

**Corn seed inoculation with *Azospirillum brasilense* and *Stutzerimonas stutzerias* a tool to improve corn establishment and partially replace nitrogen**

John Rickertsen – Hettinger Research Extension Center

The biological products or additives promising to reduce N use or to improve N use efficiency are gaining attention and interest. *Azospirillum brasilense* is a plant growth-promoting bacteria that has been used successfully in corn, wheat, and grass pastures, especially in Brazil. This trial was carried out in four no-till locations: Minot (NCREC), Carrington (CREC), Dickinson (DREC), and Hettinger (HREC). Initial soil testing (0-6; 6-24 inches) was done to evaluate soil physical-chemical properties to determine the N rates to be applied. Phosphorus, potassium, and other nutrients will be applied based on soil test results. Plot dimensions were 10 ft wide by 22 ft long. The fertilizer was applied 4” in the ground using a no-till plot drill just prior to planting. The bacterial treatments were applied to the corn seed according to manufactures directions just prior to planting. The center two rows were harvested with a small plot combine with an on-board weigh system. The results in 2025 at Hettinger showed increased yield with nitrogen treatments over the untreated check, but neither of the bacterial treatments increased yields over the treatments without bacteria.

Corn Bacterial Inoculant - 2025				Hettinger, ND
Treatment	Stalk Lodge	Moisture Content	Test Weight	Grain Yield
	%	%	lbs/bu	bu/ac
Check - 0 % N	0	14.6	62.1	87
Check - 75% N	0	14.7	62.5	101
Check - 100% N	0	15.0	63.4	106
<i>Azospirillum</i> - 0 % N	0	14.0	60.8	84
<i>Azospirillum</i> - 75% N	0	15.4	62.9	97
<i>Azospirillum</i> - 100% N	0	15.7	62.8	106
<i>Stutzerimonas</i> - 0 % N	0	14.2	60.1	84
<i>Stutzerimonas</i> - 75% N	0	14.4	61.3	93
<i>Stutzerimonas</i> - 100% N	0	16.5	62.8	107
Trial Mean	0.0	14.9	62.0	96
C.V. %	--	6.2	1.2	8.0
LSD 5%	--	1.3	1.0	11.7

Planting Date: May 29

Harvest Date: October 22

Previous Crop: Corn

Corn Hybrid: Dekalb DKC081-18RIB