

INTEGRATION OF YELLOW CATTLE IN OIL PALM

by: KAMIL AZMI TOHIRAN; SUBOH ISMAIL; RAJA ZULKIFLI RAJA OMAR; WAHID OMAR and ZULKIFLI ABDULLAH



MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2008

MPOB TT No. 410

Optimizing land use in oil palm plantations is becoming increasingly important to maximize income from the crop. In 2000, MPOB introduced the integration of cattle in oil palm, and adoption of the practice has been good.

In 2003, to upgrade the integration model, MPOB imported Yellow Cattle from China, a breed known for its hardiness and good adaptability to tropical climates. A total of 828 Yellow Cattle cows and 50 Brahman-KK (Kedah Kelantan) bulls were introduced into an area of 4000 ha in Ladang Sungai Gayung and Ladang Sungai Marung in Pahang, in a system of rotational grazing. The cattle calving, mortality rates, temperament and oil palm parameters were recorded. The overall performance of the breed was very promising with the cattle adapting well to the oil palm environment. The calving rate was high (>74%), and the herd and calf mortality rates low (2.0% and 2.1%, respectively). The trial showed that rearing Yellow Cattle under rotational grazing in oil palm is profitable, and the practice is, therefore, highly recommended for oil palm owners.

METHODOLOGY

As young oil palm is very susceptible to damage by livestock, cattle should not be integrated in the crop under five years old. The integration model proposed is based on smaller breeding stock size which running 100 cows with five bulls in 400 ha of oil palm, in paddocks enclosed by electric fencing. This is the minimum economic size possible for this project.

Breeding Stock and Facilities

Selecting good quality breeders is essential to the success of the project. The cattle have to be screened for diseases that may affect their produc-

tivity, such as brucellosis and Johnne's disease. As a precaution, the Yellow Cattle imported were vaccinated against foot and mouth disease (FMD), serotypes O, A and Asia 1. On arrival on the estates, they were treated against Helminthes and external parasites with Ivermectin Pour-On. To ensure easy setting up of the paddocks for optimum grazing, two portable sets of electrical fences are required. Each set comprises an energizer, a wet cell battery, insulated rods and polywires. Other facilities required in the system are a water tank, portable handling yard and portable feed and water trough.

Grazing and Oil Palm Management

Before the cattle can be released into the paddock, they would need to be familiarized with the electric fence. This can be done by confining them for a day in a control yard of about 10 ha, with a perimeter of a single line (Gauge 14) poly wire charged by a 60N 12-volt rechargeable lead battery. The plantation area is divided into several paddocks. With the cattle grazing one block, the next must already be ready for the next day's grazing. The rotation must be sufficiently long for the grasses to have recovered before their next grazing. This would normally require 60-80 days depending on the grasses available (*Figure 1*). The oil palm is managed under standard estate practices. For the purpose of this study to monitor the effect of the cattle on the soil properties, soil compaction and nutrient levels were evaluated (*Figure 2*).

Daily Operation and Breeding Management

One worker is required to look after 100 breeding cows in daily operation. The cattle are only allowed to graze one paddock a day to optimize the grazing (*Figure 3*). Besides looking after the cattle, the worker can also do some field work. The ungrazed grasses/weeds are removed, either chemically or by slashing. The bulls are allowed to run

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: 03-87694400

Website: www.mpob.gov.my

Telefax: 03-89259446



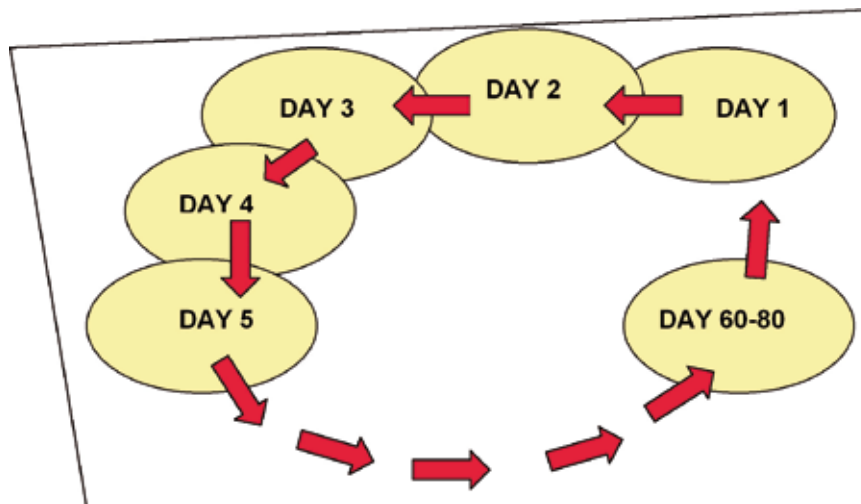


Figure 1. Rotational grazing map.

and mate freely with the cows at all times; the bull: cow ratio should be 1:20. Therefore, each herd of 100 cows would require five bulls. To avoid inbreeding in the herd, the bulls are replaced every three years. The sale of male calves at about 1.5 years old will also minimize inbreeding.

Pregnancy diagnosis is done every six months and the cows that are infertile culled. A mineral block and water must be available at all times. To evaluate the individual animal performance, behaviours such as feeding, mating and calving need to be monitored. All the animals are weighed every six months and tested for brucellosis, FMD, Johne's disease, salmonellosis and tuberculosis one year after arrival in the estate.

Yellow Cattle Characteristics

The Yellow Cattle were observed to be hardy, docile and easy to manage (Figure 4). The calving rate was high (>74%), and herd and calf mortality rates low (2.0% and 2.1%, respectively). There were no detrimental effects of the cattle on the oil palm growth and production, soil compaction and nutrient levels.

BENEFITS

- Generates additional income of RM 30 500 yearly from cattle sales;
- Reduces weed control cost (labour and herbicide) by 60%-70%;



Figure 2. Monitoring soil compaction.



Figure 3. Cattle grazing in paddock enclosed by electric fence.



Figure 4. Yellow cattle are hardy, docile and easy to manage.

- Cattle dung and urine improve the soil fertility; and
- Eco-friendly approach for sustainable palm oil production.

ECONOMIC ANALYSIS

The total cost for running a herd of 100 cows and five bulls in a 400 ha area is RM 202 747. The pay-back period is around six years with an internal rate of return (IRR) of 19%. The net present value (NPV) at a 10% discount rate is RM 87 953.

CONCLUSION

The performance of Yellow Cattle under rotational grazing in oil palm is very encouraging. The breed adapted well to the oil palm area. Integration of the cattle with oil palm is economically viable. Thus, it is recommended to group smallholders and plantations. The project would increase the crop income not only by reducing the weeding cost but also from the sale of animals which would also reduce the national imports of beef.

For more information kindly contact:

Director-General
MPOB
P. O. Box 10620
50720 Kuala Lumpur, Malaysia.
Tel: 03-87694400
Website: www.mpob.gov.my
Telefax: 03-89259446