

# TWINN CROP TRIAL



Corn: Osage, Missouri, USA, 2007-2008

## KEY RESULT

A single application of TwinN in combination with standard N and P application resulted in a **4.6% yield increase** over the treatment receiving standard N application alone, in an independent replicated trial during 2007. A repeat trial in 2008 using two applications of TwinN, plus standard N application, showed a **13.6% increase** in yield over the standard N application treatment.

## TREATMENTS

Treatment No.	Fertiliser (kg N/ha)	No. of TwinN Applications
1	132	0
2	132	1 in 2007    2 in 2008

## RESULTS: Grain Yield from TwinN Trials During 2007 and 2008

k	2007 Trial			2008 Trial		
	Bu/A	Kg/ha	Increase c	Bu/A	Kg/ha	Increase c
Treatment 1	208.0 a	13,137 a	0.0%	200.0 a	12,632 a	0.0%
Treatment 2	217.5 b	13,737 b	4.6%	227.2 b	14,350 b	13.6%
LSD (0.05)	9.0	568		9.6	606	

**a, b:** The same letter indicates no significant difference at  $p = 0.05$ . Different letters mean a significant difference. **c:** % increase over Treatment 1.

**Soil Microflora:** Statistically significant increases in Pseudomonad bacteria and Mn reducing bacteria were measured in soil of TwinN treated plots (data not presented here). Both are important to soil health. Mn reducing bacteria act to increase plant availability of manganese and other micronutrients.

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## TRIAL SUMMARY

**Trial Performed & Analysed By:** University of Missouri\*  
**Trial Design:** Imposed research plots within an 8 ha field as strip-blocks at 6x15; 3 replicates

## TRIAL DETAILS

### 2007 TRIAL

Maize planted in late May, minimum tillage

**Soils:** Jemerson silt loam

**Varieties:** MorCorn (MFA), at 28,000 plants/A

**Roundup herbicide applied:** 13 June 2007

**TwinN applied:** 13 June 2007

**Test plots harvested:** 4 October 2007

### 2008 TRIAL

Maize planted in late May, minimum tillage

**Soils:** Jemerson silt loam

**Varieties:** Pioneer; at 28,000 plants/A

**Roundup herbicide applied:** 20 June 2008

**TwinN applied:** 18 June, 5 July 2008

**Test plots harvested:** 18 October 2008

**Fertiliser applications across all plots for 2007 and 2008:** Nitrogen applied at 112kg N/ha (anhydrous ammonia) plus 20kg credit from previous soybean crop. Soil analysis indicated sufficient P. K applied at 60 lb/A as K<sub>2</sub>O.

## TwinN Application Conditions

**Weather Conditions 2007 & 2008:** 28°C onto dew, high humidity

**Application Method:** Backpack 40 gall/A

**Crop Stage:**  
2007 - Single application only, V5 (5 leaf stage)  
2008 - 1<sup>st</sup> Appn V4 (4 leaf stage), 2<sup>nd</sup> Appn V7/8 (early silk emergence and tassel development)

## CONCLUSIONS

- ♦ Application of TwinN increased yield by 4.6% (1 application) and 13.6% (2 applications) in subsequent years at the same site.
- ♦
- ♦ TwinN should be trialed in combination with 25 and 50% of normal nitrogen rates to assess the potential for increased economic returns to producers.
- ♦
- ♦ TwinN significantly improved the numbers of beneficial soil microbes in 2007 and 2008 trials.

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