Tillers'
Tech*Guide*

Selecting and Teaming Oxen

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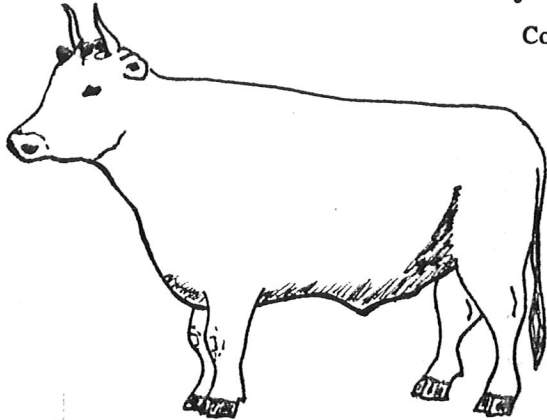Copyright, 1992: Tillers International

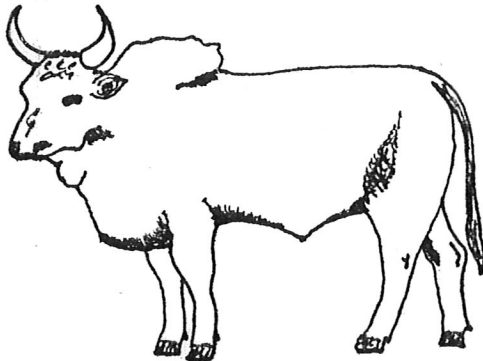**FIGURE 1:** *A mature ox with good conformation. Note the straight back and legs, and strong neck and head.*

FIGURE 2: *An African Zebu ox with strong conformation.*

Challenges in Selecting Oxen

The satisfaction and challenge of working a yoke of oxen begins with the selection of well-matched animals. A well matched team of carefully selected animals are a joy to work, can be used for a wide diversity of tasks, and can be of great practical value on the farm.

There are perhaps as many combinations of criteria for selecting and teaming steers as there are teamsters. Each teamster may be looking for specific characteristics to suit his or her particular needs and tastes. For some, strength and temperament may be the only considerations. For others, appearances may play an important part in the selection process. Some oxen are needed for work; others are wanted for show. Some teamsters have strict limits to the time and money they can devote to searching for and purchasing a team, while this may not be a factor for others.

The ultimate challenge and measure of success in selecting and teaming oxen is to create a team that works well together and moves as a unit for a reasonable period of years. Selection and teaming should not therefore be regarded as two separate or distinct processes; the match of the animals must always be considered while the search for two steers is underway. While individual characteristics are

important, the teamster is looking for a match whose yield is greater than the sum of its parts. Finding that synergy is the real challenge.

Whatever the uniqueness of each teamsters' needs, wants, and conditions may be, there are some steps and considerations that the novice teamster may want to include in his or her selection and teaming process. This Tech*Guide* is intended to assist the novice with these steps and considerations. We begin with some thoughts on selection criteria and pre-selection preparations. We then discuss the characteristics of the "ideal ox". Finally, considerations and techniques for teaming and matching cattle to work as oxen are explored.

Pre-Selection Preparations

Before proceeding to the nearest cattle breeder with a trailer in tow, some questions need to be raised and explored. Among the more important questions at this stage in the process are:

What tasks are the oxen to perform?

What breeds are well suited to these tasks?

Do I want to train a team or purchase a trained team?

How much time and money can go into the selection process?

Identifying the breeds best suited to your needs is the first step. Any breed of cattle can be trained to work as oxen. All breeds have their advantages and disadvantages; no one breed is the best for all purposes. Knowing what the oxen will be used for is

> ### Some Definitions
>
> **Steer** - a castrated bull.
>
> **Handy Steer or Calf** - responsive to commands.
>
> **Working Steer** - steer trained to work, less than 4 years in age.
>
> **Oxen** - cattle trained to work, 4 years of age or older (full set of adult teeth). Working cows and bulls are frequently considered oxen.

pivotal to identifying a suitable breed, unless you're already decided on a particular breed as your top priority. If your unable or unwilling to travel extensively, you will probably be limited to the breeds that are available in your area.

In the developed countries of the world, dairy and beef cattle have been bred heavily for production. Characteristics desirable for working animals have been neglected in that process. Dual-purpose breeds such as Devons and Shorthorns have not been subjected to such intense breeding practices and have therefore retained many favorable working animal traits.

Anyone considering working with oxen has probably given some thought to just what exactly he or she wants or needs to do with them. This is an important beginning to the selection process. If the animals are for show, the appearances of the animals may be critical while their ability to pull will be of little concern. If the animals are going to do cart work over great distances, animals longer in the legs and with good endurance will be appropriate. If the animals are going to stump and plow fields, shorter legs will be desirable for strength, yet they will still require a good stride for endurance. If a team is only going to pull extremely heavy loads six feet or less in

Table I Characteristics of cattle breeds used for oxen in North America.

Most Desirable = 1   Above Average = 2   Average = 3   Below Average = 4   Least Desirable = 5

Breed	General Characteristics	Ease of Matching	Temperament	Size	Availability
Shorthorn or Durham	common breed used for oxen; medium-sized breed; active & alert; mixed colors (red, white, roan); can be expensive & difficult to find; grow well on ordinary feed	2	2	3	2
Devon	medium-sized; shades of red; can be expensive & difficult to find; easy to match; very quick and alert; do very well on ordinary feed	1	2	3	4
Holstein	large dairy breed; rapid growth; coat matching can be difficult; relatively inexpensive & easy to find	3	3	1	1
Brown Swiss	large dairy breed; fleshy; originally selected for size, ruggedness; strong, sound feet & legs	3	3	1	3
Chianina	developed as draft animals; largest of cattle breeds; very fast growth, adults can be 6 feet at the shoulder; all white with black nose, tongue, switch; alert & relatively excitable	1	2	1	4
Ayrshire	medium-sized; red and white; unusual horns turn up & out; relatively excitable & very active; mature steers rarely weigh over 1,60 lbs	3	4	3	3
Hereford	originally draft animal, later bred for beef; medium-sized; red & white, little color variation; calm and easy; often yoked with head yokes	2	3	3	1
Jersey	bred as dairy animal; mature quickly; fine-boned, lack ruggedness; color varies from light gray to black; very active breed, least docile of dairy breeds	2	3	5	3
Dutch Belted	medium-sized breed; difficult to find, rarely used as oxen; medium temperament; black with continuous white band between shoulders & hips	1	2	3	5
Charolais	white beef breed; large, well muscled, large frame & bones; uncommon as oxen; make good work animals	1	3	2	3

pulling contests, then stocky breeds like Herefords and Hereford crosses may be in order.

General temperament, conformation, growth rate and size of breeds vary greatly and need to be considered carefully. These factors should be weighed relative to the anticipated uses of the oxen as well as the personal preferences of the teamster. There's no sense in purchasing a breed that is always going to walk too quickly for the wishes of their owner. These factors will be discussed in greater detail in subsequent sections. Table I lists some general characteristics of cattle breeds commonly used as oxen in North America.

Other factors affecting the selection of breeds may be potential resale value, and in tropical regions of the world, disease resistance. Trypanosomiasis, or "sleeping sickness", carried by the tse-tse fly, has until recently prohibited the use of oxen in tropical coastal regions where the disease is prevalent. Drugs to control the effects of the disease are now available, but veterinarian services are often unreliable in developing countries. Where the disease is still a threat, it's advisable to select indigenous or cross breeds that are resistant to the disease.

Another critical choice to be made is whether to train calves, train older animals, or purchase a

trained team. This may be a matter of choice or necessity. Training a team of calves can be challenging and rewarding, yet it requires consistency, patience, and a commitment of time on a regular basis. There is also at least a degree of uncertainty regarding the temperaments and conformations of 3-month old calves several years down the road. Slight defects that may be difficult to recognize in calves will become greater with age. The temperament and conformation of older animals are easier to determine, but the challenge of training older steers may not be desirable or appropriate for the novice.

Purchasing a trained team has some real advantages; not only can the animals' individual characteristics be assessed, but they can be assessed as a team. And if a trained team is what you need but not what you want, fear not; every team needs its training maintained and many team's training can be improved upon.

What's most important is that these questions be raised and explored prior to the actual selection process. The selection process will raise and answer additional questions for the novice, and in most cases, will require some adjustment of the original vision. Experienced teamsters can be of help in the process.

Temperament and Conformation of the "Ideal Ox"

Once basic questions of use and breed have been explored and some possible answers identified, an image of your "ideal ox" should begin to take form. This image is likely to be different to at least some extent for each teamster. There may be many different ideal oxen, but without *your* "ideal ox" in mind, you won't know it when you see it. As you look over different animals, compare them to your mental image of the ideal ox.

There are some basic elements of temperament and conformation to be sought and others to be avoided in the selection of individual oxen. A high spirited animal may suit some teamsters, but a mean animal can be dangerous. Or you may think you've
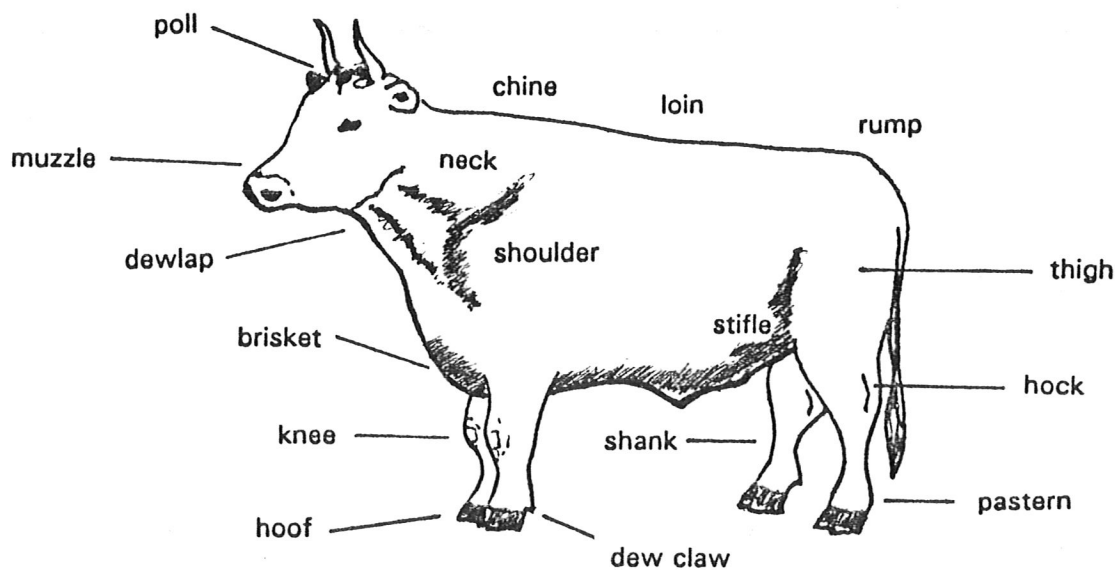

FIGURE 3: Identification of body parts of a mature ox with solid conformation.

found your ideal ox, but no one told you that feet were important, and the ox ends up at the packing house after two years of difficult training. The odds for danger, loss and disappointment can be reduced by informing yourself and applying your information carefully.

Judging the eventual conformation and temperament of calves may require more assumptions than judging those of older animals. The general rules that follow apply to both calves and older steers.

Temperament

Temperament refers to an animal's general nature or disposition. Temperament is both genetic and learned. Whenever possible, the responses of a potential ox or working steer should be observed in a variety of settings to best determine its temperament.

Cattle that have had some **kind handling** by people are generally easier to approach and train. These animals can be found in dairy herds, small hobby farms, and nomadic herds, rather than range herds. Dairy animals may also be cheaper than well-bred beef cattle.

Nervous and **mean** cattle are to be avoided. Nervous and mean animals will be difficult to train and make poor teammates. When moving through a herd of animals, a sudden movement of the hand will tell you something about each animal's temperament. Look for those that are attentive, curious, and approachable, or those that approach you, although you shouldn't expect an untrained steer or calf to behave as a pet.

Conformation

Conformation refers to an animal's physical form. All oxen and working steers should be sturdy, broad-chested animals with straight legs. The animals should be nimble and move without signs of lameness. The **back** should be straight and level, as should the area from the hip back to the tail.

The **neck** should be solid and strong, and the **head** wide and well developed. The nose should be wide with flaring nostrils for easy breathing and a wide bite. The under-jaw should be strong-boned, muscular, and well aligned with the upper jaw. Undershot, overshot, and twisted jaws will prevent the animal from grazing short grasses and could result in poor development.

Bad **feet** can lead quickly to lameness and are a recurring problem for teamsters in the United States. In developed countries, breeding programs have focused on meat and dairy production. Conformation in the feet and legs have been relatively neglected. This may be less of a problem in nomadic herds where bad feet and legs are naturally deselected.

The ideal ox stands on the front of its feet, and the feet are well-formed and preferably dark in color (an indication of hardness). The heels are high, forcing the ox to walk on the front or toes of the feet, continually wearing down the front and avoiding overgrown feet (Figure 4). Long toes prohibit an ox
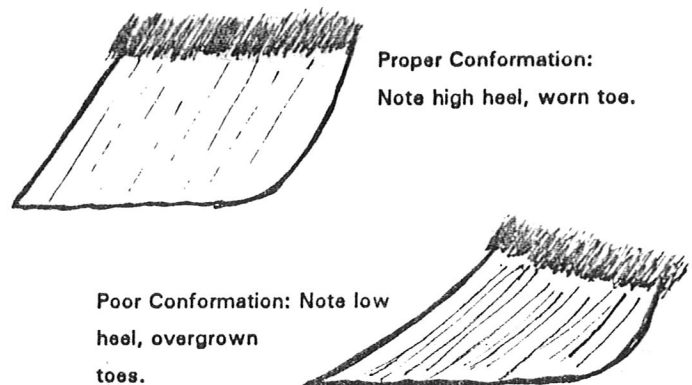

Proper Conformation: Note high heel, worn toe.

Poor Conformation: Note low heel, overgrown toes.

FIGURE 4: Proper and poor conformation of the feet.

from pulling properly, forcing the animal back on its heels. An animal that walks on the soft heels of the foot will not only have difficulty gaining traction, but will be susceptible to cracking and infections in the heel. Weak pasterns (between the hoof and the dew claw) predispose an animal to walking back on the heels. The pasterns should be short and steep to avoid this problem as illustrated in Figure 5.

FIGURE 5: Good and weak conformation of the pasterns.

Poor conformation in the **legs** can be the cause of poor performance and lameness as well. Figure 6 compares healthy leg conformation with a number of potentially troublesome conformations. The leg joints should be well-developed, clean, and without unusual swelling or boniness. When the animal moves, there should be no turning in or out of the knees or hocks.

Cattle bred for dairy are less likely to fatten as quickly as beef cattle. Excessively fat ("over-conditioned") animals will have more foot and joint problems, and will be stressed by the heat. Animals that are slightly leaner than perfect may not be as nervous and lively as fat animals, making them easier to train.

Conformation of the **horns** is especially important if you're considering using a head yoke. The head yoke is fit and tied snugly to the horns. Oxen yoked with the neck yoke also depend on their horns to hold back the yoke when doing cart work on slopes. The horns serve as a braking mechanism for light loads, although other types of braking mechanisms such as cart brakes and a brichen can be used to complement or substitute for horns. Horns are not absolutely necessary, but are strongly preferred by most teamsters, in part for reasons of tradition and appearance. The conformation of horns can be altered to some extent if a teamster wishes.

FIGURE 6: Examples of proper and troublesome leg conformation in cattle.

Color is often thought of as a consideration only for show animals but it can be important in the selection of working steers and oxen. Dark colored animals can heat up and stress when working in intense sunlight. Fat, dark colored animals are particularly susceptible to overheating. White and light colored animals reflect more of the sunlight and therefore are less susceptible to overheating. White animals, however, can suffer sunburn and blistering if left exposed to intense sunlight for too long a period of time. Light colored animals are at greater risk of sunburn after spring shedding. Care must therefore be taken with both dark and light colored animals when working in intense sunlight.

Selecting a Team of Oxen

Two oxen or steers needn't be identical to make a successful working team. Animals of different breeds and strengths can be yoked together. What is most important is that the animals are similar in **temperament, agility, size, conformation, and speed**. The measure of a working team is their ability to work together. Even oxen or steers that share a common fault in their temperament or conformation can work well together.

For the novice, however, it may be wisest to select animals that are similar in all respects; **breed, parentage, age, size, temperament, and conformation** This is particularly important when selecting calves. As noted earlier, choosing calves is challenging because slight differences in the animals may be difficult to detect, and these slight differences are likely to increase with age. Using these criteria in the selection of calves increases the odds of selecting well matched animals that will work well as a team.

Parentage

One means of successfully selecting and matching calves is to look closely at their parents (sires and dames). Calves from parents with good conformation and temperament are likely to have the same. If possible, look for calves that are related, sharing the same sire or dame, or common ancestry. These calves are likely to be very similar in every respect and will grow well together.

Twins may increase the quality of a match even further, but twins have been known to be nearly opposites in personality and temperament. This depends in part whether the twins are identical (same egg) or maternal (different eggs). Twins are also often smaller at birth than single-birthed animals and may not grow as large as their single-birthed counterparts.

Animals that are related can still have significant differences. Selecting relatives increases the chances of a good match but does not guarantee it. All potential choices need to be carefully and thoroughly examined for matching temperaments, conformation, and flaws.

Herds using artificial insemination (AI) present a unique challenge. Breeding records will give details on characteristics of the sires. Matching calves from the same or related sires may involve a broad search. There may be a greater chance of finding calves of related dames than sires in a given herd.

Age

The age of a steer can be easily determined by reviewing breeding and calving records. Where these are not available, approximate age up to five years can be determined by the number of adult teeth. Figure 7

shows the configuration of teeth for cattle from birth through five years. Animals with only their milk teeth and no adult teeth are less than two years old. To determine the age of animals with adult teeth, take the number of adult teeth, divide by 2, and add 1. Thus, an animal with two adult teeth is two years old, and an animal with four adult teeth is approximately three years old.
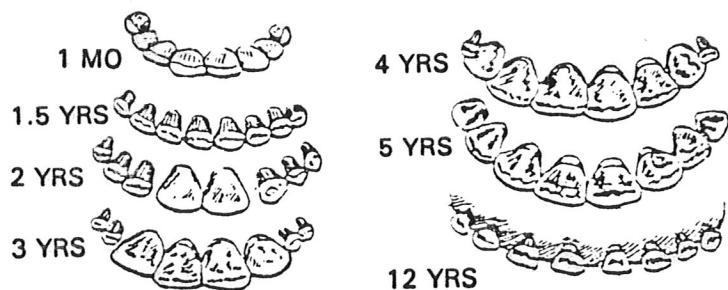

FIGURE 7: Configuration of teeth in cattle by age.

Determining the age of cattle older than five years is more subjective. The wear of the adult teeth indicate the age of the animal. Type and quality of feed and the quality of an animal's teeth, however, enter into the equation and make an accurate assessment difficult. Animals older than 11 to 12 years may begin to lose some of their teeth.

Speed

Two animals that by nature move at different speeds will have difficulty working together. The faster animal will inevitably be moving too quickly for the other, while the slower animal will be a hindrance to the faster animal. Even when a team is well trained, pulling heavy loads will prove difficult because the team cannot pull together. This problem can be avoided by selecting animals that are healthy and well matched in all respects.

Appearance

The appearance of a team is not a significant working characteristic but can be important for a number of reasons. For many teamsters, part of the pride of working oxen is in the match of their coats and horns, especially for those who show or parade their teams. Appearances can also affect resale value.

The timing and method of castration affects the appearance of steers significantly. Those that are castrated later (1-2 years) are generally more developed in the head and neck than those castrated at a younger age (3 months-6 months). An animal that has been castrated by clamping the tubes will also generally be more developed than one that has had its testicles and tubes removed. Clamping restricts the flow of testosterone while removal of the testicles and tubes eliminates the generation of testosterone. Thus, with all other factors being equal, animals castrated by different methods and/or at different ages are likely to have permanent differences in their builds.

Matching Dissimilar Animals

Occasionally, it may be necessary to team two animals that would not otherwise be desirable as a team. This may happen in the case where a mate dies or goes lame, or where the availability of suitable animals is very limited. It's important that the two animals at least share a common temperament and speed of movement. In general, matching animals of different breeds, sizes, strength, and experience is not recommended for the novice.

Two oxen or steers of different sizes and strengths can be yoked together to make a team. The **slide ring**, shown in Figure 8, allows the teamster to give the smaller animal a mechanical advantage by

moving the hitchpoint away from the smaller animal. This can reduce the apparent difference in the animals' strengths. This can also work well with the plow, with the taller animal in the furrow and the smaller animal on the landside.
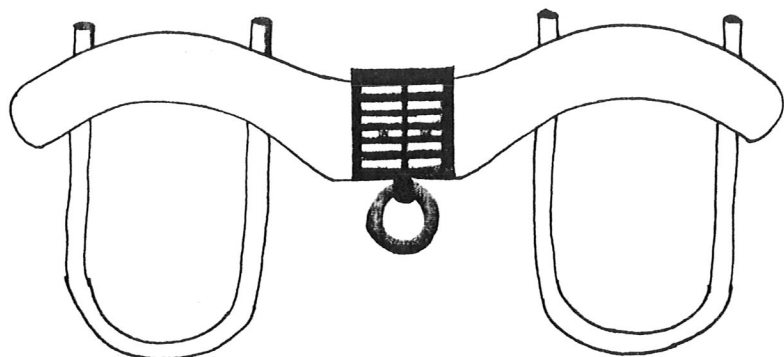

FIGURE 8: Neck yoke equipped with a slide ring to give a smaller animal a mechanical advantage.

If the animals are relatively young and still growing, their **feeding regiments** can be adjusted to accelerate the growth of the smaller animal and to slow the growth of the larger animal. Regulating the protein content of feed can overcome differences in size and age, particularly if the animals are similar in conformation and genetic background. Some teamsters grain the smaller animal heavily depriving the larger animal of grain for a period of time. The extent to which the two diets are altered and the period of time depends on the degree of difference in the animals' sizes.

Some teamsters use **drugs** such as steroids to accelerate the growth of one or both of their animals. This can achieve desirable short-term accelerated growth but may have costly long term consequences. The use of steroids in oxen and working steers has been linked to fatal heart disorders.

Summary

The ultimate measure of a team of oxen or working steers is in how they work together as a unit. No one breed or team of oxen is the best. Correct choices depend on the personal preferences of the teamster and attention to the individual and matching characteristics of the animals.

The selection process begins with the identification of the tasks to be performed by the team and the subsequent identification of suitable breeds. Questions of cost, breed availability, appearances, and trained versus untrained animals can all play an important part in the preparations for selecting animals.

Developing and revising your mental image of the "ideal ox" is important to bringing consistency to the selection process. Without a mental image of the ideal animal, the novice teamster won't know what he or she is seeking. Although constraints such as breed availability and cost may require compromise of that original image, the teamster will have control of the process and the decisions made.

In selecting cattle to work as oxen, the teamster needs to pay careful attention to the individual temperament and conformation of the animals. By selecting animals of the same breed that are closely related or very similar in age, size, speed, temperament, and conformation, the teamster greatly enhances the chances of having a well matched team that will work well in the yoke.

Suggested Reading and References

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