

# Tracking Nitrogen in Corn

## 2016 Buffalo and Trempealeau Results

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Winter Farmer Forum: Cover Crops, Soil Health and Nitrogen  
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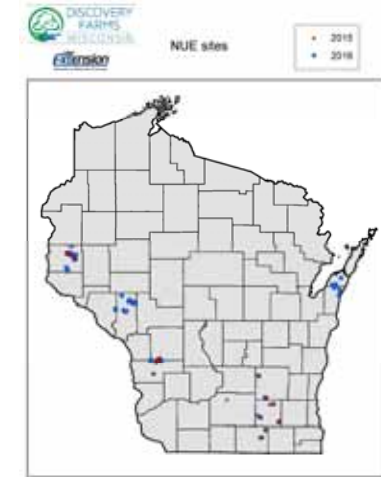


## Nitrogen Use Efficiency Project

Working with farmers to evaluate their current N management practices on corn fields.

In 2016:  
11 Counties  
43 Farmers  
101 Fields

Pre-season soil N  
Pre-sidedress soil N  
N sources and inputs  
Crop yield and N content  
Post-season soil N



## Nitrogen Use Efficiency Project

1:1 on-farm NUE Project happened within 6 watersheds in 2016.

Dry Run – St Croix  
Ahnapee – Door and Kewaunee  
Upper Rock – Dodge, Jefferson, Rock  
Yahara – Dane  
Jersey Valley – Vernon, Monroe  
Elk Creek – Trempealeau, Buffalo

Elk Creek Farmer-Led Watershed  
19 corn fields on 7 farms  
Trempealeau and Buffalo Counties



## Nitrogen Cycle

- Soil chemistry and properties
- Soil microbes
- Temperature
- Precipitation
- Organic N sources
- Crediting and availability
- Plant N needs and production recommendations
- Water quality
- Ag public relations

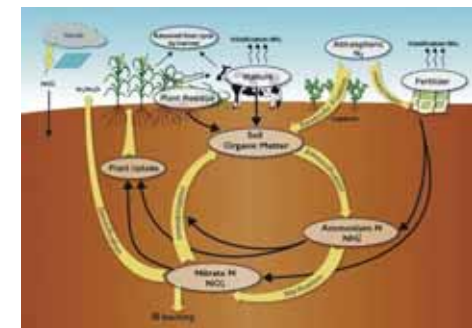
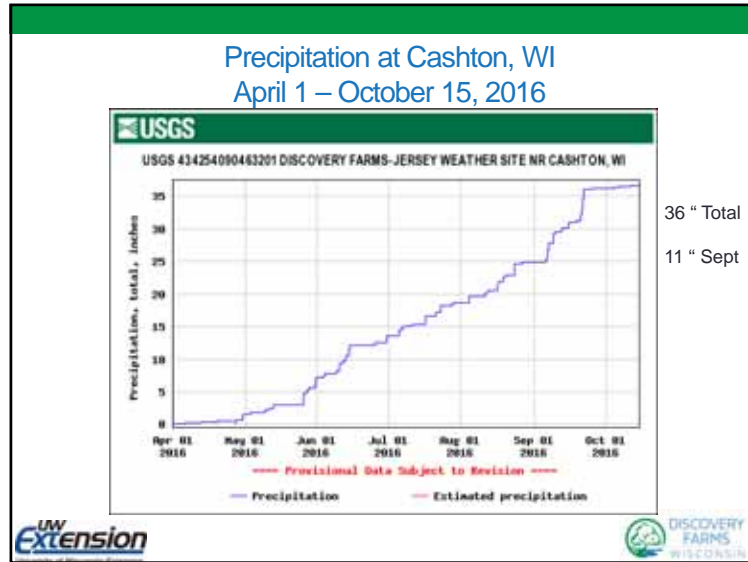


Photo Courtesy of UW Nutrient and Pest Management Program





### Nitrogen in America's Dairyland N sources are part of our farming systems

Corn silage, corn grain, alfalfa / grass hay  
Livestock manure  
Nutrient Management: legume N and manure N-P-K to complement fertilizers  
Soil and Water Conservation

### 2016 NUE Corn Fields, Elk Creek Farmer-Led Watershed 8 Grain Fields

Field	Soil	Previous Crop	Manure N	Fertilizer N	Total N Applied	Corn Grain Yield	NUE / Traditional
		rotational bump	lb/ac	lb/ac	lb/ac	bu/ac, 15.5%	N applied/yard
0Pillot	C	45	132	177	220	0.80	
1Merit	C	45	150	195	202	0.97	
2Huntsville	Sb	0	179	179	246	0.73	
3Huntsville	C	0	209	209	242	0.86	
4Seaton	Sb	0	180	180	272	0.66	
14Hixton	Alf	18	158	176	255	0.69	
18Seaton	Sb	0	116	116	281	0.41	
20Norden	Alf	0	116	116	201	0.58	

### 2016 NUE Corn Fields, Elk Creek Farmer-Led Watershed 11 Silage Fields

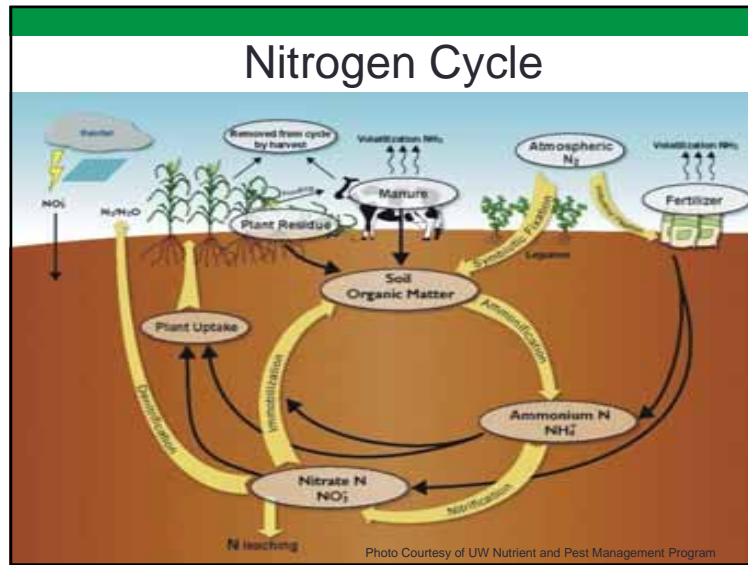
Field	Soil	Previous Crop	Manure N	Fertilizer N	Total N Applied	Corn Silage Yield	N content of silage	NUE / PNB
		rotational bump	lb/ac	lb/ac	lb/ac	t/ac DM	lb/ac	N content/N applied
5Seaton	C	100	103	203	10	238	1.17	
6Hixton	C	70	103	173	9.1	206	1.19	
7Hixton	Alf	0	103	103	9.5	217	2.11	
8Bilson	C	231	113	344	9.4	211	0.61	
9Huntsville	Alf	231	68	299	9.7	233	0.78	
10Bilson	C	231	0	231	9.5	226	0.98	
11 Festina	Sb	54	204	258	9.4	237	0.92	
15Churchtown	C	48	136	184	9	187	1.02	
16Ettrick	C	45	159	204	9.1	218	1.07	
17Worthen	Alf	72	55	127	8.4	186	1.46	
19Seaton	C	80	116	196	8.8	202	1.03	

2016 NUE Corn Fields, Elk Creek Farmer-Led Watershed  
**Fertilizer Management**

Field	Total N Applied lb/ac	Fertilizer N lb/ac	Pre-plant	Plant Fertilizer Management	Post 1	Post 2
0	177	132		Starter	Urea + AMS	
1	195	150		Starter	Urea + AMS	
2	179	179	DAP + AMS + Urea	Starter		
3	209	209	DAP + AMS + Urea	Starter		28%
4	180	180	DAP + AMS + Urea	Starter	Urea + AMS	
5	203	103		Starter	Urea + AMS	
6	173	103		Starter	Urea + AMS	
7	103	103		Starter	Urea + AMS	
8	344	113			Urea + AMS	28%
9	299	68			Urea + AMS	
10	231	0	none			
11	258	204	Urea + Potash	Starter		28%
14	176	158	Urea + Potash	Starter		28%
15	184	136	DAP + Potash	Starter + 28% + AMS	Urea + AMS	
16	204	159	Potash	Starter + 28% + AMS	Urea + AMS	
17	127	55		Starter + 28% + AMS	Potash	
18	116	116		Starter	Urea	
19	196	116		Starter	Urea	
20	116	116		Starter	Urea	

2016 NUE Corn Fields, Elk Creek Farmer-Led Watershed  
**Manure Management**

Field	Total N Applied lb/ac	Manure N lb/ac	
0	177	45	Fall poultry litter, surface
1	195	45	Spring poultry litter, surface
5	203	100	Fall liq dairy, inc
6	173	70	Fall liq dairy, surface
8	344	231	Fall liq dairy, inc
9	299	231	Spring liq dairy, inc
10	231	231	Spring liq dairy, inc
11	258	54	Winter, spring solid beef, surface
14	176	18	Fall solid beef, surface
15	184	48	Winter solid dairy, surface
16	204	45	Fall liq dairy, surface
17	127	72	Spring poultry litter, surface
19	196	80	Spring solid dairy, surface



**Summary: Big Dials and Little Dials**

- Soils and fields – Yield potential
- Know and anticipate / manage the N cycle
- Rotational bump – Alfalfa and Soybeans
- Livestock manure – know N,P,K content and application rate
- Fertilizer products and placements
- N inhibitors and slow release materials
- Technology and big data

Thank You!

Questions??



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