

TWINN CROP TRIAL

Tomatoes, California, 2017



Summary

An independent, replicated trial was undertaken on a commercial tomato cultivar to determine if high yields could be achieved using reduced nitrogen fertilizer rates and two applications of TwinN. The TwinN plots received 50 lb N/ac less (33%) compared to the Standard Grower Program. The TwinN treated plots yielded 51.1 tons/ac versus the yield from the Standard Program of 47.9 tons/ac, although the yield increase was not statistically different.

Trial Procedure

The trial was performed by Holden Research and Consulting at Camarillo, California. Trial design was a Randomized Complete Block with four replicates. Planting date was 5 May 2017 and harvest was completed in November 2017.

Treatments

1. Standard Grower Program
 - 150 lb N/ac in four applications
2. TwinN Treatment
 - Two applications TwinN in 25 gallons water/ac and applied to the roots. Application 1 was at 10 days after transplant and Application 2 was at 46 days after transplant.
 - 100 lb N/ac in four applications

Cultivar

Dri-319 (a cannery cv)

Results

| TwinN plus reduced Nitrogen | Standard Grower Program |
|-----------------------------|-------------------------|
| Yield: 51.1 tons/ac* | Yield: 47.9 tons/ac |

* Yields were not significantly different ($p=0.05$) between treatments

- Height, vigor and SPAD measurements during crop development showed no significant differences between treatments
- End of season leaf analysis showed adequate levels of all nutrients with slightly elevated nitrogen in TwinN plots.



Conclusion

Two applications of TwinN enabled a significant (33%) reduction of nitrogen fertilizer with no reductions in yield.

Nitrogen and TwinN application schedule for trial

| Applications | Standard Grower Program | TwinN Program |
|----------------------------|-------------------------|---------------------------|
| Pre-plant pre- 5 May 2017 | NIL | NIL |
| TwinN applied 16 May 2017 | NIL | Standard Rate |
| 2 June 2017 | 21 lb N*/ac | 14 lb N /ac |
| 14 June 2017 | 43 lb N /ac | 28 lb N /ac |
| TwinN applied 20 June 2017 | NIL | Standard Rate |
| 28 June 2017 | 43 lb N /ac | 28 lb N /ac |
| 12 July 2017 | 43 lb N /ac | 28 lb N /ac |
| Total N | 150 lb N /ac | ~100lb N /ac (minus 33%N) |

* In-crop N was supplied as UAN 32

GENERAL RECOMMENDATIONS FOR USE OF TwinN IN TOMATO CROPS

- Apply TwinN at transplanting or soon after. Apply TwinN again about 8 weeks after transplanting.
- Apply TwinN in non-chlorinated water into the root zone via any fertigation system.
- Maintain the pre-plant nitrogen at standard rates and make cuts to in-crop nitrogen applications. The overall nitrogen cuts should be up to 25% reduced from the total standard crop nitrogen application rate.
- Spread the in-crop cuts as evenly as possible across the crop cycle. Be sure not to cut other nutrients while cutting nitrogen rates.
- For organic tomato crops
 - apply TwinN after transplanting, at 6 weeks after transplanting and at 12 weeks after transplanting.
 - maintain all normal sources of organic nutrients at standard rates
- Contact your TwinN distributor for advice on how to use TwinN in your cropping system.



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