

INTRODUCTION

0.2 INTRODUCTION TO DRAUGHT ANIMAL POWER

0.2.2 BUDGETING FOR ANIMAL POWER UTILIZATION (Part 1)

FARMS AS BUSINESSES

Farms are businesses. They have inputs that cost money and outputs that give income.

Large farms may use the same principles of budgeting and accounting that commercial companies employ. All inputs (animals, equipment and labour) cost money. Even capital (the money needed to operate the farm) costs money and if interest rates are high, the cost of money becomes expensive. All outputs (eg. crop sales) also have a money value. Once these principals are understood, budgeting for the use of draught animals on a large farm is relatively easy.

Small farms are different. They do not use the same principles of accounting. Only some inputs cost money such as fertilizers, new implements or hired labour. The time of the farmer and the farmer's family does not cost money, even though this time may be valuable. Some farmers do not own animals and would thus have to hire these inputs which would also cost additional money. Other farmers may already own several animals and so if some are used for work, they would not have to pay directly this cost, although they should give them extra feed supplements. These same farmers may also, and wisely, use their work animals to transport their farm produce or perhaps fetch water for the family which will make life easier but may not earn any extra money. So budgeting for animal traction on a small farm can be quite difficult.

FIRST ESTIMATES OF THE COST OF USING DRAUGHT ANIMALS FOR TILLAGE

Table 1 below includes an illustrative example taken from an area in Uganda. Use it to make a similar comparison in your local area, basing your estimates upon local hire costs to plough a hectare of land. Remember though, that if you have your own animals and a range of equipment, you can also do many other jobs besides ploughing, on the farm.

You will probably find that the hire costs for the different ploughing methods vary quite considerably. For instance, in some areas there may be a lot of draught animals and it will be quite cheap to hire a pair to plough the land. In other areas there may be few and farmers may

be reluctant to hire out their animals as they are already very busy working for the owner. Hire costs of the draught animals in this case would probably be quite high.

	Ploughing time and costs per hectare			
	Example from Uganda (approximate costs in 1993)		Local Example (fill in for local area)	
	Time	Cost	Time	Cost
Hiring manual labour	40 to 60 man days	U Sh 75,000 (US\$ 41)		
Hiring animals	3 men - 1 team for 5 days	U Sh 37,500 (US\$ 20)		
Hiring a tractor	5 hours	U Sh 112,000 (US\$ 61)		

Table 1 Estimating costs to plough one hectare of land

The costs shown in **Table 1** show that, at least in this example, it appears to be cheaper to hire draught animals to prepare the land for sowing.

There may be other costs involved however which should not be forgotten when making a simple first estimate such as this. For instance, the farmer will probably also have to provide food to the hired labourers while they are working in the field. In the case of the tractor driver, this will not be much as he will only be working about 5 hours to plough a hectare of land. But if the farmer has been obliged to hire manual labourers, he may have to provide between 40 and 60 meals to plough the same hectare, one meal for each man-day of work necessary to finish the job.

This simple comparison of costs should be taken with caution. Most small farmers would only very rarely hire manual labour to prepare their land. So if they use only their own time and perhaps that of their family to do the job, apparently there would be little or no money which

would change hands. To these farmers, it might appear that using manual labour would be the cheapest solution.

So a more detailed study of the situation is usually needed and this is introduced below and described in more detail in the following **Module 0.2.3**.

COSTS OF ANIMAL TRACTION

Animal traction costs may include buying the animals, implements and harnessing system. In some cases it is necessary to add the cost of interest to the actual prices of these investments.

It may be necessary for farmers to construct a shed or enclosure and a crush to restrain the animals during routine health care work. Looking after the animals requires labour and some inputs. Even if animals feed themselves through grazing (which is normal), it may be necessary to supervise them (labour) or fence them in (capital cost of fencing). To keep the animals healthy may require vaccinations and medicines, feed supplements and perhaps insurance.

Implements only have a certain life and then they have to be replaced. They need regular maintenance and spare parts (eg, plough shares, landsides, puncture repairs for carts). Each farm has different costs, depending on its own circumstances.

FIXED COSTS AND VARIABLE COSTS

The costs which have been mentioned above fall into two broad categories. They are known as "**FIXED COSTS**" and "**VARIABLE COSTS**".

FIXED COSTS comprise all costs which arise from ownership of the animals and equipment. The farmer must bear these costs whether he uses the animals and equipment for work or not. They depend upon how much he must pay to buy the animals and equipment and how much he will get when he eventually decides to sell them again.

The fixed costs also depend upon how many years he intends to use both the animals and equipment before replacing them. In the case of the equipment, the more years he can use it,

the cheaper becomes the yearly cost. This is an important reason for making sure of regular maintenance and repair of the equipment so that it lasts a long time.

Some examples of the items which make up the fixed costs are listed below:

- the draught animals themselves
- a plough and trek chain
- the yokes (usually three different sizes are needed)
- the reins comprising halter, coupling rope and steering reins
- a cart
- a shelter, feeding troughs, etc. for looking after the animals

The farmer may also buy some other equipment in order to maximize the use of his animals.

This might include some or all of the following:

- a weeder or cultivator
- a seed planter
- a ridger
- a sugar cane crusher, etc.

Because Fixed costs have a fixed value during the year, it is more profitable for the farmer to use the animals and equipment as much as possible throughout the year. In this way, the fixed costs each time he uses the draught animals are reduced as they are spread out over a greater number of days.

VARIABLE COSTS cover all the additional costs the farmer must meet once he is using his animals and equipment. For instance, he may need to hire someone to help drive the animals. He will certainly be well advised to give the animals extra feed supplements whilst they are working.

The variable costs involved when using draught animals are quite low and so again it is seen to be better to use the animals as much as possible throughout the year. This constant use of the draught animals is the secret to better farm profitability for the small farmer.

These two types of costs will be studied in greater detail in the following **Module 0.2.3**.