

**Objective:** To evaluate crop response to soil and foliar micro-nutrients applied to spring barley

**Crop:** Spring Barley

**Location:** North Cliff, Yorkshire

**Date:** 2016

**Researcher:** NDSM (now Eurofins)

**Trial code:** 16837

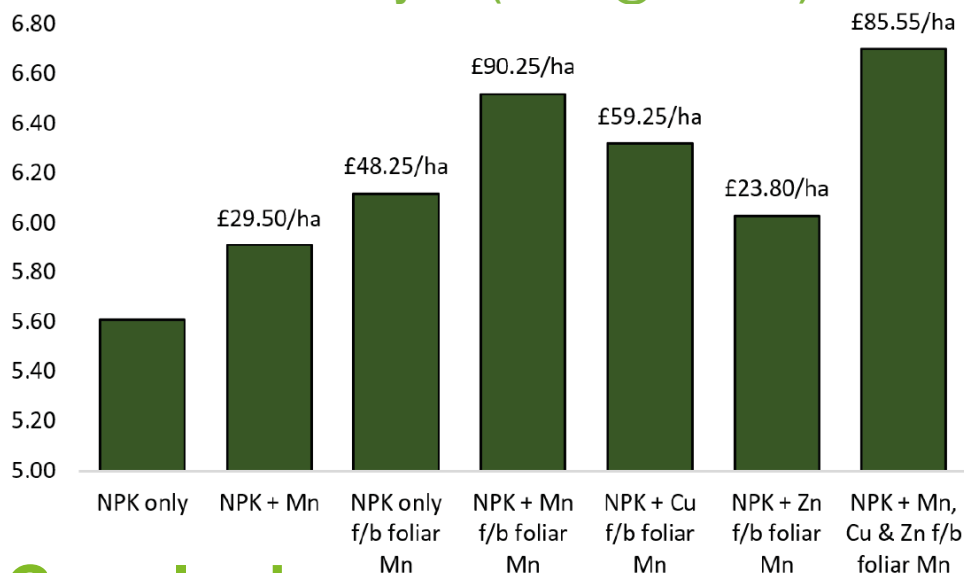


## Backgrounds and treatments:

Treatment	Seedbed fertiliser	Foliar treatment	Treatment	Seedbed fertiliser	Foliar treatment
1	NPK only	None	4	NPK + Mn	Mn @ GS13 & GS30
2	NPK + Mn	None	5	NPK + Cu	Mn @ GS13 & GS30
3*	NPK only	Mn @ GS13 & GS30	6	NPK + Zn	Mn @ GS13 & GS30
* Standard farm practice			7	NPK + Mn, Cu, Zn	Mn @ GS13 & GS30

Sandy loam, pH 7.2, soil is very deficient in Mn, slightly deficient in Cu and optimal for Zn; CEC is low indicating a low potential to hold nutrients. Standard farm practice is to apply foliar manganese 2-3 times.

## Results: Grain yield (mt/ha @ 15% mc)



## Conclusions:

- Higher yield response to soil applied Mn followed by foliar Mn (trt 4) than either on their own (trts 2 & 3), indicating a synergistic yield response from an integrated soil and foliar programme
- Soil applied Cu (trt 5) increased yield compared to 'farm practice' (trt 3) but soil applied Zn did not, which is in line with low soil Cu and optimal soil Zn
- However, the highest grain yield was from soil applied Mn, Cu and Zn together followed by foliar Mn (trt 7), indicating a synergistic benefit from an early, soil applied combination of micro-nutrient
- Treatment 4 – soil and foliar applied Mn – gave the highest return on investment, £90.25 per ha