

Land & Water fact sheet

On-farm water planning

What is it?

Water availability varies widely across Australia. Conditions that exist in one area may not be the same in another. Understanding the physical conditions and capability of your on farm irrigation infrastructure and capability to store, deliver and apply water across your land are essential parts of on farm water planning.

Water planning is assessing what water and other conditions exist on your farm, and making the right decision about what to plant to have a profitable operation. Water planning makes sure that there is enough water for the whole cropping cycle.

State governments are introducing tighter regulations on irrigation water supplies. It is economically sound to move towards working with what you have available to ensure water is used to its maximum potential to produce quality crops.

How does this help me?

Water planning means that you can plan to make a profit. Know what you can successfully farm with what water and natural conditions you have. Your irrigation system should be set up to effectively supply the total seasonal crop water use. Effective irrigation and on farm water planning will reduce the stress on the plants and also reduce pumping costs.

Unexpected and prolonged drought is a realistic scenario in Australia. If you plan your water and scheduling programs based on growing a crop during the normal seasonal weather, then your water demand during drought conditions will be easier to cope with based on an assumption that you have extra water available.

If you are efficient and manage your water use then planning strategies when there is a limited amount of water will ensure that crop production quality is maintained and will attract a high premium.

Crop water use

Crop water use can be described as the amount of water the plant requires to meet the water loss through plant transpiration or the amount of water used to grow a crop optimally to maximise plant nutrient uptake. To determine crop water use we need to know the evaporation rate and also the individual crop factor.

Factors that influence evaporation:

- wind, solar radiation, humidity, temperature
- infrastructure (hail net, poly tunnels).

Factors that influence crop factors

- crop type
- growth stage.

Soil analysis

Different soils have different water holding capacities. Both organic matter and soil texture will determine the ability of your soil to retain water. Soil texture is determined by the proportion of sand, clay and silt in your soil. This can vary through the



On-farm water planning continued

profile of your soil. A good soil will have a mixture of all three components, sand, clay and silt. The use a soil analysis can help you determine the amount of water that your soil naturally holds.

Water application

Some crops are better at utilising the water available in the soil. If you have calculated your crop water use then you will have a good indication of how much water you will need to have available for the growing season. Different stages of growth need different amounts of water due to the changes in transpiration as the plant becomes larger and the changes in evaporation from the soil as the crop canopy increases.

Scheduling and monitoring your irrigations will ensure that the water and nutrient uptake of the crop remains steady and the plant maintains optimal growth. If the plant experiences stress, such as lack of water, then reduced yield and quality of the crop will occur.

To find out more about Farm Management Systems contact Growcom on 07 3620 3863 or visit www.growcom.com.au for the Water for Profit How much water is in my soil? Fact sheet.

References

Growcom Water for Profit fact sheets
www.growcom.com.au/knowledge-plant/wpfactsheets.html

The Food and Agriculture Organization of the United Nations
www.fao.org/docrep/S2022E/s2022e07.htm

Colorado State University Cooperative Extension regional water management
www.ext.colostate.edu/pubs/crops/04715.html

Guidelines for Environmental Assurance in Australia Horticulture

University of Florida IFAS extension 'Soil Texture'
www.edis.ifas.ufl.edu/SS169

Appropriate Transfer Technology for Rural Areas
www.soilandhealth.org/01aglibrary/010117attra.html#texture

The Iydyene reference – Soil formation – what is soil texture? www.homepage.mac.com/gardensbyivydyene/Soil/insoilformation



Level 1/385 St Paul's Tce Fortitude Valley 4006 | PO Box 202 Fortitude Valley QLD 4006 | Tel: 07 3620 3844 | Fax: 07 3620 3880 | Email: growcom@growcom.com.au | www.growcom.com.au