Residual Nitrogen in Barley

LANDMARK look to us

Aim:

To evaluate the residual nitrogen impact on barley yields following inoculated field pea plots from the previous season.

Background:

Becker Underwood have released a new generation of inoculants that are 'stacked' with traits that are beneficial to plant growth, over and above those that help in the utilisation of nitrogen. This trial had these treatments in 2010 season when we grew peas. In 2011, barley was sown over the top of these plots to observe any residual effect on yield.

Table 1. Summary of assessments.

Trt. No.	2010 Treatment.	2010 Field Pea Yield T/ha.	2011 Barley Yield T/ha.	2011 Barley Yield % of UTC.	ROI $/ha 2010 + 2011
1	UTC	4.07 a	3.85 a	100	$0
2	Nodulaid	4.53 a	3.91 a	102	+ $126.60
3	Nodulaid Biostacked	4.35 a	4.08 a	106	+ $110.30
4	Nod. Biostacked + Florite	4.17 a	3.93 a	102	+ $27.00
	Co-efficient of variation	7.5%	6%		
	LSD 5%	0.64	0.44		

Means followed by the same letter do not differ significantly.
ROI = Return on Investment and takes into account the cost of the 2010 inoculant treatments + yield response, working off of 2010 Peas $260/T, 2011 Barley $200/T.

Discussion:

This trial was sown into moist soil. Rainfall through winter was average followed by a prolonged dry spell from August 22nd until late September. October and early November had relatively cool ripening conditions which resulted in good yields.

The use of inoculants on field peas in 2010 resulted in yield increases across all treatments, however this was not significant. In 2011, all treatments showed a yield increase (again, not significant), which is likely to be driven by the residual nitrogen. The trial only received 80kg/ha of MAP at planting (8kg/ha of N) and no top-dressed nitrogen. Whilst there were no obvious signs of nitrogen stress throughout the season, the results show an apparent yield response from inoculating field peas. There was no discernible difference amongst inoculant treatments.

It should be noted that due to time constraints, there were no extra assessments taken to validate the inoculant response such as nodule counts (on the field peas), soil tests prior to planting the 2011 trial or protein analysis of the 2011 barley samples.

Take Home Messages:

- **The results in consecutive years show yield response to inoculating field peas**
- **Even though field peas are not often inoculated on NYP, this trial shows economic response from inoculants**
- **Similar results observed in chickpeas at Paskeville**
- **Residual nitrogen from pulse crops is very valuable for cereals and is cheaper than UAN or Urea**
- **Even small insignificant yield responses can add up financially as a benefit to the farmer!**