

# Better water budgeting — making the right choices

Now, more than ever, good water budgeting can be the difference between a crop's profit or loss. Water shortages and lower profit margins has driven the development of new products and services towards better water budgeting. Farmers can now measure and manage their water a whole lot better.

## SURVEY YOUR STORAGE DAM

Ring tank storages are a vital component in a successful modern irrigation system. Most irrigators have an idea of their storage volumes. Unfortunately, these volumes are often based on sketchy surveys and can be unreliable. Recent measurements have shown that actual storage volumes can vary by up to 30 per cent from previous estimates.

When water is short this can represent a significant amount. An accurate measurement of storages at various depths is important.

### Tractor survey

A dry storage is an easy storage to survey. A surveyor with GPS can complete a

survey of the storage for around \$2000. If the farmer has a GPS guidance system he can complete the survey himself with some assistance.

The data can then be processed by your local surveyor or engineer to provide you with an accurate measure of volume and surface area at every 0.1 metre of water depth. Contact your local engineer or surveyor to check their requirements. Some companies can complete an electromagnetic (EM) survey at the same time to establish soil patterns.

### Wet survey

Several companies now have the technology to conduct accurate surveys in full or partial storages. These surveys are slightly more expensive than a dry survey but have the added advantage of being coupled to an EM survey.

## MEASURE TO MANAGE

Monitoring storage volumes can be as easy and cheap as installing an accurate gauge board or an Irrimate storage meter. A storage meter has the advantage that it

measures and logs storage volume, water depth and surface area automatically, based on your storage survey. Logging this information automatically has several benefits:

- Accurate measurements and records are maintained without labour costs;
- Measurement of pumping and extraction rates;
- Measurement of captured rainfall run-off; and,
- Estimate of farm water use for each irrigation cycle.

Of the total water delivered to a storage, 20–50 per cent can be lost through seepage and evaporation depending on how long the water is held in storage (Dalton, 2000). This has been recorded by irrigators using the WaterTrack water balance software over the past two seasons. Of particular interest is the magnitude of losses can vary significantly between individual storages even on the same farm — reinforcing the measure to manage message.

Several consultants are now equipped with a seepage and evaporation meter which can be used to monitor the seepage and evaporation rates in storages, channels and drains. These results can then be incorporated into your water budget.

## HOW WELL DID WE GO?

- How much water was purchased?
- How much run-off and overland flow was captured?
- How much rainfall was effective?
- How much water did the crop actually use? and,
- How much water was lost?

All irrigators need to know the answers to these questions. Some irrigators want the complete and detailed picture. Others just want to know how much was used and how much was lost.

A simple and effective method of assessing farm performance is through use of a new program developed this season called WaterTrack Rapid. It is available online and has been designed to provide key irrigation performance indicators and quantify total farm losses. Importantly, it also calculates effective rainfall in irrigated fields.

For more information contact Aquatech Consulting on (02) 6792 1265 or visit WaterTrack at [www.watertrack.com.au](http://www.watertrack.com.au)

