

AGRICROP

AquaGro® Gold
Agricultural Soil Surfactant

Evaluation of AquaGro In Olives

Shepparton, Victoria, 2004/05.

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OBJECTIVES

To evaluate the performance of AquaGro, an agricultural soil surfactant in a replicated trial in olives.

Background

Continued use of knockdown or residual herbicides will often result in a tree line that is left totally bare. The soil lacks organic matter and the surface crusts making water penetration difficult. Irrigation water will often shed to the middle of the tree rows.



Bare orchard tree lines



Irrigation water shedding to the middle of the row as indicated by the arrow.

Statistical Analysis

Data was recorded on Pesticide Research Manager and statistically analysed using an analysis of variance with mean values summarised and separated using Least Significant Test at the 5% level of probability.

RESULTS

Crop Phytotoxicity

There was no phytotoxicity observed on either the leaves or the fruit throughout the duration of the trial.

Water penetration.

Over night on March 7th the orchard block received a 20mm irrigation. On March 8th the water penetration depth was measured in the centre of each plot.

The mean water penetration depth is presented in table 1.



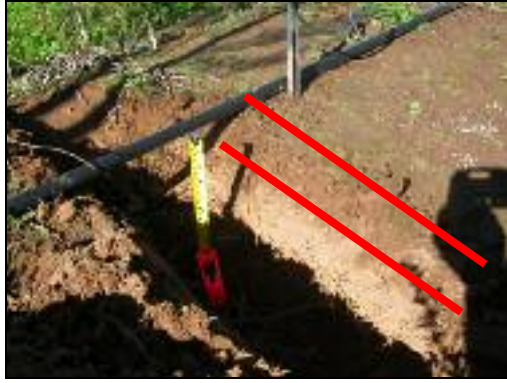
Water penetration measurements were taken.

Table 1 Mean Water penetration depth – cm..

Trt No.	Treatment Name	Rate Lt/ha	OLIVE Water depth 8/3/2005
1	UNTREATED CHECK		14 b
2	AQUAGRO	2.5	21.3 ab
3	AQUAGRO	5	26.3 a
4	AQUAGRO	10	22.8 a

Means followed by the same letter do not significantly differ ($p=0.05$, Duncan's New MRT)

The soil moisture in the olive root zone was greater and the water had penetrated to a significantly greater depth following the application of AquaGro at 5 and 10 lts/ha. At 5 and 10 lt/ha the water had penetrated to a depth of 26 and 23 cm respectively compared to the untreated control at 14cm. The olive root zone was moist in the AquaGro treated plots when compared the untreated control, where the soil was dry.



Untreated control – water penetration to a depth of 10 cm.



Untreated control – note the dry soil in the root zone.



AquaGro at 5 lbs/ha – note the moist soil in the root zone.



AquaGro at 10 lbs/ha. Water penetration to 26cm.

Crop Yield

At harvest the tree was divided in to four quadrants and 25 black olives were randomly harvested from each quarter of the tree. The olives were then weighed. Table 2 shows the mean weight of the 100 olives.

The application of AquaGro at 2.5, 5 and 10 lts/ha have all significantly increased the olive fruit weight when compared to the untreated control.

Table 2. Mean fruit weigh of 100 olives (grams).

Trt No.	Treatment Name	Rate Lt/ha	OLIVE fruit wt	
			16/5/2005	
1	UNTREATED CHECK		265.23	b
2	AQUAGRO	2.5	302.97	a
3	AQUAGRO	5	295.15	a
4	AQUAGRO	10	297.63	a

Means followed by the same letter do not significantly differ ($p=0.05$, Duncan's New MRT)

An average of yield increase of 12.5% was achieved in the AquaGro treated plots vs the untreated plots

The significant increase in olive fruit weight should result in an increase in oil content. Robards & Mailer (2001) found in Australian trials a correlation between fresh fruit weight and oil content (at 50% moisture).

Thus it could be concluded that the application of AquaGro may result in an increase in olive oil content.