

Increase Potato Yield

With irrigation efficiency and reduction of nutrient run-off

- Improved utilization of water may allow reduced number of irrigations
- Is not phytotoxic to plant material even when applied directly over young plants
- Even moisture level improves spray-out operations in sandy country
- Enhances even watering of hills to improve tuber quality and size (see results on page 2)
- Improves lateral spread of fertilizers throughout the soil profile
- May be applied through centre pivot, dripper systems or by boom spray

KEY POINTS ABOUT IRRIGATE

The Product

IrriGate is not a PAM. It is a non-ionic, liquid blend of co-polymers which mixes easily with all types of irrigation water. As IrriGate is derived from a new field of surfactant technology, it allows growers to use a highly effective soil surfactant at an affordable price. It is available in 20L, 200L and 1000L litre plastic drums.

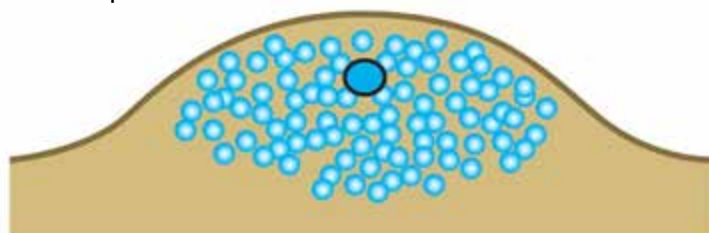
What does IrriGate do?

IrriGate is a specialised soil surfactant. It enables growers to improve the infiltration and penetration of

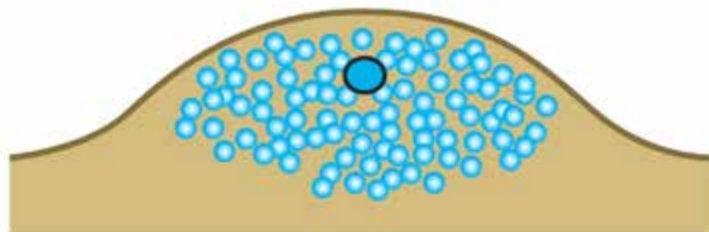
water in certain hydrophobic soils and improve the lateral movement of water to more effectively cover the plants root zone. IrriGate also reduces water loss due to run-off and evaporation, improving the efficiency of irrigation by up to 30%.

Mode of Action

The polymers in IrriGate enable the water molecule to adhere to hydrophobic soil particles and therefore enhance their capacity to absorb water. This action then creates a more uniform wetting of the root zone and allows moisture to move more freely throughout the soil profile.



Treated - Uniform Wetting



Untreated - Many Dry Zones



Trial Outline

Gawler River Produce, one of the largest commercial producers of potatoes in Australia, evaluated the performance of a soil surfactant in a commercially grown crop of Lady Christl, an early crop variety, destined for the domestic fresh market in Australia. The trial consisted of 4 Ha of treated potatoes and 4 Ha of untreated potatoes grown under the same centre pivot. The crop was irrigated to crop demand (as determined by the Farm Manager) from the Murray River. The trial was harvested by sampling 10 plants at random from treated and untreated areas.

Application

One application of the soil surfactant was applied by boom sprayer at the label rate of 10L/Ha in 500L of water, immediately prior to inter-row closure. It should be noted that application timing was a little late in this trial, and should have ideally been made between crop emergence and intra-row closure to ensure good soil contact. Treated and untreated crops received the same inputs, irrigation schedule and the same amount of water.

Assessment

Soil Volumetric Water Content was measured using a Delta-T HH2 Theta Probe Moisture Meter. Tuber size (measured along the longest axis), and individual tuber weight were measured for a 10 plant random sample taken from treated and untreated portions of the field. Tubers from each plant were then washed, measured (long axis) and weighed within 8 hours of harvest.

Table 1: Soil surfactant effect on potato size and yield

	Treated	Untreated	Difference	% Difference
Yield (g)	23534	22202	1332	6%
Av. size (mm)	85	77	8	10%
Av. weight (g)	138	117	21	18%
Count	170	189	-19	-10%

Trial Results

Application of the soil surfactant was safe to potatoes. No crop phytotoxicity was observed throughout the season. The application of the soil surfactant at 10L/ha between emergence and inter-row closure increased average soil water (moisture) content at all depths throughout the growing season. This increased root zone water storage and availability resulted in an increase in potato yield and an improvement in potato quality. The increase in potato yield has resulted in an increase in the gross margin to the grower of over \$2,400 per hectare.

Graph 1: Soil surfactant effect on % volumetric water content

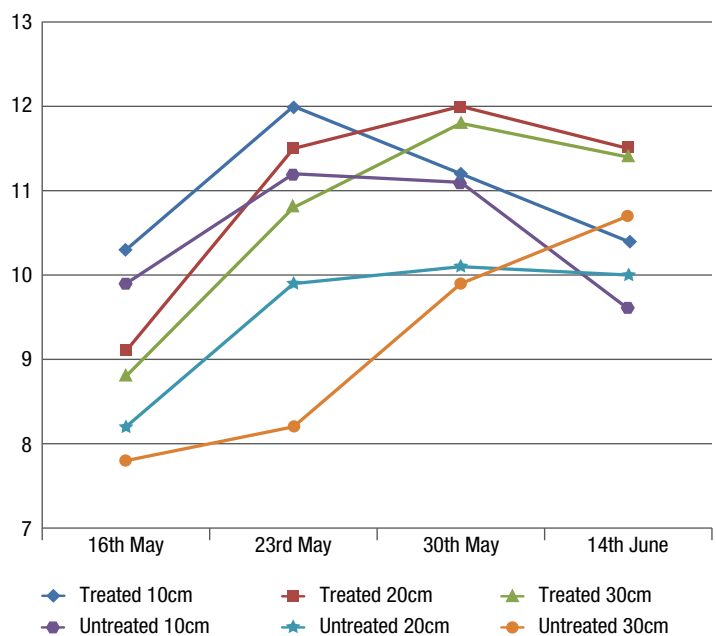


Table 2: Economic analysis of yield increase

Cost of soil surfactant per Ha	\$150
Average yield per Ha (tonnes)	50
Projected yield increase per Ha (tonnes)	3
Value/tonne	\$800
Gross yield increase in value	\$2,400

Always read the entire label prior to use.

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