoio jengko ran.atna altubata. Hay tarina jengko ran.aton, bol salakimo ran.atna man.ode, jeng tangseke dongaia.
3. Farm ni fork ko jakkale, ramenggipa jengko apsan ran.china gita, name an.pilna nanga. Ran.ama ran.kuja uko nina jengni ga.tengko pe.e nina nanga. Ga.teng be.gija gome dongaiode, ran.ani chu.ongkujaenga ine ui.na man.a.
4. Badita ripinga, uko ui.ode, cha.ani on.anio hisapna altubata.

CHAPTER IX

SILAGE: Silage ara balwa jokna man.gija, soate/ ferment ka.e, chijimate ripinge dongipa samsi ong.a.

Silage ko ran.atode, iani quality ra namskaja. Silage ko job mi (oats), me.rakku ba napier samsi oniko tarina man.a.

Silage tarina namgipa jengrangara:

- 1) soatna (fermentable) man.gipa chi.gipa ba chio jronggipa carbohydrates dongna nanga.
- 2) dry matter ni bang.ani 20% na batna nanga.
- 3) name ba maskote tarie donna man.gipa ga.teng dongna nanga.

SILAGE KO TARIANI:

Silage ko tarina jakkalgipa jengrang:) merakku (bibal balna skang skang),job mi (oats), kikiyu samsi.

Silage tarinakgipa a.kolni dal.ani: Chuani /height =10 ft, Apalani/breadth = 12ft, Ro.ani/length = 12 ft.

Badita chaka? – 160 tonnes.

Silage ko maikai silo ni a.kolo taria:

1. Ge.ani sal 90 ni ja.mano, me.rakkuko ratenba, uarangko pangsani ja.mano pangsa dake sulsul name ma.kete donna nanga.

2. Me.rakkuko silo a.kol adhaona braani ja.mano, molasses/gur ko siloni a.kol / me.rakkuni kosako on.skana man.a.
3. Ja.mano silo a.kolko name ma.kete pack ka.na nanga.
4. Uko kuligija sal 60 na rakkina nanga.
5. Indake jeng man.gijani somoimitingrango, silo ko matchuna cha.na on.skana man.a



SILAGE TARINA ME.RAKKUKO NAME TARIE DONGIMIN.

CHAPTER X

BREEDING/PAL RA.ATANI:

BIPA ROATANI: Bipa am.ani chinrangko nikahaon, bipa roatna nanga.

BASAKO PAL RA.ATNA NANGA: Oko kee namdapatna gita, tiktak somoio bipa ka.atanira mongsonggipa ong.a. Badia somoio bipa ra.atna nambatgipa ong.achim ka.mao mesokatenga.

OKO KEATNIKO MAIKAI NAMDAPATGEN?

Bi.sa duani sal 50-75 bataon bipa ra.atna nanga. AM-PM Niam

Matchuska gadodapoba chake on.ani somoi (standing heat) tiktako AI ka.na ba palra.atna man.ode uan nambatgipa somoi ong.a.

9 a.m na skang 'standing heat' ko nikode, ua attamon, ba salgipino pringwalni AI ka.na ba palra.atna nanga.

ARTIFICIAL INSEMINATION

Artificial Insemination jekon AI ineba agana, ian matchuko oko keatna jakkalgipa mingsa chol ong.a. Ian Kenya aro a.gilsak gimikko batanggimin bilsa sotdoko Matchu Jilani ba Dairy Farming ko namdapatna dakchakgipaba ong.a. Iana namgipa, saa ding.a grigipa aro high quality ba namgipa bipani bitchriko (semen) ko on.gipa matchu bipako nanga. Namgipa, oko kena man.gipa (fertile) matchu bima, AI ka.na changgipa mande aro rongtalgipa environment koba AI ka.na gita nanga. AI ka.na gita namgipa matchu bipani bitchrirangko, matchu jilgiparang, AI Centre rangniko ra.bana nanga.

ARTIFICIAL INSEMINATION KA.ANI NAMGNIRANG:

1. Bipa roanichi batrikrikgipa sabisirangko champengna man.a.
2. Namgipa matchu jat jekon dam komiachi porika ra.e nigimin aro basegimin bipani bitchriko chasongni chasongna ripinge donna man.a.
3. Nambatgipa matchu bipani bitchrirangko jakkalani gimin, matchuni an.chi aro bimang ko namdapatna man.a.
4. Chonchongipa matchu jilgiparang komia damo nambatgipa bipani bitchriko man.na ama.
5. An.tangni namnika matchuni bitchriko baena man.a.
6. Name jakkalgenchimode, bipa roate sabisi man.ani chol dongja.
7. Inbreeding ba apsan ma.a paani dedrangko bipa roataniko champenga.
8. An.chingni local matchurangko namdapatna ba upgrade ka.na AI an nambatgipa chol ong.a maina iano nambatgipa matchu bipani bitchriko jakkalna man.a.
9. Matchu jilgipa bipako jilna nangjani gimin, AI ka.e matchu jilanio koros komia.

OKO KEANI SOMOI: oko keaoni, bi.sa duaona- sal **281+_ 2**

DUT ON.ANI: Bi.sa duaoni, matchu dut sepako dontongaona, sal 305.

DRY KA.ANI BA DUT SEPGIJANI SOMOI : SAL 60.

CHAPTER XI

RONGTALE DUT SEPANI:



DUT SEPNA SKANG KLI.KO RONGTALATANI.



DUT SEPCHAKGIPA JAR.



JAKCHI DUT SEPANI



DUT ME.DIK.

1. DUT SEPGIPA MANDE:

- Be.en an.senggipa ong.na nanga,
- Jakskilko ro.e donna nangja aro kni kan.dike dona nanga. (me.chikrang dut sepon sko kapingna nanga).
- Dut sepmitingo cigarette/biri ringna nangja.
- Neng.takgija ta.rake matchote dontonggija dut sepna nanga.
- Seenggijagipa aro dintangmancha dut sepna tarigipa biapo dut sepna nanga.
- Dut sepna tarigipa biap, rongtalatna altuna gita, a.pa pucca ong.na nanga aro ua biap rongtalgipa aro ran.gipa ong.na nanga.
- Dut sepa changprakni ja.manan, sepchakgipa biapko rongtalatna nanga aro matchu bimarangko a.palo donna nanga.
- Dut sepchakna aro chimongna (store ka.na), steelni ra.chakaniko jakkalna nanga maina plasticni ra.chakaniko rongtalatna altuja.
- Dut sepani aro dut paksreani bakan ra.chakaniko rongtalatna nanga. Chi ka.sinchi su.galchenge, brush chi nate sabon aro chi ding.achi su.galtaie, changsa chi ka.sinchi su.galtaina nanga.
- Dutko rongtalgipa, balwa jokrurana man.gipa biapo chimonge donna nanga.
- Jakchi dut sepaniba ge.sa ‘art’ ong.a jean ranta ka.ani baksa sa namdaproroa.

JAKCHI DUT SEPANIO DAKNA NANGGNI KAMRANG:

1. Matchuko tom.tomatna aro dut on.aniko ‘stimulate’ ka.na, matchuni dut on.anina (Production ration) nanggipa cha.aniko on.chengbo.
2. Matchuni ja.ako, on.tisa olgroke, ja.sku kosako kae ra.chengbo. Uni ja.mande sabon nonge, name chi rongtalachi jakko jaksuchengbo aro jakko towelchi ipake ran.atbo.

3. Mastitis dongama dongja uko ui.na 'strip cup' method ko jakkale, sok bak brionikon dut on.tisa sepe, uko test ka.e nichengbo. Aro uno maiba ongronggija dakani dongode, ua matchukode bonchote dut sepbo.
4. Matchu sokko, sam bringipa chi ding.bomachi bara rongtalako jakkale rikbak.galchengbo. Ding.bomgipa chi, matchuni dut jokaniko stimulate ka.a. Uni ja.mande, towelchi matchu sokko ipake ran.atbo.
5. Dut sepani jelly ko nongbo, unode dut sepna altubata aro matchuni sokba bretja.
6. Bon.e aro neng.takgija joljol matchote dutko sepna nanga. Dut sepon matchuni sok ku.teko salnabe, sepasa sepaibo.
7. Matchu mangsako, batbewaloba minute 7-10 on dut sepaniko matchotatna nanga.
8. Rongtalgipa ra.chakaniko dut sepna jakkalbo.
9. Bon.e sepna nanga ine totsaba dongpilgija dut sepaniara basakobade sokni sabisi 'Mastitis' ko ong.ata.
10. Dut sepani ja.mano, sok ku.teko, sam bringipa cup o sim.bolna ba ipakna nanga jedakode bacteria/jo.ong sok ning.achi nape sabisiko ong.atjawa.
11. Dut sepani ja.mano matchuko kantasa mangnade chadenge dongatna nanga jedakode matchuni sok ku.te a.ao nangjawa aro a.aoni bacteria sok ning.achi napangjawa.

CHAPTER XII

DUT KO CHIMONGE DONANI(MILK PRESERVATION): Dutara nosto ong.ninggipa ong.a, uni gimin dut ko name nosto ongatgija ripingna nanga jedakode ua dutko manderangni nokona name nosto ong.gija sokangatna man.gen. Dut ko name ripinganira, dutko maikai aro badita rongtala sepa uno pangchaka.

Indake saa donggijagipa matchuni dutko, be.en an.senggipa mande, rongtala aro rongtala ra.chakanirangko jakkale sepgenchimode, ua dut ara rongtalgen aro uko ruute ripingna man.gen.



DUT PALENGA.

DUT KO IA ALTUGIPA CHOLRANGKO JAKKALE RIPINGNA KA.NA MANA:

Dutko ka.sinate rakkianiara, jo.ongrangni dut-o dal.oroaniko aro uarangni dut-ko nosto ong.atani kamko ka.sinata aro indake dut nosto ong.aniko champenga. Dut-ko bol salakimo done, dut ra.chakgipa bostuko ka.singipa chi-o sim.bole ba su.gale ba refrigeratoro done ka.sinatna man.a.

Dut-ko ding.atanichi, dut-o donggipa jo.ongrangko siata, indake ding.atgimin dut ko ruute dona man.a. Dut ding.atanichi, matchuoni mandeona batna man.gipa jo.ongrangko siate sabisiko champenga. Wa.alo ding.atjolaigija dongija, dut me.dik/can-ko chi gngang karaio done minute 30 na ritgenchimode, dut ni toani aro similani komija. Aro ian dut ritna nambatgipa chol ong.a.

DUT NI NAMANI/QUALITY KO PORIKA RA.E NIANI: Dutko porika rae niani rokom 4 donga jekon matchu jilramo aro dut chimongchakramo dakronga.

- Organoleptic test (Nie aro similgipe porika ra.ani).
- Clot –on –boiling test (ritmitingo dutni skongako niani)
- **Lactometer test** : Ia test-kora dut-o chi ba maiba gipin bosturangko brinama brinja uko nina daka. Maikoba dut baksa bringenchimode, uara dutko ta.raken nosto ong.ata aro indake dakaniara kakket ong.gijani aro niam gri dakani(illegal) ong.a.
- **Fat test:** D ut-o badita mitim donga, uko nina BUTYROMETER ko jakkale ia testko ka.a.



CHAPTER XIII

TIKA SU.ANI ARO OKO DONGGIPA JO.ONGNA SAM ON.ANI SOMOI (VACCINATION & DEWORMING SCHEDULE).

SL no	Sabisini bimung	Matchuni bilsi	Tikani kam ka.ani	Su.ani biap
1	Foot and Mouth Disease (Ja.geke saani)	1 st dose – Ja 4 On.taigipa- ja 1 watchchange Ja 6 prakon su.taitaibo.	Jadok nasan (One season)	i/m ba muscle o
2	HS &BQ	1 st dose – Ja 3 Bilsiprakon su.taitaibo.	Bilsisanasan (one season).	s/c ba bigilo
3	Brucellosis	Matchu bima bi.sa gimikkon- Ja 4-8 ni gisepo	Janggi tanga gimik	i/m ba muscle o

OK-NI JO.ONG BA KRIMI-NA SAM ON.ANI: Skanggipa changna, bi.sa Ja 3 gapjoko aro ja 3 prakon on.na nanga.

CHAPTER XIV.

ONG.RONGGIPA SABISRANG ARO UARANGKO CHAMPENGANI CHOLRANG:

1. **MASTITIS:** Matchu sokni ripome saaniko Mastitis ine agana.

Maikai onga: Dut sepna skang sokko su.galjani gimin.

Champengani :

- a) Matchu sok-ku.teko, dut sepna skang aro sepani ja.mano, Sodium hypochlorite bringipa, chi rongtalachi su.galanichi.
 - b) Ta.rake sabisiko sandianichi aro ta.rake sana-bananiko dakanichi
 - c) Dut sepaniko dontongna ba 'dry' ka.na skang sok-kute ko mitipgipa sealant ko jakkalanichi
 - d) Salantian sub-clinical mastitisko uina, dut-ko porika ra.e sandianichi
2. **FOOT & MOUTH DISEASE (FMD/JA.GEKA).** Ia sabisia virus chi ong.atgipa sabisi ong.a. Gimik bilsini matchuan ia sabisiko man.a. Mongsongbate dut on.gipa matchurang ia sabisiko man.ode, matchuni dut on.anirang komia.

Champengani:

- Matchu nolko sam bringipa chi-chi su.galjringna nanga.
 - Sabaenggipa matchuko ta.raken dingtang donna nanga.
 - Sagipa matchuna sana-bananiko on.na nanga.
 - FMD tika ko jadok prako su.na nanga.
3. **HAEMORRHAGIC SEPTICAEMIA (HS):** Ian bacteria jo.ongchi ong.atgipa, batrikrikgipa sabisi ong.a. Ia sabisira matchuo rang.sitgipa ramani saaniko, ging jo.ole aro ok re.ate saaniko ong.ata aro sana bananiko dakjaode, ia sabisina matchurang bang.en sina man.a.

Champengani : Matchu nolko sam bringipa chi-chi su.galjringna nanga.

Sabaenggipa matchuko ta.raken dingtang donenba, sananiko dakna nanga.

Tika ko bilsio changprak su.na nanga.

4. **BRUCELLOSIS:** Ian bacteria jo.ongchi ong.atgipa, mandeona batna man.gipa sabisi ong.a. Ian dut on.gipa matchuo ong.rongbata aro ia sabisiko man.on, matchu bi.sa dugala aro indake farm-na bang.a gima.aniko ra.baa.

Champengani: Bima bi.sarangko Ja 4-8 ni gisepo tika su.ani.

5. **BLACK QUARTER (BQ):** Ian bilsa sa-na komigipa, tika su.gijagipa matchu bi.sarango nikronggipa sabisi ong.a. Ian bacteriachi ong.atgipa sabisi onga , muscle bang.gipa bak jekai ja.ping, ki.sangrango saknaaniko ong.atgipa ong.a. Ia sabisina matchurang bang.en sia.

Champengani: Matchu nolko sam bringipa chi-chi su.galjringna nanga.

Sabaenggipa matchuko ta.raken dingtang donna nanga.

Tika ko bilsio changprak su.na nanga.

6. **ANTHRAX:** Ian bacteriachi ong.atgipa, kenbegnigipa sabisi ong.a jenan matchurang bang.en (100%) sia. Mandeona batna man.gipa sabisi ong.ani gimin, ia sabisiko man.e sigipa matchuko, name gope galna nanga aro mamung saloba post-mortem ka.na nangja.

Champengani: Matchu nolko su.galjringna nanga.

Bilsio changprak tika/vaccine su.na nanga.

7. **PARASITIC INFECTION:** Okningo donggipa jo.ongrang gimik bilsini matchunan bang.a neng.nikanirangko ra.baa. Mongsongbate matchuni okningo roundworm aro tapeworm ko nikrongbata. Ia jo.ongrang matchuni okningo dongode, matchuni kimil/bigil sel.taja, dut on.ani komia aro matchu bi.sarang dal.rakja. Ok-ni jo.ongni sam (deworming) ko ja 3 prako on.jringna nanga.

Tik/nasket bang.anichiba matchuna neng.nikaniko ra.baa maina tik/nasket chikanichi sabisi- Babesiosis, Lumpy Skin Disease ko ong.atna man.a aro an.chi komiata.

Nasket/ tik ko samrangko jakkale komiatna man.a.

8. **METABOLIC DISORDERS:** Badiaba nutrients, minerals be.eno chu.onggijanichi, ia sabisirangko ong.ata jekai Milk Fever, Ketosis, Hypomagnesaemia etc.

Cha.anirangko name on.anichi ia sabisirangko champengna man.a; mongsongbate Calcium aro Phosphorous ko bi.sa duna ja 2 na skang on.anichi.

CHAPTER XV

SEE JOTE RAKKIANI/RECORDS

SEE RAKIANI MIKSONGANIRANG:

1. See jote rakkianiara, bi.sa duatna (breeding-na) bimako baseanio aro mamungkoba farmna on.pilani donggijagipa (unproductive) matchurangko pale galanio dakchaka.
2. Matchuni ma.ambi ba ma.a paa ni gimin talbate uina aro uamangni ma.gitcam pagitcham-ni gimin see rakkianiko don.oroangna dakchaka.
3. Farm o badita koros ong.aha aro baditako man.pilaha, uko uinaba dakchaka.
4. Simsake matchuna cha.aniko on.naba dakchaka.
5. Kam ka.giparangni gong.aniko aro matchu ma.jinmako gipin farmrang baksa tosusana dakchaka.

SEE JOTE RAKKIANI ROKOMRANG/RECORDS:

- **TECHNICAL RECORDS:** Ia see jotaniara matchu mangprakani chusokaniko ko mesoka.
 1. Cattle Breeding Register ba pal ra.ataniko See Rakkiani
 2. Calving Register ba Bi.sa Duaniko see Rakkiani
 3. Herd Book of Calves, Heifers and cows. (Matchu bi.sa, Matchu sarong aro Matchu bima jinmako see Rakkiani).
 4. Daily Concentrate Feeding Register (Salantio Dana On.ako See Rakkiani)
 5. Milk Production & Milk Disposal (Dut Man.aniko aro Palaniko See rakkiani)
 6. General Labour Register (Kam Ka.giparangko See Rakkiani).
 7. Animal Day Book (Salantini Matchuni Obostako See Rakkiani)

- **Financial Records:** Ian salantio dut palani, maikoba breani, hisap rakkiani aro matchu sianiko see rakkigipa ong.a. Iarangara
 1. Cash book (Tangka paisa man.aniko, koros ong.aniko see rakkigipa)
 2. Store inventory book (Farmo mai bostu, badita ge. donga uarangko see rakkiani).
 3. Daily Accounts & Credit register (salantini koros aro bakki gimikko see rakkiani).

ANNEXURE 1

SALANTIO CHA.ANI ON.ANIKO SEE RAKKIANI.

Tarik & badita matchu donga	Conc. feed (kg)			Samsi (kg)			Megap (quintal)			Gipin cha.anirang		
	Mansoa	On.a	Dongkua	Man.soa	On.a	Dongkua	Man.soa	On.a	Dongkua	Man.soa	On.a	Dongkua

ANNEXURE II

BLSA DUANIKO SEE RAKKIANI:

Sl no	Atchiani tarik	Matchuni no.ko segatani tarik	Matchuni number (nachilni)	Pagipani number	Ma.gipani number	Bima/Bipa. Atchio jrimani	Bi.sako Palani		Remarks
							Maikai	Tarik	

ANNEXURE III

BIPA ON.ANIKO SEE RAKKIANI

Sl no	Atchia ni tarik	Skanggipa bipa on.ani			Gnigipa bipa on.ani			Gittamgipa bipa on.ani			1 st oko dongama dongjaniani	2 nd oko dongama dongjaniani	Bi.saduna sianitarik	Dry ka.na nang ani somoi	B.satchi ani tarik	Bi.sani wt	sex	Bi.sani no
		Tarik	somoi	Bipano	Tarik	Somoi	Bipano	Tarik	Somoi	Bipano								

ANNEXURE IV

SALANTI DUT MAN.ANIKO SEE RAKKIANI.

Sl no	Matchu bimani No.	1 st		2 nd		3 rd , 4 th , 5 th etc		31 ST		TOTAL
		AM	PM	AM	PM	AM	PM	AM	PM	

Sedapani : Ia chongipa ki.tapko Meghalayani sin.a ding.aniko chanchiesa, matchu jile cha.gipa manderangna dakchakaniko aro skie on.na miksongesa seaha

