

BEST TM21 Demonstration and its Effect on Nitrogen Utilisation

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Purpose:	Compare varying rates of N on wheat after applying BEST TM21 against a control area of no post nitrogen application.
Location:	Wannamal
Soil Type:	Clay Loam
Soil Results:	pH –(CaCl) 4.6, 4.8; OC- 2.5,2.3; P -22,20; K -101,85; Nitrate -22,17; Ammonium -4,8; S 8.7,9.3
Rotation:	Oats, Pasture, Pasture
GSR:	400mm

BACKGROUND SUMMARY

Researchers in many organizations worldwide have noted improved efficiency of nutrient and water utilisation by plants in soils with higher levels of biological activity. TM21 is a biological stimulant and as such should increase biological activity in soils thus improving the comparative performance of crops, where soil is lacking in biological activity, moisture or nutrient supply is limiting.

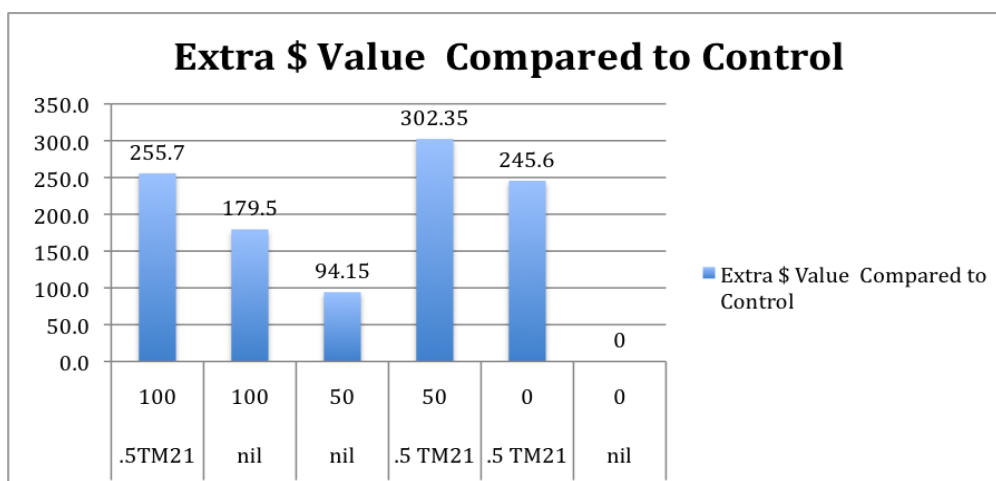
DEMONSTRATION TRIAL DESIGN

Paddock was sown with 853 Forward combine with knifepoint's. Strip trials of 21 meters of BEST TM21 were applied across the working. Urea was then spread at 21-meter strips to correspond with the TM21 strips. Harvest plot sizes were 100m by 11m and were harvested through the middle of the 21-meter trials. This allowed a buffer zone between treatments. This was done because once biology is stimulated it can spread outside of the treated area when conditions are favourable. The crop was sown with Calingiri wheat at 90 kgs/ha, Agstar Extra at 110 kgs/ha. There was Impact on the fertiliser, but no insecticide was applied. The crop was sown on the 25th of May after around 25mm of rainfall. It had 1L of Roundup 450 and 35 gms of Logran.

RESULTS

There were no quality comparisons made at harvest comparing the treatments. Average protein was 10.4% protein for the paddock and the grain was delivered as noodles 1. Farm values for on farm grain price and urea prices (\$625) have been used.

Plot Number	1	2	3	5	6	4
Treatment TM21 L/Ha	.5	0	0	.5	.5	0
Urea Rate kg/Ha	100 kg	100 kg	50 kg	50 kg	0 kg	0 kg
Weight kg	471	425	372	478	438	315
Yield t/ha	4.71	4.25	3.72	4.78	4.38	3.15
Response to TM21	11%	0	0	28%	39%	0
Urea response compared to control	7.50%	35%	18%	9%	0	control
combined response compared to control	49.50%	34.90%	18%	51.70%	39%	control
Urea Cost \$/Ha	62.50	62.50	31.25	31.25	0.00	0.00
TM21 Cost \$/Ha	25.00	0.00	0.00	25.00	25.00	0.00
Gross Value \$	1036.2	935	818.4	1051.6	963.6	693
Net Value \$	948.70	872.50	787.15	995.35	938.60	693.00



The average yield response to TM21 for the three replications was 26%. Yield response from N application also recorded a significant yield increase between 7.5% and 35% but the cost benefit was significantly more for the TM21. The highest rate of N without TM21 gave a lower yield response than the TM21 without N. The above graph shows the comparative return from the treatments of urea and TM21.

It should be noted that this paddock has a very soft history having only grown oats as a crop prior to this year's wheat. It has rarely been treated with fungicides or harsh chemicals. Worm activity was obvious throughout the trial area with higher worm counts in the treated areas.

DISCUSSION

During the growing season crop checks, significant differences in root mass were observed in all crops treated with TM21. Soil structure was also significantly different with treated soils showing a softer cake texture compared with the brittle biscuit like texture in the untreated soils.

Graeme made the comments that even if there wasn't a yield difference the visible impact on plant roots and soil structure were enough for him to use TM21 soil rejuvenator in 2010. Graeme intends using TM21 in 2010 and is hoping the increased margin results seen in his wheat will be repeated along with other crops.

This demonstration has followed trends from other such demonstration and trials. The results have been very encouraging but caution needs to be taken when evaluating these results. Soil biology is very exciting but little understood. BEST Australia hope to continue to work with farmers and agronomists to develop practices to get the most value from their products.

The information is of a general nature and is intended for growers to use to make more informed decisions about these products or services. Please interpret results carefully; decisions should not be based on one season's data. Please contact author for further information.

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