Landcare Notes

How long will my dam water last?

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This Landcare note is to help land managers calculate water demands being made by livestock on existing water storages, especially during drought periods.

To answer the title question it is first necessary to know how much water stock are drinking on a weekly basis.

The following graph gives an approximation of the requirement for 4 categories of grazing stock. It can be used to calculate how much water each group of stock will drink in a week.

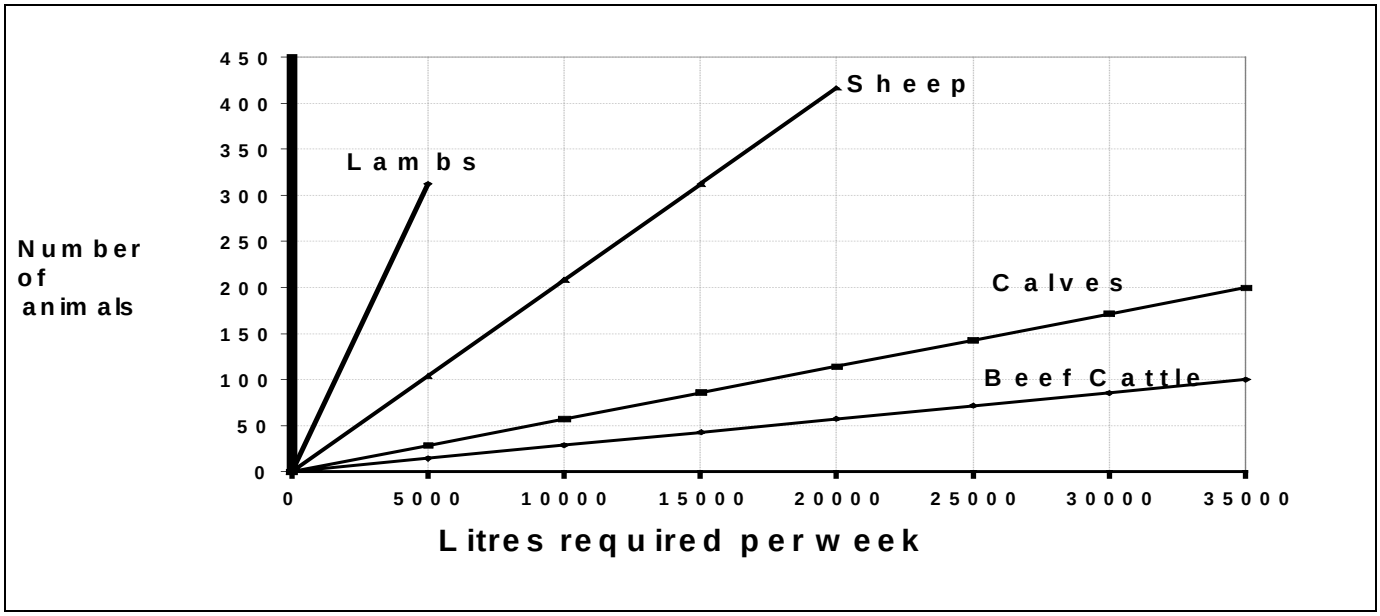

Figure 1 Weekly water consumption by stock on dry pasture.

Information can be compiled using the following table:

Type of Stock	Number of animals	Weekly water need in:	
		Litres	Cubic metres ($L \times 10^{-3}$)
Lambs Sheep Calves Cattle			
	Total		

Having calculated expected requirements it is necessary to work out how much water is left in the farm dams.

The following graphs (which take evaporation as well as stock use into account) give an indication of how long the water in each dam will last.

To use the graphs:

- first measure the surface area of the water in the dam at the beginning of January
- pick the graph with maximum depth of water which applies to your dam
- measure across horizontally on the graph from the appropriate water area to the amount of water required weekly.
- then draw a line vertically down to the bottom axis. This shows the number of weeks that water should remain in the dam (assuming no replenishment).

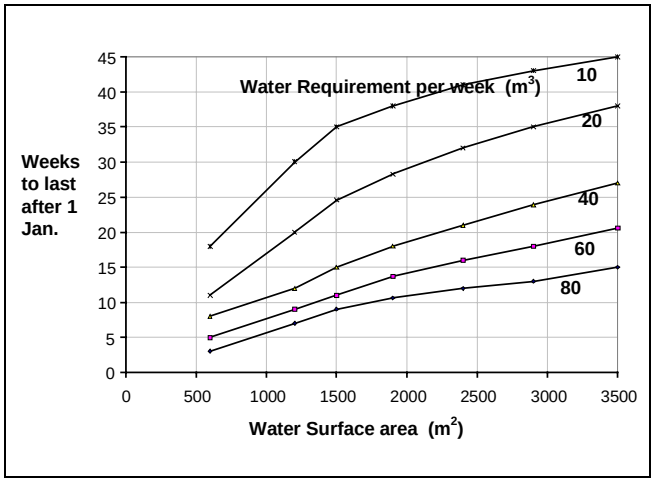

Figure 2: Expected availability of water from dam with 1m of water at 1 January.

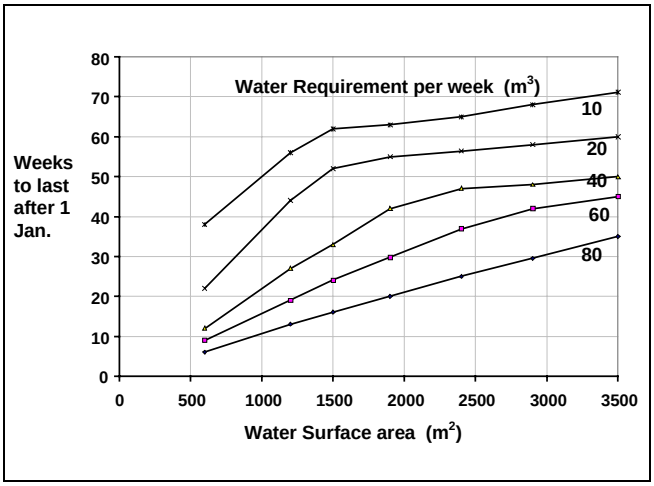

Figure 4: Expected availability of water from dam with 2m of water at 1 January

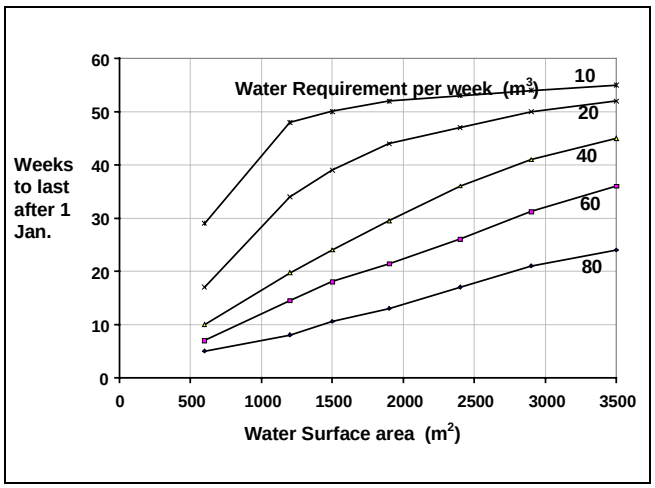

Figure 3: Expected availability of water from dam with 1.5m of water at 1 January

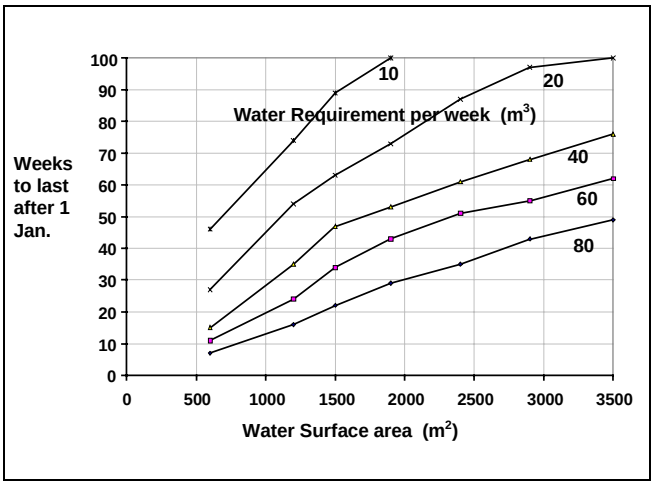

Figure 5: Expected availability of water from dam with 3m of water at 1 January

Example of graph use.

Maximum depth at 1 Jan. = 2m Surface area = 1200 m^2 Weekly water requirement = 40 m^3

From Figure 4 water should last for 25 weeks or until about the end of June.

If the calculations show you will run out of water in the near future, there is a difficult decision to make. Are more stock removed from the property? If so, which ones? Should water be carted-in?

Water Carting

Carting is not only expensive but also very time-consuming and soul destroying. It is a big decision to make, and once started it is very difficult to stop.

The cost varies depending on whether or not a contractor is used. Contract rates can vary considerably. Cost can be lower where milk-tanker back-loading is available.

Where carting is done by the farmer, the cost can be split into truck operating and labour. The following example sets out both costs for a typical situation.

If water has to be carted 9km for 500 sheep the daily costs would be calculated in the following manner:

Daily water requirement

500 sheep x 7L per day

= 3500 L

Truck operating costs

18km @ $0.75 per km

= $13.00

Labour costs

Say 2 hours @ $10 per hr

= $20

Total cost

$33 per day

This represents 6.6 cents per sheep per day or about $2 per sheep per month.

There is no easy answer to a decision on water carting.

Handy Hints

There are quite a few actions which can be carried-out to make available water go a little further. Here are some ideas for further development

Dams

- Fence springs, soaks and dams. Pipe water to troughs to prevent contamination and also bogging.
- Pump water from shallow dams to one central one to reduce evaporation losses
- Build drains from any road catchments or other hard surfaces to catch water from any summer thunderstorms and channel to dams
- Take the opportunity to de-sludge or deepen any empty dams

Carting

- If carting from community bores or standpipes, it is better to store the water in a tank rather than a dam. This reduces seepage and evaporation losses.
- Circular above-ground swimming pools are the cheapest form of temporary storage
- Consider bulk cartage of water by contractors. It could well be cheaper than the do it yourself option.

General

- Choose the pump and pipe that best matches your requirements in order to reduce pumping costs.
- Check the salinity of streams and bores for salinity.
- When using saline water, clean troughs and uncovered tanks each week.
- Site any new troughs and tanks to suit future needs.

Further Information

Check the local Shire for information on access to public bores, pumps and standpipes.

For further advice contact your local office of the Department of Sustainabilty and Environment.

This article was initially prepared during the drought of 1982/83