

CHAPTER 1 SELECTION AND CARE

1.2 SELECTION CRITERIA FOR DRAUGHT ANIMALS

1.2.1 SELECTION OF CATTLE FOR WORK

IMPORTANCE OF ADAPTATION

Humped, Zebu cattle (*Bos indicus*), non-humped cattle (*Bos taurus*) and their crossbreeds can all be used successfully for draught. In general, local, indigenous cattle breeds will be more suitable for work on smallholder farms than temperate breeds or their crosses.

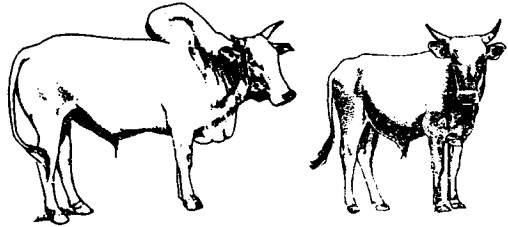


Fig. 1 A humped Zebu ox (left) and a humpless taurine (right). Source: after PROPTA, 1991

Animals generally live in a delicate balance with many stress-causing aspects of their environment, including heat, diseases and lack of good quality feed. The additional stress of work can seriously disturb this balance unless the animals are very well adapted to that particular environment. Local cattle breeds are most likely to be well adapted to the prevailing climate, to the local disease challenge, to the quality and quantity of available food and to the traditional management systems.

In most of Africa, the humped, Zebu cattle are very well adapted, but the larger, humpless exotic cattle are less suited to village conditions. The main exception is in humid West Africa, where the indigenous cattle breeds (such as the N'Dama) are small, humpless and resistant to the disease trypanosomiasis. These particular humpless breeds are actually more adapted to the local environment than the larger and stronger Zebu cattle.

SIZE AND BREED

Under good conditions, larger animals can perform more work than smaller animals. Animals of temperate breeds, and their crosses, are often bigger than local breeds. With high levels of management, such large animals can make good work animals in favourable environments.

Most smallholder farmers are not looking for specialized work animals. They want animals with many different characteristics, including the ability to survive under simple management conditions. Large animals are more expensive and require more food. They entail greater risk (eg the death or incapacity of one work animal is more serious for a farmer who owns two large

animals than four smaller ones). Also, as draught animals often have multiple social and economic functions, a large number of smaller animals is useful for economic flexibility.

Local animals in villages are often small. This causes some extension staff to suggest that the local animals should be replaced with imported animals, or improved by crossbreeding or selection. This needs to be thought through carefully. The size of village animals is often closely related to the environment. Work animals of exactly the same local breeds are generally much bigger when they are raised on government stations or agricultural colleges. This suggests that much could be done to improve animal size by improving village management. Furthermore, if the environment (food availability and disease) causes the well-adapted local animals to be small and stunted, it would probably have an even worse effect on exotic animals or crossbreeds which would be less-well adapted.

Large, exotic breeds are probably preferable in those few cases where climatic, nutritional and disease stresses are low (for example on highland plateaux) and where the animals are maintained entirely for specialized work functions (for forestry, for road construction and for full-time transport on commercial farms). Crossbred local/exotic animals are usually intermediate, being larger than local animals but less well adapted. Sometimes such animals are easily and quite cheaply available (for example surplus males from a dairy programme). Farmers who have adequate feed and good health care facilities may well try using such animals for work.

In most other cases, small farmers will be better off with the available indigenous breeds. They can select individual animals that suit their needs and budgets. Farmers can achieve considerable improvements in size through supplementary feeding, if this is economically justified.

SEX

Males are heavier than females within the same breed and age groups. Bulls are the strongest work animals. Uncastrated bulls are regularly used in some countries, including northern Nigeria. Castrated bulls (known as oxen, steers or bullocks) are more commonly used for work. They are almost as strong as bulls, but are less aggressive. Oxen are generally the choice of transport entrepreneurs and those farmers with need for work animals throughout the year.

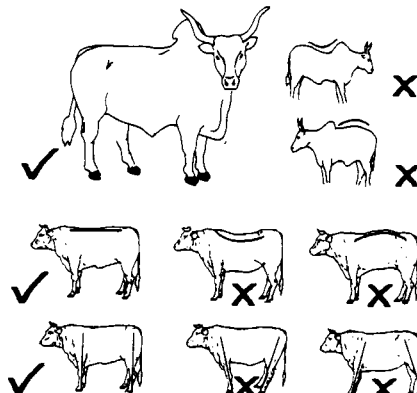
Females (cows) can be used for draught. They are not as strong as oxen and they need particularly good management if they are also to be reproductively efficient. It is necessary to

plan the work period, so that the cows do not have to work hard in their last two months of gestation, or immediately after calving. The main advantage of cows is that they can produce milk and calves as well as work. As farming systems intensify, and management improves, cows tend to be increasingly used for work. In some countries in Asia, about 80% of work animals are females. In several parts of west, central and southern Africa it is now quite common for cows to be worked, and up to one third of work animals in some villages may be females.

In theory, a working cow is unlikely to give as much milk or as many calves as a non-working cow, if both are maintained under ideal conditions. In practice, the close attention given to working cows means they can sometimes achieve a better reproductive performance than non-working animals maintained in herds. Whatever the reproductive performance of a working cow, it will always be better than that of an ox. Thus replacing existing oxen with cows can make good economic sense, particularly for farmers who only use their animals for a short time each year. Cows are therefore likely to be the choice of farmers who know how to manage their animals well, who have few animals but do not have a much work for these animals each year.

CONFORMATION

Conformation refers to the shape of an animal's body. Cattle should have good solid legs and knees. Animals with bowed legs and/or knock knees will have difficulty in walking and should not normally be used as working animals. The legs should be straight and well muscled, with strong, thick hooves that do not separ-



TEMPERAMENT

Animals should have a good temperament and not be aggressive towards people and other animals. Bulls may exhibit this character as they become older and so castration is generally practised with male animals. Castration is generally performed at between two and four years of age, depending on the breed and growth rate. Castration at too early an age will cause stunting of growth. A certain amount of lively spirit in an animal is considered good, and very placid animals may end up being lazy and lethargic.

AGE/WEIGHT

The age/weight ratio should be considered in selecting an animal for draught. An older animal (say 4-5 years) will be hard to train and its working life will be shorter than a younger animal (say 2-3 years). In addition, an older animal will have reached its mature weight, thus limiting any profit from the eventual sale of the animal for meat. While a young animal will be light, cheap, easier to train and have good potential for growth, it will not reach its full strength for a year or so, and so its work output will be less than that of a heavy animal.

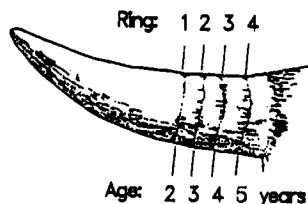


Fig. 4 Annual growth rings on the horn of an ox. Source: after PROPTA, 1991.

From the age of two years, one growth ring appears each year (Fig. 4).

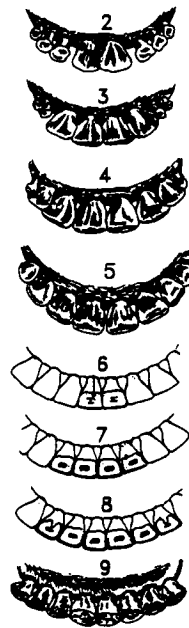


Fig. 3 The teeth of oxen at different ages.

Source: after Poitrineau, 1988.

DETERMINING AGE

The best method of estimating an animal's age is to examine the incisor teeth of the lower jaw (Fig. 3). At about 3 months young cattle have a full set of eight milk teeth or incisors. These are replaced as the animal becomes older. Beginning at about 2 years the first two permanent incisors erupt. At 3 years the second set erupt and at 4 years the third set are visible. At about 5 years the animal has usually reached maturity and the last two milk incisors are replaced by permanent corner teeth. As the animal becomes older its teeth show different wear patterns. The more wear, the older the animal. An alternative method of estimating an animal's age is to count the rings on the animal's horns.