

Vegetable ~~Matters of~~ Facts

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Horticulture Australia and the Department of Primary Industries-Victoria

Managing the Drought

Main points

- Ensure your irrigation system is operating at its most efficient
- Minimise the evaporation of your irrigation application by watering at night or early morning
- Decide now what you will do if water becomes restricted and which crops are most important
- Monitor soil moisture and irrigation output

An efficient irrigation system

Check your irrigation system when it is operating and look for:

- Leaks
- Blocked lines
- Worn sprinkler heads

Install shut-off valves to allow the pipes to drain back into storage before being disconnected.

Run-off occurs when the application of water exceeds how fast the soil will accept water (infiltration). This is a waste of water and may cause erosion. If necessary reduce the application rate of the system



Measure the output of your irrigation system. Use rain gauges, buckets or tin cans. Spread them throughout the paddock to get an overall picture of what the irrigation system is applying.

Check for even distribution. Check the volume applied in an hour. Seek advice from an irrigation company if problems show up.

Minimize Evaporation

It is important that the water you apply is able to get to the rootzone. Evaporation means that precious water is lost, but you can minimize the effects.

Irrigate in low wind conditions.

No point in watering headlands and roads just because that's the way the wind is blowing.

Use Windbreaks, nurse crops and covercrops all help reduce evaporation and protect established seedlings.

These support crops should be slashed once the main crop becomes established so that they do not compete for water and nutrients.

Mulches

Plastic or organic mulches will also reduce evaporation from the soil.

Timing

Irrigate when temperatures are at their lowest, at night or early in the morning. This will reduce evaporation and the impact of salty water on crops.

Note: that it is important to consider the possible disease implications of irrigating at night. Some vegetables should not have wet leaves for long periods in certain weather conditions because this may encourage disease development.

If in doubt seek further advice.

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Water

What if water does become restricted?

Think Ahead - you may be faced with not having enough water to meet your needs.

What you should do in these circumstances should be decided now while you have time to think about it calmly, rather than in the heat of the moment.

What else can you do?

Monitor soil moisture levels to prevent over watering and schedule irrigation for when plants need it.

This can be done using a range of methods including tensiometers, resistance blocks, neutron probe, enviroscan and aqualflex to name a few.

Pan evaporation will also give a good guide as it will be closely linked to how much soil moisture will be used.



Critical periods for correct irrigation

Develop a contingency plan

You will need to consider a number of things to ensure you get the maximum return from your crop.

You may have to sacrifice some crops if there is not enough water.

- Which crops are of higher value?
- Are there lower value crops, which could be sacrificed for those of higher value?
- Is it important to retain markets and contracts
- Are you growing any crops that are likely to be in short supply because of the drought – these may end up being of high value.
- Which crops are showing particularly good yields?
- Which crops can stand reduced irrigation?

Newly planted crops will need more frequent and lighter irrigations than mature crops, which have developed stronger root systems.

Correct irrigation is critical at certain periods of plant development. Crops in these stages should have water allocated to them in preference to crops in non-critical stages (see table)

Shallow rooted crops will require lighter more frequent irrigations than deeper rooted crops

Critical Period	Crop
Flowering, pod setting	Beans Peas
Head formation and enlargement	Broccoli Cabbage Cauliflower Lettuce
Tasselling, pollination, ear filling	Sweet corn
Flowering, fruit set and development	Cucumbers Zucchini Eggplant Peppers Tomatoes Melons
Bulb formation and enlargement	Onions
Fern	Asparagus
Root development	Carrots Turnips Parsnips
Continuous	Greens Spinache
Tuber set and enlargement	Potatoes

Rooting Depth of some Vegetable Crops

Shallow Rooted (to 30cm depth)	Intermediate rooting depth (30-60cm)	Deep rooted (> 60cm)
Celery, Lettuce, Onions, Potatoes, Radishes	Broccoli, Beans, Cabbages, Carrots, Cauliflowers, Cucumbers, Peppers, Tomatoes, Zucchini	Asparagus, Parsnips, Pumpkins, Sweet corn, Watermelon

Is Trickle/ Drip irrigation an option for you?

Drip irrigation is one of the more advanced techniques being used today, because it is much more efficient than traditional spray irrigation. Trickle irrigation is rapidly gaining popularity, particularly in arid regions where water availability is limited. In drip irrigation, water is run through pipes (with holes in them) either buried or lying slightly on or above the ground next to the crops. Water slowly drips onto the crop roots and stems. Very little is lost to evaporation and the water can be directed only to the plants that need it, cutting back on water waste.

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