

FIELD EXPERIMENT HISTORY

Title: Alfalfa - Corn Response to Rotation (Apogee Trial Embedded).
Experiment: 09AC **Trial ID:** 3680 **Year:** 2014
Personnel: Joe Lauer, Thierno Diallo, Kent Kohn
Location: Arlington, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS333 **Previous Crop:** See Factors **Soil Type:** Plano silt loam
Soil Test Date: 11/11/2014 **pH:** 6.5 **OM (%)** 3.2 **P (ppm)** 26 **K (ppm)** 140

Plot Management

Tillage Operations: No-Till

Fertilizer:	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	N/A	N/A	N/A
Starter :	46-0-0	70	5/20/14
Post plant :	28-0-0	CC and 2C: 130	6/11/14
Manure:	N/A	1C: 90	N/A
Herbicide:	Corn: Defy 16 oz/A 2/12/14 Roundup 28 oz/A 5/12/14 Roundup 18 oz/A 6/12/14 Alfalfa: Raptor 5 oz/A 6/27/14 Roundup 28 oz/A 9/24/14	Insecticide: None	
Irrigation:	None	Hybrid: C: Pioneer N49W 3000GT2 A: WL 352 LHRR	
Planting Date:	C: 5/20/14 A: 5/31/14	Planting Depth: C: 1.5" A: 0.5"	Row Width: C: 30" A: 6"
Target Plant Density: 35000		Planting Method: C: Kinze PT planter A: JD750 No-Till drill	
Harvest Date:	G: 10/31/14 S: 9/19/14 A: 5/29/14; 7/23/14; 9/4/14	Harvest Method: G: Massey 8XP S: NH 707 A: Almaco Harvester	
Notes:			

Experimental Design

Design: RCB split-split-block	Replications: 3
Plot Size Seeded: MP: 60' x 75' SP: 10' x 34	Experiment Size: 3.47 A
Factors/Treatments:	Harvest Plot Size: G: 5' x 34.5'
<u>Rotation - 2014 Treatments:</u>	<u>Kudos Treatment:</u>
1) AAACC-2C 8) AACC- 1C	2.) 13 oz/A. ai: 0.25 kg/ha Alfalfa @ 10 cm
2) AAACC-1A 9) AACC- 2C	3.) 26 oz/A. ai: 0.50 kg/ha Alfalfa @ 10 cm
3) AAACC-2A 10) AACC- 1A	4.) 52 oz/A. ai: 1.0 kg/ha Alfalfa @ 10 cm
4) AAACC-3 11) AACC- 2A	6.) 13 oz/A. ai: 0.25 kg/ha Alfalfa @ 20 cm
5) AAACC-1C 12) AACC- 1C (Silage)	7.) 26 oz/A. ai: 0.50 kg/ha Alfalfa @ 20 cm
6) AACC-1A 13) AACC- 2C (Silage)	8.) 52 oz/A. ai: 1.0 kg/ha Alfalfa @ 20 cm
7) AACC 2A 14) CC- Grain & Silage (S/S,S/G,G/S,G/G)	10.) 13 oz/A. ai: 0.25 kg/ha Alfalfa @ 10 & 20 cm
	12.) Alfalfa UTC
	13.) No Alfalfa UTC
	14.) 13 oz/A.a.i: 0.25 kg/ha No Alfalfa & Alfalfa @ 20 cm

Results: Tables 1409-01,1409-02,1409-03 and 1409-04

**Table:1409-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2014.**

Rotation	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	AGI \$3.67/bu \$/A
				Total %	Stalk %	Root %		
AAACC-1C	224	21.9	53.0	0.9	0.0	0.9	37000	749
AAACC-2C	212	21.8	52.6	1.0	1.0	0.0	33333	710
AACC-1C	199	20.8	52.7	0.0	0.0	0.0	37333	670
AACC-2C	222	20.8	53.1	0.0	0.0	0.0	35667	745
CC-CC	191	21.1	53.6	0.0	0.0	0.0	34000	640
Mean	210	21.3	53.0	0.4	0.2	0.2	35467	703
Probability(%)								
Rotation (R)	4.5	52.8	88.4	58.4	46.1	46.1	16.7	5.3
LSD(0.10)								
Rotation (R)	19	NS	NS	NS	NS	NS	NS	64

**Table:1409-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2014.**

Rotation	Harvest Date			Total T dm/A
	29-May T dm/A	23-Jul T dm/A	4-Sep T dm/A	
AAACC-1A	-	-	-	-
AAACC-2A	2.3	1.7	0.9	4.9
AAACC-3A	2.3	1.8	0.9	5.1
AACC(S)-1A	-	-	-	-
AACC(S)-2A	2.4	1.8	0.9	5.1
AACC-1A	-	-	-	-
AACC-2A	2.3	1.8	0.9	5.0
Mean	2.3	1.8	0.9	5.0
<u>Probability (%)</u>				
Rotation (R)	63.4	80.9	96.9	91.7
<u>LSD 10%</u>				
Rotation (R)	NS	NS	NS	NS

First year Alfalfa 1A : Poor stand in Spring, reseeded 7-August

Table:1409-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2014

Rotation	Whole Plant											Harvest density plants/A
	Dry Matter		Kernel milk %	Crude protein %	ADF %	NDF %	<i>In Vitro</i>		Starch %	Milk per		
	Yield T/A	Moisture %					Digest %	NDFD %		Ton lb	Acre lb	
AACC(s)-1C	10.1	60.6	46.7	6.9	25.8	45.6	82.8	62.2	32.8	3387	34134	30471
AACC(s)-2C	10.8	60.4	53.3	6.7	27.0	47.7	82.5	63.3	31.5	3355	36213	32267
Mean	10.4	60.5	50.0	6.8	26.4	46.6	82.6	62.7	32.1	3371	35173	31369
<u>Probability(%)</u>												
Rotation (R)	27.7	90.8	74.0	53.1	11.9	6.5	58.1	35.2	16.8	29.4	35.3	6.3
<u>LSD(0.10)</u>												
Rotation (R)	NS	NS	NS	NS	NS	1.7	NS	NS	NS	NS	NS	1381

Table: 1409 -04 . Silage c orn res pons e to Alfalfa es tablshment techniques.**Arlington, WI-2014**

Treatment id	Product	Kudosrate		Alfalfa Height cm	Dry Matter Yield t/A	Moisture %	Whole Plant						Milkper		Harvest density plts/A	Plant Height inches	
		oz/A	kg/ha				Kemel Milk %	Crude protein %	ADF %	NDF %	<i>In Vitro</i> Digest %	NDFD %	Starch %	T on lbs/T			Acre lbs/T
2	Kudos	13	0.25	10	11.0	60.1	51.7	6.9	25.0	44.1	83.9	63.4	34.1	3459	38072	32138	105
3	Kudos	26	0.5	10	9.1	65.2	61.7	7.7	27.6	48.3	81.9	62.6	30.5	3315	30084	30331	97
4	Kudos	52	1	10	9.9	63.2	53.3	7.0	27.2	47.1	82.1	62.0	31.4	3335	33086	31621	101
6	Kudos	13	0.25	20	10.6	62.0	50.0	6.6	27.0	47.3	82.1	62.2	31.5	3337	35470	32138	104
7	Kudos	26	0.5	20	10.2	61.4	51.7	6.9	25.7	45.8	83.5	64.0	32.8	3425	35026	32138	104
8	Kudos	52	1	20	9.8	61.9	61.7	7.1	25.9	45.9	82.9	62.9	32.9	3392	33299	31750	103
10	Kudos	13	0.25	10 & 20	11.0	60.4	51.7	7.3	24.9	44.5	84.7	65.8	33.6	3503	38654	33686	102
12	Alfalfa UTC		0		10.8	61.9	50.0	6.7	27.1	47.1	82.1	62.2	32.0	3341	36033	31879	107
13	No alfalfa UTC		0		11.0	59.0	46.7	6.9	25.2	44.5	83.2	62.3	34.1	3421	37801	30718	104
14	No alfalfa	13	0.25	10 & 20	9.7	62.5	61.7	7.0	26.8	47.5	82.4	63.0	31.0	3352	32356	31750	97
Mean					10.3	61.8	54.0	7.0	26.2	46.2	82.9	63.1	32.4	3388	34988	31815	102
Probability(%)																	
Kudos Treatment (T)					3.6	24.4	15.1	14.4	41.8	37.2	49.6	48.6	58.3	49.0	5.5	64.3	3.1
LSD(0.10)																	
Kudos Treatment (T)					1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	4444	NS	5

FIELD EXPERIMENT HISTORY

Title: Alfalfa - Corn Response to Rotation
Experiment: 09AC **Trial ID:** 5815 **Year:** 2014
Personnel: Joe Lauer, Thierno Diallo, Kent Kohn
Location: Marshfield, WI **County:** Marathon
Supported By: HATCH

Site Information

Field: 405 **Previous Crop:** See Factors **Soil Type:** Withe
Soil Test Date: 11/7 /11 **pH:** 7.1 **OM (%)** 3.2 **P (ppm)** 22 **K (ppm)** 49

Plot Management

Tillage Operations: C, A: Spring chisel, cultivator; A: pulvimulcher
Fertilizer:

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	0-0-50-18S	300	6 /16/14
Starter :	9-11-30-6S-Zn	150	5 /30/14
Post plant :	28-0-0	2C: 120	7/1/14
	28-0-0	1C: 39	7/1/14
Manure:	N/A	N/A	N/A

Herbicide: C: Brawl II 1.67 pt/A
 Hornet WDG 3.0 oz/A
 Roundup Pmax 32 oz/A
 A: Raptor 5 oz/A

Insecticide: A: Baythroid XL 1.6 oz/A

Irrigation: None **Hybrid:** C: Pioneer 8906AM1
A: Croplan Consistency4.10

Planting Date: C: 5/30/14 **Planting Depth:** C: 1.5" **Row Width:** C: 30"
 A: 6/11/14 A: 0.25" A: 7.5"

Target Plant Density: 35000 **Planting Method:** C: MF plot combine
C: Brillion seeder
C: MF plot combine
CS:Hand Harvest
A: Mars hvstr

Harvest Date: Cgr: None, Silage: 9/30/14 **Harvest Method:**
 A: 6/12/14; 7/16/14
 A: (NS) 8/13, 9/18

Notes: 5th year, no 3 rd cut due to lack of moisture & disease pressure.

Experimental Design

Design: RCB split-split-block **Replications:** 3
Plot Size Seeded: C: 60' x 60' **Experiment Size:** 5.40 A
Factors/Treatments: **Harvest Plot Size:** C:60'x5' CS:10'x2.5' A: 60'x3.5'

Rotation - 2014 Treatments:

- | | |
|-------------|--|
| 1) AAACC-2C | 8) AACC- 1C |
| 2) AAACC-1A | 9) AACC- 2C |
| 3) AAACC-2A | 10) AACC- 1A |
| 4) AAACC-3A | 11) AACC- 2A |
| 5) AAACC-1C | 12) AACC- 1C (Silage) |
| 6) AACC-1A | 13) AACC- 2C (Silage) |
| 7) AACC 2A | 14) CC- Grain & Silage (S/S,S/G,G/S,G/G) |

Results: Tables 1409-05, 1409-06, 1409-07 & 1409-08

**Table: 1409-05 Alfalfa and Corn Rotation- Corn
Marshfield, WI - 2014.**

Rotation	Yield bu/A	Moisture %	Test Weight in.	Harvest Population ppa	Stalk Lodging %
AA <u>ACC</u>	111.9	31.6	44.4	30,686	0.3
AA <u>ACC</u>	116.2	31.6	44.1	34,138	0.2
A <u>ACC</u>	113.2	31.6	44.3	32,815	0.0
A <u>ACC</u>	111.6	31.3	44.4	32,525	0.4
Continuous Corn	115.4	31.8	43.4	33,654	0.2
Mean	113.7	31.6	44.1	32,764	0.2
<u>Probability (%)</u>					
Treatment	>50	>50	18.5	10.6	49.8
<u>LSD 10%</u>					
Treatment	NS	NS	0.8	2,211	NS
CV (%)	7	5	2	8	227

**Table: 1409-06 . Alfalfa and Corn Rotation- Corn Silage
Marshfield, WI - 2014.**

Rotation	Yield tn dm/A	Moisture %	Kernel milk %	Harvest Population ppa	CP %	ADF %	NDF %	NDFD %	NFC %	Starch %	TDN %	Milk per	
												Ton lb	Acre lb
AACsCs	6.2	68.5	73	35,429	7.7	20.3	38.8	58.0	49.6	32.7	65.6	3121	19,548
AACsCs	6.4	69.9	72	36,397	7.8	22.0	41.9	57.1	46.5	28.7	63.7	2979	18,968
Mean	6.3	69.2	73	35,913	7.7	21.2	40.4	57.6	48.0	30.7	64.6	3050	19,258
<u>Probability (%)</u>													
Treatmer	>50	24.0	>50	38.4	>50	26.0	31.0	33.3	28.5	25.7	21.2	21.6	>50
<u>LSD 10%</u>													
Treatmer	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CV (%)	17	3	16	6	3	6	7	2	5	10	2	3	15

**Table: 1409-07 Alfalfa and Corn Rotation- Established Alfalfa
Marshfield, WI - 2014.**

Rotation	Yield 12-Jun tn dm/A	Yield 16-Jul tn dm/A	Yield Season tn dm/A
AAACC	1.00	1.02	2.02
AAACC	0.86	1.12	1.98
AACC	1.04	1.24	2.28
AACsCs	0.86	1.09	1.95
Mean	0.94	1.12	2.06
<u>Probability (%)</u>			
Treatment	40.0	14.2	29.3
<u>LSD 10%</u>			
Treatment	NS	0.2	NS
CV (%)	17	9	10

**Table: 1409-08 Alfalfa and Corn Rotation- New Seeding Alfalfa
Marshfield, WI - 2014.**

Rotation	Yield 13-Aug tn dm/A	Yield 8-Sep tn dm/A	Yield Season tn dm/A
AAACC	0.38	0.38	0.75
AACC	0.45	0.42	0.87
AACsCs	0.32	0.35	0.67
Mean	0.38	0.38	0.76
<u>Probability (%)</u>			
Treatment	18.4	15.1	15.4
<u>LSD 10%</u>			
Treatment	0.1	0.1	0.2
CV (%)	18	9	13