BOOK REVIEW

MILK AND BEEF PRODUCTION IN THE TROPICS

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This book is written by two men who have been involved in cattle production in East Africa (Kenya and Uganda) at Universities, in extension work and as a private veterinarian, for more than 20 years. The book is directed towards degree and diploma students and also farmers.

There are thirteen chapters. 1. Climate and the Animal. 2. Plant ecology and animal enterprises. 3. Pasture. 4. Water and bulk feeds. 5. Concentrate feeds. 6. The principles of rationing. 7. Minerals and vitamins. 8. Breeding for production. 9. Calf rearing. 10. Milk production. 11. Beef production. 12. Structural aids to stock production. 13. Livestock records.

In general the book successfully achieves its objectives. They are not up to date on some recent research findings (e.g. they state "Selenium may be essential", while most nutritionists have been convinced that it is, for the last 10 years). However such omissions are not of primary importance in a book written for this level of reader.

Readers in P.N.G. must bear in mind that this book is written about Eastern Africa, and cattle husbandry there has a number of important differences. Some of these are as follow: The people of Africa have a tradition of cattle husbandry over many centuries. This is not an unmixed blessing; traditional views are very hard to change. Africa seems to be the home of most of the worst cattle diseases. The constant reference to these in the text should be taken by P.N.G. readers as a warning to maintain vigilance in excluding these diseases. Eastern Africa is not nearly as wet as P.N.G. The plant ecology maps show very considered as a possible component of cattle little rainforest in Eastern Africa, while P.N.G. is marked as more than half rainforest. Rainfall in rainforest in Africa is 1800 mm to "over 3000 mm". In P.N.G. there are large areas with rainfall from 4-5000 mm. Some of the climate areas he describes (desert, thorn scrub) do not occur in P.N.G. while dry savannah, as they describe it, is rare in P.N.G.

There are many other areas of the tropics where cattle are raised, South and Central America, India, South-east Asia, which may have as much or more relevance to P.N.G. For example, there is no reference to the use of cattle for draft. The successful use of cattle for draft in India and South-east Asia must be production in P.N.G.

The chapter on Climate and the Animal (Ch. 1) is perhaps a little brief. Its position in the book attests its importance. The authors rightly criticize the importation of European livestock to "upgrade" the local stock before determining whether the local low performance is a characteristic of genotype or environment.

Chapter 2 describes the range of environments, which, as mentioned, include some not found in P.N.G. The descriptions adequately cover the characteristics and limitations of each environment.

Chapter 3, Pasture, is all too short, but this possibly reflects the shortage of accurate information on grasses under tropical conditions. The authors are in favour of purposeful burning, not indiscriminate fire lighting. On the management of pastures, they refer immediately to the use of mowing, which is not practicable in much of P.N.G. Their advocacy of rotational grazing has not been borne out by research in tropical Australia. The use of hay and silage is made to sound easy. Most experience in the tropics seems to be that good hay-making weather is rare where the pasture is at a stage to make good hay, and the low sugar content of tropical grasses makes the production of silage difficult. This chapter, with its mechanical emphasis, is not appropriate to the likely development of cattle production here.

Chapter 4 includes a section on tropical legumes, and describes a number of beans grown as crops then fed off to cattle, a development which may occur in P.N.G. *Leucaena glauca* and *Leucaena leucacephala* are described as 2 species, not one (*L. leucacephala*). No details are given of its management, which proves difficult in practice. The discussion of

pasture grasses and legumes is very brief, to the point of inadequacy.

The chapters on concentrate feeds and rationing (Ch. 5 and 6) collect together information on tropical feedstuffs and pastures which is not often found in conventional nutrition texts and this section could prove very useful. Chapter 7 on Minerals and Vitamins contains the expected information, with little that is specific to the tropics. In the wetter tropics, such as P.N.G., it is unlikely that Vitamin A deficiencies will occur.

The chapter on breeding is practical, emphasizing selection for characters of economic value and is well worth reading. Calf rearing for dairying is dealt with (Ch. 9). Milk production (Ch. 10) is the longest chapter and covers the material well. As in the section on pasture management, a high degree of management, mechanization and fodder conservation is described, but in the case of dairying this may be justified.

Chapter 11, Beef Production, describes several systems of cattle and grazing management, discussing the use of indigenous breeds, the assessment of breeder efficiency, and feedlotting using agricultural wastes such as molasses. The use of hormone implants is discussed.

Chapter 12 has some useful points on the construction of yards, fences, etc. A notable omission is the need for a kunai roof over the crush, to keep man and cattle cool. The section on fencing, watering and buildings has a lot of useful points, especially in dimensions of structures.

The final chapter stresses the importance of record keeping and describes some systems. These appear too complex for smallholders' use.

In general the book is informative and can be recommended for diploma and degree students. As is to be expected in a book by an animal husbandry man and a veterinarian, the weakness is on the pasture side, and an alternative source of information should be sought for this aspect of animal production.

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