# TWINN CROP TRIAL

*Oil Seed Rape: Lincolnshire, UK, 2010*

## INTRODUCTION

This trial was performed to extend the findings of a previous trial in 2009 which showed that making the first application of TwinN to the young OSR crop in autumn was effective in setting up the young crop before winter to enable better growth in the following spring. In many districts spring applications of synthetic nitrogen fertiliser are limited in Nitrate Vulnerable Zones (NVZs) which can reduce crop vigour. The 2010 trial was performed to confirm the capacity of TwinN to maintain high yields with reduced nitrogen fertiliser application.

## KEY RESULT

An independent trial in winter oilseed rape showed:

- Two applications of TwinN plus 180 kgN/ha produced a yield (5.8 T/ha) statistically equivalent to the standard 220 kgN/ha with no TwinN (5.9T/ha).

## TREATMENTS

| 15/03/2010 | 30/03/2010 | 31/03/2010 | 8/04/2010 | 13/04/2010 | Total N kgN/ha |
|---|---|---|---|---|---|
| 18 Kieserite | 0 | | 0 | | 0 |
| 40 D Top | 50 | TwinN | 50 | TwinN | 140 + 2 TwinN |
| 40 D Top | 70 | TwinN | 70 | TwinN | 180 + 2 TwinN |
| 40 D Top | 100 | | 80 | | 220 |

## RESULTS

| Treatment kgN/ha | Yield T/ha | Yield change % |
|---|---|---|
| 0.0 | 4.0 c | 100 |
| 140 + 2 TwinN | 5.5 b | 139 |
| 180 + 2 TwinN | 5.8 a | 145 |
| 220.0 | 5.9 a | 149 |
| LSD (p=0.05) | 0.32 | - |

Yield values with the same letter beside them are not statistically different.

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The OSR trial results in 2009 showed a moderate yield increase in the TwinN/reduced nitrogen fertiliser treatments with an autumn application of TwinN compared to the standard nitrogen application. This 2010 trial showed that reductions of nitrogen fertiliser are possible without significant yield decreases even when the first application of TwinN is made in spring. The 180 kgN plus two TwinN applications produced almost exactly the same yield as the 220 kgN treatment (5.8 versus 5.9 T/ha). A further reduction in nitrogen to 140 kgN plus TwinN resulted in a statistically significant 7% yield decrease.

The ability to maintain high yield with reduced nitrogen inputs using TwinN, particularly in NVZs, provides farmers with a useful tool to retain profitability while addressing environmental considerations and legislation. Reduced application of nitrogen fertilisers and use of TwinN also provides reduced carbon footprint and general improvement of soil quality and structure.

## TRIAL SUMMARY

**Trial performed and analysed by:** The Arable Group (TAG)
**Design:** Randomised Block, 3 replicates per treatment

## TRIAL DETAILS

**Crop:** WOSR
**Location:** Aby, Lincolnshire
**Soil type:** Salop - Loam over clay
**Soil analysis:** P-13 K-112 , Mg-54 , pH-7.4 , OM-4.4 %
**Previous crop:** Winter Wheat

**Drill date:** 08/09/09
**Seed rate:** 70 seeds $m^2$
**Variety:** PR46W21
**Drilled plot size:** 12m x 2m
**Replicates:** x 3

| Input type | Product | Product rate | Date |
|---|---|---|---|
| Herbicide: | Novall | 2.25 l/ha | 11/09/09 |
| | Laser | 0.75 l/ha | 02/10/09 |
| | Crawler | 3.5 kg/ha | 27/01/10 |
| | Galera | 0.35 l/ha | 23/03/10 |
| | Glyphogan | 4.0 l/ha | 14/07/10 |
| Fungicide: | Folicur | 0.75 l/ha | 08/04/10 |
| | Proline 275 | 0.55 l/ha | 05/05/10 |
| Insecticide: | Cypermethrin | 0.2 l/ha | 02/10/09 |
| | Hallmark Zeon | 75 ml/ha | 10/04/10 |
| Adjuvants: | Wetta + | 0.1 l/ha | 02/10/09 |