

FIELD EXPERIMENT HISTORY

Title: Alfalfa - Corn Response to Rotation
Experiment: 09AC **Trial ID:** 6263 **Year:** 2018
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: 11/12/18 **pH** 6.4 **OM (%)** 3.3 **P (ppm)** 11 **K (ppm)** 93

Plot Management

	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Tillage Operations: NT			
Fertilizer:			
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	CC: 678 CA: 571	6/8/18 6/8/18
Manure:	N/A	N/A	N/A
Herbicide:	C: 2.4D @16 oz/A 4/30/18 Mad Dog 5.4 @ 22 oz/A 4/30/18 Laudis @ 3 oz/A 6/6/18 Tomahawk 5 @ 28 oz/A A: Tomahawk 5 @ 32 oz/A Warrior II w/Zeon Tech @ 1.25 oz/A 7/13/18	Insecticide: N/A Hybrid: C: DKC57-97GENNRIB A: Dekalb DKA40-51RR	
Irrigation: None			
Planting Date: C:5/1/18 A: 5/1/18	Planting Depth: C:1.5" A: 0.25"	Row Width: 30"	
Target Plant Density: 35000 plants/A		Planting Method: JD1700 w RTK A: JD750 No-Till Drill	
Harvest Date: C: 10/23/18 S: 9/17/18		Harvest Method: C: MF 8XP S: Hagee harvester AI: Almaco Harvester	
Notes: A: 6/1; 7/2; 8/3; 9/19			

Experimental Design

Design: RCB split-split-block	Replications: 3
Plot Size Seeded: 75' x 60	Experiment Size: 3.47 A
Factors/Treatments:	Harvest Plot Size: G:5' x 71' S: 2.5' x 71' A:4.33' x 71'
Rotation - 2018 Treatments:	
1) AAACC-3A	
2) AAACC-1C	
3) AAACC-2C	
4) AAACC-1A	
5) AAACC-2A	
6) AACC-2C	
7) AACC-1A	
8) AACC- 2A	
9) AACC- 1C	
10) AACC- 2C(Silage)	
11) AACC- 1A	
12) AACC- 2A	
13) AACC- 1C(Silage)	
14) CC- Grain & Silage (S/S,S/G,G/S,G/G)	

Results: Tables 1809-01,1809-02 & 1809-03

**Table:1809-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2018.**

Rotation	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged			Harvest density plants/A	*AGI \$3.44/bu \$/A
				Total %	Stalk %	Root %		
AAACC-1C	213	22.4	52.5	7.2	4.9	2.3	32000	654
AAACC-2C	212	22.5	53.2	4.1	3.1	1.0	32000	653
AACC-1C	212	21.1	52.9	5.1	5.1	0.0	33667	656
AACC-2C	203	23.4	52.6	0.0	0.0	0.0	33000	620
CC-CC	192	25.1	51.8	0.0	0.0	0.0	29000	578
Mean	206	22.9	52.6	3.3	2.6	0.7	31933	632
<u>Probability(%)</u>								
Rotation (R)	42.1	6.4	69.6	5.4	13.6	55.1	25.4	34.1
<u>LSD(0.10)</u>								
Rotation (R)	NS	2	NS	4.4	NS	NS	NS	NS

*AGI - Adjusted Gross Income.

**Table:1809-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2018.**

Rotation	Harvest Date				Total
	1-Jun	2-Jul	3-Aug	19-Sep	
	T Dm/A	T Dm/A	T Dm/A	T Dm/A	
AAACC-1A	0.0	0.3	1.1	0.6	2.0
AAACC-2A	2.3	1.2	1.2	0.7	5.3
AAACC-3A	1.6	0.8	0.9	0.4	3.7
AACC(S)-1A	0.0	0.3	1.2	0.7	2.2
AACC(S)-2A	2.2	1.2	1.1	0.8	5.3
AACC-1A	0.0	0.6	1.0	0.6	2.1
AACC-2A	2.3	1.3	1.1	0.7	5.5
Mean	1.2	0.8	1.1	0.6	3.7
<u>Probability (%)</u>					
Rotation (R)	0.0	0.0	35.9	1.5	0.0
<u>LSD 10%</u>					
Rotation (R)	0.4	0.2	NS	0.1	0.8

**Table:1809-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2018**

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-1Cs	8.3	51.7	28.3	6.5	14.8	31.4	88.2	62.5	39.1	3308	27499	30144
AACC-2Cs	9.5	47.5	16.7	6.7	16.9	34.6	84.9	56.6	36.2	3103	29642	28876
Mean	8.9	49.6	22.5	6.6	15.9	33.0	86.6	59.6	37.7	3206	28570	29510
<u>Probability(%)</u>												
Rotation (R)	28.4	31.5	51.3	15.1	35.7	32.3	16.1	5.6	49.2	27.7	63.4	16.7
<u>LSD(0.10)</u>												
Rotation (R)	NS	NS	NS	NS	NS	NS	NS	4.2	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: Alfalfa - Corn Response to Rotation
Experiment: 09AC **Trial ID:** 6335 **Year:** 2018
Personnel: Joe Lauer, Thierno Diallo, Kent Kohn, Jason Cavadini
Location: Marshfield, WI **County:** Columbia
Supported By: HATCH

Site Information

Field: 402 **Previous Crop:** See Factors **Soil Type:** Withee Silt Loam
Soil Test Date: 5 /01/15 **pH** 7.1 **OM (%)** 3.7 **P (ppm)** 27 **K (ppm)** 77

Plot Management

Tillage Operations:	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Fertilizer:			
Preplant :	N/A	N/A	N/A
Starter :	C: 20-10-30-4S	200 lb/A	6/1/18
	C: 7-9-13-2S	5 gal/A	6/1/18
Post plant :	C:28-0-0	40 gal/A	6/21/18
	A: 0-0-60	200 lb/A	8/6/18
	Gypsum	100 lb/A	8/6/18
Manure:	N/A	N/A	N/A
Herbicide:	C: Roundup PM 32.0 oz/A	Insecticide: N/A	
	Verdict 16 oz/A	Hybrid: C: Prairie Estates 3327	
	A: Raptor 5 oz/A	A: Dairyland 3420 Wet	
Irrigation:	None		
Planting Date:	C: 5/17/18	Planting Depth: C:1.5"	Row Width: C: 30"
	A: 5/17/18	A: 0.25"	A: 7.5"
Target Plant Density:	C: 35000 plants/A	Planting Method: C: JD750 Planter	A: Great plains No-Till Drill
	A: 17 lb/A	Harvest Method: C: MF 8XP	S: Hand harvest
Harvest Date:	C: 11/14/18		A: MARS forage Harvester
	S: 9/21/18		
Notes:	A: 6/4; 7/6; 8/8/, 9/4/18		

Experimental Design

Design: RCB split-split-block	Replications: 3
Plot Size Seeded: 60' x 60	Experiment Size: 5.40 A
Factors/Treatments:	Harvest Plot Size: G:5' x 60'
Rotation - 2018 Treatments:	S: 2.5' x 10'
	A: 3.5' x 60'
1) AAACC-1A	
2) AAACC-2A	
3) AAACC-3A	
4) AAACC-1C	
5) AAACC-2C	
6) AACC-2A	
7) AACC-1C	
8) AACC- 2C	
9) AACC- 1A	
10) AACC- 2A	
11) AACC- 1C (Silage)	
12) AACC- 2C (Silage)	
13) AACC- 1A	
14) CC- Grain & Silage (S/S,S/G,G/S,G/G)	

Results: Tables 1809-04,1809-05 & 1809-06

**Table:1809-04. Alfalfa-Corn Rotation Study - Corn.
Marshfield, 2018**

Rotation	Yield bu/A	Moisture %	Test weight lbs/bu	Lodged		Harvest density plants/A	*AGI \$3.44/bu \$/A
				Total %	Stalk %		
AAACC-1C	181	19.5	51.7	- †	--	--	566
AAACC-2C	142	20.2	52.5	--	--	--	443
AACC-1C	184	19.0	54.3	--	--	--	578
AACC-2C	116	18.7	52.0	--	--	--	366
CC-CC	112	18.0	54.7	--	--	--	355
Mean	147	19.1	53.0				462
Probability(%)							
Rotation (R)	0.0	28.5	6.3	--	--	--	0.1
LSD(0.10)							
Rotation (R)	21	NS	1.9	--	--	--	68

- † No population data provided

*AGI - Adjusted Gross Income.

**Table: 1809-0 Alfalfa and Corn Rotation- Established Alfalfa
Marshfield, WI - 2018.**

Rotation	Yield	Yield	Yield	Yield	Yield
	4-Jun	6-Jul	8-Aug	14-Sep	Season
	tn dm/A	tn dm/A	tn dm/A	tn dm/A	tn dm/A
AAACC	- †	1.4	0.9	0.7	3.0
AAACC	-	1.0	0.6	0.6	2.2
AACC	-	1.4	1.0	1.0	3.4
AACsCs	-	1.7	1.1	0.8	3.6
Mean	-	1.4	0.9	1.0	3.1
<u>Probability (%)</u>					
Treatment	-	36.9	26.5	0.3	25.8
<u>LSD 10%</u>					
Treatment	-	0.8	0.4	0.3	1.3

† dropped because of lack of moisture data.