

TWINN CROP TRIAL



Tea Industry: Nchima Estate, Malawi, 2009

KEY RESULT

A large multi-site trial in tea at Nchima Estate compared the cumulative yield over four months from plots receiving the normal 100% nitrogen (N) fertiliser application (Standard) versus two applications of TwinN plus 52% the normal rate of N. TwinN plots yielded an average of 8.8% higher than the Standard treatment while receiving approximately 50% less N fertiliser.



RESULTS

Yield data for TwinN + 52% N vs. Standard 100% N over four months at eight sites

Division	Total Trial Size (ha)	No. TwinN Plots	No. Standard Plots	Avg Plot Size (ha)	TwinN + 52% N*	Standard 100% N*	% increase TwinN vs. Std
Nchima 5600	173.4	2	9	15.8	1928	1832	5.3
Chiwale	169.3	2	13	11.3	2413	2001	20.6
Mango	176.7	3	20	7.7	2500	2004	24.7
Bandanga	162.0	2	15	10.1	1889	1705	10.8
Pemba	161.1	3	17	8.1	2196	2055	6.9
Namitete	160.9	4	21	5.6	2010	1971	2.0
Nabomba	146.5	2	10	12.2	2101	1833	14.6
Mankhamba	133.4	2	12	9.5	1379	1691	-18.5
Total Means					2052	1886	8.8

*Mean cumulative four-month yields (kg/ha).

We thank Nchima Estate for conducting this high quality industry trial and for making the data available for use in this report.

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TRIAL SUMMARY

Trial performed and analysed by: **Nchima Estate, Malawi.**

The trial covered a total of 1283 ha spread across eight divisions within Nchima Estate. Each division contained 2-4 plots treated with TwinN for comparison with 9-21 Standard plots. Average plot size was 10 ha. The plots were on an established tea crop and were harvested monthly in February-May 2009 to give a cumulative four month Total Yield per ha result. Non-nitrogen fertiliser applications were the same across all plots and N fertiliser was applied at either 138 or 144 kg/ha (Standard, 100% N) or 75 kg/ha (52% N) for the TwinN plots.

TwinN was applied twice to TwinN plots in 200 L/ha water using a knapsack.

CONCLUSIONS

Use of TwinN at Nchima Estate enabled an 8.8% yield increase with a 48% reduction in nitrogen fertiliser (if the unusual Mankhamba result is omitted a yield increase of 12.2% was recorded). No differences were observed between quality traits in TwinN versus Standard plots.

The ability to grow high yields of tea with reduced nitrogen fertiliser inputs is important in increasing profitability, and this effect will be increased as nitrogen fertiliser prices increase. In addition the use of TwinN provides secondary benefits including:

- ◆ Improved availability of bound phosphates in soil via the activity of TwinN microbes.
- ◆ Improved soil health and increased fertility over time due to reduced negative effects of nitrogen fertiliser on soil pH, carbon levels and structure, and increased beneficial microflora in soil.
- ◆ Decreased carbon footprint per kg of tea due to reduced nitrogen fertiliser use.



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