N-TIME™ IMPACTS

OPTIMIZE APPLICATIONS

Following N-Time™ recommendations, a farmer optimized their nitrogen use efficiency (NUE) and maintained strong yields.

Grand Island, NE - 2022

SENTINEL FERTIGATION | N-TIME™

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OPTIMIZE APPLICATIONS

CASE STUDY SUMMARY

In the 2022 growing season, a farm operation near Palmer, NE implemented N-Time™ on 11 pivot irrigated cornfields . This operation used N-Time™ to manage – and optimize – their in-season nitrogen application program. Overall, N-Time™ helped this operation improve nitrogen use efficiency (NUE) by 25% and save 52 lb-N/ac on average. This case study will show how they did it, using details from 3 specific fields.

OPERATION OVERVIEW

Field 1 Profile

Soil Type(s): Silt Loam
Seed Type(s): 0817Q
Tillage: Strip-Till
Topography: Minimal slope

Field 2 Profile

Soil Type(s): Loam
Seed Type(s): P1089AMXT
Tillage: Strip-Till
Topography: Flat

Field 3 Profile

Soil Type(s): Sandy loam, Silt Loam
Seed Type(s): P1089AMXT
Tillage: Strip-Till
Topography: Minimal slope

GRAND ISLAND WEATHER JUNE-AUGUST 2022

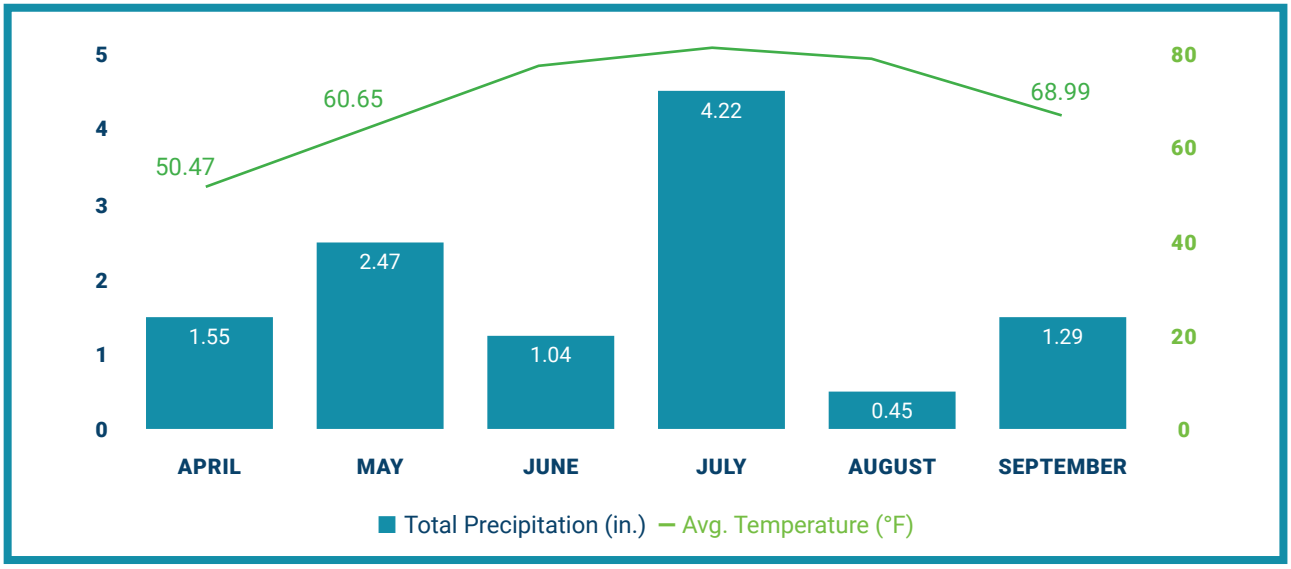

FIG. 1

STANDARD NITROGEN MANAGEMENT

All fields for this operation, including the 3 specified here, typically receive nearly 250 lb-N/ac each growing season. Nitrogen applications include a pre-planting application of 10-34-0 via strip till, an application of 28-0-0-5 and 10-34-0 at planting, and subsequent 15-30 lb-N/ac applications of 28-0-0-5, spoonfed via fertigation through the growing season. Figure 3 (Nitrogen Narrative) shows a typical nitrogen application program.

N-TIME™ IMPLEMENTATION

Sentinel generated management zones for these fields using soil organic matter, elevation, and slope data. These zones were uploaded to N-Time™ and used to place indicator slices for satellite image calibration throughout the growing season. These slices were established during the first fertigation application using an irrigation prescription generated by N-Time™ and uploaded to AgSense. The farmer followed N-Time™ analytics and fertigation recommendations closely to align their in-season nitrogen applications with crop needs.

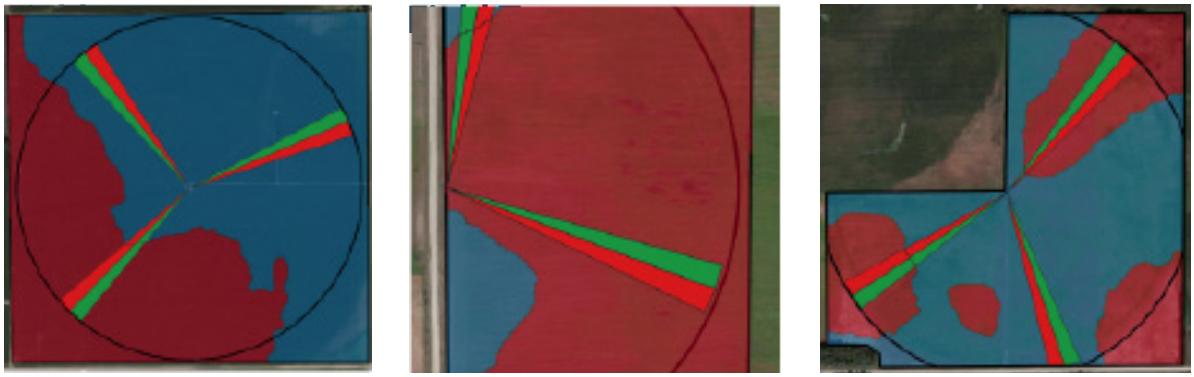

FIG. 2

NITROGEN NARRATIVE

This operation's typical nitrogen applications (without N-Time™) are shown in the top row of Figure 3 (without N-Time™) . Application totals for the three fields using N-Time™ in 2022 are shown in the middle three rows. For each field, N-Time™ analytics recommended less-frequent nitrogen applications than the typical spoon feeding approach. With 2-4 fertigation applications for each field, the farmer applied 185 lb-N/ac for Field 1, 198 lb-N/ac for Field 2, and 167 lb-N/ac for Field 3.

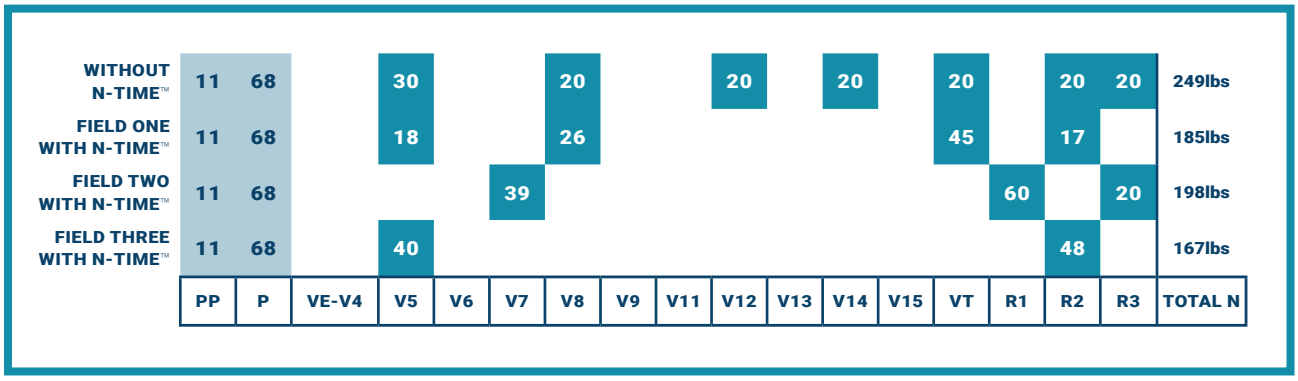

FIG. 3

N-TIME™ RESULTS

Using N-Time™ in 2022, this operation made 2-4 nitrogen applications across their fields via fertigation instead of their traditional spoon feeding approach. They matched their application timing with the crop's needs, maximized their nitrogen efficiency, and applied significantly less fertilizer – all while producing higher yields than expected. At a nitrogen price of $0.63/lb, this operation saved nearly $35,000 using N-Time™.

	WITHOUT N-TIME™	WITH N-TIME™
Yield (bu/ac)	219	233
N Applied (lb/ac)	250	198
NUE (lb/bu)	1.14	0.86
N Spent ($/ac)	157.50	124.85

FIG. 4

	Total N applied (lb/ac)	Change in N aplied (lb/ac)	N Savings ($/ac)	Yield (bu/ac)	NUE (lb-N/bu)	Change in NUE (%)
Field One	185	-65	40.95	266	0.7	40
Field Two	198	-52	32.76	229	0.86	25
Field Three	167	-82	51.66	229	0.73	40

FIG. 5

FARMER'S THOUGHTS

If you'd like to see this performance on your field, visit **sentinelfertigation.com** to learn more.