

DEMONSTRATION



On Farm Demonstration on a Commercial Potato Farm: Tasmania, Australia, 2009-10

SUMMARY OF DEMONSTRATION

The demonstration was set up as an applied grower trial to assess the capacity of TwinN to produce high yields with reduced urea applications. The demonstration was performed independently, as a replicated trial with no statistical analysis, by SERVE-AG Pty Ltd, Tasmania. The product was supplied by Green Pastures, Tasmania^a. The trial compared the grower standard nutrient program with the grower standard program, minus 125 kg urea, plus TwinN. A seaweed extract was also included in the comparison as an addition to the standard urea program.

KEY RESULTS

- ♦ The TwinN/reduced urea treatment (125 kg urea/ha) produced the highest total yields with a 3.33 T/ha (7.4%) increase over the standard nutrient program (250 kg urea/ha).
- ♦ A similar increase was measured in marketable yield with the TwinN/reduced urea treatment producing an increase of 3.12 T/ha (7.4%).
- ♦ Petiole sap N levels were maintained at higher levels in the TwinN/reduced urea treatment than the standard nutrient program throughout the trial.
- ♦ Farmer's profitability was improved substantially.

DEMONSTRATION RESULTS

Table 1: Total and Marketable Yield for the three treatments

Treatment	Urea	Urea/Seaweed	TwinN/Reduced Urea	% increase over Urea
Total Yield T/ha	44.75	44.71	48.08	7.4%
Marketable Yield T/ha	42.21	42.29	45.33	7.4%

Yield

The results in Table 1 show that the reduced urea/TwinN treatment gave an increase of 3.12 T/ha in marketable yield. The results in Figure 1 show the petiole sap test results for N, P, and K over part of the season, and these nutrient levels underpin the increased yield results for the TwinN treatment. Nitrogen is essential for good haulm development and the use of TwinN and reduced urea application was able to supply sufficient nitrogen to the crop to maximize yield.

Potatoes require large quantities of K, therefore adequate amounts of the nutrient need to be supplied. K is important in increasing tuber size. The petiole sap measurements shown in Figure 1 show that the TwinN treated plants had elevated K levels during the latter half of the crop cycle when K is most important. P levels were considered by the trial agronomists to be sub-optimal across the entire trial.

Mapleton Agri Biotec Pty Ltd

137 Obi Obi Road, Mapleton Qld 4560 Australia

Phone: +61 7 5445 7151

Email: TwinN@mabiotec.com

www.mabiotec.com

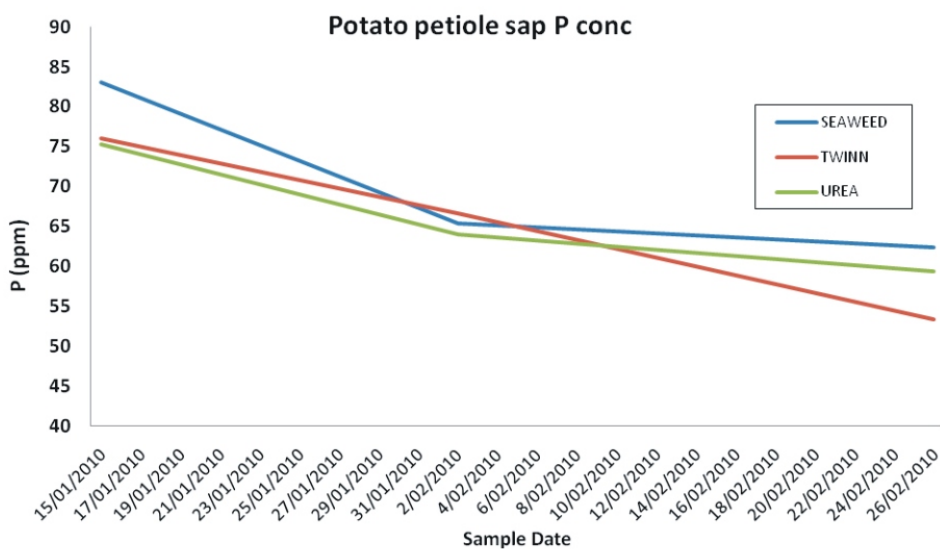
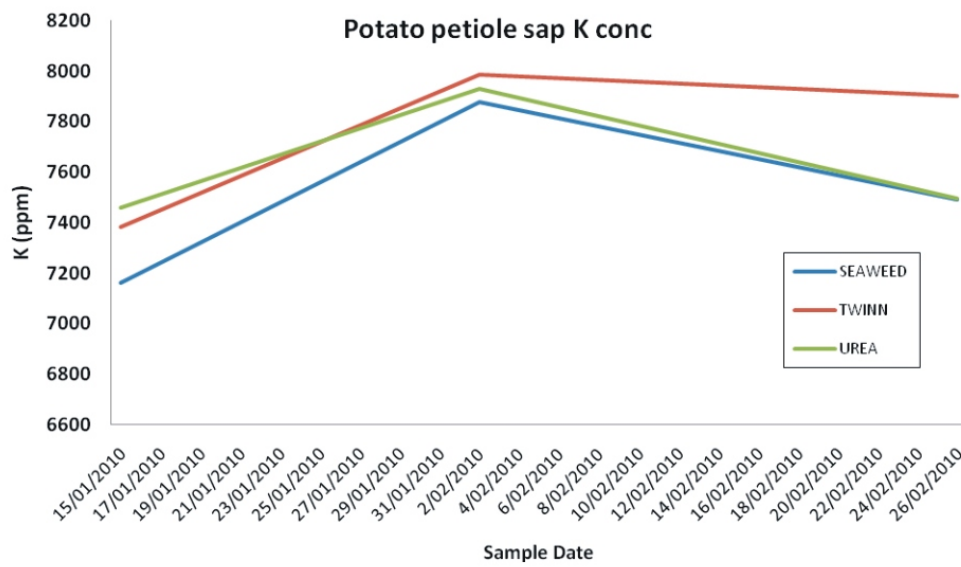
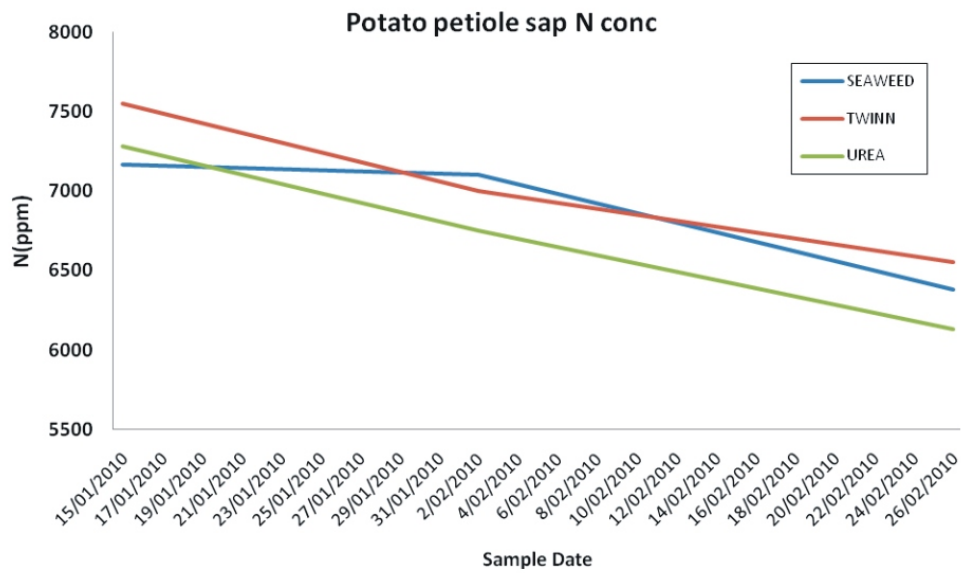


Figure 1: Petiole sap N, P, K concentrations in each treatment through the crop cycle

Profitability

In this demonstration the reduced urea/TwinN treatment gave the highest return to the farmer, due mainly to increased returns. Reduced urea costs were offset by the application of three TwinN applications. Many potato growers use two applications of TwinN but in this demonstration three applications were very successful in maximising yield and therefore, profit to the farmer.

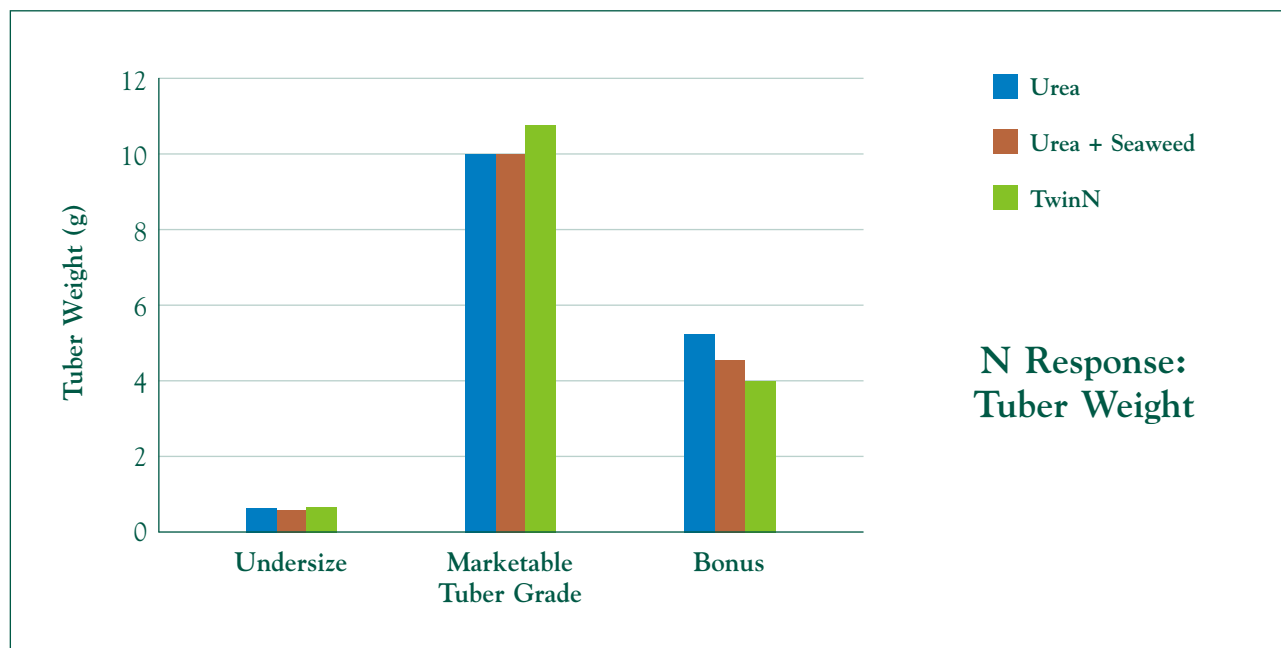


Figure 2: Distribution of tuber weights in different tuber grades for the three treatments

DEMONSTRATION DETAILS

Potato Cultivar	Russet Burbank
Previous Crop	Perennial pasture (2005-2008)
Areas Evaluated	3 replicated plots 25 m x 200 m
Planting Date	10 November 2009
Soil Type	Ferrosol
TwinN Applications	Applications were made early in the day in moist conditions and onto moist soils. A boom spray was used at 160 L/ha.

DISCLAIMER: Any recommendations provided by Mapleton Agri Biotech (MAB) or its Distributors are advice only. As no control can be exercised over storage, handling, mixing application or use, or weather, plant or soil conditions before, during or after application (all of which may affect the performance of our product), no responsibility for, or liability for any failure in performance, losses, damages, or injuries (consequential or otherwise), arising from such storage, mixing, application, or use will be accepted under any circumstances whatsoever. MAB recommend you contact an Agronomist prior to product application. The buyer assumes all responsibility for the use of TwinN.

^aMAB would like to express our appreciation to the growers who contributed to performing this trial.

DISCLAIMER: Any recommendations provided by Mapleton Agri Biotech (MAB) or its Distributors are advice only. As no control can be exercised over storage, handling, mixing application or use, or weather, plant or soil conditions before, during or after application (all of which may affect the performance of our product), no responsibility for, or liability for any failure in performance, losses, damages, or injuries (consequential or otherwise), arising from such storage, mixing, application, or use will be accepted under any circumstances whatsoever. MAB recommend you contact an Agronomist prior to product application. The buyer assumes all responsibility for the use of TwinN.

Table 2: Nutrient applications and timings for the three treatments

Application Date	Product	Control/Urea: kg/ha	Urea/Kelp: kg or L/ha	TwinN/Reduced Urea: kg/ha
Pre Plant fertilizer				
04/11/09	5-9-18-4 + kg/ha	1050	1050	1050
At Planting				
11/11/09	9-10-23-4	1000	1000	1000
Top Dress				
01/12/09	Kelp Extract	-	15	-
12/12/09	Calcium Nitrate	100	100	100
24/12/09	TwinN	-	-	+
30/12/09	Urea	90	90	45
09/01/10	DAP, KSO ₂	Standard	Standard	Standard
15/01/10	TwinN	-	-	+
20/01/10	Urea	90	90	45
28/01/10	Kelp Extract	-	15	-
30/01/10	Calcium Nitrate	50	50	50
09/02/10	TwinN	-	-	+
17/02/10	Urea	70	70	35
25/02/10	Kelp Extract	-	15	-
05/03/10	Kelp Extract	-	15	-

Control/Urea and Urea/Kelp treatments received 250 kg Urea and TwinN/Reduced Urea received 125 kg Urea.