# APPENDIX I: CONTRACTS

## Initial contract for equipment

Contract number .....
Group number .....

Between

1. The Group of..... .District of..... hereafter called the "Group", and

2. The Project of North Togo, hereafter called the "Project", represented by.....

### I. COMMITMENTS OF THE PROJECT

*Article 1.* The Project will deliver at a fixed price all the equipment which is the subject of the present contract and appears in section IV.

*Article 2.* The Project will supervise the installation of the equipment. *Article 3.* The Project will replace materials which are faulty. *Article 4.* The Project will give advice on animal production.

### II. COMMITMENTS OF THE GROUP

*Article* 5. The Group will follow the recommendations of the Project for the establishment of a night enclosure and/or cultivated forage.

*Article 6.* The Group will pay back the total of the present contract in case of theft, loss or deterioration of materials due to their negligence.

*Article 7.* The Group will not sell or give away the materials without the prior agreement of the Project.

*Article 8.* The Group will follow the improvement schemes proposed and respect the technical advice of the Project.

*Article* 9. The Group will sign an annual contract with the Project for services rendered.

*Article 10.* In the case of the establishment of a forage plot, the Group will provide protection to the forage plot against other ruminants and fire.

## III. SPECIFIC AGREEMENTS

*Article 11.* The equipment which is the subject of the present contract remains the property of the Project until the last annual payment has been made. In case of the improper application of the advice given, or if an annual payment is not made, or if the contract for services rendered is not accepted, the Project reserve the right to take back the aforesaid equipment.

*Article 12.* In case of dispute, the two parties will abide by the decision of a competent authority.

## IV. SUBJECT OF CONTRACT

Prices are in US dollars and are current for the year ?.

1. Night enclosure (Note: the price does not include the construction of the shelter which is the sole responsibility of the Group).

| Size of enclosure (Number of ewes) |
|---|

| Component | 30 ewes | 40 ewes | 50 ewes | 75 ewes | Total |
|---|---|---|---|---|---|
| Traditional fence | 56 | 60 | 63 | 73 | .. |
| Tensioned fence | NA | 80 | 83 | 97 | .. |

**Note: for tensioned fence, the price includes the cost of teak posts.**

## 2. Compulsory equipment (according to the number of ewes present)

| Equipment | Number of ewes | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | | 20 | | 30 | | 40 | | 50 | | 75 | | |
| | N | Price | N | Price | N | Price | N | Price | N | Price | N | Price | |
| Food troughs | 1 | 13 | 2 | 26 | 2 | 26 | 3 | 39 | 4 | 52 | 6 | 78 | .. |
| Water troughs | 1 | 22 | 1 | 22 | 1 | 22 | 2 | 44 | 2 | 44 | 3 | 66 | .. |

## 3. Optional equipment

| Item | Quantity | Unit price | Total |
|---|---|---|---|
| Forage rack | | 30 | ? |
| ?????.. | | | |
| ?????.. | | | |
| ?????.. | | | |

## 4. Cultivated forage

| Forage | Area (*ha)* | Unit Price | Total |
|---|---|---|---|
| Cultivated forage (species) | | | |
| **GRAND TOTAL** | | | |

**With the aim of encouraging new sheep production groups, the Project has decided, for the year . , to give a subsidy equal to 25% of the total sum invested. The total sum due to the Project amounts to ..... which is to be paid back as follows:**

**Deposit: 2 5% of the total sum due to the project, namely .....**
**1st annual payment (Dec .) 2 5% of the total, namely .....**
**2nd annual payment (Dec .) 25% of the total, namely .....**
**3rd annual payment (Dec .) 25% of the total, namely .....**

***(This page triplicate)***

**INITIAL CONTRACT FOR EQUIPMENT**
Contract No .....
Name of Group ........
Village .....
District .....

Total amount of present contract ..........

Having read and understood the articles above, the undersigned agree to res□pect the terms of the present contract.

Written in triplicate and with good faith at.....
on the .....

Group President Signature□□□□□□□□□□..
Name□□□□□□□□□□□□□□□□□□□□..

For the Project of North Togo Signature .....
Name□□□□□□□□□□□□□□□□□□□

Forage
racks[illegible]...
[illegible]...

# ANNUAL CONTRACT FOR SERVICES RENDERED

**Contract number[illegible].**
**Group number .....**

**Between**

**1. The Group of..... District of ....., hereafter called the "Group",**

**and**

**2. The Project of North Togo, hereafter called the "Project", represented by.....**

## I. COMMITMENTS OF THE PROJECT

***Article 1.*** **The Project will supply the Group with mineral blocks and agro-industrial by-products according to the quantities stated in the present contract.**

***Article 2.*** **The Project will carry out all the prophylactic treatments (vaccinations, treatment of internal and external parasites) at the times specified by the "calender of prophylaxy" and provide the normal veterinary requirements to keep the animals healthy.**

**II. COMMITMENTS OF THE GROUP**

***Article 3.*** **The Group will at all times provide the animals with a mineral supplement in the form of a salt block. A fixed number of blocks will be purchased from the Project for the duration of the present contract.**

***Article 4.*** **The Group will buy from the Project agro-industrial by-products according to the quantity fixed in the present contract.**

***Article*** **5. The Group will respect the periods of distribution of the by-products namely from August to November.**

***Article 6.*** **The Group will contact the staff of the Project warehouse before the end of July to arrange the distribution of their supplements.**

**.*Article 7.*** **The Group will not sell or give away the supplements (mineral blocks or agro-industrial by-products) without the prior agreement of the Project.**

***Article 8.*** **The Group will help the field officers when they visit the flock.**

***Article*** **9. The Group will pay the total of the present contract at the beginning of the year or, for new Groups, when they join the Project.**

**III. SPECIFIC AGREEMENTS**

***Article I0.*** **If. for whatever cause, there is a substantial reduction in the number of ewes during the year covered by the present contract, the Project will repay the Group for the supplements not used according to the number of ewes that were and the number of months remaining in the year.**

***Article 11.*** **If a substantial number of ewes are introduced into the flock during the year covered by the present contract, the Project reserve the right to demand an increase in the total sum of the contract to cover the extra supplements used according to the number of sheep introduced and the number of months remaining in the year.**

***Article 12.*** **For new Groups which join the scheme in the first half of the year, the Project will pay up to half of the total sum of the annual contract. For new Groups which start in the second half of the year, the Project will pay up to a quarter of the total sum of the annual contract.**

***Article 13.*** **If the contract is not honoured by the Group at the specified time, the Project reserve the right to be paid in kind. This payment will be based on the market price current during the period.**

## IV. SUBJECT OF CONTRACT

**The prices and subsidies which are in force for the year ﷺ are as follows:**

| Item | Price | Subsidy | Price after subsidy (1) | No of ewes (2) | Quantity per ewe per year (3) | Total quantity (4)= (2)x(3) | Total Price |
|---|---|---|---|---|---|---|---|
| Veterinary costs | 1.11/ewe | 25% | 0.83 | ﷺ | NA | NA | ﷺ |
| Mineral blocks | 0.44/kg | 25% | 0.33/kg | ﷺ | 2kg | ﷺ | ﷺ |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cottonseed | 0.03/kg | 25% | 0.02/kg | 36kg | [illegible] | [illegible] | [illegible] |
| **GRAND TOTAL** | | | | | | | [illegible] |

***(This page in triplicate)***

**ANNUAL CONTRACT FOR SERVICES RENDERED**

Contract No .....
Name of Group ..... Village .....
District.....

Total amount of present contract .....

Having read and understood the articles above, the undersigned agree to respect the terms of the present contract.

Written in triplicate and with good faith at.....
on the .....
For the Project of North Togo
Signature[illegible].
Name[illegible]..
Posistion[illegible].

Group President
Signature .....
Name .....

| Total amount of contract | Date payment due | Payment Date | Payment Stamp |
|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] |

Number of ewes[illegible]

| | Quantity delivered | | Deliveries 1 | | 2 | | 3 | | 4 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No | kg | Date | Quantity | Date | Quantity | Date | Quantity | Date | Quantity |
| Salt blocks | [illegible] | | | | | | | | | |
| Cottonseed | [illegible] | | | | | | | | | |

# CONTRACT FOR SALE OF SELECTED RAMS

**Contract number .....**
**Group number .....**

**Between**

**1. The Group of..... District of hereafter called the "Group",and**

**2. The Project of North Togo, hereafter called the "Project", represented by.....**

## I. COMMITMENTS OF THE PROJECT

***Article 1:*** **The Project will sell selected rams to certain Groups. These rams will be aged less than one year, and their number proportional to the number of ewes in the flock (1 ram for 30 ewes).**

***Article 2:*** **The Project will supply all the technical advice and treatments necessary for successful animal breeding.**

**II. COMMITMENTS OF THE GROUP**

***Article 3:*** **The Group will pay back to the Project the total sum of the present contract in the case of theft, loss or death of rams due to their negligence.**

***Article 4:*** **The Group will castrate all the males in the flock before the arrival of the selected males.**

***Article*** **5: The Group will sell to the Project at a fixed price the best male lambs sired by the selected rams, and will castrate all other male lambs.**

***Article*** **6: The Group will follow the technical advice of the Project and in particlar will give food supplements (cottonseed) in the second half of the rainy season (from August to the end of November).**

***Article 7:*** **The Croup will sign an annual contract with the Project for services rendered.**

***Article 8:*** **In order to avoid inbreeding, the Group will withdraw the selected rams from the flock after two years of use, namely in the month of 1 9 . At that date the Group will be free to dispose of the rams as they please (sale, barter, consumption), provided that the present contract has been scrupulously respected. The Group will be able to buy new rams from the Project.**

***Article*** **9: The Group will not sell, give away, lend or eat the selected rams without the prior approval of the**

**Project.**

**III. SPECIFIC AGREEMENTS**

***Article 10:*** **The rams which are the subject of the present contract remain the property of the Project until the last annual payment is received. If the rams are not used as recommended or if an annual payment is not made or if the annual contract for services rendered is not accepted, the Project reserve the right to take back the rams.**

***Article 11:*** **If a selected ram dies, the Group will call in the animal production field assistant who will conduct a post-mortem to identify the cause of death.**

**IV. SUBJECT OF CONTRACT**

**The present contract concerns the following animals:**

| Ram No | Liveweight | Price/kg | Price of ram | Remarks |
|---|---|---|---|---|
| ? | ? | 1.17 | ? | ? |
| ? | ? | 1.17 | ? | ? |
| ? | ? | 1.17 | ? | ? |
| **Total** | ? | 1.17 | ? | ? |

**The total sum due to the Project from the Group is ..... which is to be payed back in the following way:**

***First year (Dec ...):*** **50% of the total sum due to the Project namely .....**

***Second near (Dec ?):*** **50% of the total sum due to the Project namely .....**

*(This pane in triplicate)*

**CONTRACT FOR SALE OF SELECTED RAMS**

**Contract No .....**
**Name of Group .....**
**Village .....**
**District.....**

**Total amount of present contract .....**

**Having read and understood the articles above, the undersigned agree to respect the terms of the present contract.**

**Written in triplicate and with good faith at .....**
**on the .....**
**For the Project of North Togo**
**Signature .....**
**Name .....**
**Position .....**

**Group President**
**Signature .....**
**Name .....**

| Repayment | Date due | Amount due | Payment | | |
|---|---|---|---|---|---|
| | | | Date | Amount received | Stamp |
| 1st annual payment | Dec . | .. | .. | .. | .. |
| 2nd annual payment | Dec . | .. | .. | .. | .. |

| Ram No | Weight (kg) |
|---|---|
| . | . |
| . | . |
| . | . |

# CONTRACT FOR LOAN OF BREEDING EWES

**Contract number .....**
**Group number .....**

**Between**
**1. The Group of..... District of..... hereafter called the "Group",and**

**2. The Project of North Togo, hereafter called the "Project", represented by.....**

## I. COMMITMENTS OF THE PROJECT

***Article 1:*** **With the aim of improving the immediate profitability of new groups, the Project will lend young breeding ewes which have been given the necessary prophylactics.**

***Article 2:*** **The Project will replace ewes which die within two months of distribution, provided that the deaths are not caused by the the Group.**

***Article 3:*** **The Project will give advice on sheep production.**

**II. COMMITMENTS OF THE GROUP**

***Article 4:*** **The Group will pay back to the Project the total value of the breeding ewes in the case of theft, loss or death of ewes due to their negligence.**

***Article*** **5: The Group will not sell or give away the ewes before the total has been repaid.**

***Article 6:*** **The Group will follow the technical advice of the Project.**

***Article 7:*** **The Group will sign an annual contract with the Project for services rendered.**

**III. SPECIFIC AGREEMENTS**

***Article 8*****: If an annual payment is not made, the Project reserve the right to take back the ewes.**

**IV. SUBJECT OF CONTRACT**

***Article*** **9: The number of young ewes lent to the Group is ..... and the total value of these animals**

**is .....**

***Article 10:*** **The Group will pay back the same number of young ewes within a period of four years, starting after one year. The repayment will be in the form of ewe lambs aged between 6 months and one year, with a minimum weight of 1 8 kg. Each year one-quarter of the total number of animals will be repaid.**

**1. ..... ewe lambs due in Dec 1 9**
**2. ..... ewe lambs due in Dec 1 9**
**3. ..... ewe lambs due in Dec 1 9**
**4. ..... ewe lambs due in Dec 1 9**

***(This page in triplicate)***

**CONTRACT FOR LOAN OF BREEDING EWES**

**Contract No .....**
**Name of Group .....**
**Village .....**
**District.....**

**Total amount of present contract .....**

**Having read and understood the articles above, the undersigned agree to respect the terms of the present contract.**

**Written in triplicate and with good faith at .....**
**on the .....**
**For the Project of North Togo**
**Signature .....**
**Name .....**

**Position .....**

**Group President**
**Signature .....**
**Name .....**

| Repayment | Date due | No. ewes | Payment | | |
|---|---|---|---|---|---|
| | | | Date | Number received | Stamp |
| 1st annual payment | Dec ?. | | | | |
| 2nd annual payment | Dec ?. | | | | |
| 3rd annual payment | Dec ?. | | | | |
| 4th annual payment | Dec ?. | | | | |

# APPENDIX II: Recording Forms

# LIVESTOCK INVENTORY

GROUP.....

| ANIMAL NO. | SEX | BREED | OWNER | PRESENT (date) | REMARKS |
|---|---|---|---|---|---|
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## INVENTORY

Group .....

| Cottonseed | | | | Mineral Blocks | | | |
|---|---|---|---|---|---|---|---|
| DATE | IN | OUT | STOCK | DATE | IN | OUT | STOCK |
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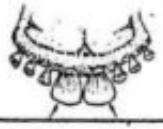
Determination of age of sheep

| TEETH | DESCRIPTION | AGE |
|---|---|---|
|  | MILK TEETH, NOT WORN | 0 – 4 MONTHS |
|  | MILK TEETH, WORN | 4 – 14 MONTHS |
|  | 1 PAIR PERMANENT INCISORS | 14 – 20 MONTHS |
|  | 2 PAIRS PERMANENT INCISORS | 20 - 26 MONTHS |
|  | 3 PAIRS PERMANENT INCISORS | 2 – 3 YEARS |
|  | 4 PAIRS PERMANENT INCISORS NOT WORN | 3 – 5 YEARS |
|  | FULL MOUTH, 1 PAIR INCISORS WORN | 5 –6 YEARS |
|  | FULL MOUTH, 3 PAIRS INCISORS WORN | 6 – 7 YEARS |
|  | ALL INCISORS WORN | MORE THAN 7 YEARS |

FINANCIAL ACCOUNTS

Group .....

| DATE | TRANSACTION | IN | OUT | BALANCE |
|---|---|---|---|---|
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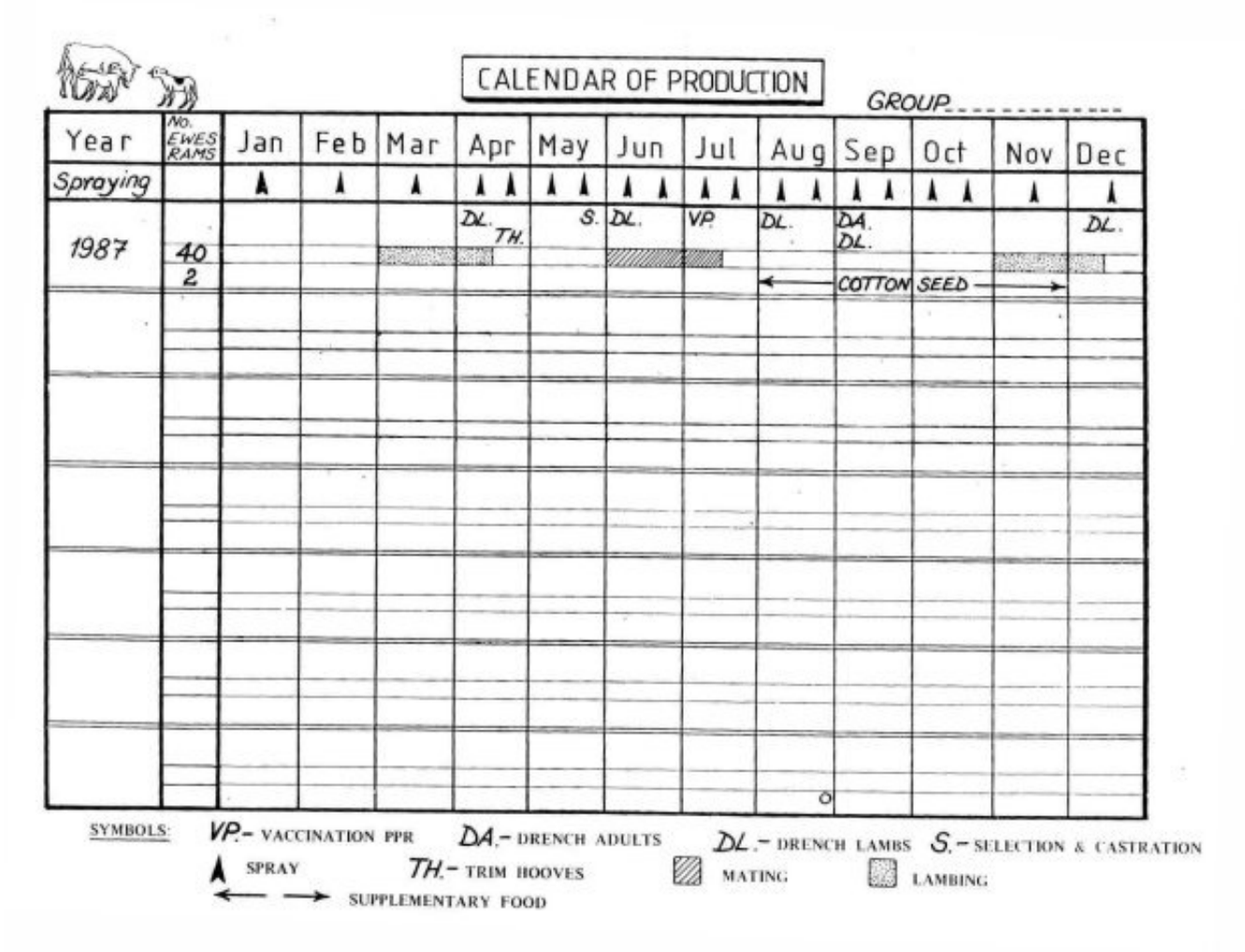

CALENDAR OF PRODUCTION

GROUP.....

| Year | No. EWES RAMS | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Spraying | | ▲ | ▲ | ▲ | ▲ ▲ | ▲ ▲ | ▲ ▲ | ▲ ▲ | ▲ ▲ | ▲ ▲ | ▲ ▲ | ▲ | ▲ |
| 1987 | 40 | | | | DL. TH. | S. | DL. | VP. | DL. | DA. DL. | | | DL. |
| | 2 | | | | | | | | ← | COTTON SEED | | → | |

SYMBOLS: VP.- VACCINATION PPR DA.- DRENCH ADULTS DL.- DRENCH LAMBS S.- SELECTION & CASTRATION

▲ SPRAY TH.- TRIM HOOVES MATING LAMBING

← → SUPPLEMENTARY FOOD

## FLOCK DIARY

GROUP.....

| DATE | IN | | | | | | | OUT | | | | | | | | | | NO AT START | ABORTION | DATE: FROM..... TO..... |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BORN | | | | BOUGHT | | | DIED | | | SOLD | | | CONSUMED | | | LOST | | | | |
| | NO. EWE | NO. LAMB | SEX | WT (KG) | NO. | SEX | AGE | NO. | SEX | AGE | NO. | SEX | AGE | NO. | SEX | AGE | NO. | SEX | AGE | BAL. | NO. EWE | REMARKS |
| | | | | | | | | | | | | | | | | | | | | | | |
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| MONTHLY TOTAL | SEX | START | BORN | BOUGHT | DIED LAMB | DIED ADULTS | SOLD | CONSUMED | LOST | BAL. | ABORT | NO. AT END | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
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VISIT FORM GROUP.....

| VISITS | | ENCLOSURE | | | TROUGHS | | SUPPLY OF..... | | | STATE OF SHEEP | COOP-ERATION | TOTAL FOR WEEK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name and Position | Date Time | Fence | Shelter | Sweeping | Food | Water | Water | Minerals | Concentrates | | | |
| K. Adeke Field Officer | 28/9/87 9·30 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 9/10 |
| | | | | | | | | | | | | |
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| TOTAL | Period to | | | | | | | | | | | |

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# 1. Forming the group

**WOMEN NEED MONEY**

- **To buy vegetables**
- **To pay for medicines**
- **To pay school expenses**

**IT IS HARD TO MAKE MONEY NOWADAYS BY**

- **Brewing beer**
- **Weaving**

**SHEEP MAKE MONEY**

**One woman *cannot* have sheep because**

- **She has no money to buy sheep**
- **Her husband disapproves**

**A group of women *can* have sheep because**

- **The project will lend them money and tell them what to do**
- **Their husbands are happy to see them earn money**

**WHY WOMEN NEED SHEEP PRODUCTION GROUPS**

**In traditional societies in northern Togo, women have certain obligations to their families. They are expected to provide the vegetables for the family diet, while the men are expected to provide the meat or main dish. If insufficient vegetables are grown by the family, the women must earn money to buy vegetables from the market. Women also need money to pay for medicines for the family and school equipment for the children.**

**Besides household duties of caring for children, carrying water, preparing grain and cooking, the women are expected to weed and harvest their husbands' fields and to do many of the tasks associated with animal production. Women sell yams and other surplus agricultural products, but this money must be given to their husbands. They earn money to fulfill their own monetary obligations by collecting wood, brewing millet beer and weaving cotton cloth. The income they get in this way is equivalent to a wage rate of less than US$0.03 per hour[2].**

**One of the main reasons why sheep production groups for women were started in northern Togo was to enable the women to more easily earn money for themselves. It would be socially unacceptable for individual women to own sheep, but group ownership seems generally approvable. The technology for semi-intensive sheep production in the area had already been tried and tested with many individual men and groups of men.**

**2Financial information is given in US dollars. West African Francs were converted using a rate of 300 CFA = US$ 1.00.**

## STARTING A GROUP

**To make a group, between 5 and 20 women get together. They must all live near each other (see Fig. 1).**

**A field officer from the project talks to the women about keeping sheep.**

**FIG 1**

**The village chief and other important people come to the meetings.**

**They decide where to build the shelter and night enclosure.**

**The women visit other sheep production groups.**

**The women sign contracts with the project.**

**The field officer brings equipment and tells the women how to build the shelter and night enclosure (see Fig. 2).**

**Husbands and sons help the women to build the fences.**

**The sheep arrive. The women take it in turns to look after the sheep (see Fig. 3).**

**The field officer continues to visit to check that everything is O.K.**

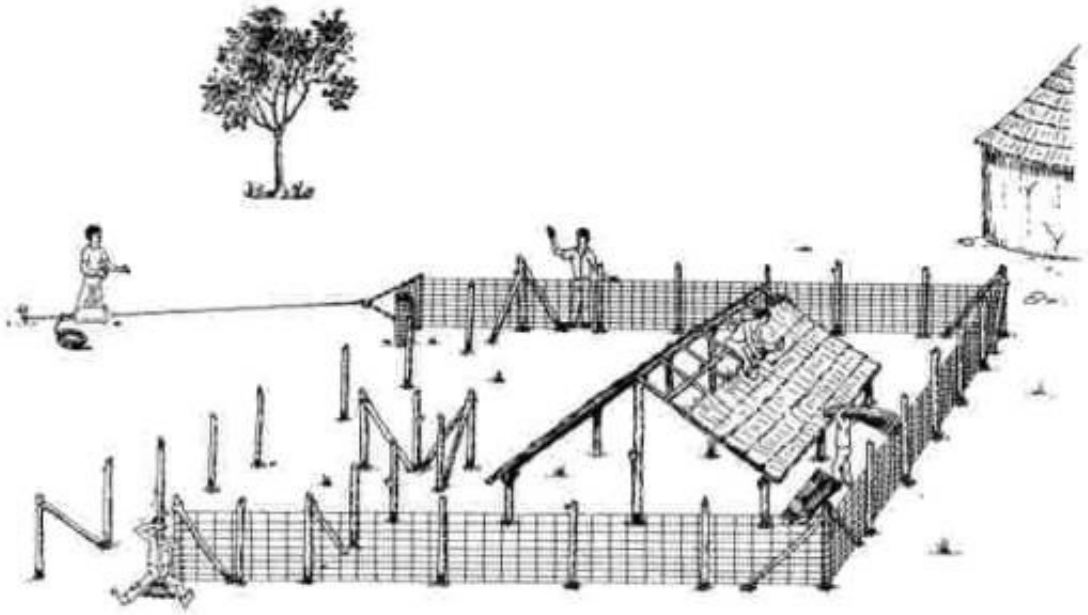

**FIG 2**

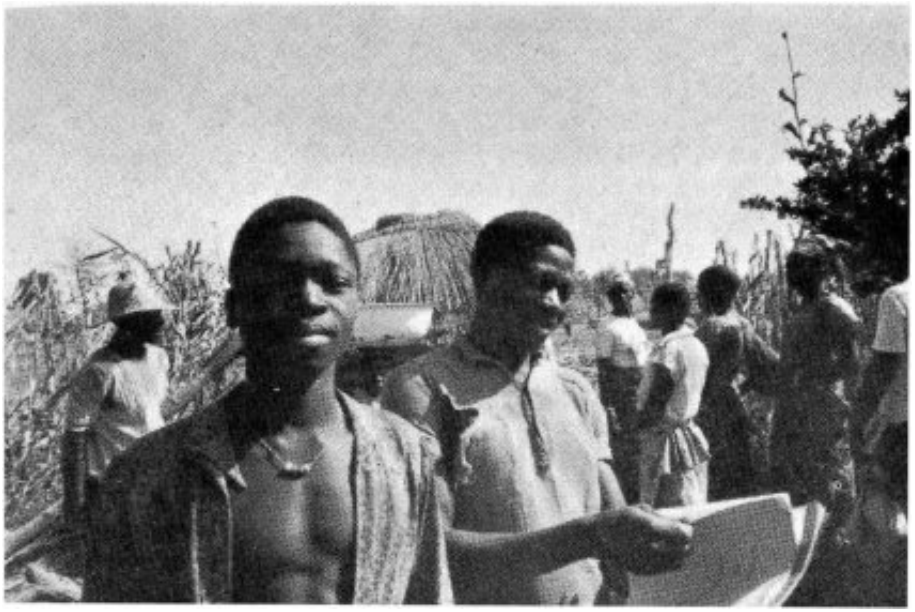

**FIG 3**

## HOW GROUPS ARE FORMED

**Some groups of women who start keeping sheep have previously been a cooperative group with another function such as vegetable production, sewing or learning to read. New groups may be formed by women who live in neighbouring houses and many of them are related by birth or marriage.**

**The number of women in a group depends on the number of women who fall into the same kinship and geographical group. The larger the group, the less frequently the women have to work with the sheep. On the other hand, for a given flock size, the fewer women there are, the higher the income per woman. The recommended maximum number of members in a sheep production group is about twenty. Above this number the group is too big for a feeling of togetherness. The average size of the women's sheep production groups in northern Togo was ten members.**

**Women's groups for sheep production may be formed because the women have seen another sheep production unit**

**and want to do likewise. Other groups start because sheep production is recommended to them by the staff of a development project or other extension worker. Whatever the reason why the women start sheep production, it is essential that they are well-motivated, are prepared to work. They must have a reasonable knowledge of both the problems they are likely to face and the potential benefits otherwise they are likely to become discouraged during the first two years when the financial rewards are small.**

**The establishment of a sheep production group takes several months and includes:**

- **Meeting to discuss with the women the possibility of forming a group to keep sheep;**
- **Meetings with influential people who will be involved (e.g village chief, local officer of national extension service) to obtain approval;**
- **Meeting to give the women more information about the work involved in keeping sheep and the benefits they would get;**
- **Visits of the women to other groups;**
- **Formal meeting to create the group: signing of contracts;**
- **Distribution of equipment, building of shelter, distribution of food supplements;**
- **Visits of the women to production units to exchange experiences and see development;**
- **Seminars for individuals with responsibility within the group, e.g. president, secretary.**

## REACTION OF SOCIETY TO GROUP

**Women have little public influence in society in many tropical countries. If a women's group is to succeed it needs the support of men. For instance, if a group want to establish a forage plot to grow good quality food for their sheep, they need a suitable area of land. Land is allocated by men, so that unless there is a good relationship with these men, the women will not be able to have a forage plot.**

**Each individual woman is subordinate to her husband or father, and needs his approval before starting a new venture. This has not been a problem in northern Togo. Husbands have been enthusiastic about their wives looking after sheep because of the benefits this gives to the family. In many cases husbands and sons have helped the women construct the shelter and night enclosure for the sheep. If the flock is formed by each woman bringing one or more ewes, the women need money from their husbands to buy these animals.**

**The formation of a women's group will probably arouse suspicion in the village leaders and more wealthy farmers. It is important that the approval of these influential individuals is obtained, and that the aims of the women and the benefits of communal sheep production are explained to them. A symbol of membership such as a T-shirt gives public recognition of the group and helps social acceptance. As women's groups become established and successful, they increase in status and strength, and the women become a powerful cohesive team.**

**The group of women find it easier to liaise with outside organisations than they would as individuals. It may be socially unacceptable for a male extension worker to talk alone with one woman, but if he meets with a group of women there is little problem.**

## CONTRACTS

**It is essential that the members of the groups know exactly what the project will provide and what their own obligations are. This information is all specified and written down in the contracts. Contracts for the initial equipment, annual services, selected rams and breeding ewes can be found in Appendix I. Even though many of the**

**members of the groups may not be able to read, they will be able to find someone who can read the contract for them.**

**Having a contract helps to prevent fraud. For instance, a group might be tempted to kill the ram from the project for a feast, and then tell the project that the ram had died. This is prevented by clauses (Articles 9, 11 and 3) in the Ram contract which state that "The Group must not sell, give away, lend or eat the selected rams without the prior approval of the Project", "If a selected ram dies, the Group must call in the animal production field assistant who will conduct a post-mortem to identify the cause of death", and "The Group must pay back to the Project the total sum of the present contract in the case of theft, loss or death of the rams due to their negligence".**

# 2. Husbandry

**IN THE OLD SYSTEM OF KEEPING SHEEP**

**Sheep wandered about in the dry season (see Fig. 4), so**

- **Dogs chased them**
- **People stole them**
- **They were run over by cars and lorries**
- **They ate other people's vegetables**

**In the rainy season the sheep were tethered, so they ate little food, they got wet and cold.**

**The sheep house was dark and dirty (see Fig. 5).**

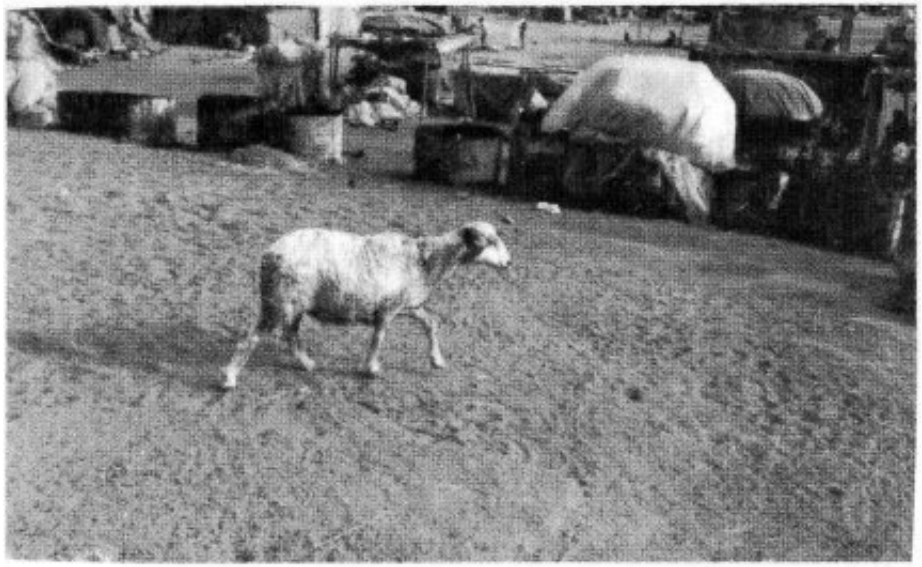

**FIG 4**

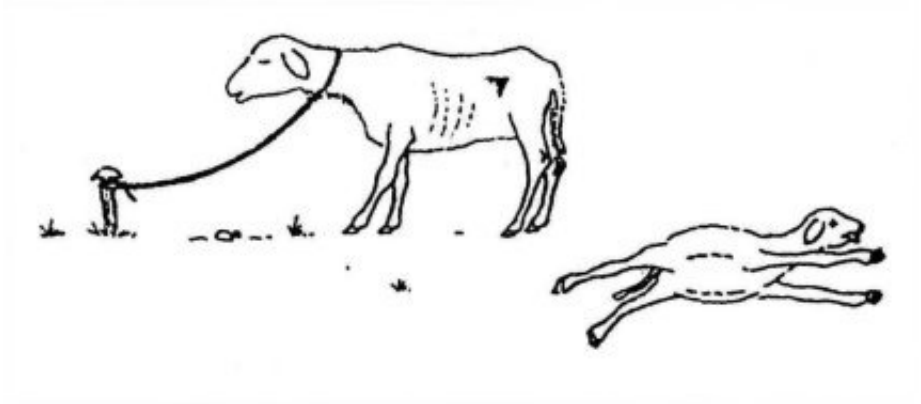

**FIG 5**

**Therefore the animals were not healthy and did not produce many good lambs.**

## BRIEF DESCRIPTION OF FARMING SYSTEM

**The natural vegetation of the land around Kara is savanna with forests along the water courses. The average rainfall is about 1 100 mm per year. The rainy season is from April to October and the dry season from November to March.**

**The average area of land per family is 15 to 30 ha, but the area cultivated is much less than this, only about 2 ha. The uncultivated land is available for grazing by sheep and other animals. Land is cultivated in rotation: a family may cultivate a field for one or several years before allowing it to become fallow. Then a new area is cleared and cultivated.**

**Before the start of each rainy season, the village elders gather to allocate areas of uncultivated land for the coming season. The traditional crops are sorghum, millet, yams and beans. Cultivated fields are usually not fenced.**

## TRADITIONAL METHODS OF SHEEP AND GOAT HUSBANDRY

**Before the project began, some individual families kept sheep and goats. For sheep, the average flock size (including lambs) was 10.**

**The flocks were kept in small dark mud-walled houses at night. These houses had little ventilation and the door was too small to allow a person to enter, so that the interior was damp and never cleaned.**

**In the dry season the sheep and goats were allowed to graze freely over both the uncultivated land and the cultivated fields. In the rainy season the animals were tethered to prevent them damaging the growing crops. They were usually tethered under a thatched shelter close to the house, and fed with grass and other material cut from the savanna. The performance of the animals in the rainy season was very poor as their food was of low quality and they were subject to numerous diseases. Typically the weight of a ewe fell from about 22 kg at the beginning of the rainy season to only 17 kg at the end. Lamb mortality was more than 50%.**

## IN THE NEW SYSTEM OF KEEPING SHEEP

**Every day the sheep graze and a person looks after them (see Fig. 6).**

**FIG 6**

- **Their house is clean and airy**
- **They eat minerals**
- **They eat concentrate food when there is not much grass**
- **They drink clean water**
- **The extension officer provides medicines to make sure the sheep are healthy**
- **Breeding is controlled**
- **Some groups grow food for their sheep (see Fig. 7)**

**Therefore the sheep are healthy and produce many good lambs.**

**IMPROVED HUSBANDRY**

**In the semi-intensive system of sheep and goat production advocated by the project, the traditional methods of husbandry are greatly improved:**

- **The animals graze with supervision during the day. At night they are put in an enclosure and have free access to a well-ventilated shelter;**
- **The floor of the night enclosure and shelter is swept clean every day;**
- **Essential minerals are provided every day in the form of a salt block;**
- **Food supplements are given in the critical period at the end of the wet season;**
- **Clean drinking water is provided every morning and evening;**
- **The whole flock is routinely vaccinated, sprayed against external parasites and drenched against internal parasites;**
- **Ram lambs not required for breeding are castrated. In some flocks mating is confined to certain seasons of the year, and rams selected for high growth rate are used;**
- **In some groups forage is grown for supplementary feeding to the flock.**

**Sheep are preferred to goats for this improved system because they are much easier to shepherd. Also, economic**

**analyses show that the output of semi-intensive goat herds in West Africa is more variable then the output of semi-intensive sheep flocks in the same area, so that sheep are preferable because they are less risky. The breed of sheep is the West African Dwarf, otherwise known as Fouta Djalon.**

## HOW TO LOOK AFTER THE SHEEP EACH DAY

**In the morning, look at all the sheep to see if any lambs have been born during the night, and to check that no sheep are sick (see Fig. 8).**

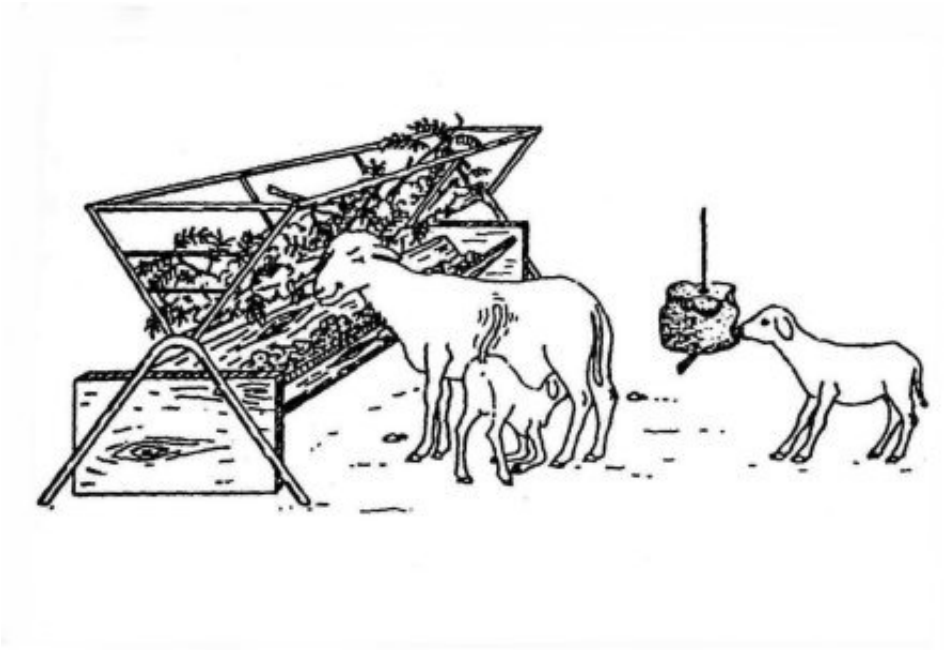

**FIG 7**

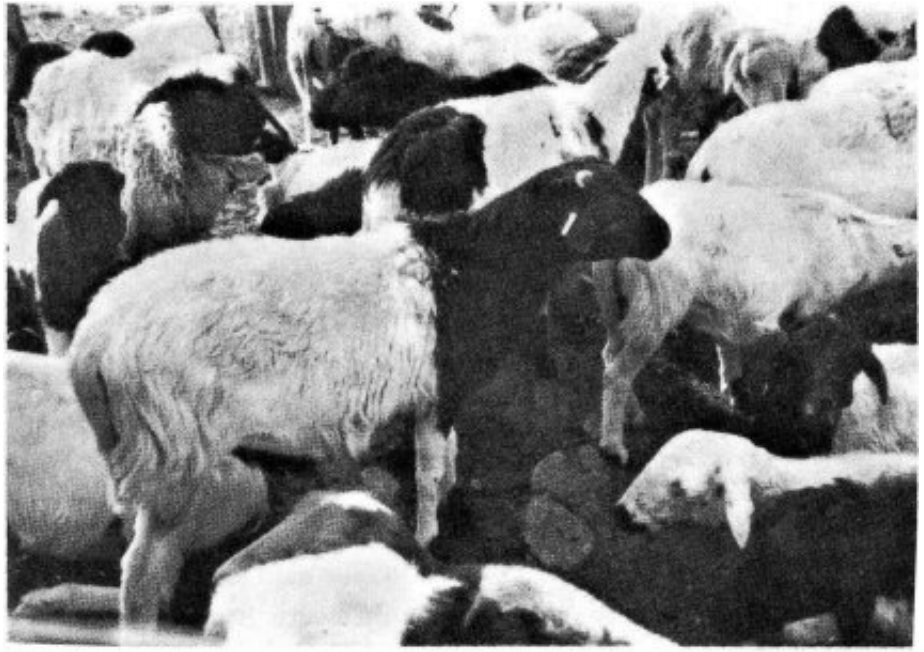

**FIG 8**

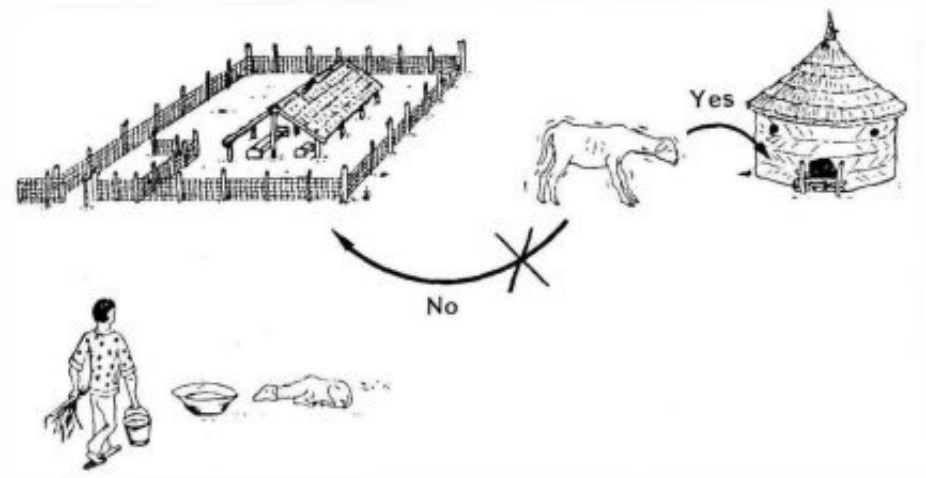


**FIG 9**

**FIG 10**

**If there are any sick animals, put them in an enclosure on their own and tell the field officer (Fig. 9).**

**One person takes the flock out to graze (Fig. 10).**

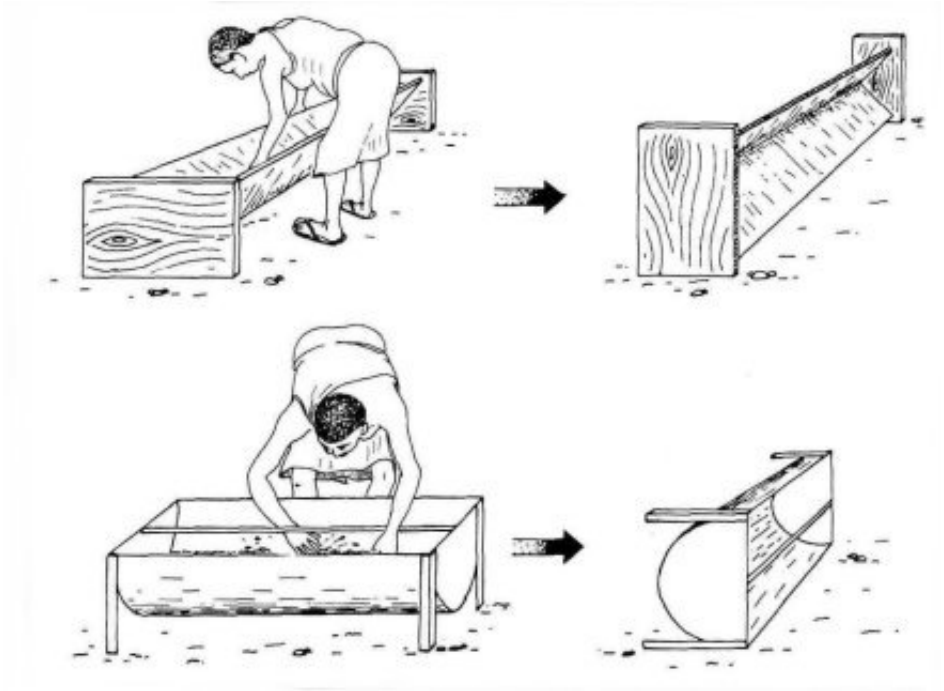

**FIG 11**

**FIG 12**

**Another person cleans the water troughs and the food troughs, and turns them on their sides (Fig. 11).**

**The dung on the floor of the night enclosure is swept up and put into the manure pit. Later it will be used as fertiliser (Fig. 12).**

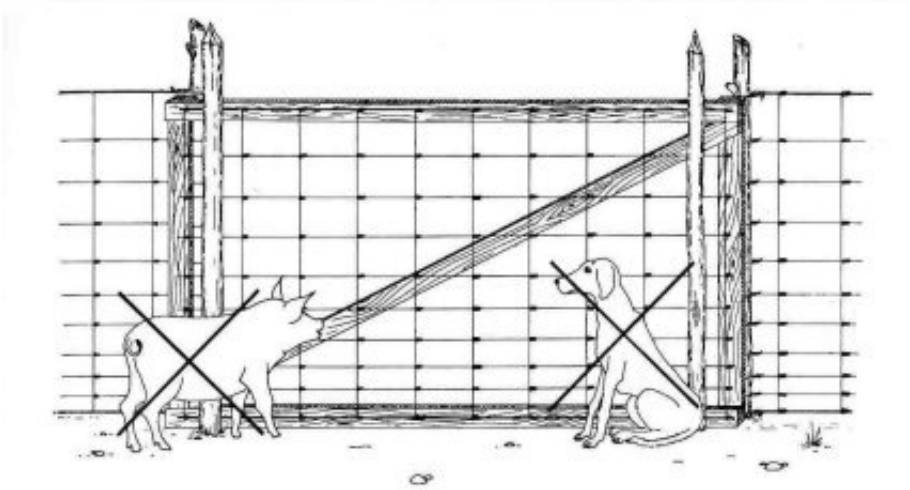

**FIG 13**

**FIG 14**

**The gate of the night enclosure is closed to keep out animals (Fig. 13).**

**The sheep graze until midday, then spend two hours in the night enclosure. Then they graze again until the evening (Fig. 14).**

**FIG 15**

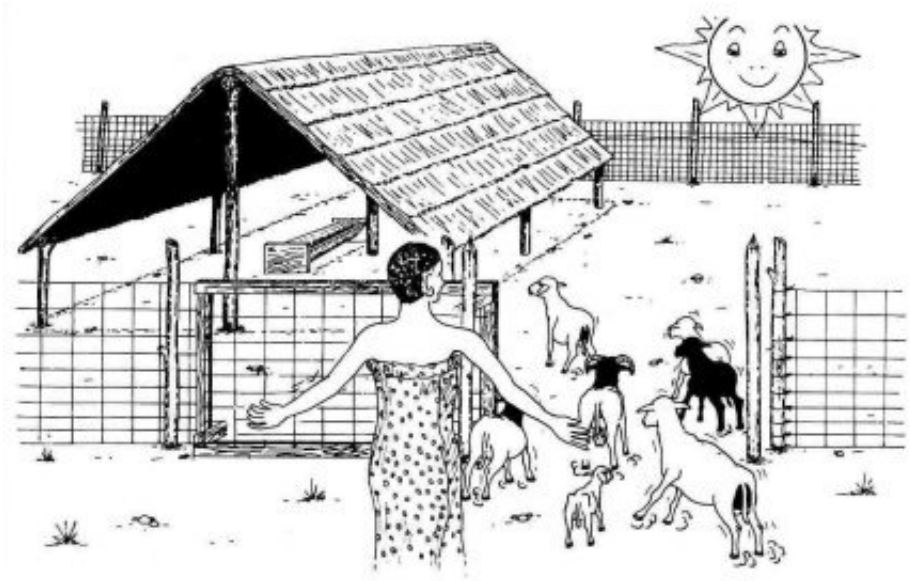

**FIG 16**

**In the evening before the sheep return, fill up the water troughs and put the concentrate in the food troughs (Fig. 15).**

**At dusk shut the sheep in the night enclosure (Fig. 16).**

**FIG 17**

**Look at the sheep to make sure they are all present, that they are all eating the concentrate, and that none are sick (Fig. 17).**

## DAILY MANAGEMENT

**In the morning soon after sunrise, the women look at the sheep in the night enclosure. Births are noted, and any sick animals are isolated for inspection by the extension officer. The flock is taken out for grazing and meanwhile the enclosure is swept and the dung put into the manure pit. The food and water troughs are cleaned, and the**

**mineral block is replaced if necessary. Any sheep in isolation are given clean water and food. Before leaving the enclosure, the gate is closed to prevent animals entering it.**

**The sheep are allowed to graze on uncultivated land and on fields after crops have been harvested. Care should be taken to make sure that the sheep do not mingle with other flocks, that they do not go on main roads and that they are not stolen or attacked by dogs or other animals. When a new flock is established the animals are difficult to shepherd because they have come from different sources and do not flock together. But after a few days they recognise each other as members of the same flock and stay together.**

**At midday the sheep are brought back into the night enclosure for about two hours. After this, they again go out to graze until late afternoon. It is important that the sheep graze for at least 8 hours every day. Before the sheep come back into the enclosure for the night, supplementary food is put into the food troughs and the water troughs are filled.**

## YEARLY MANAGEMENT

**In many parts of the tropics and sub-tropics, there is a dry season and a rainy season. This may result in the ewes conceiving at only one time of year so that the reproductive cycles of most of the ewes are synchronised. On the other hand, the ewes may be able to conceive and lamb in any month of the year although some months are more favourable than others for growth, survival and conception.**

**In northern Togo, lambs are born in all seasons of the year. The least favourable time is the later part of the rainy season and the beginning of the dry season, i.e. from August to November. The reasons for this are several. The arable fields which produce succulent regrowth in the dry season are not available for grazing during the rainy season so that the flock must graze only on the uncultivated savanna. The nutritive value of grass in the savanna falls as it matures and is very low by the middle of the rainy season. It is not possible at this time of year to burn the grass to stimulate regrowth. In the rainy season the high humidity helps diseases to spread easily, so this is the**

**worst time of year for the health of the animals. It is possible to overcome many of the problems which occur between August and November by giving the sheep supplementary food during this period.**

**There are two possible methods by which the breeding of the sheep may be arranged: year-round mating and seasonal mating. These are discussed more fully in the section entitled Veterinary care and breeding (Chapter 4). If seasonal mating is practised, the rams are allowed access to the ewes only for certain periods, and this means that the lambs are all born within a period of a few weeks. Seasonal mating can make flock management much easier because the lambs can be treated in batches for operations such as vaccination and castration.**

## CONSTRUCTION

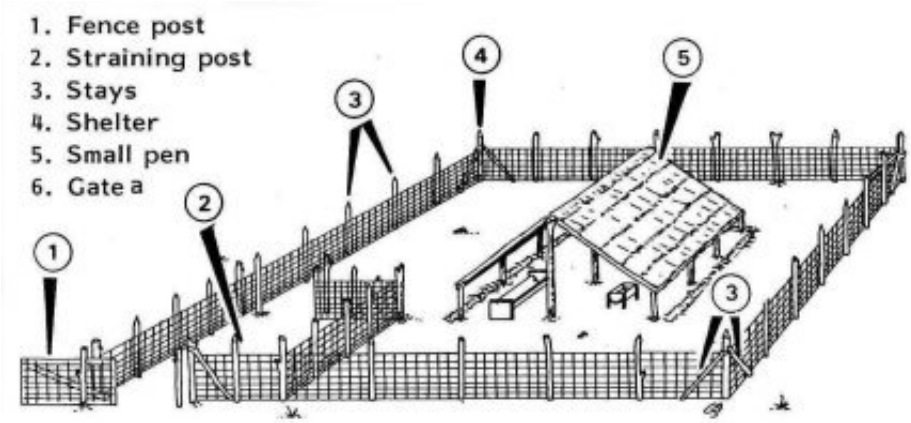


**FIG 18**

**Build the night enclosure in a well-drained place near your houses (Fig. 18).**

**Next to the gate in the enclosure, build a small pen about 4 or 5 metres square.**

**FIG 19**

**Build the shelter in the middle of the enclosure. It should be about 9 m long and 5 m wide (Fig. 19).**

**The fence around the night enclosure is made of wire netting.**

**The fence around the forage plot is either wire netting or barbed wire.**

**Fences need posts at 2 m intervals. Each post is 2 m long.**

**Your sheep need water troughs, food troughs and, if you cut forage for them, they also need a forage rack.**

**Dig a manure pit not far from the gate to the night enclosure.**

**The pit is about 2 m square and 1 m deep. Build a thatch roof over the pit to keep it dry.**

**Spread the manure on your crops at the beginning of the rainy season (Fig. 20).**

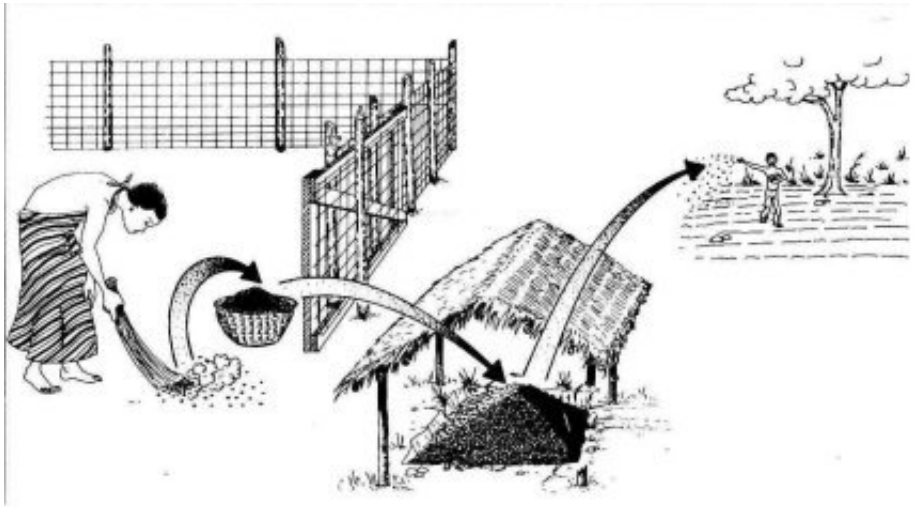

**FIG 20**

## CONSTRUCTION

**The night enclosure is located on well-drained firm ground. Stony ground is suitable provided that the wooden posts for the fence and the shelter can be put into the ground. For reasons of security as well as convenience the enclosure is near the houses of the women.**

**The enclosure for a flock of 75 ewes should be 18 metres square. It needs a gate which is about 2 metres wide, and a small pen with an area of between 13 and 25 in$^2$ (i.e. about 4 or 5 metres square) in which the animals can easily be handled and given treatments such as spraying.**

**The shelter is built in the middle of the enclosure. It must be big enough to accommodate the whole flock when sheltering from the rain. For 75 ewes, the shelter should be 9 m long and 5 m wide.**

**The shelter has a stone or mud wall on three sides. This wall is about 0.5 m high and protects the animals from rain and wind. Above the wall there is an open space to ensure good ventilation. The roof is made of grass thatch which is cheap and waterproof provided that it is repaired when necessary. This type of structure was satisfactory in the sub-humid climate of northern Togo. In wetter climates it may be necessary for the floor of the shelter to be raised and slatted.**

**Fencing is used for the night enclosure and for the forage plot. The women can make a fence out of local materials, but for speed, efficiency and longevity the Project of North Togo encourages the use of a wire fence. Either barbed wire or wire netting is suitable for the forage plot. For the night enclosure only wire netting is used because the sheep might hurt themselves on barbed wire. Both barbed wire and wire netting are imported from Europe. The price of the double-strand barbed wire is US$0.05 per metre giving a fence cost of about US$0.50 per metre, and the wire netting is US$26.00 per 50 m roll.**

**In Togo, locally-grown teak fence posts are used. These are each 1.2 m long. The posts are set in the ground at 2 m intervals. The women themselves or their families cut the posts and dig the holes.**

**All flocks need food troughs and water troughs, and if there is a forage plot a forage rack is also required. Both the food troughs and water troughs are under the shelter. It is not necessary for all the sheep to drink at one time, but it is important that the food troughs are long enough so that all the sheep can get their heads in. If not, the biggest or greediest animals get more than their fair share of food, while the smaller, thinner or more timid animals do not get enough. Ewes need about 30 cm trough space each. Because they stand at both sides of the trough, this means that the allowance is 15 cm trough per ewe. Rams with horns require more space. Calculations should also include lambs which are old enough to eat solid food.**

**Groups are encouraged to construct *a* manure pit into which the women put the dung from the night enclosure. This pit has an area of about 2 m x 2 m, and is about 1 m deep. It is covered by a thatched roof to keep out rain which would remove minerals from the manure by leaching.**

**Manure is valuable as a fertiliser. Depending on what the sheep have been eating, their manure contains about 2% nitrogen. 0.4% phosphorus and 1.7% potassium, as well as trace elements needed by plants. The women can put the manure either on their forage plot, on their communal vegetable plot or on their husbands' crops. In all cases, the best time to spread manure is early in the rainy season.**

# 3. Feeding

**For sheep to be healthy and produce good lambs, they must be well-fed.**

- **Sheep must graze for at least 8 hours each day (Fig. 21).**
- **There must always be a mineral block in the night enclosure for the sheep to lick (Fig. 22).**
- **Sheep need concentrates when there is not much grass.**
- **Some groups grow forage for their sheep.**

**FEEDING**

**Inadequate nutrition is one of the most serious factors limiting the productivity of sheep in tropical and sub-tropical areas. This means that there is a large increase in production if the feeding is improved. In the Project of North Togo four aspects of feeding are given attention:**

1. **The animals graze for at least 8 hours every day. This is necessary for the animals to have a sufficiently high food intake, and costs nothing except a little extra work. The women encourage the sheep to eat the better areas of savanna or succulent aftermaths of crops.**

2. **The sheep are given mineral supplementation in the form of a salt block. If the mineral intake of sheep is**

**insufficient their metabolism is reduced and their production is lower. Many areas of the tropics are deficient in one or more minerals, and the easiest method of rectifying this is to provide a block containing all the essential minerals. The sheep are allowed to lick this block every day. Because it contains a large proportion of salt, the sheep consume only a small amount.**

**To keep the mineral block clean and to prevent waste, a string with a piece of wood tied to one end is put through the block and hung from the roof so that the block is suspended about 50 cm above the ground.**

3. **Energy and protein supplements are often called "concentrates". Concentrates are expensive and therefore are given to the flock only at times of special need. The cheapest concentrates are those produced locally as crop by-products. Cottonseed is fed from August to November at a rate of about 300 g/d per ewe in northern Togo. In other areas different supplements may be available depending on the local agriculture. Possibilities include rice bran, palm kernel, brewer's grains, soyabean curd, pineapple waste, etc. Concentrates which could be consumed by humans or non-ruminant animals (pigs and poultry) are almost never cheap enough to be fed to sheep. The nutritive value of some useful concentrates are given in table 3.1. Concentrates are fed in troughs under the shelter when the sheep return in the evening.**

4. **Cultivated forages usually have a nutritive value much higher than the plants in the uncultivated savanna. In particular, legumes have a high protein content. The Project of North Togo advocates the integrated cultivation of leucaena *(Leucaena h'licocephahi).* pigeon peas *(Cajanus cajan)* and maize *(Zea mays).* Cultivated forages are fed to the sheep in forage racks and otherwise used in a similar way to concentrates. They are especially useful in areas where concentrates are not available or are too expensive.**

**TABLE 3.1. Nutritive value of some potential supplements**

| Supplement | ME | CP | Digestibility |
|---|---|---|---|
| | *MJ/kg DM* | *%* | ***of DM*** |

| | | | % |
|---|---|---|---|
| Brewers' grains | 11 | 23 | 65 |
| Cassava leaves | 10 | 23 | 60 |
| Cottonseed (undecorticated) | 13 | 20 | 57 |
| Groundnut cake (decorticated) | 15 | 50 | 70 |
| Groundnut haulm | 8 | 15 | |
| Molasses | 12 | 5 | 78 |
| Palm kernel meal | 18 | | |
| Pigeon pea (pro-bloom) | 9 | 16 | 55 |
| Pineapple Waste | 9 | 3 | 70 |
| Poultry manure | 10 | 25 | |
| Rice bran | 11 | 12 | |
| Soyabean meal | 12 | 50 | 79 |
| Maize[1] | 14 | 10 | 87 |

**[1]Given for comparison**

## FORAGE PLOT

**The forage plot is near the night enclosure, and has good soil.**

**There is a fence round the forage plot to keep out animals (Fig. 23).**

**FIG 21**

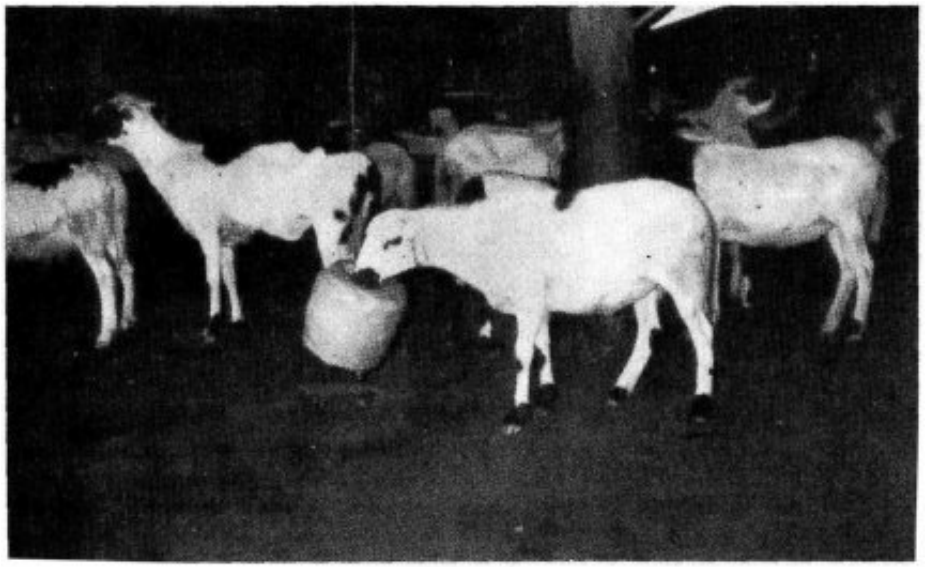

**FIG 22**

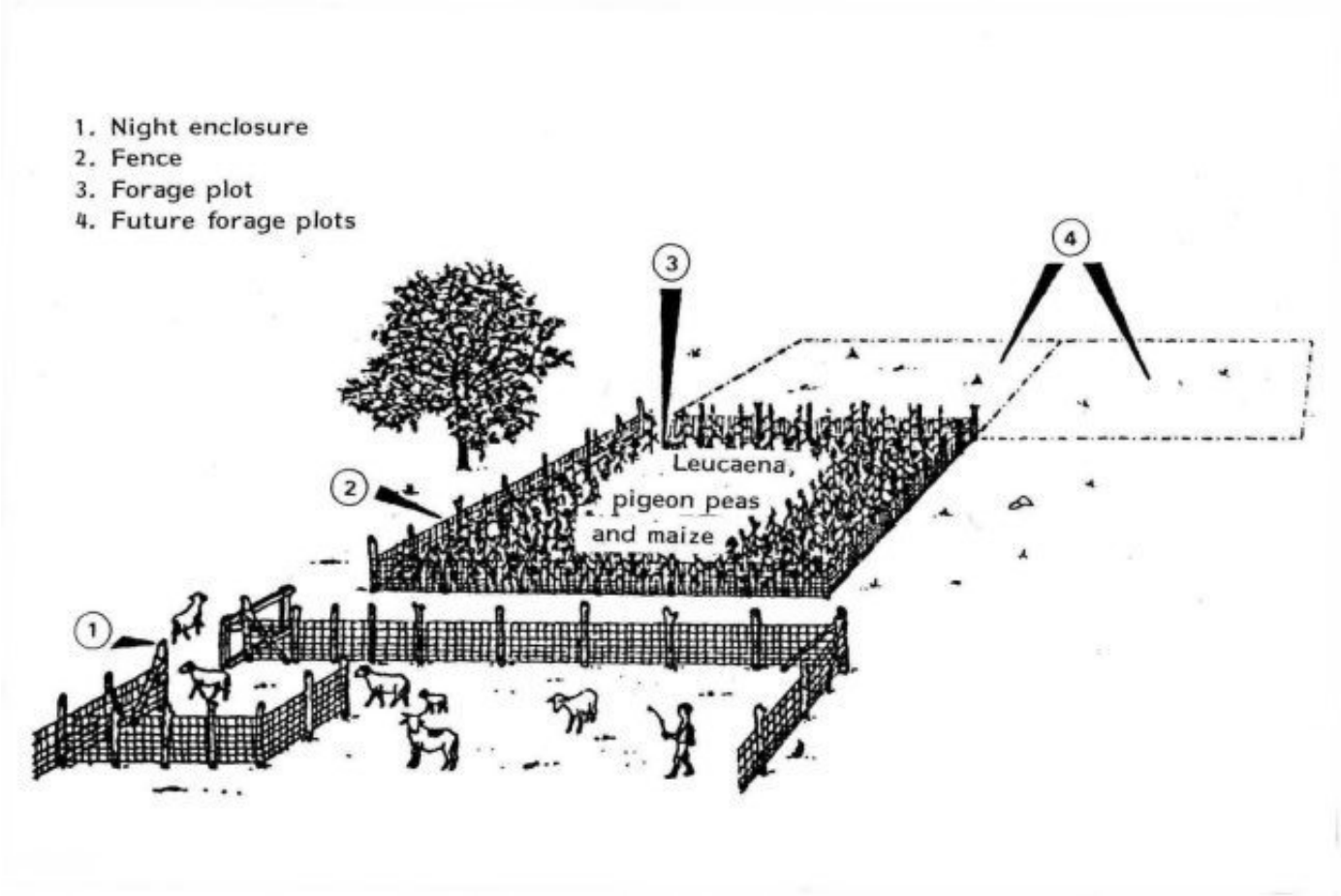
1. Night enclosure
2. Fence
3. Forage plot
4. Future forage plots
Leucaena,
pigeon peas
and maize
1
2
3
4

**FIG 23**

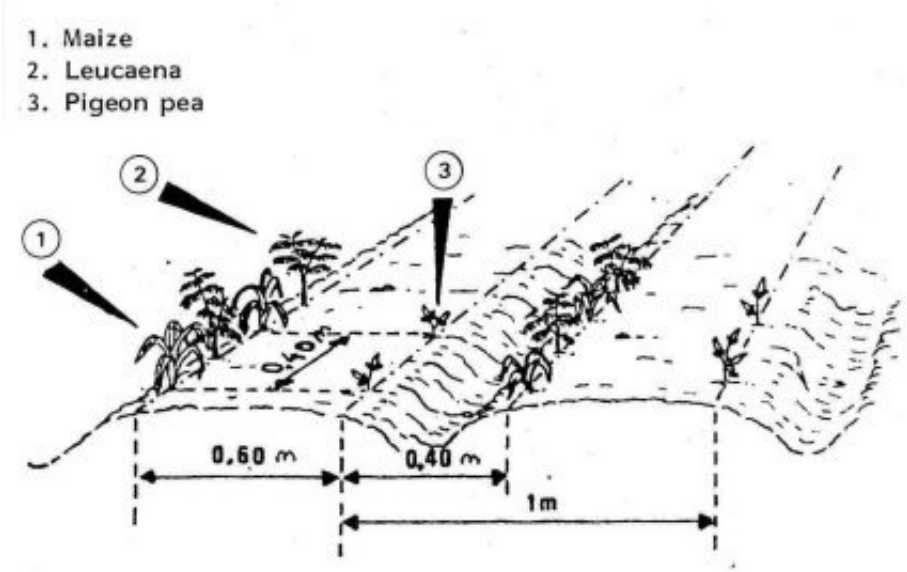


**FIG 24**

**In the first year, leucaena, pigeon peas and maize are sown in the forage plot .(Fig. 24).**

**The maize cobs are harvested early while the grains are still pasty, so that the leaves and stems are good food for sheep.**

**The pigeon pea plants are cut back twice before they produce seeds, and the branches are fed to the sheep. Pigeon peas plants grow for two years, so the branches are cut for two years.**

**The leucaena is cut only a little in the first year. Then it is cut at a height of 1.5 m for many years.**

**Each year a new forage plot is made. Only one fence is needed. This is put around the new forage plot. The older plots do not need a fence because the pigeon peas and leucaena are too tall for sheep and goats to reach. (If there were a lot of cattle, buffaloes or large game animals, a fence would be needed.) (Fig. 25)**

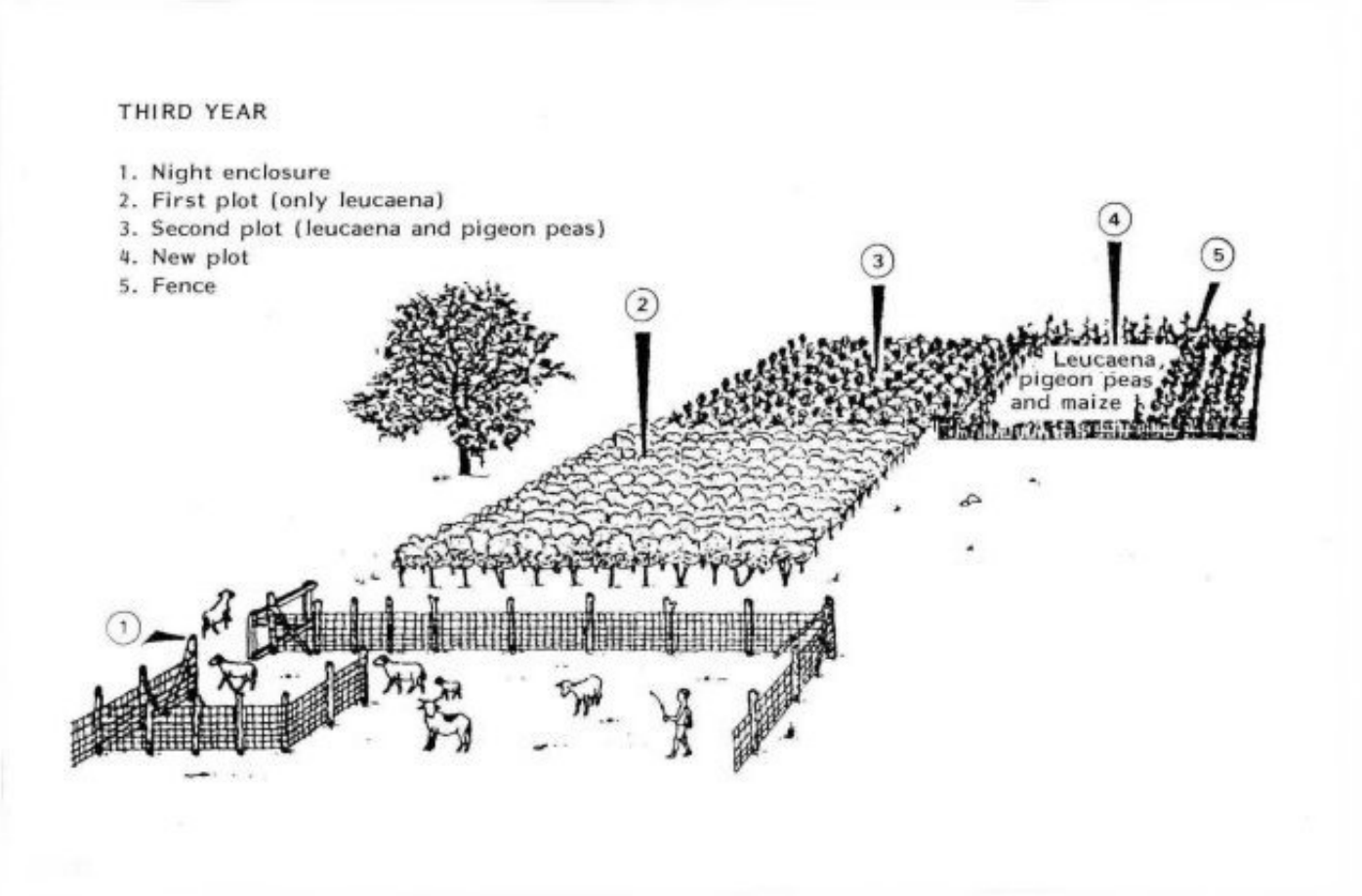


**FIG 25**

## FORAGE PLOT

**Croups which have successfully established a sheep production unit are encouraged to establish a forage plot. In this plot they grow high quality food which is given to the sheep in the evening, instead of concentrates.**

**The plot is located near the night enclosure on an area of land with a well-drained, fertile soil (not too sandy or stony). The recommended size of the plot is a rectangle 12m x 13m. A plot this size has a perimeter of 50 m which**

**is a convenient length for the fence as wire netting comes in 50 m rolls. The area of this plot is 156 $m^2$. As the sheep production proceeds and flock size increases, the forage plot can be enlarged by adding plots equal in area to the original plot.**

**In the first year a plot is sown with a mixture of leucaena, pigeon peas and maize. The pigeon pea plants grow rapidly and provide forage in the first year. Also, once the seeds are ripe they can be used for human food. The maize cobs are eaten by humans and the leaves by sheep. Leucaena makes an excellent fodder at the end of the rainy season. It has a high productivity, a good nutritive value, and it continues to grow as a bush.**

**In the second year of production, the forage plot contains leucaena and pigeon peas. In the third and subsequent years, the plot contains only leucaena.**

**One of the first tasks in establishing a forage plot is to spread manure. For the 156 $m^2$ plot, it is recommended that 75 kg farmyard manure is spread and dug into the soil as the rains begin. If farmyard manure is not available it can be replaced by 3.5 kg 15:15:15 artifical fertiliser.**

**Maize should be sown in rows 1 m apart, and each seed within the row should be 40 cm apart and 3 cm deep. The leucaena is sown in the same rows as the maize; two leucaena seeds are sown together half-way between each maize seed.**

**It is important to break the dormancy of the leucaena seeds before they are sown by pouring boiling water on the seeds and leaving them in the water for a whole day. Rows of pigeon peas are sown between the rows of maize and leucaena. Two peas are sown every 40 cm at a depth of 3 cm.**

**The forage plot must be fenced to prevent the young plants being eaten by sheep and other animals. A temporary fence is constructed around the plot, and this fence is moved each year to the new plot. After one year the maize has been harvested and the pigeon peas and leucaena are sufficiently tall for the growing points to be out of reach**

**of the sheep.**

**The forage plot must be weeded 15 days after it is planted. Once the weeding is done, the leucaena and pigeon peas are thinned to leave only one plant in each place.**

**The maize cobs are harvested a little before they are mature, while the grains are still pasty. At this stage the cobs are ideal for grilling, and while the leaves of the maize plants are still green the whole plant (both leaves and stem) makes an excellent forage for animals.**

**When the pigeon pea plants reach a height of 1 m they are cut back to height of 30 cm, and the branches fed to the sheep. Then after they have grown again to 1.1 m they are cut again, this time to 50 cm. The plants are allowed to grow again and to flower and produce seeds. When the seeds are mature they are harvested for human consumption, and the plants are cut to a height of 70 cm.**

**Provided that the leucaena has reached a height of 1.5 m, it can be cut a little in the first year. In the following years the leucaena is cut in rotation every two months in the rainy season, but not in the dry season. It should be cut to a height of 1.5 m so that the new succulent branches are out of range of the sheep.**

# 4. Veterinary care and breeding

**Sheep are drenched to kill worms and other internal parasites (Fig. 26).**

**Sheep are sprayed to kill ticks, mites and flies (Fig. 27).**

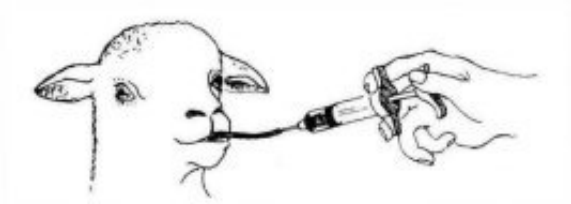

**FIG 26**

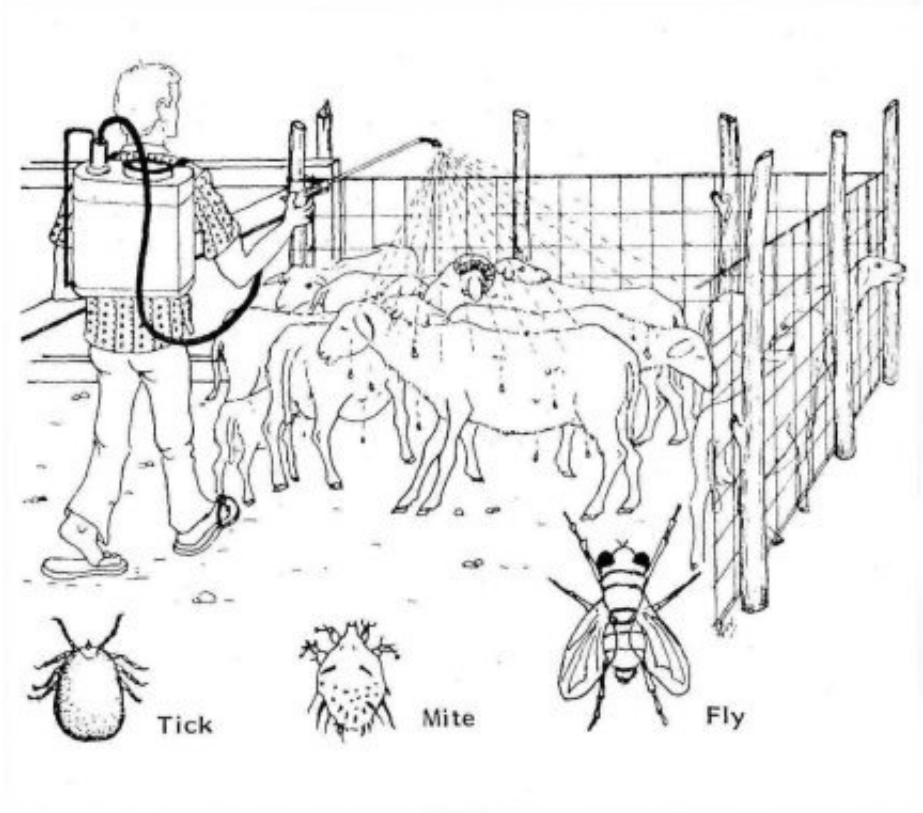


**FIG 27**

**Sheep are vaccinated to prevent PPR (Fig.28).**

**Every morning the floor of the night enclosure is swept, and the food and water troughs cleaned (Fig. 29).**

**Hoofs are trimmed at the beginning of the rainy season (Fig. 30).**

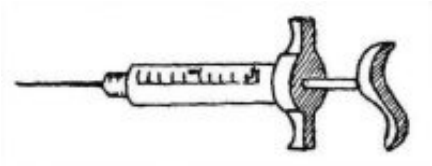

**FIG 28**

**FIG 29**

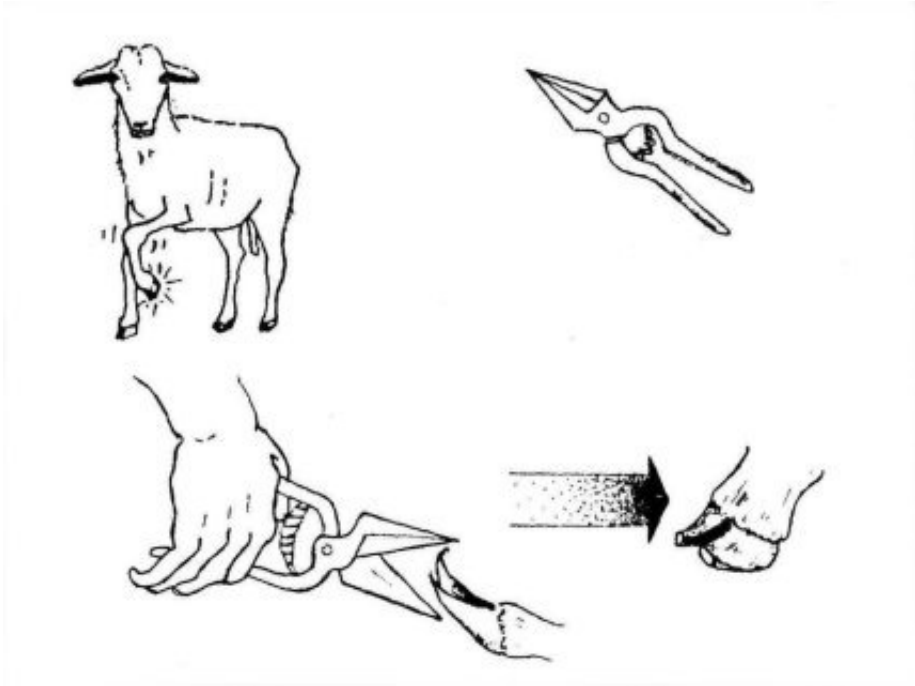

**FIG 30**

## VETERINARY CARE

**Veterinary care for the sheep is organised by the project and is included in the contract for services. The routine measures include drenching against internal parasites, spraying against external parasites, vaccination against pasteurellosis and PPR, castration of male lambs and trimming overgrown hooves. The groups pay at a subsidised rate for the medicines needed for these routine measures. Unforseen curative treatments, such as the treatment of wounds or sporadic diseases, are also provided.**

**Internal parasites include roundworms, tapeworms, Ringworms, liverfluke and coccidia. If not treated, these parasites cause poor performance and mortality particularly in young animals.**

**All these internal parsites except coccidia are killed by treating the sheep with anthelmintic. Lambs aged 8 months or less are treated four times a year, in the rainy season and the beginning of the dry season (in May, July, September and November). Older sheep aged more than 8 months are treated only once, at the beginning of the dry season (in November).**

**The anthelmintic used in northern Togo is either albendazole (sold as "Valbazen") or fenbendazole (sold as "Panacur"). Both these anthelmintics are applied orally as a drench and control gastrointestinal roundworms. tapeworms and lungworms. In addition albendazole controls liver fluke. There are many other anthelmintics commercially available which control internal parasites. Some are applied by drenching, some in a capsule which must be swallowed, some by injection, and some by pouring a liquid onto the animal's back.**

**Coccidiosis causes deaths in young lambs but seldom affects older sheep. Lambs aged up to 8 months are treated in May, July, September and November with sulphamezathine or other drugs which kill coccidia.**

**The most serious external parasites are ticks, mites and certain flies. Adult ticks feed on the blood of sheep and transmit diseases as well as causing trauma with their bites. Mites are very small parasites which feed on the skin surface and in some cases burrow beneath the skin. Mites cause a disease called mange which is usually more serious in goats than sheep, although head mange is a common problem in sheep. Some flies lay their eggs in sheep, particularly in wounds. These eggs hatch into maggots which eat the flesh causing considerable pain and irritation.**

**The seriousness of external parasites depends on whether or not the flock is isolated from other sheep, goats and cattle. If the flock never mixes with other animals, the sheep are sprayed with insecticide once each month in the rainy season (April to November) but spraying is not necessary in the dry season. If the flock is not isolated, the sheep are sprayed with insecticide twice each month in the rainy season (April to October) and once each month in the dry season (November to March). If a sheep already has mange, spraying is not sufficient, and the animal must be scrubbed with insecticide.**

**A knapsack sprayer is convenient for spraying a small flock. The sheep are enclosed in a small pen. The operator**

**stands in the middle of the sheep and turns slowly round spraying all the sheep from above, and making sure that their heads are wetted as well as their bodies. Then the operator lowers his spray nozzle and wets the underneath of each animal.**

**The sheep are routinely vaccinated against PPR, otherwise known as peste des petits ruminants or kata. This is a disease similar to rinderpest but is found only in sheep and goats. All animals aged one month or more are vaccinated every six months (in June and December). New flocks are vaccinated on arrival. Later additions to the flock are vaccinated before they are allowed to mix with the other sheep.**

**Many diseases can be prevented by good management. Cleanliness of the night enclosure is important. Every morning the ground is swept and the food and water troughs are cleaned. When the sheep are grazing they are not allowed to mix with other animals. Neither other animals nor people who work with other flocks are allowed into the night enclosure. All sick sheep are isolated, conveniently in an old sheep house. Any new animals joining the flock must be quarantined for one month. The new sheep are shut in an enclosure or animal house not close to the night enclosure, and are given food and water by a person who has no contact with the main flock. The new animals are deticked, drenched and vaccinated. If after one month the new animals are healthy they are allowed to join the flock.**

**If the hoofs of sheep become overgrown foot-rot may develop, particularly in the rainy season. Sheep which are lame with foot-rot are unwilling to walk far while grazing, so they lose body condition and are unproductive. To prevent these problems, overgrown hoofs should be trimmed before the start of the rainy season using either foot shears or a sharp knife.**

**By the veterinary measures discussed above the productivity of the flock is greatly increased. For instance, lamb mortality is about 50% in traditionally managed flocks with no veterinary care, but only about 12% in the flocks within the Project of North Togo.**

## BREEDING

**The number of rams needed by a flock depends on the size of the flock. The ewe:ram ratio should not exceed 30:1. This means that for flocks of up to 30 ewes only one ram is needed. If there are 31-60 ewes there should be two rams, and if there are 61-90 ewes there should be three rams.**

**The duration of the oestrous cycle in the ewe is about 17 days, which means that non-pregnant cycling ewes come into heat every 17 days. The duration of pregnancy is about 150 days. After a ewe has lambed she does not return to heat for about one month, so that the shortest possible interval between lambings is 6 months. In practice the lambing interval in the sub-humid tropics is usually between 7 and 10 months.**

**In traditional sheep production systems there is often unintentional selection for low growth rate because the fastest growing male lambs are the first to be killed or sold. The rams which remain in the flock and sire the future generations are small and have poor growth rates.**

**Selection for improved growth rate is not difficult. The staff of the Project of North Togo buy the best male lambs from the flocks in the project. In order to identify the fastest growth rates it is necessary for each lamb to be identified (usually with an ear tag) and for its date of birth and weight at different ages to be recorded. The groups are encouraged to sell their best three-month-old lambs to the project by a favourable selling price and by including this sale as an obligatory part of the ram contract (Appendix I).**

**These selected male lambs are kept by the project until they are distributed to the flocks at an age of almost 18 months. The ram contract states that for a flock to receive selected rams, all other males in the flock shall be castrated. The rams are always distributed to flocks distant from their flock of origin so that inbreeding is avoided.**

**Male lambs which will not be required for breeding are castrated. In the Project of North Togo the Iambs are castrated at an age of 3 months using a bloodless castrator (known as "Burdizzo"). This method requires two people –one to hold the lamb and one to operate the castrator. The operator feels the spermatic cords in the**

**scrotum. He places the castrator to nip one cord and holds it for 10 to 15 seconds. Then he does the same with the other cord. To make absolutely sure the lamb will not be fertile, each cord is nipped again.**

**An alternative method of castration is to use rubber rings. This method must be used within two days of birth. The operator uses a special applicator to put a ring over the testes, making sure that both testicles are in the scrotum. The rubber ring cuts off the blood supply to the scrotum which eventually falls off. Unfortunately this method can cause skin wounds which easily become infected with tetanus or colonised by maggots. Another disadvantage is that because rubber rings must be used soon after birth, ram lambs cannot be selected for breeding on the basis of their own growth rate.**

**Where the groups practise uncontrolled mating they buy rams from the project and pay back over two years. In order to prevent father-daughter matings in the flocks, the groups are allowed to keep the selected rams for only two years. After that period these rams are sold or killed and the group buys new rams from the project.**

**In flocks with seasonal breeding the duration of the mating period is six weeks. The appropriate number of rams is put with the flock at the beginning of the mating period. After three weeks these rams are withdrawn and replaced by the same number of different rams. This change is particularly important if there is only one ram with the ewes, because if this ram is infertile none of the ewes would become pregnant.**

**In these seasonally breeding flocks the rams are borrowed not bought from the project. In return for the loan of selected rams, the groups agree to sell their best lambs to the project.**

**One ram is needed for every 30 ewes.**

**The project staff select the fastest-growing ram lambs and the farmers use these for breeding.**

**Male lambs not needed for breeding are castrated (Fig. 31).**

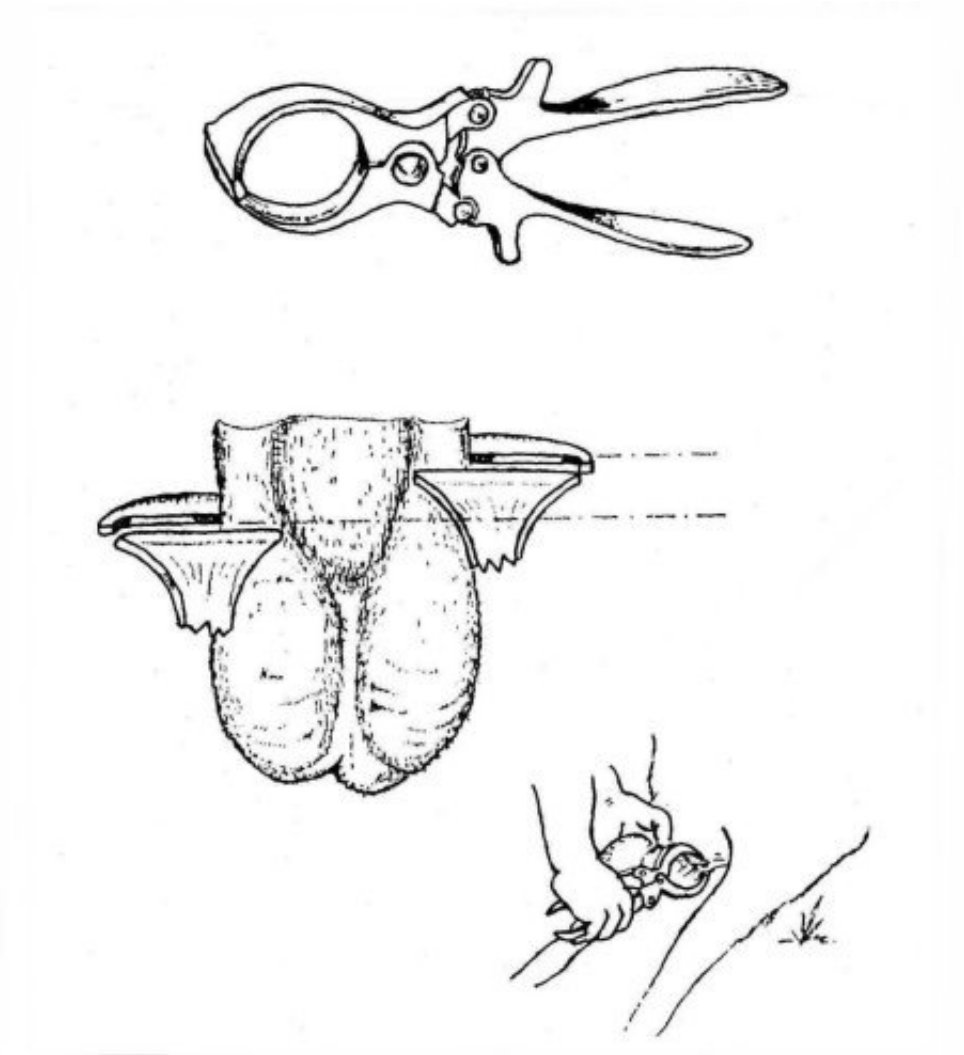

**FIG 31**

# 5. How the group operates

## Each group chooses

- **a *president* who organises the group**
- **a *secretary* who keeps the flock records; and**
- **a *treasurer* who looks after the money and keeps accounts (Fig. 32).**

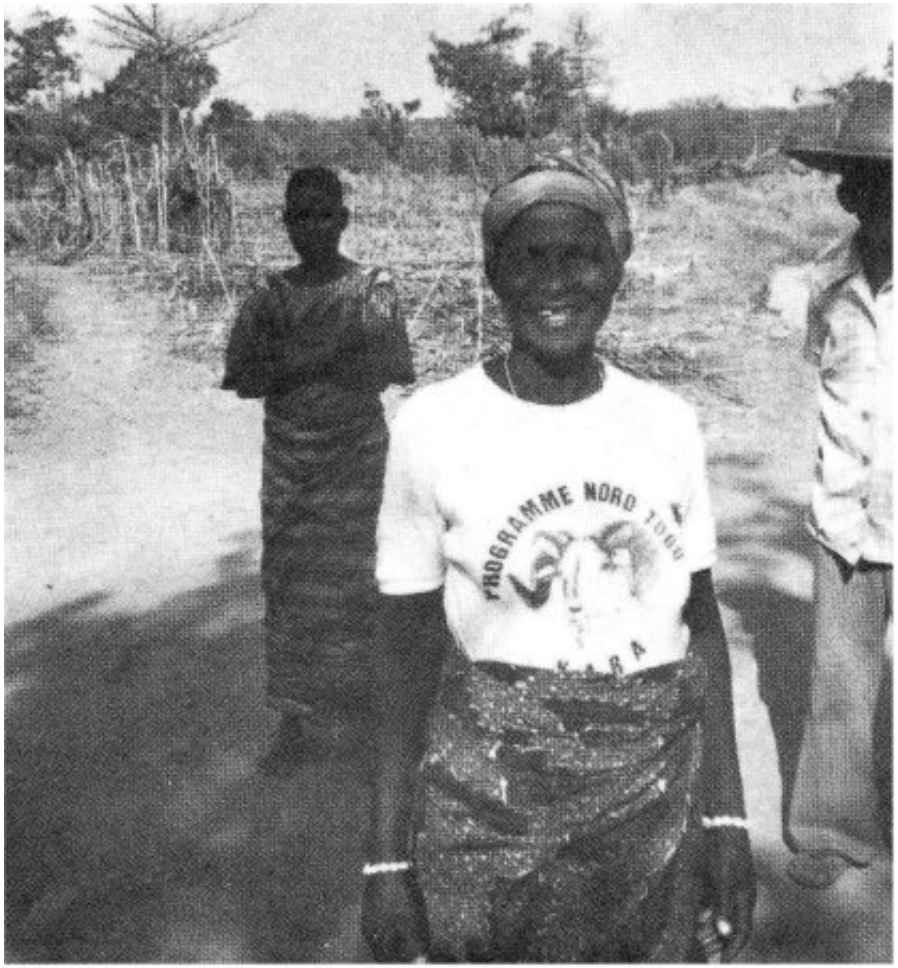


**FIG 32**

## OFFICERS

**Each group elects officers who carry out duties on behalf of the group. These officers are a president, a secretary and possibly a treasurer. The group can hold a semi-formal ballot to decide the officers. Alternatively, the subject can be discussed until a concensus is reached. Discussion seems a more natural method than a ballot for most groups.**

**The president is responsible for the general organisation of the group, and she represents the group in their dealings with the project and others. The woman chosen as president will probably be a respected maternal figure. It does not matter if she is illiterate.**

**The secretary must be able to read and write the national language. If none of the women in the group are literate another person must be brought into the group to act as secretary. There were two groups in northern Togo where the secretary was not a full member of the group: one secretary was a teenage son of one of the members and the other was a young woman from a neighbouring village.**

**The treasurer keeps a written record of all the monetary transactions of the group, and looks after any money belonging to the group. Some groups operate without a treasurer because the secretary looks after the finances.**

## WORK ROTA

**The women have a rota for the routine work with the flock. This rota is usually not written down, but has been discussed by the whole group so they all know what their duties are. A typical rota would be for a different two women to work each day. In the morning they both go to the night enclosure and look at the sheep. One woman takes out the flock for grazing. The other empties and cleans the water and food troughs, sweeps the ground, cuts browse and does any other necessary tasks such as replacing the mineral block. She then joins her companion shepherding the flock. Both women stay with the sheep until midday when they bring them back to the night enclosure. After a period with their families, the women take the flock out again until late afternoon.**

**Women often prefer to work in pairs rather than alone. If the total number of women in the group is an odd number, the rota includes one trio as well as the pairs. They say working in pairs prevents them being lonely, and it is necessary where it is not socially acceptable for women to go out alone. The women can take a baby or young child with them while they are shepherding the flock. The other household duties of the village women include fetching water and cooking. On the days when the women shepherd the flock they can do only a limited amount of this work, and some of their duties must be done by other female members of the family.**

**In some groups, two women work with the sheep for a whole week, then another two take over. In other groups, the whole group meets every morning to clean the night enclosure.**

**In one group the shepherding was always done by four children. These were between eight and twelve years old, and each was the son of one of the women.**

**There is a potential conflict between education and shepherding. In the village where the children looked after the sheep there was said to be no conflict because even if there was no project the children would not have gone to school; before the sheep production group started they did not go to school.**

**Each day two women look after the sheep.**

**All the sheep jointly belong to the group of women, not to individual women.**

**The whole group of women decide when to sell or slaughter lambs and what to do with the money (Fig. 33)**

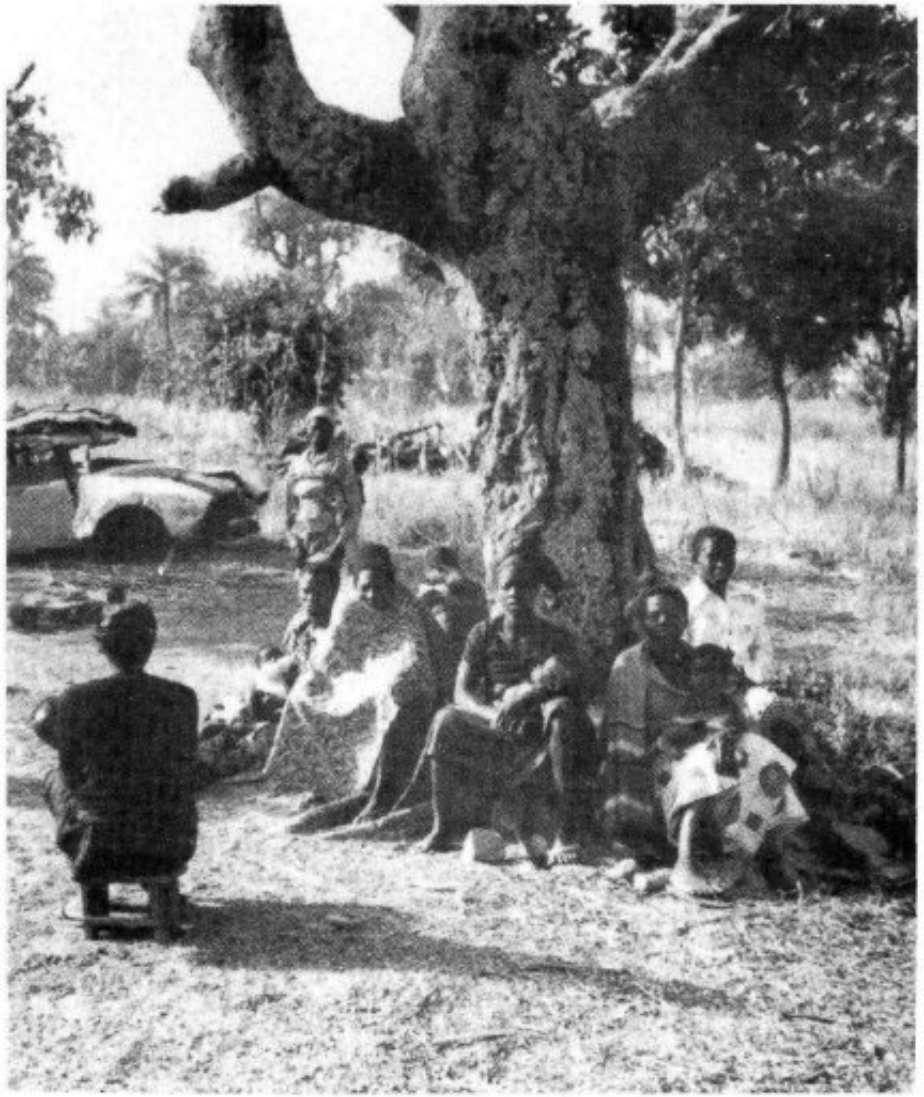

**FIG 33**

**The field officer from the project regularly visits the group:**

- **To check that the women are looking after the sheep correctly**
- **To look at the flock records; and**

– **To sort out any problems (Fig. 34)**

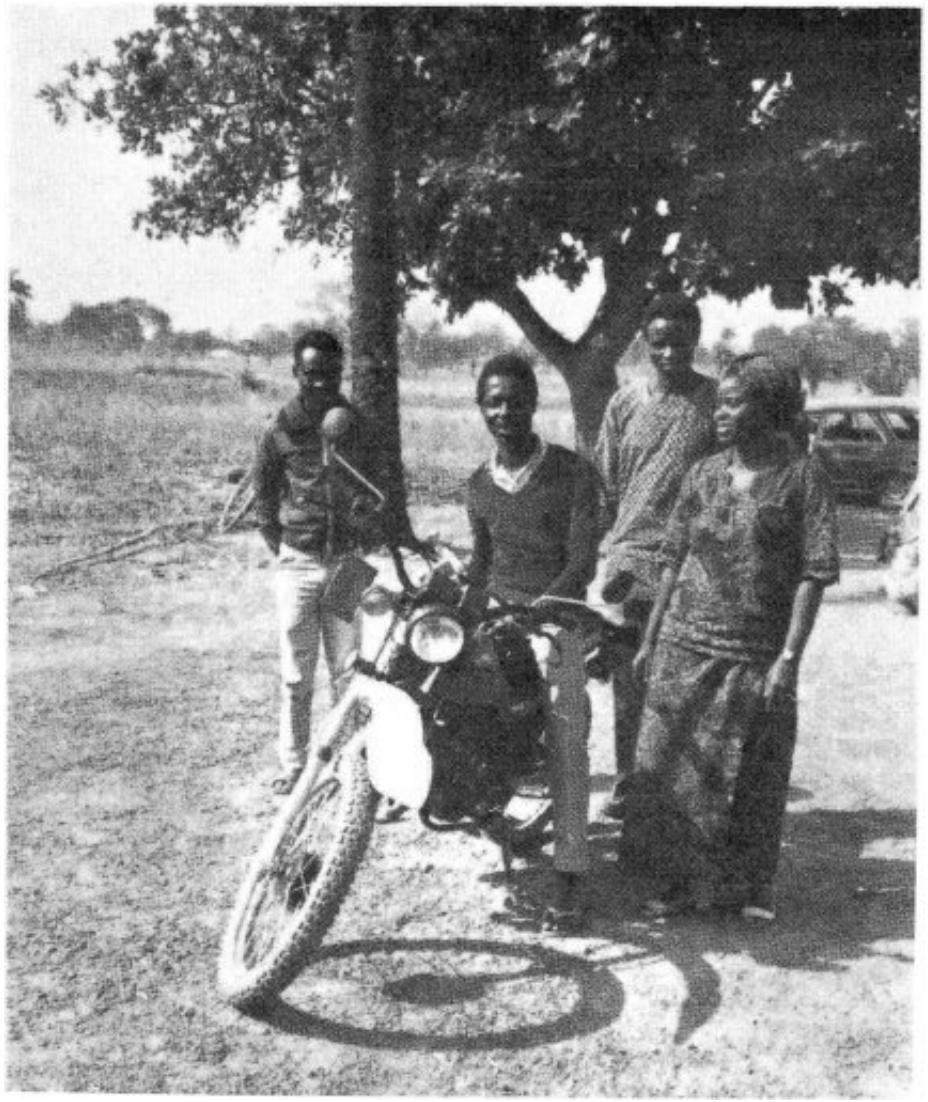

**FIG 34**

## OWNERSHIP OF ANIMALS

**There are two possible ways in which the animals are owned. Either the animals belong to the group as a whole, or each individual woman owns individual sheep within the flock.**

**If the sheep initially come from the project or some other external source, they will be owned jointly by all the members of the group. In this case the women jointly make decisions about management and selling.**

**If, when the group is formed, the women each contribute sheep, it is likely that they will retain individual ownership of these sheep and their offspring. In this case, the women jointly make decisions about management, but selling animals or removal of animals from the flock for other purposes may be an individual decision. Individual ownership is beneficial in that it stimulates the interest of the women in the flock.**

**Problems can arise-from individual ownership of sheep within a group. The group collectively pays the project for services (supplementary feeding and veterinary costs). If an individual withdraws some or all of her sheep from the flock for whatever reason (e.g. she marries and leaves the area), then she must pay the group for the services her animals have received. Unless this is pointed out at the formation of the group it can cause problems later. The group must decide how many animals they need to sell each year to repay their contracts (initial, services and ram contracts) and whose animals they will sell for this purpose.**

**Because so many problems can arise from individual ownership of sheep, it is strongly recommended that new groups have joint ownership of all the sheep in their flocks.**

## SELLING ANIMALS

**Whether the animals are jointly owned by the group or are owned by individual women, the members of the group must collectively decide on the selling policy, i.e. when, where and to whom to sell sheep, and which ones. Sheep have to be sold to repay the contracts with the project. They may also be sold to fulfil the financial needs of the**

**members of the group, and slaughtered for home consumption usually at festival times. When a group is newly formed, all the male lambs are sold to repay the project according to the contract. But as the flock becomes larger, there is more opportunity for home consumption and selling for financial gain.**

**Throughout the tropics there is a high demand for sheep meat. In northern Togo the price is about $1.25 per kg liveweight for most of the year, except for the month before the Islamic festival of Tabasky when it is even higher. The women sell their lambs when they are aged between six months and one year. The sales either take place in the local market or traders come to the village. These traders may resell the lambs locally or transport them to the coast. Another possibility is to sell the lambs to a farmer who operates a finishing unit where the lambs are given a good diet so that they gain weight rapidly and develop a superior carcass quality.**

## ADVICE EOR NEW GROUPS

**New groups of sheep producers need considerable technical advice and financial support. In most tropical countries, government extension services aimed at sheep production are minimal, and it is probably easier for new projects to provide the support services through their own field officers rather than rely on the state services.**

**Good communication between the project and the groups of women is essential. The field officers are the people who most frequently visit the groups, but it is important that the other more senior and specialist members of the project also take an active interest in the groups and are seen to do so.**

**The field officers travel to the villages on motorcycles. When a new group is formed, a field officer visits frequently to help with the construction of the enclosure and shelter. When the animals arrive the field officer will probably visit the group daily to make sure they are looking after the animals properly.**

**Once the flock is established, the field officer visits the group regularly every two weeks. Besides giving advice and support, he or she completes a "visit form" (Appendix II). On this form there are 10 columns each corresponding to**

**one aspect of management. The officer inspects each of these aspects of management. If it is satisfactory, he or she records a 1 in the appropriate box. If not he or she puts a 0. In the example in Appendix II, the group has done everything correctly except that they have not provided a mineral block. The total score for the visit (9 in this example) is recorded in the right-hand column. Then, after ten visits, the grand total is put in the bottom right-hand box. This total can be compared with the totals for other groups. In this way the women are given an indication of their success. In the early stages of production before there is much financial reward this method of assessment gives a feeling of achievement.**

**If an animal is sick when the field officer makes his regular visit, of if the women notice a sick animal at another time and contact the project, the veterinary officer is called in.**

# 6. Training and records

**TRAINING**

**The field officer from the project shows the women how to look after their sheep.**

**The women visit other groups of sheep producers.**

**The president and secretary go on a training course.**

**Most of the women in sheep production groups have not previously kept sheep, so they need to learn about basic sheep management. Even those who are familiar with traditional sheep production systems need to be told about the improved, semi-intensive system. There are several ways in which this is done:**

1. **Informal discussion between the project staff and the women. Typically the women might suggest to the field officer that it doesn't matter if the sheep are grazed for only a few hours each day instead of the recommended 8 hours. The field officer should then explain again the importance of good feeding, and in particular an adequate grazing period.**

2. **Meetings between the staff of the project and the groups of women. This is a method widely used for new groups to tell them how to look after their sheep.**

3. **Visits of one group to another, i.e. learning by example. This method gives the women the most clear picture of how they should look after sheep. It is strongly recommended that all new groups visit an established group. If this is not possible, they should visit an established individual producer or an experimental farm.**

4. **Field days when several groups of women meet together. In northern Togo highly successful field days are held and prizes given out to those groups which achieve the highest scores in the management assessment ("visit forms"). The particularly good production groups can then pass on helpful hints to the others.**

5. **Courses of one or more days for certain members of groups, e.g. presidents or secretaries, to enable them to do their jobs more effectively. These courses (and also field days) should be arranged during the dry season when the women do not have to work in the fields.**

6. **In northern Togo each group has a production notebook which contains "visit form "and some simple written information and diagrams about sheep. This book remains with the group so that it is available for people to look at.**

7. **Diagrams drawn large and clearly, for use in meetings with the women.**

8. **A videotape showing aspects of production is a novelty to most villagers and will certainly stimulate interest.**

**Probably a videotape should be used only once groups are well-established. If used too early the women may expect magical outputs from their flock.**

## RECORDS

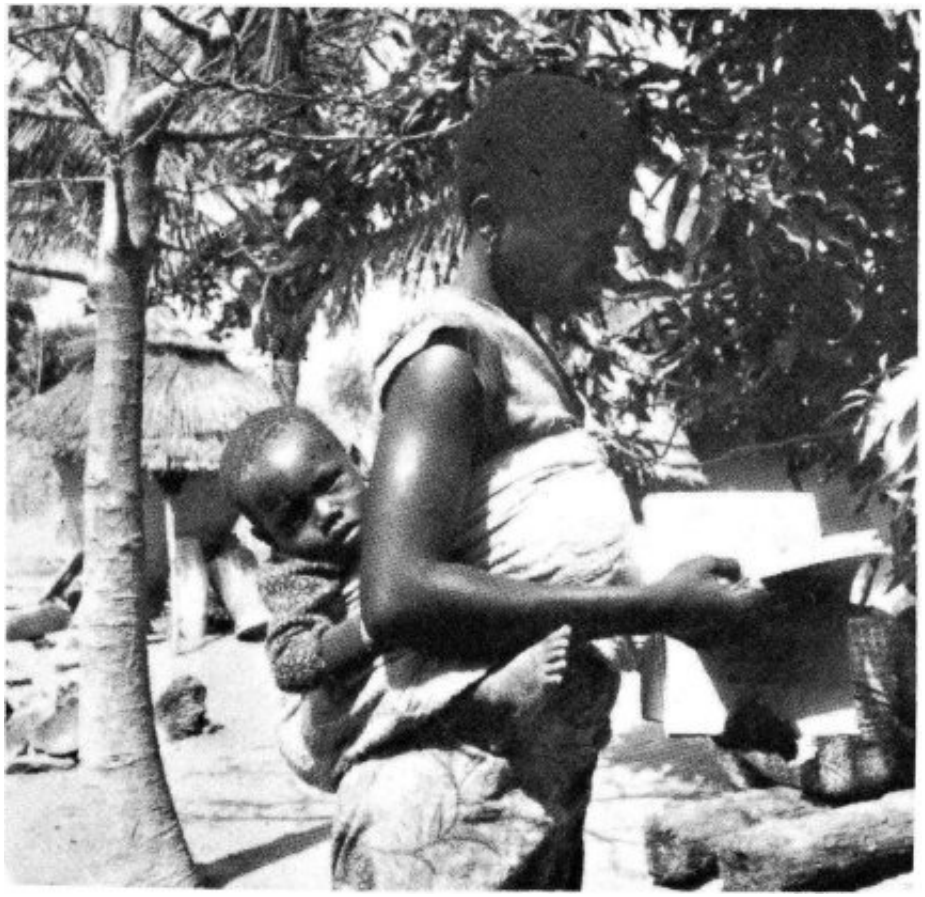

**FIG 35**

**The secretary writes in the Flock Diary every time an animal is born, bought, dies, is eaten or lost (Fig. 35).**

**The secretary keeps a record of supplementary food and mineral blocks.**

**The treasurer records every monetary transaction of the group.**

**The field officer visits the group every two weeks. He checks that the management of the flock is good, and records it on the visit form.**

**The written records are the responsibility of the secretary and treasurer. The flock diary and the production notebook are kept in the sheep shelter so they are available for anyone to read even if the secretary is not present. They are usually wrapped in a plastic bag and placed in the roof. The inventory of concentrate food and mineral blocks and the financial accounts are kept by the secretary and treasurer in their houses.**

1. **Flock diary. In this book all animals which are born, purchased, die. sold, eaten and lost are recorded, as shown in Appendix II. It is filled in each time animals enter or leave the flock. By looking at the flock diary the members of the group or the project staff can see how many animals there are in the flock, how many animals have been sold, and can calculate lambing rate or mortality rate.**

2. **In the inventory of supplementary food and mineral blocks the secretary records the delivery of the concentrate food (cottonseed) and the mineral blocks to the project store, and their removal for consumption by the flock (Appendix II). This inventory shows the group when they must request more deliveries and shows the total used each year.**

3. **Financial accounts record every monetary transaction of the group (Appendix II).**

4. **Production notebook. This book contains diverse information about the flock and is filled in by the staff of the project. The first twelve pages are visit forms (Appendix II). The field officer checks the standard of management and fills in one line of the visit form on each of his fortnightly visits.**

**There are five pages of livestock inventory (Appendix II). This is where the basic details of individual animals (identification number, sex, breed, owner, presence each year, etc) are recorded. When the field ' officer gives a new animal an identification number, he records the details of the animal here.**

**There is a calendar of production for seasonally breeding flocks (Appendix II). The top line is the same for all years and shows when the flock must be sprayed against ticks. Beneath this there are seven empty rows. Each year the field officer glues in the schedule for breeding showing the times the rams will be with the ewes, the lambing season, and the times for castration, vaccination and other tasks.**

**The production notebook also contains several pages of simple information relating to the management of the flock, veterinary care etc. These pages should be modified according to the local conditions and management system.**

# 7. Productivity and economics

**A flock of 75 ewes usually produce each year:**

| | |
|---|---|
| 52 male lambs worth | $ 1430 |
| 37 female lambs worth | $ 925 |
| 9 cull ewes worth | $ 180 |
| Total sales = | $ 2535 |

**The costs for a flock of 75 ewes are:**

| | |
|---|---|
| Veterinary products | $ 94 |

| | |
|---|---|
| Mineral blocks | $ 65 |
| Food supplements | $ 90 |
| Maintenance of equipment | $ 100 |
| Total costs = | $ 349 |

**Profit = sales - costs**
**= $2535 - $ 349**
**= $2186**

**But in the beginning, a group does not have 75 ewes.**

**If there are 30 ewes in the 1st year, there will be:**

- **37 ewes in the 2nd year,**
- **40 ewes in the 3rd year,**
- **56 ewes in the 4th year,**
- **74 ewes in the 5th year, and**
- **75 ewes in the 6th year.**

**The 1st year is difficult for a new group because:**

- **There are not yet any lambs ready for sale,**
- **But the group has to pay for food, veterinary products and maintenance of equipment.**

**The project must give a loan for the 1st year.**

**In the 2nd year the profit is $ 367.**

**The profit gets bigger each year until the 6th year when it is $2186.**

## PRODUCTIVITY LEVELS

**Before a new technology is put forward to groups of women or other farmers, it must be tested over a period of years. A successful system must be productive. The productivity or output of the system is measured by the lambing rate of ewes, growth rate of lambs, and mortality rates of lambs and adults.**

**The figures for the productivity of semi-intensive flocks in northern Togo given below show how productivity is calculated. These values can be used as a standard against which the productivity of other flocks is compared.**

***Lambing rate*** **= number of lambs born per ewe, per year =1.58**

**In northern Togo most ewes have single lambs (not twins), and the lambing interval is about eight months.**

***Mortality rate of lambs*** **= number of lambs which die divided by total number of lambs born = 0.12.**

***Weaning rate*** **= number of lambs surviving to weaning per ewe, per year = lambing rate x (1-mortality rate) = 1.58 x (1-0.12) = 1.40.**

***Mortality rate of adults*** **= number of ewes and rams which die, divided by total number of ewes and rams in flock = 0.08.**

***Culling rate of ewes*** **= number of old ewes removed from the flock, divided by total number of ewes in flock = 0.12.**

***Weight of lambs at weaning*** **(3 months) = 12 kg.**

***Weight of ewes*** **= 22 kg.**

***Offtake*** **= number of animals removed from the flock for productive purposes per year, divided by the number of adult animals in the flock = [1.58 x (1-0.12)] -0.08 -0.12 = 1.3. It is assumed for the purposes of this calculation that flock size is constant.**

***Productivity index*** **= weight of lamb weaned divided by ewe weight, per year = 1.58 x (1-0.12) x 12/22 = 0.75.**

**It is common for many of the above measures of productivity which include the word "rate", and also offtake, to be expressed as percentages. These percentages are easy to calculate; simply multiply the appropriate rate by 100. For example, if the lambing rate is 1.58, the lambing percentage is 158%.**

**The values given above were obtained in semi-intensive systems in the sub-humid zone of West Africa. The productivity of flocks with unimproved management or those in less favourable areas is bound to be lower. For traditional systems in West Africa the productivity index is usually between 0.4 and 0.5.**

## ECONOMICS

**The initial analysis is based on the assumption that the flock has reached its final size of 75 ewes.**

### *Output*

**The total value of animals sold per year is about $2 535.09 calculated as follows:**

| **Animals sold** | **Number** | **Weight** *kg* | **Price** *$/kg* | **Value** *$* |
|---|---|---|---|---|
| Male lambs | 52 | 22 | 1.25 | 1430.00 |
| Female Iambs | 37 | 20 | 1.25 | 925.00 |
| Culled ewes | 9 | 23 | 0.87 | 180.09 |

***Running costs*** **(calculated per ewe in the flock)**

| *Item* | *Cost ($)* |
|---|---|
| Veterinary products (75 ewes x S1.25/ewe) | 93.75 |
| Mineral blocks (75 ewes x 2 kg/ewe x S0.435/kg) | 65.25 |
| Food supplements (75 ewes x 36 kg/ewe x $0.033/kg) | 90.00 |
| Maintenance of equipment | 100.00 |
| Total | 349.00 |

***Net return*** **(i.e. animals sold - running costs) = 2 535.09 - 349.00 S 2 186.09, or S 29 per ewe.**

| *Item* | *Cost ($)* |
|---|---|
| Ewes(75 x $ 30) | 2250.00 |
| Equipment | |

| | |
|---|---|
| fence | 97.00 |
| six food troughs | 78.00 |
| three water troughs | 66.00 |
| forage rack | 30.00 |
| Total equipment | 271.00 |
| TOTAL | 2521.00 |

***Rate of return on capital invested*** **= $2 186.09/S2 521.00 = 87%**

**This is a very favourable rate of return. The above analysis has not considered the cost of labour. If labour is included in the analysis, then**

**Labour cost = 2 x 365 days per year at $ 1.00 per day = $ 730.00.**

**Profit = 2 186.09 - 730.00 = $ 1456.09**

**and rate of return = 1456.09/2521.00 = 58%.**

## INCREASE IN SIZE OF FLOCK

**The women's groups each start with a small number of ewes and build up to a larger flock. The suggested maximum is 75 ewes. This increase is possible provided that the number of female lambs weaned is greater than the number of ewes which die or are culled. The most reliable way to find out how rapidly flock size will increase is to write down when the ewes are expected to lamb and when their female offspring will give birth.**

**Table 8.1 shows this method used with the productivity data given below and assuming that all female lambs are kept in the flock. In this case the number of ewes is 30 in the first year, 37 in the second year, 40 in the third year, 56 in the fourth year, 74 in the 5th year, and only in the 6th year of production is the target of 75 ewes reached.**

**If the lambing rate is lower or the mortality rate higher than in this example, the flock will grow more slowly. The same will be true if not all the female lambs are kept in the flock. Also if a group starts with fewer than 30 ewes, it will take longer for them to reach a flock size of 75.**

**TABLE 8.1 Calculation of increase in number of ewes in flock**

| Month | No. ewes lambing | | | Female lambs | | Total |
|---|---|---|---|---|---|---|
| | New | Old | Total | No. surviving | Will lamb in month no. | no. of ewes |
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | 30.0 | 30.0 | 12.9 | 24 | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | 30 |
| 13 | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | | 24.0 | 24.0 | 10.3 | 32 | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | 24.0 | 24.0 | 10.3 | 40 | |
| 23 | | | | | | |
| 24 | 12.9 | | 12.9 | 5.5 | 42 | 37 |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | | | | | | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | 19.2 | 19.2 | 8.3 | 48 | |
| 31 | | | | | | |
| 32 | 10.3 | 10.3 | 20.6 | 8.9 | 50 | |
| 33 | | | | | | |
| 34 | | | | | | |
| 35 | | | | | | |
| 36 | | | | | | 40 |
| 37 | | | | | | |
| 38 | | 15.4 | 15.4 | 6.6 | 56 | |
| 39 | | | | | | |
| 40 | 10.3 | 16.5 | 26.8 | 11.5 | 58 | |
| 41 | | | | | | |
| 42 | 5.5 | | 5.5 | 2.4 | 60 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 43 | | | | | | |
| 44 | | | | | | |
| 45 | | | | | | |
| 46 | | 15.4 | 15.4 | 6.6 | 64 | |
| 47 | | | | | | |
| 48 | 8.3 | 26.8 | 35.1 | 15.1 | 66 | 56 |
| 49 | | | | | | |
| 50 | 8.9 | 4.4 | 13.3 | 5.7 | 68 | |
| 51 | | | | | | |
| 52 | | | | | | |
| 53 | | | | | | |
| 54 | | 12.3 | 12.3 | 5.3 | 72 | |
| 55 | | | | | | |
| 56 | 6.6 | 28.1 | 34.7 | 14.9 | 74 | |
| 57 | | | | | | |
| 58 | 11.5 | 13.3 | 24.8 | 10.7 | 76 | |
| 59 | | | | | | |
| 60 | 2.4 | | 2.4 | 1.0 | 78 | 74 |
| 61 | | | | | | |
| 62 | | 9.8 | 9.8 | 4.2 | 80 | |
| 63 | | | | | | |
| 64 | 6.6 | 27.7 | 34.3 | 14.8 | 82 | |
| 65 | | | | | | |
| 66 | 15.1 | 19.9 | 35.0 | 15.0 | 84 | |
| 67 | | | | | | |
| 68 | 5.7 | 1.9 | 7.6 | 3.3 | 86 | |
| 69 | | | | | | |
| 70 | | 9.8 | 9.8 | 4.2 | 88 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 71 | | | | | | |
| 72 | 5.3 | 34.3 | 39.6 | 17.0 | 90 | 92 |

**[1]Calculated as weaning rate/2 x lambing interval x adult survival rate**
**= 1.4/2 x 8/12 x (1 - 0.08)**
**= 0.43**

## ECONOMICS OF PRODUCTION IN THE FIRST YEARS

**When a new group starts sheep production, they find that in the first few years there is little economic return from the flock as they have only a small number of ewes, are keeping all the female lambs to build up the flock, and have to use the money from the sale of male lambs to repay their contracts.**

***First year***

**Repayment of initial contract (one-quarter of total contract value of S 363, less 25% subsidy) = $ 68.00.**

**Payment of service contract for first year ($ 37.50 for veterinary care, S 26.10 for salt blocks, $ 36.00 for cottonseed) = $ 99.60.**

**Maintenance of equipment = $ 100.00.**

**Total payments (S 68.00 + $ 99.60 + $ 100.00) = $ 267.60.**

**Net return = -S 267.60.**

***Second year***

| | |
|---|---|
| 30 ewes produce (in first year) | *21* male lambs for sale sold at a weight of 22 kg at a price of $ 1.25 per kg which give an income of $ 577.50 |
| *and* | 4 cull ewes for sale sold at a weight of 21 kg at a price of $ 0.87 per kg which give an income of $ 80.04 |

**Total income from flock = $ 577.50 + $ 80.04 = $ 657.54.**

**Repayment of initial contract (one-quarter of total contract value of $363.00, less 25% subsidy) = $ 68.00.**

**Payment of service contract for second year ($ 46.25 for veterinary care, $ 32.19 for salt blocks, $ 44.40 for cottonseed) = $ 122.84.**

**Maintenance of equipment = $ 100.00.**

**Total payments ($ 68.00 + $ 122.84 + $ 100.00) = $290.84.**

**Net return ($ 657.54 - $ 290.84) = $ 366.70.**

*Third and subsequent years*

**The net return in the third and subsequent years is calculated in a similar way to that for the second year. The number of ewes in the flock increases each year until the target of 75 is reached in the sixth year, so that the service contract increases until the sixth year, and the total income of the flock increases until the seventh year. The repayment of the initial contract is a constant value for the first four years, and then is zero. The maintenance of equipment is constant for each year.**

**These values are summarised in Table 8.2. The 25% subsidy has been taken into account only in the repayment of the initial contract. All other values are gross.**

**TABLE 8.2 Economic performance of the flock during the first years**

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 and subsequent |
|---|---|---|---|---|---|---|---|
| Number of ewes | 30 | 37 | 40 | 56 | 74 | 75 | 75 |
| Animals sold | | | | | | | |
| male lambs | 0 | 21 | 26 | 28 | 39 | 52 | 52 |
| female lambs | 0 | 0 | 0 | 0 | 0 | 36 | 37 |
| cull ewes | 0 | 4 | 4 | 5 | 7 | 9 | 9 |
| Total income ($) | 0 | 658 | 795 | 870 | 1213 | 2510 | 2535 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Repayment of initial contract ($) | 68 | 68 | 68 | 68 | 0 | 0 | |
| Payment of service contract ($) | 100 | 123 | 136 | 186 | 246 | 249 | 249 |
| Maintenance of equipment ($) | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Total payments ($) | 268 | 291 | 304 | 354 | 346 | 349 | 349 |
| Net return ($) | -268 | 367 | 491 | 516 | 867 | 2161 | 2186 |

**Table 8.2 shows that the first year is financially very hard for the groups. They are unlikely to have any income from their flock, yet they are expected to pay a total of $ 268. The project has to adopt a sympathetic approach to the repayment of loans, perhaps even to schedule the repayment installments so that no money is paid in the first year. The timing of the sale of the first lambs is critical, and the distribution to the group of pregnant ewes or ewes with lambs at foot may be worth considering. An alternative solution is to encourage the group to grow vegetables or undertake another activity which will give an income in the first year but which will require very little capital input.**

## LOANS AND SUBSIDIES

**Loans and subsidies are given to make semi-intensive sheep production more financially attractive, and so to encourage groups of women to start keeping sheep. In particular, sheep production needs investment of capital for animals and fixed equipment. Peasant women posess little or no money, so that unless they are given a loan, they are unable to start production.**

**The Project of North Togo gives a subsidy of 25% for all equipment and services provided. This means that if a group receives cottonseed worth $10, they pay only $7.50. A loan is given to each new group to help them buy essential equipment. Only 75% of this loan is paid back. As specified in the initial contract (Appendix I), one-quarter of the amount due is paid immediately. Three further installments of the same amount are paid back after one, two and three years. No interest is paid on these loans.**

**Sheep may also be provided as a loan. For each ewe given to the group, they must pay back one young healthy ewe within five years. The money due to the project for services (supplementary food, veterinary care, etc.) must be paid at the end of each year.**