

INTENSIVE CATTLE PRODUCTION IN OIL PALM PLANTATION

KAMIL AZMI TOHIRAN; RAJA ZULKIFLI RAJA OMAR; WAHID OMAR; IDRIS OMAR and SUBOH ISMAIL



MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2012

MPOB TT No. 519

The systematic rotational grazing of cattle in oil palm plantations requires a minimum economic size of 100 cows in 400 ha (TOT No. 96 and No. 410). Thus, the technology is only suitable for estates. For smallholdings of 10 ha, an intensive management system is recommended. In an intensive cattle management system, cattle are stall-fed in the cattle house. This system is popular for fattening before slaughtering. The intensive system is adopted to breed cattle.

REQUIREMENTS

Oil Palm Holding

The intensive cow-calf integration is preferably carried out in a new planting or replanting of oil palm area using double avenue planting system. A minimum of 10 ha with 50 breeding cows is required for intensive cattle production. The avenue between palm rows is used to plant Napier grass as the main feed source for the cattle.

Breeding Stock

It is important that the breeding stock is of the right breed, healthy and performing cattle. Yellow cattle crossed-bred has been proven suitable for this system. The recommended age for breeding stock is one-and-half-year-old cows and two-year old bulls. The minimum body weight recommended for cows and bulls are 175 kg and 200 kg respectively. The proposed initial breeding stock is 50 cows and two bulls, selected by trained personnel.

Cattle House

A typical cattle house measures 10 m x 34 m (Figure 1). Two pens, each measuring 13 m x 5 m are required to separate the breeding cows. Each pen accommodates 25 cows and one bull. A pen

measuring 5 m x 4 m for sick cattle and weaned calves for fattening is also required. The head crutch for handling cattle during weighing and treatment should also be constructed. Other facilities required are water supply, composting house and water treatment ponds. Usually, three workers are required to carry out fodder collection and other farm chores.

PROJECT IMPLEMENTATION

Napier Grass Planting

Napier grass is planted three months before cattle is introduced into the house. The grass stem cutting is planted in the avenue (15.2 m wide) between two rows of palms. The planting distance for Napier is 0.3 m x 0.6 m. Land preparation and maintenance are required for vigorous Napier growth and high production. Napier grass is harvested three months after planting. The following harvests of ratoon are at 1.5 months intervals. The grass is cut at 15 cm above ground to ensure good re-growth for the next harvests (Figure 2). Fertiliser is applied after every harvest to enhance Napier re-growth.



Figure 1. A typical cattle house.

ISSN 1511-7871



9 771511 787001

Malaysian Palm Oil Board, Ministry of Plantation Industries and Commodities, Malaysia
P. O. Box 10620, 50720 Kuala Lumpur, Malaysia. Tel: 03-8769 4400 Fax: 03-8925 9446 Website: www.mpub.gov.my



Cattle Introduction

The behaviour of newly introduced cattle in the pen must be observed. The cattle need time to familiarise with the new surrounding including new handler, cleaning schedule, feeding routine and space. Tags are fixed for identification and record purposes. Place the ear tag (two-piece type) between the cartilage ribs of the ear.

Feeding

Feeding is the most important activity that determines the overall cattle performance. The main source of cattle feed is from processed Napier which contains energy, protein, minerals, vitamins and fibre. *Figure 3* shows cattle feeding on chopped Napier *ad libitum*. Cattle are fed at least twice a day to optimise intake efficiency. The minimum amount of feed must be more than 3% of the cattle body weight. Additional feed is given to lactating cows and growing calves. Chopped oil palm fronds can be used as green roughage in case of insufficient supply of Napier grass.

Palm kernel cake (PKC) pellet used as supplemental feed is given at the rate of 1.0 kg per head. PKC pellet is also given when Napier grass cannot be harvested such as during bad weather. Drinking water and mineral licks are offered to the cattle *ad libitum*.

Animal Health

The cattle must be monitored daily for casualties or injuries. Their habits such as eating, drinking, mating, calving and social behaviour are also observed. Any abnormalities must be recorded for corrective action. Healthy cattle have shiny hair coat, a fair amount of flesh and showing



Figure 2. Napier grass after first harvest.



Figure 3. Cows feeding on chopped Napier grass.

good behaviour. Human and vehicle movements in the farm must be controlled to reduce spread of infectious diseases. Diseased or problematic animals must be treated according to the good animal husbandry practice. Dead cattle must be evaluated by the Department of Veterinary Services (DVS) diagnostic laboratory for disease confirmation.

Breeding

Mating is by natural means with one bull serving 25 cows in the same pen (*Figure 4*). Pregnancy diagnosis is conducted three months after mating. Non-pregnant cows are treated for reproductive failure.

Calves Management

Upon calving, the mucus is removed immediately from the nose of the new born calf. Then, the umbilical cord is dipped with iodine solution and the calf weighed. The new born calf should obtain colostrums from its dam within 2 hr. If the calf does not obtain milk from its dam, milk replacer must be given. All dams and calves must have good feed ration and water. The calves are allowed to stay with their dams until weaning. Weaning is recommended up to 7-8 months old. Weaned calves are transferred to the calves pens (*Figure 5*).

Farm Record

A proper farm record should be kept for monitoring and evaluating of the project performance. Details such as cattle stock, breeding, calving, mortality, feeding, treatment, inputs used and sale should be recorded.



Figure 4. A good bull for natural mating.

TECHNICAL PERFORMANCES

Results from an intensive cow-calf integration project indicated that yellow cattle had high calving (85%) and low mortality rates (5%). The calves mortality was due to *Brucella* sp. infection on their dams. For adults, no incidence of mortality was recorded throughout the five-year project. Carcass analysis indicated that meat percentages of male calves fed with Napier and PKC were 52.3% and 57.1% respectively. The proportion of meat against bone of yellow cattle was 74% and 26% respectively which was higher, compared to that of the Kedah-Kelantan cattle. Technical performances of yellow cattle are within the acceptable limit.

ECONOMIC VIABILITY

The estimated total cost of 10-year project is RM 502 032. The expected total gross income of the project is RM 877 695. The income mainly comes



Figure 5. Calves are placed in the calves' pen.

from the sale of fattened cattle. All calves born are fattened before sale. Forty adult calves are expected to be sold every year starting from the third year. The net present value at 10% discount rate was RM 107 400. This project gave an internal rate of return (IRR) of 19%. The benefit cost ratio was 1.75 with the payback period of six years.

CONCLUSION

The intensive cow-calf integration system can increase the stocking rate of cattle. Ten hectares of double avenue oil palm planted with Napier can accommodate 132 heads of cattle at any one time. The yellow cattle cross-breed was found suitable to be reared using this system. This breed recorded high calving rate and low mortality rate. Financial analysis indicated that this project is technically and economically viable.

For more information, kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-8769 4400
Fax: 03-8925 9446
www.mpob.gov.my