

# MANAGING YOUR CANE PRODUCTION SYSTEM UNDER LIMITED WATER SITUATIONS



**This information provides a practical guide to help growers make informed decisions about the management of their current and future crops under conditions of low rainfall and limited irrigation water.**

*Individual circumstances should always be considered, particularly in terms of the personal and financial aspects associated with making any decisions related to your farming operations.*



## TOP TIPS FOR LIMITED WATER SITUATIONS

- Whether you harvest, stand-over or plough-out the current crop depends on several factors.
- Inspect blocks to evaluate the crop's general condition and determine a strategy for each based on that.
- The Decision Matrix table on page 4 may help you choose the best option for your farming operation.
- Consider whether more of the farm will be fallowed than normal to allow the limited water to be used on a smaller crop area (i.e. managing less area under crop but seeking greater production per hectare).
- If your irrigation system capacity allows, consider arranging temporary transfer of water allocation and maintain normal or near-normal area under crop.
- For blocks to be harvested, if needed and where water is available, consider irrigating the current crop to maintain production and help support early growth in the ratoon crop.
- Alternatively, blocks to be ratooned may need to be irrigated soon after harvest to support early growth.
- Retain trash for moisture conservation and weed control; baling of trash provides cash flow but may contribute to soil compaction and increase input costs (e.g. water and weed control costs).
- Review your plans to plant cane as it may require more irrigation than normal for germination and establishment.
- Consider whether fallow areas will be a bare fallow or used for rotation crop production; if they are to be used to produce an irrigated rotation crop, this will need to be accounted for in anticipated water use.
- Rotation crop production could be opportunistic based on seasonal conditions (for example, it may be possible to plant a rotation crop in January if good rainfall has resulted in subsoil moisture and announced allocation has been increased).
- Maintain effective weed control and adequate nutrition to maximise crop production.
- Review your finances, taking into account the impact that dry conditions may have on cash flow; if necessary, discuss this with your accountant and financier.



### FARM FINANCES

Drought conditions will impact your farm finances. It is important to prepare a cash flow budget and you may wish to talk to your accountant and financier about your financial position.

Consider actions to lessen costs without reducing production such as review of your electricity tariffs on irrigation pumps to ensure they are appropriate for your electricity usage pattern.

### DECISIONS AND MANAGEMENT STRATEGIES FOR THE CURRENT CROP

Crop establishment in ratoons is vital. Generally, 40mm of rain or irrigation is sufficient to establish a crop. Trash removal will impact on soil moisture conservation and additional irrigation water may be required for ratooning crops in lower-than-average rainfall years.

- If you have access to water, maintenance of the current crop is essential to minimise impacts on crop quality and harvest weights.
- Irrigate 6-8 weeks prior to harvest to maintain CCS and tonnes of cane.
- Maintaining soil moisture of a crop prior to harvest will improve ratoonability.

To help you make decisions about the current crop please refer to the Decision Matrix table on page 4.

### SHOULD I HARVEST, STAND-OVER OR PLOUGH-OUT MY CURRENT CROPS?

Assess the condition of all farm blocks for crop harvest, possible stand-over or plough-out/spray-out.

Decisions about the future of the current crop should be based on a range of factors including crop health, estimated production and other limiting factors such as pests, diseases and weeds.

Consider the block as a whole, as poor patches may not reflect the health of the overall crop in the block. Other factors such as canegrubs, pachymetra or sodicity may be a problem in addition to the dry conditions.

Crops with a predominance of poor stools don't stand-over well and should be destroyed. Inspect blocks for:

- Large number of gaps
- Dead stools
- Lots of large weeds
- Pest and disease damage

Younger ratoons are better suited to stand-over than older ratoons and varieties may differ in their suitability for stand-over.

### WHAT DO I NEED TO CONSIDER WHEN HARVESTING MY CURRENT CROP UNDER DRY CONDITIONS?

If you have blocks that are estimated to yield less than 50 t/ha at harvest, talk to your contractor about harvesting costs and options (multiplier) and consider the 'economics' of harvesting these blocks.

Small cane crops are often harvested at higher ground speeds in an attempt to maintain harvester pour rates and minimise harvesting costs. This can result in greatly increased levels of cane loss and stool damage.

Minimising stool damage will help to create a viable crop for next year and this can be achieved by getting the contractor to optimise harvesting practice i.e. ground speed, basecutter height, knockdown angle.

Harvester operations that minimise cane loss and extraneous matter levels are described in the SRA Harvesting Best Practice manual which is available on the Sugar Research Australia website [sugarresearch.com.au](http://sugarresearch.com.au).

### FALLOW MANAGEMENT

If you intend to use cultivation to destroy the crop after harvest, cultivate when some moisture is still present. Follow successive cultivation events quickly after the previous one to avoid drying soil out.

Consider destroying previous cane crop with herbicide to minimise cultivation and reduce cultivation costs. To get the best kill apply the herbicide as per label. The cane needs to be healthy, at least knee high and growing without any moisture stress for this option to work well.

A cloddy soil surface has a larger surface area for evaporation so leave soil flat or crumble roll to slow rainfall runoff. Consider only cultivating the area where the crop will be grown to minimise soil disturbance and conserve soil moisture.

Avoid cultivation of fallow ground to control weeds as it will dry the soil out. Use herbicide as a cheaper option if weeds are not stressed.

More water may be required to establish plough-out/replant crops; so if possible, leave soil fallow for a few months prior to planting to store rainwater.

There may be other considerations where fallow management includes a rotation crop (e.g. grain legume crop).

### PLANTING AND PLANT CANE

You may need to irrigate to allow for land preparation and to assist germination and establishment of plant cane. Decisions regarding planting may be influenced by soil type and irrigation system.

Give the plant cane crop the best chance of success –

- plant into soil where there is enough moisture for germination
- source healthy planting material free from disease and physical damage
- use fungicides and insecticides as required
- remove mould boards and / or optimise the planter to reduce soil moisture loss.

Super fine soil tilth is not always essential for good sugarcane establishment.

### WEED CONTROL

Weeds will only germinate in moist soil. Apply residual herbicides before weed germination as they provide long periods of weed control and can reduce the need for expensive knockdown herbicides and cultivation.

Most residual herbicides need incorporation so time their application before irrigation, rainfall or a cultivation event. Some residual herbicides are sunlight stable so do not require incorporation soon after application. Check with your local productivity officer regarding optimising the use of plant and ratoon cane residuals.

Moisture stressed weeds are harder to control with herbicides, so use cultivation where applicable. Shallow cultivation using weed rakes or tines with a generous sweep overlap will ensure a good weed kill with minimum loss of soil moisture. If possible, use sweeps for weed control in the interspace and herbicides within the row and time operations to coincide where possible with fertiliser incorporation and or hillling up.

### FERTILISER MANAGEMENT

On-farm fertiliser programs should be aimed at maintaining or improving production while managing costs of these inputs.

It is pointless to reduce a single farm input such as crop nutrients if you are still going to supply all other inputs at appropriate levels.

The principle of balanced nutrition should still be the overall objective. All essential nutrients should be present at appropriate levels as any nutrient that is limited will affect productivity.

Fertiliser inputs should be based on knowledge about the nutrient status of the soils on the farm. The most appropriate way to determine the nutrient status of your soil is to do a soil test. SIX EASY STEPS guidelines can be used to plan and implement your nutrient management program.

You may also wish to discuss nutrient management and productivity goals with your local Productivity Board staff.

## INSPECT CANE BLOCKS AND ASSESS THE FOLLOWING

- Crop stage
  - > Plant cane
  - > Ratoons (younger ratoons tend to stand-over better than older ratoons)
- Crop age (months from previous harvest or time of planting)
- Stool (above ground biomass) health in terms of:
  - > Height
  - > Dead versus active cane — cut a few stools open to see if they are still alive of application)
  - > Diameter and condition of stalks — slice a few sticks and look for piping, red rot and dead sticks
  - > Condition (curled and spiky leaves, yellow colour)
- Gaps between stools— many large gaps (> 1 m) will have a marked influence on yield
- Weed infestation
- Pest and disease damage
- Varieties— some are better suited to stand-over than others
- Available water to maintain crop to harvest (quantity and cost)

## BROAD INTERPRETATION

- Mostly healthy stool
- Minimal pest and disease impacts
- Few gaps
- Low weed infestation

- Poor or dead stools (>50 per cent)
- Markedly 'gappy' stand
- Old ratoon
- Moderate to severe pests/ disease and/or weed impact
- Seek advice if required prior to next step

Reasonable to good crop growth	Limited crop growth with stalks greater than 1 m high	Limited crop growth with stalks less than 1 m high	DESTROY THE CROP
<b>TAKE TO HARVEST</b> <ul style="list-style-type: none"> <li>• Optimise crop growth while allowing for sugar accumulation</li> <li>• Harvest the crop when appropriate</li> <li>• Continue with the next crop as usual</li> </ul>	<b>STAND-OVER CURRENT CROP</b> <ul style="list-style-type: none"> <li>• Maintain or adopt adjusted management practices to optimise crop</li> <li>• Fertiliser: apply 50 percent of the Usual full rate of N during spring*</li> <li>• Consider financial implications</li> </ul>	<b>SLASH CURRENT CROP</b> <ul style="list-style-type: none"> <li>• Leave to regrow as a ratoon</li> <li>• Re-implement management:           <ul style="list-style-type: none"> <li>&gt; Irrigation</li> <li>&gt; Weed control</li> </ul> </li> <li>• Fertiliser: 75 to 100 percent of previous N and K applied depending on soil type*</li> <li>• Consider financial implications</li> </ul>	<b>DESTROY THE CROP</b> <ul style="list-style-type: none"> <li>• Plough-out or spray-out options are available</li> <li>• Soil sample</li> <li>• Consider legume fallow</li> <li>• Prepare block for planting—spring plant (if no legume)</li> <li>• Consider financial implications</li> <li>• Plant cane and manage the plant crop according to usual on-farm management</li> </ul>

\* Check on the adequacy of these inputs using leaf analyse.

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