



Project Report

Silicon Fertiliser in Poppies Demonstration

June 2011

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Silicon Fertiliser in Poppies Demonstration



Objective

The overall objective of this crop demonstration was to investigate the effects of a soil-applied silicon fertiliser on poppy production.



Site Details

Location	Hagley, TAS
Soil type	Red/Brown Dermosol
Crop	Poppies grown under contract for Tasmanian Alkaloids Pty Ltd
Demonstration Design	Grower / On-farm demonstration – a single 3Ha portion of the paddock received the fertiliser while the remainder received none.
Replicates	1
Plot size	Treated – 3Ha; Control – 5Ha
Planting date	3 rd September 2010
Harvest date	15 th February 2011
Irrigation	Supplied by travelling irrigator
Cropping History	Intensively cropped paddock with a recent rotation of onions (09/10), peas (08/09) and poppies (07/08).

Methodology

This demonstration was undertaken on an 8ha poppy crop over the 2010-2011 growing season on a farm in Hagley, Northern Tasmania. The trial was on red/brown dermosol soil, which sloped to the north and south with a moderate hill running east to west through the middle of the paddock.

The MaxSil™ product used in the demonstration was supplied by Advanced Crop Nutrition Pty. Ltd. (APN). It was formulated as a granular product of dark brown to grey colour. MaxSil™ has a soluble silicon content of approximately 1,600ppm. MaxSil™ has been granted certification as an 'allowed input' by the Biological Farmers Association.

The MaxSil™ was broadcast over a large section of the paddock, one day prior to planting at a rate of 100kg/ha



Fig 1: Harvesting the poppies

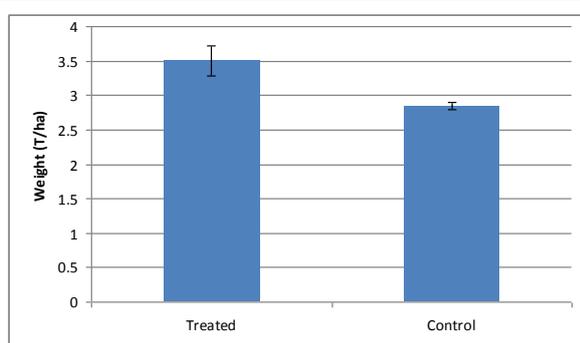
and incorporated by drilling. This provided one control and one treated replicate approximately 5 and 3ha in size respectively. The crop was managed as per usual, with other required fertilisers and pesticides applied evenly to the entire site.

Yield was assessed on 15th February 2011, just prior to the commercial harvest. Poppy capsules were hand harvested from four 1.0m² quadrats in both the treated and untreated areas, then counted and weighed. Alkaloid assay assessments were not undertaken.

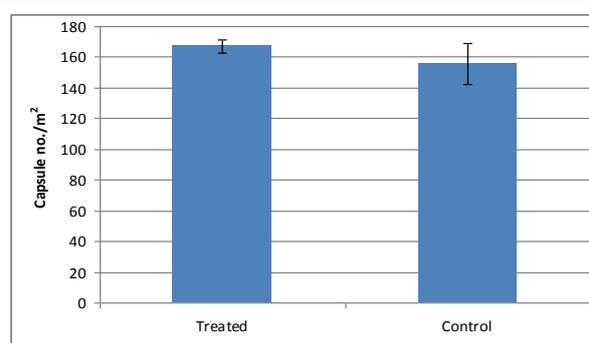
Yield Results

Total capsule numbers per square metre were generally more consistent in the treated plot compared to the control, as displayed by the error bars in Graph 1. The treated area did have slightly higher average capsule numbers per square metre (167.25) compared to the control (155.75), however this difference was not statistically significant. Graph 1 displays the average number of capsules per square metre.

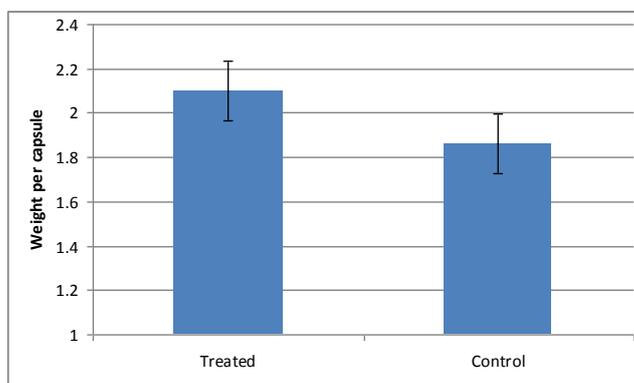
Capsule weight per square metre was averaged and extrapolated to equivalent of tonnes per hectare to estimate yield. The capsules from the treated plots had an estimated yield of 3.51t/ha compared to the control which produced an estimated yield of 2.85t/ha (Graph 2). This equates to a 23% increase in capsule yield for the poppies treated with MaxSilTM. While this difference was not statistically significant, it was very close (P=0.051).



Graph 2: Estimated yield (t/ha) of capsules for poppies treated with and without MaxSilTM fertiliser. Bars represent the SE.



Graph 1: Average no. poppy capsules per m² for poppies treated with and without MaxSilTM fertiliser. Bars represent the SE.



Graph 3: Average weight per capsule (g) for poppies treated with and without MaxSilTM fertiliser. Bars represent the SE.

It is also important to note that on average there was a higher head weight per capsule for the treated (2.10g) compared to the control (1.83g), although this was not statistically significant (Graph 3).

Conclusion

The results observed in this demonstration indicate that MaxSil™ fertiliser has a positive effect on poppy capsule yield. Although the result was not statistically significant it is encouraging since growers of alkaloid poppies for Tasmanian Alkaloids are paid based on the overall capsule weight and alkaloid content of the crop.

