ANIMAL TRACTION FOR AGRICULTURAL PURPOSES

Animal traction power is referred to as the use of animals for agricultural purposes such as ploughing and weeding. For the small farmer who owns a very small plot of land, it is not economically viable purchasing a tractor. The use of animal traction can possibly solve these difficult problems and simplify the daily chores such as carrying water and firewood. The use of animal traction, however, can be supplementary to the use of tractors. The use of animals does not exclude the use of tractors and vice versa. The opinion is that tractors should be used for the heavier and more labour intensive and time-consuming tasks, such as ploughing and ripping, while animals can be utilised for the lighter tasks such as transport and weeding.

The benefits of animal traction are:

- Providing smallholder farmers with vital power for cultivation and transport
- Empowering rural communities and providing an alternative but complementary power option
- Making marketing and trading easier
- Relieving women of the burden of transporting water by hand, head or wheelbarrow. Animals are easy to use and donkeys, specifically, can be handled by children and women
- Making transportation of the harvest and shopping easier
• Improving fertility by ploughing manure from draught animals back into the soil.

This article comes from Agricultural news. 28 January 2002: 6-7

OXEN VS DONKEY POWER FOR WOMEN FARMERS

The donkey is a low-status animal, often considered of little value. It is not acceptable as a wedding gift. A man cannot buy a bride with a donkey. A donkey cannot be eaten. But the authors of a 1998 study by IFAD, FAO and the Government of Japan view the humble donkey in a different light.

Usually animal traction is associated with draught oxen. These powerful bovines are able to pull heavy agricultural implements of carts and work in difficult soil conditions. But ox-power has its drawbacks:

• Oxen equipment are too heavy for women farmers. Women in Zimbabwe said that they sometimes actually fell over when trying to turn corners with a five-tine cultivator and had trouble moving the heavy lever that adjusted the cultivator’s width.

• In parts of Africa, oxen are at high risk from diseases born by the tsetse fly (such as in parts of Uganda) or from tick-borne (Corridor) disease (in Zambia). But disease is not oxen’s only threat. In recent years, bovine animals in the northern part of Uganda has been seriously depleted by marauding tribes from neighbouring areas. In parts of Africa, there is also a feed gap.

• In some areas, as in parts of Uganda and Zambia, there are also taboos against women working with cattle. Where there are no taboos and women sometimes do use draught animals (as in parts of Senegal and Zimbabwe), such animals are still viewed as belonging to the men. This means that the implements they draw also belong to the men, and the men have priority to their access.
Women have to wait their turn to use both cattle and implement, and by then it is often too late.

Donkeys, of course, are not as physically powerful for animal traction purposes. This means that ploughing with donkeys may not be possible in certain soil conditions. However, the study refers to research in Zimbabwe that made controlled comparisons of oxen and donkeys. The comparisons showed that the nutritional status of an animal, whether donkey or oxen, makes a great deal of difference in the animal’s performance. The research also noted that whereas donkeys may be slower than oxen, they never stop, but continue working. They also learn their tasks very quickly.

Advantages of using donkey power instead of oxen power are:

- They are lighter and easier to handle and train than oxen.
- Their implements are lighter
- They are a lower-risk investment than oxen, particularly where veterinary services are scarce and conditions harsh; where drought or illness kills off oxen, donkeys usually survive.
- They require very little time in terms of feeding (they take care of themselves, grazing on any available shrub or plant, even in the dry season), and therefore do not add to women’s already heavy workloads.
- Because of donkey’s association with low social status and poverty, men are willing to let women control them. They are less likely to be stolen.
- They are much cheaper than oxen or horses and therefore more affordable to women.
After considering the pros and cons, the study came out "on the side of the donkey".

This article comes from: Women’s farming in Africa: a case for donkey power. http://www.ifad.org/gender/learning/sector/agriculture/73.htm

In the next issue of Agri-Outreach, we will feature oxen and oxen-care

THE MIRACLE CROP

Comfrey has so many uses as a food, forage and medicinal crop that among plants, its claim to be a miracle worker must be unparalleled. The lists of beneficial substances in comfrey leaves includes calcium, potassium, phosphorus, vitamins A, C and B12. Furthermore, this plant has more proteins in its leaf structure than any other known member of the vegetable kingdom. Another beneficial trait of comfrey is that two to five crops a year can be produced, depending on climate. It also sends down a 3m taproot, or longer, to raise moisture and valuable minerals to the upper soil levels. The leaves, but especially the roots of comfrey, contain allantoin, a protein that when present in the milk of nursing mothers, appears to
affect the rate of cell multiplication. The plant is also credited with some remarkable cures, from stubborn leg ulcers to broken bones.

Comfrey’s preferred habitat is damp grassland. It is a herbaceous, perennial plant with short, thick tuberous roots, a deep and expansive root system, and grows between 60 and 100cm tall. The leaves are lanceshaped and hispid (with hard bristles) while the flowers are bell-shaped, purplish, yellowish-white or pink and flowers from May to July.

This article comes from: Farmer’s Weekly. 1 February 2002: 25

SHEEP CAN THINK

Sheep should no longer be associated with woolly thinking, according to a new study on sheep intelligence. Dr Keith Kendrick from the Babraham Institute in Cambridge, England, found that sheep can remember up to 50 sheep faces, even in profile, and they can remember familiar human faces too.

"Sheep are much more sophisticated than we thought, even similar to us in some abilities," said Dr Kendrick, who has spent more than a decade studying their minds. The study suggests that while sheep look as if they are mindlessly ruminating, they could be thinking about long-absent flock mates or even shepherds. The study found that it takes more than two years before their memory starts to fade and that sheep may also possess "emotions". Dr Kendrick’s team
presented sheep with images of 25 pairs of sheep faces. Ear tags were removed to rule out the unlikely possibility that the sheep "were reading them". The sheep were trained to associate one of each pair of faces with food and walk towards them. Dr Kendrick said: "The implication of our work is that sheep have a rich and important facial environment. Farmers should avoid changing it all the time and keep their company as stable as possible."

This article comes from: Farmer's Weekly, 7 December 2001: 51,10

AFRICAN HORSESICKNESS

African horsesickness is a serious insect-borne disease of horses, mules and donkeys which is spread by a virus. It is endemic to the African continent, and is characterised by respiratory and circulatory damage, accompanied by fever and loss of appetite.

African horsesickness does not spread directly from one horse to another, but is transmitted by midges, which become infected when feeding on infected horses. It occurs mostly in the warm, rainy season when midges are plentiful, and disappears after the frost, when the midges die. Most animals become infected in the period from sunset to sunrise, when the midges are most active.

There are three forms of the disease, namely the lung form, the heart form and the mixed form.

- In the lung form, the first symptom is a very high fever (up to 41° C), whereafter the horse starts breathing with great difficulty. A large quantity of frothy discharge may pour from the nose. This form is characterised by a very high death rate, with horses dying suddenly.
• The heart form of the disease usually takes longer to develop with a death rate of about 50% in affected horses. Death occurs 4 to 8 days after the fever has started. The main symptom is a swelling of the head and eyes. The sunken areas above the eyes swell so severely that the horse can often only half open its eyes. In severe cases, the entire head swells. The horse loses the ability to swallow, and water and pieces of food may drip from the nose and mouth.

• The other form of this disease is the mixed form, where symptoms of both the hear and lung forms may occur.

This article comes from: Agricultural News, 25 February 2002: 7
SOME TIME-SAVING IDEAS FOR YOUR FARM

- Carrying water to livestock can be a time-consuming chore, especially in winter. Piping to the animals, with a frostproof hydrant in cold climates, can save a great deal of time and work.
- Have extra basic essentials and spare parts on hand to avoid unnecessary trips to town. And then, when you use the last spark plug, special light bulb, or reserve box of baking soda, put that item on your list to be replaced on the next shopping trip.
- Plan ahead – surprises in the workshop or barn often mean delays while replacing or working around materials not on hand.
- Be organised. Minutes spend looking for a tool that isn’t where it’s supposed to be can add up quickly. Frequently used tools should be more accessible than those used only at intervals.
- Practice preventative maintenance. Checking a vehicle’s battery, cleaning off corrosion and adding distilled water if necessary, takes a little time ... but not as much time as being stranded with a dead battery in the middle of nowhere. Repairing a fence or gate takes less time than chasing animals ... and then making the repair anyway. Sharpening cutting tools of any kind not only saves time and effort: you’ll do a better job, and work more safely. Repairing the wheelbarrow tire is less time-consuming in the long run than inflating it every time you use the wheelbarrow.
- Watch for those "little" time wasters that can be easily remedied. Instead of constantly untangling horses and extension cords, put them on reels that keep them neat and accessible. Instead of struggling with the henhouse door every time you open it, make it work properly.
- Read the directions first, before all else fails.
• Pay close attention to what you do regularly and how you do it. Have you fallen into a rut, putting up with some inefficient method or condition just because "that’s how it’s always been done"

This article comes from: *How many ways can you think of to save time?* [http://www.countrysidemag.com/issues/6_1999.htm](http://www.countrysidemag.com/issues/6_1999.htm)

**FRESH FOODS WITHOUT A FRIDGE**

Pot-in-Pot is the name for an earthenware cooling system to preserve perishable foods in arid regions with no power. With no electricity, and therefore no refrigeration, perishable foods spoil within days. Such spoilage causes disease and loss of income for needy farmers, who are forced to sell their produce daily. The Pot-in-Pot cooling system, developed by Mohammed Bah Abba of Nigeria, consists of two earthenware pots of different diameters, one placed inside the other. The space between the two pots is filled with wet sand that is kept constantly moist, thereby keeping both pots damp.

Fruit, vegetables and other items such as soft drinks are put in the smaller inner pot, which is covered with a damp cloth and left in a very dry, ventilated place. The phenomenon that occurs is based on a simple principle of physics: the water contained in the sand between the two pots evaporates
towards the outer surface of the larger pot where the drier outside air is circulating. By virtue of the laws of thermodynamics, the evaporation process automatically causes a drop in temperature of several degrees, cooling the inner container, destroying harmful micro-organisms and preserving the perishable foods inside.

Abba’s first trials proved successful. Eggplants, for example, stayed fresh for 27 days in stead of three, and tomatoes and peppers lasted for three weeks of more. Spinach, which usually spoils after a day, remained edible after 12 days in the Pot-in-Pot storage.

Farmers using the Pot-in-Pot system are able to sell on demand rather than "rush sell" because of spoilage.

This article comes from African Farming, Sept/Oct. 20000: 15-16; and http://www.time.com/time/2001/inventions/basics/inpot.html
GROWING LENTILS (*Lens culinaris*)

Soil requirements
- Lentils prefer a well-drained, clayey to loamy soil with a pH of 6 (KCl) or above.
- Lentils are very susceptible to waterlogging.

Climate
- Lentils are well adapted to low rainfall conditions (300ñ500 mm annual rainfall). In summer rainfall areas lentils should be planted under irrigation during winter.
- The plants are relatively tolerant to heat and drought stress.
- Lentils have good frost tolerance.
- Under high-rainfall conditions, lodging and diseases may occur.

Availability of seed
Seed is available in limited quantities from small seed merchants.
Crop production
- The crop should be planted during May to early June.
- Sowing rate should be 50 to 60 kg/ha under narrow row spacings (20ñ30 cm), resulting in a plant density of 120 to 150 plants/m2.
- Lentils should be planted 40 to 60 mm deep.
- In poor soils, nitrogen must be applied at a rate of 40 kg/ha (140 kg LAN/ha) and superphosphate (single) at a rate of 60 to 100 kg/ha.
- Harvesting immediately as soon as pods are cream coloured to light brown and mature (moisture content:15 %) is essential because the pods may shatter when they become too dry. Rain will cause damage when the pods are ripe.

Yield potential
Lentils may yield up to 500 kg/ha.

Weed control
- Lentils compete poorly with weeds. Fields must be kept free of weeds at all times.
- No herbicides are registered for use on lentils in South Africa. It is also known that lentils are sensitive to herbicides of the sulphonylurea group and simazine is not safe for use on lentils.

Plant diseases
Ascochyta (blight) and Sclerotinia (white mould) may occur. Seed treatment with fungicides may prevent these diseases.

Insect pests
During the onset of pods, lentils must be continuously monitored for insects, especially bollworm.

Marketing
Contracts should be negotiated prior to planting if grain is to be sold and not utilised directly.
**GEOGRAPHY**

The discipline Geography has been offered at the University of the Free State since 1919. Issues that are addressed relate to the people-environment system, for example, development, urbanisation, environmental management and impacts, as well as geomorphology. This knowledge, together with the acquisition of specific geographic skills like remote sensing, geographical information systems (GIS) and computer mapping, contribute collectively to the geographer's ability to co-ordinate, integrate and interpret aspects of the many-faceted world of today. People with these skills are in demand in the job market.

Courses are presented as lectures and tutorials; practicals, fieldwork and excursions, where theory and practice come together on and off campus. Post-graduate studies are particularly popular, and catered for by very competent and dedicated staff.

For further information visit our website at:

http://www.uovs.ac.za/faculties/nat/geog/geohome/geovoor.html or contact:

Prof G du T de Villiers, Department of Geography, University of the Free State, P O Box 339, Bloemfontein, 9300, South Africa. Tel. +27 (0)51 4012255;
Fax: +27 (0)51 444 0790; E-mail: geo@sci.uovs.ac.za
The grain weevil

This dark brown beetle, ¼ of an inch long and distinguishable by the long curve of its head, is one of the worst enemies of grain store keepers in Southern Africa. Although it attacks all grains it prefers maize. As insects go, the grain weevil lives a long time and does much damage, nibbling through the toughest husks with the small but strong jaws at the tip of the snout. When she is ready to lay her eggs, the female nibbles a hole in the mealie then turns round, puts her egg placer in the hole and lays an egg. In a few days a white, legless maggot hatches out which nibbles, burrows and grows inside the husk until it has reached its full size of about 3/16 of an inch. Inside the hollowed out chamber the fat, gleaming white maggot changes into a pupa. The legs, wings and antennae of the pupa are free and not glued to the body as in many pupae. Finally, the thin pupal skin is cast off. The adult emerges through a little hole bitten in the husk of the grain, ready to tackle and destroy more grain.

From: *Did you know that?* By Margaret and Frank Purcell. 1949. Vol.3: 6

OUR ADDRESS

Remember that you can contact PRAIS at

Telephone: +27 51 401 - 2745
Fax: +27 51 430 - 6423
E-mail: agric@hbib.uovs.ac.za
Address: P O Box 301
BLOEMFONTEIN
9300
South Africa