FIELD EXPERIMENT HISTORY

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

Experiment: 09AC **Trial ID:** 6164 **Year:** 2017

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

Fertilizer:	Analysis:	Rate lbs/A:	Date:
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	CC: 190 CA: 160	6/8/17 6/8/17
Manure:	N/A	N/A	N/A

Herbicide: C: Hornet WDG 4 oz/acre 5/10/17
Harness 28 oz/acre 5/10/ 2017
A: Roundup PM 28.0 oz/acre 6/1/2017
Roundup WM 32.0 oz/acre 6/27/2017
Dimethoate 400 14 oz/acre 7/7/2017
Mad Dog 5.4 32 oz/acre 7/18/2017

Insecticide: N/A

Hybrid: C: DKC52-68RIB
A: Pioneer - 55VR08

Irrigation: None

Planting Date: C:5/8/17
A: 4/25/17

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

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

Notes: A: 5/21 6/24; 7/19; 8/22

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 75' x 60

Experiment Size: 3.47 A

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

Factors/Treatments:

Rotation - 2017 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 1709-01,1709-02 & 1709-03

Table:1709-01. Alfalfa-Corn Rotation Study - Corn.
Arlington, WI - 2017.

Rotation	Yield	Moisture	Test weight	Lodged			Harvest density	*AGI $3.44/bu
				Total	Stalk	Root		
	bu/A	%	lbs/bu	%	%	%	plants/A	$/A
AAACC-1C	283	20.8	55.4	0.0	0.0	0.0	32667	878
AAACC-2C	239	20.6	55.1	0.0	0.0	0.0	27667	742
AACC-1C	264	20.0	56.6	0.0	0.0	0.0	35333	825
AACC-2C	258	21.7	55.5	2.0	2.0	0.0	33333	796
CC-CC	227	21.7	55.9	2.8	0.0	2.8	30333	701
Mean	254	21.0	55.7	1.0	0.4	0.6	31867	788
Probability(%)								
Rotation (R)	12.0	13.5	7.1	41.3	4.5	46.1	36.1	11.6
LSD(0.10)								
Rotation (R)	NS	NS	0.8	NS	1.2	NS	NS	NS

*AGI - Adjusted Gross Income.

Table:1709-02. Alfalfa-Corn Rotation Study -Alfalfa.
Arlington, WI - 2017.

Rotation	Harvest Date				Total
	25-May	26-Jun	24-Jul	28-Aug	
	T Dm/A	T Dm/A	T Dm/A	T Dm/A	T Dm/A
AAACC-1A	1.0	--	--	0.8	1.81
AAACC-2A	2.0	1.4	1.2	0.6	5.18
AAACC-3A	2.1	0.8	0.8	0.4	4.02
AACC(S)-1A	1.1	--	--	0.8	1.89
AACC(S)-2A	2.0	1.2	1.0	0.6	4.78
AACC-1A	0.7	--	--	0.8	1.51
AACC-2A	1.9	1.3	1.1	0.6	4.97
Mean	1.5	1.2	1.0	0.7	3.45
Probability (%)					
Rotation (R)	0.0	7.0	24.1	11.5	0.01
LSD 10%					
Rotation (R)	0.5	0.4	NS	NS	1.15

-- Not enough forage to harvest.

Table:1709-03. Alfalfa-Corn Rotation Study - Silage.
Arlington, WI 2017

	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	6.2	56.1	41.7	6.5	17.0	33.6	86.4	59.6	35.4	3157	19621	34333
AACC-2Cs	6.3	56.7	28.3	6.5	16.9	33.8	86.3	59.7	34.6	3126	19845	35000
Mean	6.3	56.4	35.0	6.5	16.9	33.7	86.4	59.6	35.0	3141	19733	34667
Probability(%)												
Rotation (R)	75.8	67.5	25.7	93.6	81.6	33.6	89.4	98.7	9.1	71.5	79.5	52.9
LSD(0.10)												
Rotation (R)	NS	NS	NS	NS	NS	NS	NS	NS	0.8	NS	NS	NS

FIELD EXPERIMENT HISTORY

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

Experiment: 09AC **Trial ID:** 6250 **Year:** 2017

Personnel: Joe Lauer, Thierno Diallo,Kent Kohn, Jason Cavadini

Location: Marshfield, WI **County:** Marathon

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:

		Analysis:	Rate lbs/A:	Date:
Fertilizer:	**Preplant :**	N/A	N/A	N/A
	Starter :	C: 20-10-30-4S C: 7-9-13-2S	200 lb/A 5 gal/A	6/1/2017 6/12/2017
	Post plant :	46-0-0	200 lb/A	7/11/2017
	Manure:	N/A	N/A	N/A

Herbicide: C: Roundup PM 32.0 oz/acre
Verdict 16.0 oz/acre
A: none

Insecticide: N/A

Hybrid: C: Master's Choice 4210
A: Dairyland 3420

Irrigation: None

Planting Date: C:6/1/2017
A: 8/15/2017

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: 11/30/2017
S: 10/10/2017

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

Notes: A: 7/6; 8/22, 2017

Experimental Design

Design: RCB split-split-block

Replications: 3

Plot Size Seeded: 60' x 60'

Experiment Size: 5.40 A

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

Factors/Treatments:

Rotation - 2017 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 1709-04,1709-05 & 1709-06

Table:1709-04. Alfalfa-Corn Rotation Study - Corn.
Marshfield, 2017

Rotation	Yield	Moisture	Test weight	Lodged		Harvest density	*AGI
				Total	Stalk		$3.44/bu
	bu/A	%	lbs/bu	%	%	plants/A	$/A
AAACC-1C	87	31.4	--	1.3	1.3	29427	253
AAACC-2C	70	29.1	--	7.2	7.2	29040	207
AACC-1C	83	30.0	--	1.7	1.7	30879	242
AACC-2C	76	30.2	--	4.7	4.7	26426	221
CC-CC	45	28.4	--	9.8	9.8	30008	133
Mean	72	29.8	--	4.9	4.9	29156	211
Probability(%)							
Rotation (R)	3.3	14.0	--	8.6	8.6	64.8	4.1
LSD(0.10)							
Rotation (R)	20	NS	--	5.5	5.5	NS	61

*AGI - Adjusted Gross Income.

Table:1709-05. Alfalfa-Corn Rotation Study -Alfalfa. Marshfield, WI - 2017.

Rotation	Harvest Date 6-Jul	22-Aug	Total
	T Dm/A	T Dm/A	T Dm/A
AAACC-3A	2.09	1.31	3.40
-- --	--	--	--
Mean	2.09	1.31	3.40
Probability (%)			
Rotation (R)	--	--	--
LSD 10%	--	--	--
Rotation (R)	--	--	--

-- Diffuculty to establish Alfalfa, not enough data for analysis.

Table:1709-06. Alfalfa-Corn Rotation Study - Silage.
Marshfield, WI - 2017.

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	6.2	65.9	--	32525	5.2	23.1	38.4	59.8	51.6	34.6	65.5	3129	22232
AACC-2Cs	5.6	61.2	--	30202	5.6	25.0	43.2	57.2	46.9	29.1	62.6	2902	17004
Mean	5.9	63.6	--	31363	5.4	24.1	40.8	58.5	49.2	31.8	64.0	3016	19618
Probability(%)													
Rotation (R)	47.7	8.6	--	18.4	37.8	35.3	28.2	11.2	27.9	26.3	13.4	10.6	42.7
LSD(0.10)													
Rotation (R)	NS	NS	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cv	35.3	6.7	--	10.8	20.4	19.3	23.4	4.7	19.0	32.8	5.3	7.8	78.8