Field Pea Inoculation Trial

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A field pea inoculation trial was conducted to compare inoculant treatments submitted by commercial manufacturers / distributors to an absolute control (no inoculum, no N fertilizer) and a treatment with 60 lbs. total N (soil test + fertilizer) / acre.

The experiment was installed on a field with a loose history of field pea production. A soil test the previous fall indicated 34 lbs NO_3^--N / acre in the top 24 inches. The soil tested 12 ppm (Olsen) for phosphate, which is considered to be in the "high" range. Cultivar 'Integra' (yellow-cotyledon) was sown at the rate of 300,000 live seeds / acre on 20 May in a randomized complete block design with six replicates. Individual plots were 7 (7") rows wide x 25' long.

All inoculation treatments were numerically superior to the control in visual nodulation scores on 15 July and 15 of the 21 were significantly better (Table 1). However, these differences were not translated into significant differences in days to end bloom or physiological maturity, plant height, lodging, test weight, or seed weight.

Table 1. Field pea performance in the inoculant evaluation trial (6 reps), NDSU Carrington, 2004.

Treatment	Company	Formulation	Visual Nodulation (1-9)[1]	Physiological Maturity (DAP)[2]	Grain Yield (bu/ac)
Control	---	---	3.7	88.2	68.0
N Fertilizer 60lbs	---	---	5.0	88.3	77.0
Apex	Agribiotics	Liquid	2.8	88.5	79.0
BU-LQBS	B. Underwood	Liquid	1.8	88.2	67.1
BioRx	B. Underwood	Liquid	2.0	88.7	75.4
CellTech C	Nitragin	Liquid	2.5	89.5	79.3
CellTech PCI	Nitragin	Liquid	2.8	88.0	75.9
N-Take	INTX Microbials	Liquid	3.0	89.7	79.2
N-Row	INTX Microbials	Granular	3.3	87.8	80.6
NitraStik C	Nitragin	Peat	3.0	87.7	77.0
Nitragin Exp 1	Nitragin	Liquid	3.2	89.3	77.3
Nitragin Exp 2	Nitragin	Liquid	3.2	89.2	82.3
Nitragin Exp 3	Nitragin	Peat	3.0	88.8	79.3
Nitragin Exp 4	Nitragin	Granular	3.0	88.0	76.2
Protec	BioCoat Tech.	Pre-inoculant	2.7	88.5	78.4
PulseR	Agribiotics	Peat	2.5	88.5	77.9
RhizoFlo	B. Underwood	Granular	3.2	88.0	75.2
So-fast Granular	UAP	Granular	2.8	88.3	78.0
So-fast Liquid	UAP	Liquid	2.5	89.2	82.1
So-fast Peat	UAP	Peat	2.7	88.0	74.7
Soil Implant	Nitragin	Granular	3.0	90.0	84.9
TagTeam Liquid	PhilomBios	Liquid	3.5	87.8	77.2
TagTeam Peat	PhilomBios	Peat	3.2	88.5	83.4
Mean	---	---	3.0	88.5	77.7
C.V. (%)	---	---	19.3	1.7	10.2
P-value	---	---	<0.0001	0.3458	0.0676
LSD (0.05)	---	---	0.7	NS	NS
LSD (0.01)	---	---	0.9	NS	NS

[1] 1 = profuse, 9 = none

Pea yields were exceptional, with a trial average of 77.7 bushels / acre. Although no differences were statistically significant ($P<0.05$), all but one inoculant treatment numerically increased yield. Soil Implant, TagTeam Peat, Nitragin Experimental 2, SowFast Liquid, and N-Row yielded above 80 bushels / acre. Of the 21 inoculants tested, 20 resulted in a 10 - 25% yield increase over the uninoculated control.