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INTER-AMERICAN INSTITUTE FOR COOPERATION ON
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GERMAN TECHNICAL COOPERATION



A GOAT AGROFORESTRY PRODUCTION SYSTEM FOR JAMAICA

Prepared by: Zithroy Annikie
Chris Smith

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Table of Contents **Page #**

Introduction.....1

Overview of Goat House2

Construction of the Goat House

Frame.....3

Floor.....4

Sides.....5

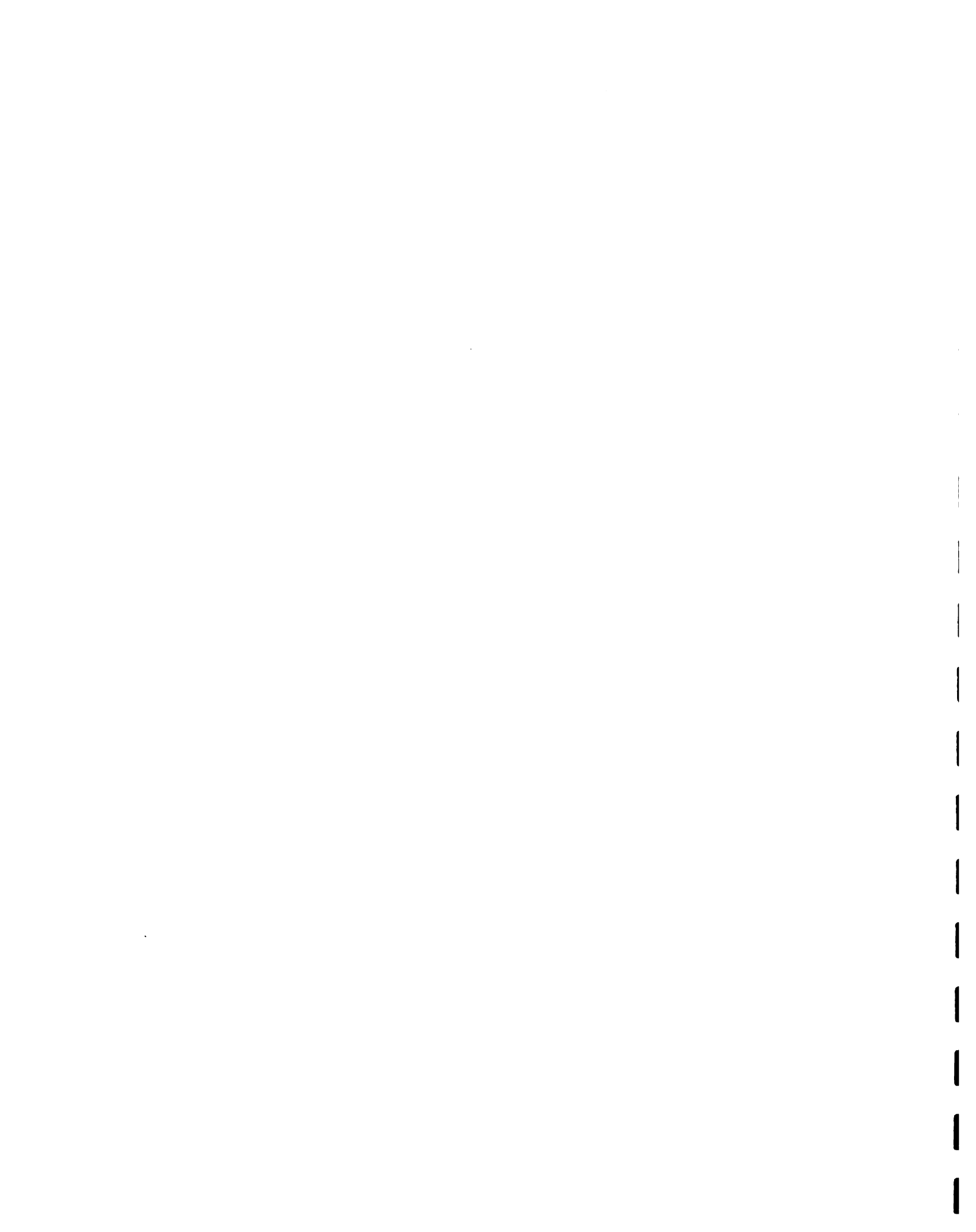
Roofing.....6

Doors, Feeders, Loafing Yard.....7

Fodder Bank.....8

Waste Management.....9

Projected Costs of GAPS in Jamaica.....10



Introduction

Goats are one of the traditional animals of Jamaican agriculture and the majority of goat production in Jamaica takes place on small farms. Unfortunately, the methods of goat production in Jamaica have been unable to keep up with the demand for goat meat. As a result goat meat is very expensive and every year a large amount of foreign goat meat is imported to the island. The more advanced production techniques of foreign goat farmers allow them to sell goat meat at significantly lower prices than domestic farmers. At the same time the process of globalization is breaking down trade barriers, and competition may only be expected to become more intense in the future. If Jamaican farmers are to survive economically, they must be able to produce agricultural products efficiently. One way to increase the quantity and efficiency of goat production by Jamaican farmers is through the implementation of the Goat Agroforestry Production System.

The Goat Agroforestry Production System is made up of three different components:

1. Goat House
2. Fodder Bank
3. Waste Management

THE GOAT HOUSE

Why build a goat house? To protect animals from:

- Draft
- Wetness
- Excessive heat (sun)
- Thieves
- Dogs
- Other pests

The Goat House should be simple and inexpensive.

Construction Materials:

- Locally grown wood
- Old zinc sheets
- Waste from saw mill (slabs) or old pallet material at least ¾" thick
- Mature dry bamboo (optional)
- Nails
- Burnt engine oil
- Brush
- Diesel oil

Equipment:

- Fork
- Cutlass
- Carpenters level
- Builders square
- Meter rule
- Lining cord
- Saw
- Hammer

Basic components of the Goat House:

- Frame
- Slotted Floor
- Sides
- Roof
- Doors

Design of the Goat House:

- Design should be simple
- Size is determined by number of goats to be housed
- Farmer's preference

Feeders (feed and water trough)

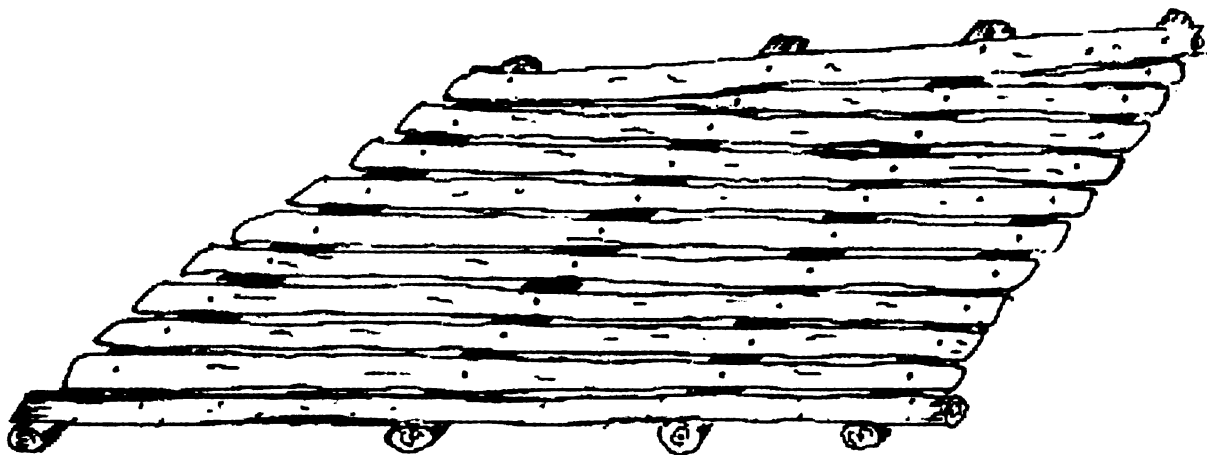


Floor

The floor may be constructed of:

- Waste from sawmills (slabs)
- Old pallets
- Old boards

Slabs, pallets, or boards should be shaped to approximately 3-4" (8-12 cm) wide and $\frac{3}{4}$ " (2 cm) thick. Floor should be slotted, with about $\frac{1}{2}$ - $\frac{3}{4}$ " (1-2 cm) between the boards. This spacing is wide enough to allow dung to fall to the ground while still narrow enough to prevent goats from sticking a leg through the space between slabs.



A Slotted Floor

CONSTRUCTION OF THE GOAT HOUSE

Frame

- Legs or blocks
- Sides
- Posts
- Braces
- Plates

Height of floor above ground ranges from 4 ft – 4½ ft (1.2 m-1.4 m), thus allowing for easy dung removal. Legs or blocks should be of hardwood. They should be anchored at least 18” (.5 m) in the ground after being treated with burnt motor oil to protect wood from soil borne pests.



Frame of a Goat House



Sides

The sides may be made from the same material as the floor. They should also be slotted to allow the passage of fresh air and not over 4 ft (3.2 m) high except where wetting may occur.



The sides of a Goat House



Roofing

Style of roof is dependent on farmer's preference and may be angled or flat. Roof may be constructed from:

- Old zinc sheets
- Straw
- Coconut fronds
- Mature dry bamboo



A Goat House with a flat roof



A Goat House with a sloped roof



Doors

Doors may be constructed from same material as floor and sides.



A goat house door

Feeders

Feeders may be constructed from floor and side material. They should be stationed so as to provide easy access to the goats.



Goat utilizing feeder in house

Loafing Yard

The overall capacity of the goat house may be *significantly increased* by fencing in a small area around the structure and allowing the animals to move between the house and adjacent pen.

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THE FODDER BANK

Proper feeding is important for both overall goat health and productivity. Goats require plant material and water to grow. Goats are capable of thriving on a wide variety of plants including, but not limited to:

Grasses

- King grass
- Elephant grass
- Guinea grass
- African Stargrass

Legumes

- Peanut
- Leucaena
- Guango seed pods

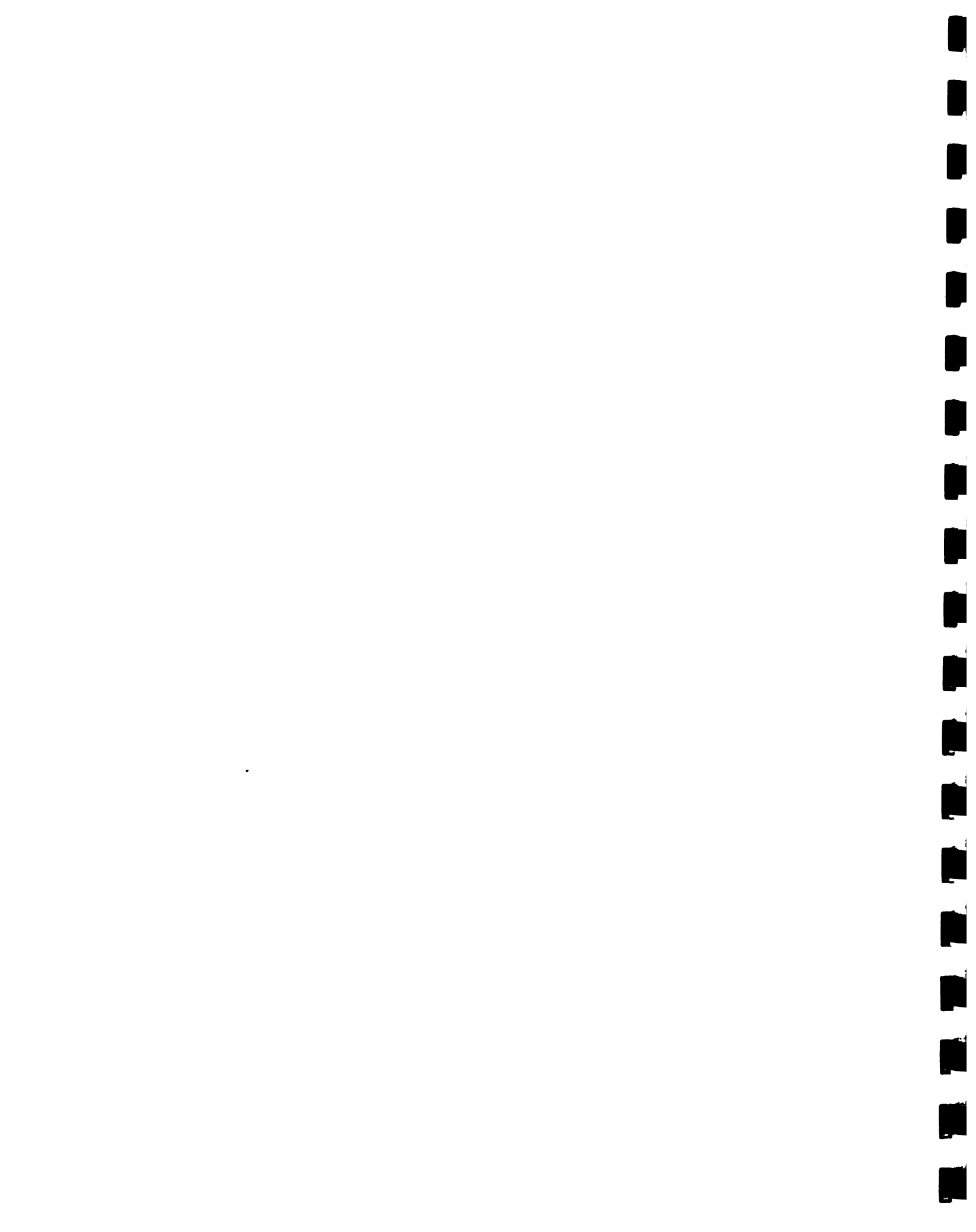
Shrubs

- Mulberry
- Hibiscus
- Cedar

Agriculture by-products

- Banana leaves
- Citrus pulp
- Sugarcane leaves
- Ripe banana skin
- Breadfruit leaves
- Trumpet tree leaves

A proper diet may be provided through cultivation, supplements, and adequate water. A fodder bank should be developed to provide a constant and healthy feed supply to the goats. The fodder bank should be comprised of grass, legumes, and shrubs. The fodder bank may also be dual purpose (i.e. provide products for human and goat consumption). A fodder bank measuring 75 ft by 75 ft (20 m by 20 m) will provide yearlong supply of feed for one goat.



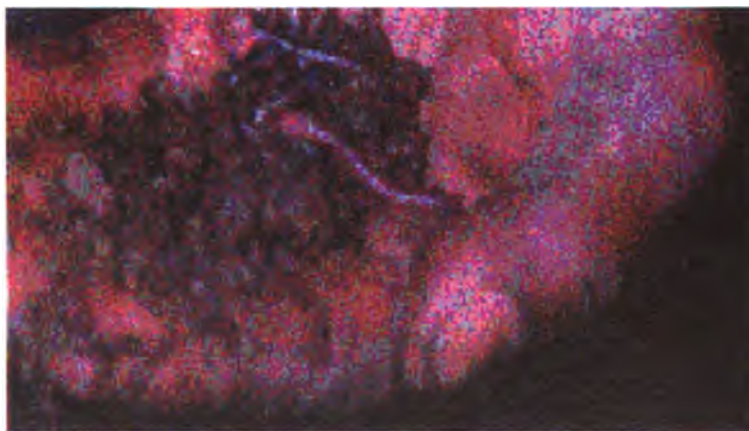
WASTE MANAGEMENT

The management of waste in the form of dung and waste feed is very important. The dung and waste feed should be removed from the pen area at least once per week. The waste should be piled in a cool area, either under a tree or a specially constructed shelter adjacent to the goat house.



An example of a shelter for worms

Red California Earthworms (*Eisenia foetida*) should be added to the waste to help in the formation of organic fertilizer. The waste should be kept moist, shaded and protected. After three months of worm activity, the waste will be transformed into high quality organic manure. The manure can be used on crops or sold.



The Red California Earthworm (*Eisenia foetida*)



PROJECTED CONSTRUCTION COSTS OF A GAPS IN JAMAICA

Scenario I – Assumes farmer is able to obtain some of the material himself.

Scenario II – Assumes farmer purchases all materials.

All figures are in Jamaican Dollars

J\$40.00 = US\$1.00

	Scenario I	Scenario II
16 Blocks (legs)	640	1120
12 Sills	360	840
22 Uprights	660	1100
20 Braces	600	1000
8 Plates	320	560
6 Lathes	240	420
16 Secondhand sheets of zinc	1280	1280
Slabs	800	800
Nails (2 lbs 4", 4 lbs 3", 3 lbs 2 ½", 4 lbs 1 ½")	430	430
1 Gal. Burnt Motor Oil	0	0
½ Gal. Diesel	20	20
21 man days of Labor @ \$400/day	8400	8400
Transportation	300	300
Total	\$14,050	\$16,270



