FIELD EXPERIMENT HISTORY

Title: **Alfalfa - Corn Response to Rotation**

Experiment: 09AC **Trial ID:** 6059 **Year:** 2016

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: 11/16/16 **pH** 6.1 **OM (%)** 3.5 **P (ppm)** 11 **K (ppm)** 135

Plot Management

Tillage Operations: NT

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	0-0-60	150 lbs	4 /19/16
	Starter :	N/A	N/A	N/A
	Post plant :	28-0-0	CC: 190 CA: 160	6/10/16 6/10/16
	Manure:	N/A	N/A	N/A

Herbicide: C: Hornet WDG @ 4 oz/acre 5/23/16
Medal II EC @ 24 oz/A 5/23/16
A: Durango DMA @ 28 oz/a 6/18/16

Insecticide: N/A

Hybrid: C: Pioneer P0175 AMX
A: DeKalb - 40-51RR

Irrigation: None

Planting Date: C:5/17/16
A: 5/20/16

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: 10/17/16
S: 9/19/16
A: 5/21 6/24; 7/19; 8/22

Harvest Method: C: MF 8XP
S: NH707
AI: Almaco Harvester

Notes:

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 75' x 60

Experiment Size: 3.47

Harvest Plot Size: G:5' x 71'
S: 2.5' x 71'
A:4.33' x 71'

Factors/Treatments:

Rotation - 2016 Treatments:

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

Results: Tables 1609-01,1609-02 & 1609-03

Table:1609-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2016.

Rotation	Yield	Moisture	Test weight	Lodged			Harvest density	*AGI $3.44/bu
				Total	Stalk	Root		
	bu/A	%	lbs/bu	%	%	%	plants/A	$/A
AAACC-1C	225	24.0	51.5	0.0	0.0	0.0	33667	685
AAACC-2C	236	24.8	51.4	0.0	0.0	0.0	33000	713
AACC-1C	252	23.4	52.2	1.0	0.0	1.0	31667	768
AACC-2C	228	24.3	51.1	0.0	0.0	0.0	31667	692
CC-CC	206	27.0	51.2	1.1	1.1	0.0	32333	614
Mean	229	24.7	51.5	0.4	0.2	0.2	32467	694
Probability(%)								
Rotation (R)	0.5	0.2	74.9	58.4	46.1	46.1	56.3	0.4
LSD(0.10)								
Rotation (R)	15	1.0	NS	NS	NS	NS	NS	47

*AGI - Adjusted Gross Income.

Table:1609-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2016.

Rotation	Harvest Date				Total
	21-May	24-Jun	19-Jul	22-Aug	
	T Dm/A	T Dm/A	T Dm/A	T Dm/A	T Dm/A
AAACC-1A	--	--	0.5	1.2	1.73
AAACC-2A	2.0	1.1	0.7	0.9	4.74
AAACC-3A	2.3	1.7	1.0	1.1	6.08
AACC(S)-1A	--	--	0.9	1.0	1.90
AACC(S)-2A	2.3	1.6	1.0	1.2	6.09
AACC-1A	--	--	0.7	1.2	1.97
AACC-2A	1.8	1.4	0.8	1.1	5.19
Mean	2.1	1.5	0.8	1.1	3.96
Probability (%)					
Rotation (R)	62.7	1.4	6.6	5.9	0.00
LSD 10%					
Rotation (R)	NS	0.2	0.3	0.2	1.08

-- Not enough forage to harvest.

Table:1609-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2016

	Whole Plant											
	Dry Matter		Kernel	Crude			*In Vitro*			Milk per		Harvest
Rotation	Yield	Moisture	milk	protein	ADF	NDF	Digest	NDFD	Starch	Ton	Acre	density
	T/A	%	%	%	%	%	%	%	%	lb	lb	plants/A
AACC-1Cs	5.3	58.7	20.0	6.9	16.8	33.3	87.5	62.4	36.8	3590	18987	32149
AACC-2Cs	5.1	58.7	21.7	7.1	17.7	34.0	86.7	60.9	35.7	3515	17789	31003
Mean	5.2	58.7	20.8	7.0	17.3	33.6	87.1	61.6	36.3	3552	18388	31576
Probability(%)												
Rotation (R)	47.1	98.0	42.3	44.6	41.6	64.1	28.9	10.6	45.0	29.2	18.9	36.9
LSD(0.10)												
Rotation (R)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

FIELD EXPERIMENT HISTORY

Title: **Alfalfa - Corn Response to Rotation**

Experiment: 09AC **Trial ID:** 6149 **Year:** 2016

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: A: Fall chisel

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	9-11-30-6S-Zn 6/24/6-0.25Zn	150 lb/A 5 gal/A	5/06/16 5/06/16
	Post plant :	32-0-0	40 gal/A	6 /29/16
	Manure:	N/A	N/A	N/A

Herbicide: C: Brawl II 1.67 pt/acre
Hornet WDG @ 3.0 oz/acre
Roundup PM 32.0 oz/acre
Status 2.5 oz/acre
A: none

Insecticide: N/A

Hybrid: C: Pioneer P9811 AMX (88 HHX,LL,RR2)
A: Legacy L446(RR)

Irrigation: None

Planting Date: C:5/6/16
A: 5/9 & 8/3/16 (replant)

Planting Depth: C:1.5"
A: 0.25"

Row Width: C: 30"
A: 7.5"

Target Plant Density: C: 35000 plants/A
A: 17 lb/A

Planting Method: C: JD750 Planter
A: Great plains No-Till Drill

Harvest Date: C: 11/2/16
S: 9/14/16

Harvest Method: C: MF 8XP
S:Hand harvest
AI: MARS forage Harvester

Notes: A: 6/7; 7/4; 8/28/16

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 75' x 60

Experiment Size: 3.47

Harvest Plot Size: G:5' x 60'
S: 2.5' x 10'
A: 3.5' x 10'

Factors/Treatments:

Rotation - 2016 Treatments:

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 1509-04,1509-05 & 1509-06

Table:1609-04. Alfalfa-Corn Rotation Study - Corn.
Marshfield, 2016

Rotation	Yield	Moisture	Test weight	Lodged		Harvest density	*AGI
				Total	Stalk		$3.44/bu
	bu/A	%	lbs/bu	%	%	plants/A	$/A
AAACC-1C	206	19.2	53.3	0.8	0.8	35042	646
AAACC-2C	181	19.7	52.0	0.5	0.5	36300	565
AACC-1C	219	19.3	53.4	0.5	0.5	36397	688
AACC-2C	214	19.2	53.0	0.3	0.3	36203	670
CC-CC	161	19.1	52.9	1.3	1.3	36784	507
Mean	196	19.3	52.9	0.7	0.7	36145	615
Probability(%)							
Rotation (R)	0.0	78.6	77.6	25.4	25.4	27.0	0.0
LSD(0.10)							
Rotation (R)	11	NS	NS	NS	NS	NS	37

*AGI - Adjusted Gross Income.

Table:1609-05. Alfalfa-Corn Rotation Study -Alfalfa. Marshfield, WI - 2016.

Rotation	Harvest Date 21-May	24-Jun	19-Jul	Total
	T Dm/A	T Dm/A	T Dm/A	T Dm/A
AAACC-2A	1.85	1.02	1.38	4.25
AAACC-3A	1.83	1.13	1.41	4.36
Mean	1.84	1.07	1.39	4.31
Probability (%)				
Rotation (R)	70.9	52.2	47.3	54.6
LSD 10%				
Rotation (R)	NS	NS	NS	NS

Table:1609-06. Alfalfa-Corn Rotation Study - Silage.
Marshfield, WI - 2016.

Rotation	Yield	Moisture	Kernel milk	Harvest Population	CP	ADF	NDF	NDFD	NFC	Starch	TDN	Milk per Ton	Milk per Acre
	tn dm/A	%	%	ppa	%	%	%	%	%	%	%	lb	lb
AACC-1Cs	9.4	63.0	50	34848	6.2	22.9	36.7	59.0	56.9	44.0	76.7	3930	36404
AACC-2Cs	8.5	64.9	50	34848	6.3	22.8	37.3	59.7	57.0	44.0	78.4	4053	34377
Mean	9.0	64.0	50	34848	6.2	22.8	37.0	59.3	56.9	44.0	77.6	3992	35390
Probability(%)													
Rotation (R)	42.1	48.1	--	100.0	64.4	92.1	64.1	26.0	92.8	97.9	52.0	50.8	28.4
LSD(0.10)													
Rotation (R)	NS	NS	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS