

DEVELOPMENT OF INTENSIFIED BEEF CATTLE FINISHING IN UGANDA

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SUMMARY

Increasing human and livestock populations are exerting an unprecedented pressure on land in Uganda. Land use projections show that the once vast tracts of unutilized land, including those reclaimed from tsetse, would be brought under production within less than ten years. Intensified use of grazing land and intensified stock management has become a pressing need in order to increase beef output. A vigorous program of ranch development has been taken up by the Minister of Animal Resources. At present there are 227 developed ranches covering some 420,000 hectares of grazing land. These ranches have established a commercial pattern and have opened up opportunities for intensive pasture and animal management. Further ranch development is underway at a yearly rate of about 30 ranches of 1,200 hectares each.

Production parameters established on some ranches indicate that large increases in yearly offtake are possible through intensified animal management, i.e., increased fertility, lowered mortality and use of improved or exotic bulls. Yet, natural grass cover does not appear to sustain a growth rate that is needed to finish slaughter stock at an age of 2 1/2 years or less. Except in situations of severe dry season or drought, supplementary feeding during dry season does not present an economic possibility when compensatory weight gains are taken into account. Experiments with pasture improved show that upto 100 percent increase in stock carrying capacity can be economically brought about but the increase in weight gain per animal is of the order of 10-20 percent per year.

Extensive grazing and ranching has been and is a minimum-cost proposition for beef production. Recent beef shortages and opening of export opportunities have hiked beef prices and have increased demand for quality. Feeding of slaughter stock for rapide finishing has become economically feasible. Feedlot finishing of stock would result in i) production of quality carcasses for city and export markets, ii) greater utilization of by-products like sugarcane molasses and cottonseed, iii) intensified use of ranch land through forage and grain production, and iv) sale of stock at younger age from grazing areas; thus increasing the number of breeding cows and the offtake. As a beginning in this direction, an experimental, 750 cattle a year, molasses-based feedlot has been established whose aim is to add 100 kg of bodyweight in about four months. A 10,000 cattle pilot feedlot is to be developed shortly. Economic models are being studied to develop patterns of more intensive feedlots.

The development strategy for intensified beef production presently being followed is that of establishing a stratified beef cattle industry. The ensuing programmes include developing a marketing system to extract store cattle from breeding herds in transhumance or sedentary grazing areas (including ranches), developing finishing ranches in areas of short dry season, promoting molasses-based feedlots near sugar factories and developing self-contained units for forage-cum-grain finishing. Main constraints in the establishment of feedlots of the last category are the capital and machinery support available in the country. Large fluctuations in availability and price of feedstuffs caused by export, especially of protein sources, pose a major problem in the operation of feedlots.

RESUME

Développement et intensification de l'embouche en Ouganda

L'augmentation de la population et du cheptel en Ouganda exercent une pression sans précédent sur le pays. Les études sur l'utilisation du sol montrent que les vastes espaces de terres autrefois inoccupées (y compris celles gagnées sur les zones de Tsé-Tsé), seront utilisées dans moins de 10 ans. L'utilisation intensive des pâturages ainsi que l'amélioration systématique des techniques d'élevage deviennent de plus en plus urgentes. Afin d'accroître la production de viande bovine, un programme dynamique de multiplication des fermes d'élevage, a été mis sur pied par le ministère des Ressources animales. A l'heure actuelle, il y a deux cent vingt-sept fermes d'élevages couvrant une superficie de 420 000 ha de pâturages. Ces fermes, groupées en un réseau commercial, ont ouvert la voie à une utilisation intensive des pâturages et du cheptel. D'autres fermes sont en voie de création au rythme annuel d'environ 30 par an couvrant chacune 1 200 ha.

Les paramètres de production, établis d'après un certain nombre de ces fermes, indiquent qu'une augmentation considérable de la production annuelle est possible grâce à l'amélioration du cheptel: augmentation de la fertilité, diminution de la mortalité, importation de taureaux améliorés ou de taureaux exotiques. Toutefois, la couverture naturelle en herbe ne semble pas suffisante pour maintenir le taux de croissance nécessaire à la production de bétail susceptible d'être abattu à l'âge de

deux ans au moins. Sauf en cas de sécheresse ou de saison sèche excessive, un complément de fourrage ne s'avère pas rentable quant à l'augmentation de poids qu'il est supposé fournir. Des expériences sur l'amélioration des pâturages ont montré que l'on peut, de façon économique, augmenter jusqu'à 100 p. 100 le nombre de têtes mais que le gain de poids par tête n'est que de l'ordre de 10 p. 100 à 20 p. 100 par an.

L'élevage en pâturage extensif était et reste une solution à la production de bœuf à moindre frais. De récentes pénuries de viande de bœuf et l'ouverture de facilités d'exportation ont fait monter les prix du bœuf et fait augmenter la demande en qualité. L'embouche de bêtes destinées rapidement à la boucherie est ainsi devenu économiquement rentable. La préparation du bétail à la boucherie, par un apport supplémentaire de nourriture, aurait pour résultats :

- 1) La production de viande de qualité pour les villes et l'exportation ;
- 2) Une utilisation accrue des sous-produits comme les tourteaux de cannes à sucre et de graines de coton ;
- 3) Une utilisation plus intensive de la surface disponible sur les fermes par la production de graine et de fourrage ;
- 4) La vente de bétail plus jeune, ce qui permet d'augmenter le nombre de vaches reproductrices sur les lieux de pâturage.

A titre expérimental dans ce domaine, un élevage ayant une production de 750 têtes par an a été créé où le bétail est nourri à base de tourteaux, ce qui doit accroître le poids des bêtes de 100 kg en 4 mois environ. Une ferme pilote, d'une production de 10 000 têtes, doit être créée sous peu. Des études sont en cours qui permettront de dégager les données d'une technique d'embouche plus intensive.

La stratégie adoptée pour intensifier la production de viande bovine est à l'heure actuelle la mise en place d'une industrie de la viande bovine planifiée sur plusieurs plans. Les programmes à venir comprennent la création d'un système de marché par lequel on séparerait les jeunes bêtes des troupeaux transhumants ou de ceux des fermes d'élevage intensif pour les transférer dans des centres d'embouche qui seraient créés dans les régions de courte saison sèche. Là, les bêtes auraient une nourriture composée à base de tourteaux (près des usines à sucre) ou de fourrage de céréales. Le principal inconvénient à la création de ce genre de fermes se situe au niveau des capitaux et de l'équipement disponible dans le pays. Les fluctuations considérables dans l'approvisionnement ainsi que le prix des fourrages concurrencé par l'offre à l'exportation, posent un problème majeur pour la bonne marche de ces centres.

The major premises that led to encouraging extensive grazing and ranching in Uganda were that :

- i) large tracts of good grazing land, some 18 percent of total land area remained unutilized ;
- ii) all the area reclaimed from tsetse, 32,020 square kilometers so far, must be occupied as soon as possible ;
- iii) ranching enterprise is not capital intensive, has an attractive rate of return and produces beef at low cost ; and that
- iv) ranching is a major advance towards efficient production compared to pastoral system.

A look at the present land use situation and trends indicates the following :

- i) Uneven distribution of human and livestock populations has contributed considerably to the seemingly surplus grazing land. Overgrazing is prevalent in some areas while some others are hardly grazed. Given the present yields and stocking rates and presuming an even distribution of the populations, there may not be very much surplus land ;
- ii) If one considers the present trends in land settlement and rates of increase in areas under cultivation and grazing, it becomes apparent that most of the presently unutilized land would be brought under production within ten years (fig. 1).

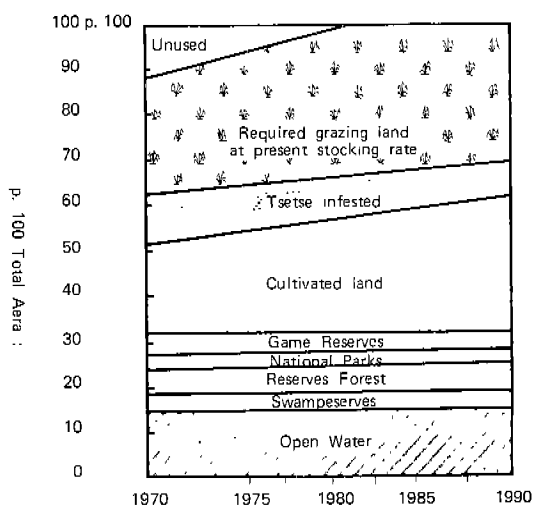
It is obvious that Uganda has reached a stage where intensified land use is essential for sufficient food production. In order to meet the increasing demand for beef, both for local consumption and export, intensified systems of production are being developed and established as commercial units.

Development of the following production systems is underway :

- i) Ranching, which enables intensified animal and grazing management ;
- ii) Finishing on improved pasture, in areas that have a favourable rainfall pattern ;

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Estimated future land use in Uganda



(Figure is based on working Paper No. 4 of FA/UNDP Project UGA/508. Kampala).

iii) Finishing based on available by-products like sugarcane molasses, cottonseed cake, etc., in areas close to the source of supply ;

iv) Finishing based on forage and grain produced.

The commercial application of any of the above systems would depend on various situations of the availability of capital, machinery support, and market for the quality of beef produced.

Intensified use of stock and grazings land

Ranch development work being carried out for the last seven years or so has established a commercial pattern for intensive pasture and animal manage-

Estimated number of breeding cows and liveweight offtake from a 1200 hectares ranch under various management situations*

	Bulls used			
	No. breeding cows **		Liveweight offtake (tons)	
	Boran	Exotic	Boran	Exotic
<u>60 p.100 Weaning rate</u>				
W0	399	380	62.1	64.3
W1	356	337	64.4	67.5
W2	312	283	65.5	68.6
W3	270	251	62.2	65.0
<u>80 p.100 Weaning rate</u>				
W0	365	360	62.1	64.3
W1	319	299	77.7	82.2
W2	273	254	76.9	81.2
W3	231	213	71.4	75.1

* Common management situations are 2 p.100 mortality, sale of heifers after mating and a stocking rate of two hectares to a mature stock unit.

** Large - sized zebu cows.

W0 = Sale of steers at weaning
W1 = Sale of steers one year after weaning
W2 = Sale of steers two years after weaning
W3 = Sale of steers three years after weaning

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Cost of production and per hectare output of liveweight (Lwt.) from various enterprises estimated through model studies

	Approx. cost per Kg Lwt produced (U. Shs.)	Lwt. output per hectare per year (kg)
Pastoral system, with epidemics controlled	-	30 - 40 *
Ranching = breeding-finishing on natural range	1.20 - 1.30	60 - 70 *
Finishing on natural pasture	1.30 - 1.35	175 - 225
Finishing on legume - oversown pasture	1.35 - 1.40	325 - 375
Finishing on grass - legume sown pasture	1.50 - 1.60	425 - 475
Molasses - based finishing with restricted grazing	1.70 - 1.90	3,500 - 4,000 **
Forage - maize based finishing	2.20 - 2.50	600 - 700 **

* Area includes bush, rocks, swamp grass, streams, etc.

** Includes gains from purchased feedstuffs like molasses, cottonseed cake, etc.

ment. Table 1 indicates the extent of increase in offtake that may be brought about through improved animal management. Well managed ranches in the country have attained weaning rate of 80 percent or more, calf mortality of 2-3 percent, adult mortality less than 1 percent and considerable improvement in growth and stocking rate. Improved management has made possible the use of exotic or grade bulls to the ranchers. There are more than a thousand cows of European beef breeds in the country and recently a herd of Charolais heifers was imported from France. Production possibility on these ranches has reached a level where the liveweight output per hectare per year can be as high as 70 kg or more from natural range. It is possible to finish slaughter stock at about three years of age.

Numerous experiments have been conducted in Uganda for the last 20 years or so to improve the stock carrying capacity of land and growth rate of

stock through pasture improvement. Besides bush control and uprooting of undesirable grass like *Cymbopogon afronardus*, oversowing of natural pasture with legume and sowing of grass-legume mixture has been shown to be economical and practicable. Such procedures of pasture improvement result in substantial increase in stock carrying capacity but the increase in per animal bodyweight gains is not sufficiently high to allow finishing of slaughter stock at a year earlier (i.e., a dry season earlier) in age. Finishing enterprises based on improved pasture may, however, be planned for store cattle extracted from grazier areas.

Intensified land use, whether through ranching, pasture improvement or growing fodder and feeds, involves increased capital investment and higher operating costs. Table 2 shows that intensified enterprises would result in higher liveweight output per hectare (also per animal per day) but the cost per

unité output would also go up accordingly. Higher price for quality beef and quicker turnover of capital makes such enterprises economically feasible.

Stratification of beef cattle industry

There are regional differences in ecology as well as in the availability of land, capital, transport and machinery support services. Areas with lower rainfall or longer dry season are suitable for breeding or cow-calf operations while the rest of the areas can favourably support rapid growth and finishing. Development of finishing operations will have a favourable effect on the output from grazier areas and ranches. These breeding areas would be concentrating more on producing store cattle (weaners or 1 1/2-2 year olds), the number of breeding cows will increase (as indicated in Table 1) and larger number of stores and heifers would be made available.

Increasing demand and prices for quality beef have created an economic climate favourable to the development of a stratified beef cattle industry. Production system for breeding as well as for semi-intensive or intensive finishing in various areas are being evaluated from the point of view of relative efficiency and opportunity for investment. After studying the models of various finishing systems, the most promising ones are being established as pilot

feed-lots. A semi-intensive system of feeding, with restricted grazing, of molasses, urea, and cottonseed, cottonseed cake or fish meal appears to present an attractive opportunity for investment. Intensive feed-lots which grow their own forage and grain may also be economically feasible if operated efficiently. Once production systems are formulated and demonstrated a credit and market system will have to be developed in order to promote commercial enterprises.

Intensive feed-lot enterprises are capital intensive and require foreign exchange for machinery and other imports. They also require short-term credit for the purchase of stock and feedstuffs. However, the turn-over is as rapid as cash crops. It appears that through programmes of supervised credit, capital can be made available in the near future. Machinery support services need to be developed further. The Ministry of Animal Resources is developing marketing system for the extraction of store cattle and for ensuring favourable prices for better quality beef. The prices of protein feeds fluctuate widely due to the fluctuating export situation. These can be regulated and production boosted, especially of fishmeal from the large quantities of discarded catches. There is a high potential for intensive beef production in Uganda and prospects for its development are not discouraging.