

FIELD EXPERIMENT HISTORY

Title: Alfalfa and Corn Rotation Study
Experiment: 09AC **Trial ID:** 3383 **Year:** 2010
Personnel: J. G. Lauer, J.M. Gaska, K. D. Kohn, T. H. Diallo, S. Wilkens
Location: Arlington **County:** Columbia
Supported By: HATCH

Site Information

Field: ARS 333 **Previous Crop:** Corn/Alfalfa **Soil Type:** Plano
Soil Test: **Date:** 10/21/09 **pH** 6.5 **OM (%)** 3.5 **P (ppm)** 26 **K (ppm)** 221

Plot Management

Tillage Operations: Conventional Tillage

Fertilizer:	<u>Analysis:</u>	<u>Rate lbs/A:</u>	<u>Date:</u>
Preplant :	N/A	N/A	N/A
Starter :	N/A	N/A	N/A
Post plant :	28-0-0	200	6 /25/10
Manure:	N/A	N/A	N/A
Herbicide: Mirage plus: 24 oz/A Jun-17 Raptor: 4 oz/A Jun-25		Insecticide: N/A	
Irrigation: None		Hybrid: C: KDC52-59 A: HybriForce 2400	
Planting Date: Corn: 5/19/10 Alfalfa: 5/27/10	Planting Depth: C: 1.5" A: 0.25 "	Row Width: C: 30"	
Target Plant Density: Corn: 32500 Alfalfa: 15 lb/A		Planting Method: C: Kinze 2000 Interplanter A: J Deer 750 Drill	
Harvest Date: Corn: 10/19/10 Alfalfa: N/A		Harvest Method: C: Kincaid plot combine A: N/A	
Notes: First year of Establishment of the Alfalfa, Corn Rotation Study			

Experimental Design

Design: RCB split-split plot **Replications:** 3
Plot Size Seeded: 60' x 75' **Experiment Size:** 3.5 A
Harvest Plot Size: Corn/Alfalfa: 5' x 71'
Factors/Treatments:

Rotation:

- 1) Alfalfa-Alfalfa-Alfalfa-Corn-Corn
- 2) Alfalfa-Alfalfa-Corn-Corn
- 3) Alfalfa-Alfalfa-Corn Silage-Corn Silage
- 4) Continuous Corn-Grain & Silage

Alfalfa variety:

Dairyland-HybriForce 2400

Results: Tables C-43 and C-44

**Table C- 44. Corn, Alfalfa Rotation - Silage
Arlington, WI - 2010.**

Rotation	Plant population plants/A	Whole Plant									Milk per	
		Dry Matter		Kernel	Crude		<i>In Vitro</i>		Starch	Ton	Acre	
		Yield	Moisture	milk	protein	ADF	NDF	Digest	NDFD		lbs/T	lbs/T
		tons/A	%	%	%	%	%	%	%	%		
AACC(s)												
Mean	35667	3.8	53.3	20.0	6.1	24.4	44.0	80.1	54.8	34.0	3172	11956

FIELD EXPERIMENT HISTORY

Title: Alfalfa/Corn Rotation Study

Experiment: Trial ID: 10V91 Year: 2010

Personnel: M.G. Bertram

Location: Stratford, WI

County: Marathon

Support: Marshfield Ag. Research Station

Site Information

Field: 402 **Previous Crop:** Corn Silage **Soil Type:** Withee silt loam

Soil Test : **Date:** 11/1/07 **pH** 6.6 **SOM (%)** 3.5 **P (ppm)** **K (ppm)** 71

Plot Management

Tillage Operations: A,C: Spring chisel plow, Field cultivator C: Cultivated

Fertilizer: **Analysis Rate** **Date** **Crop**

Starter None

Post plant 28-0-0 40 gal/A 7/10/2010 Corn

Manure Ret Pond 9,500 gal/A 11/19/2009 Alfalfa and Corn

Herbicide: C: Parallel 1.33 pt **Insecticide:** None

C: Roundup PowerMax 32 oz

A: Raptor 4 oz

Irrigation: None **Hybrid:** C: Pioneer 39B23 (88 HX,LL,RR)
A: Dairyland HybriForce 2400

Planting Date: A,C: 5/26/2010 **Planting Depth:** C: 1.5' **Row Width:** C: 30"
A: 0.25" A: 6"

Target Plant Density: C: 35,000 **Planting Method:** C: John Deere 1750 planter
A: 15 lb A: John Deere 450 Drill

Harvest Date: C: 10/25/2010 CS: 10/4/10 **Harvest Method:** C,CS: hand harvested
A: 8/19/2010 A: MARS plot harvester

Notes: First year of establishing Rotation Study, Corn Silage yield data lost

Experimental Design

Design: RCB **Replications:** 3

Plot Size Seeded: 60' x 60' **Experiment Size:** 5.40 A

Harvest Plot size: C: 60' x 2.5'; CS: 10' x 2.5'; A: 60' x 3.5'

Factors/Treatments:

Rotation

3 year Alfalfa, 2 year Corn

2 year Alfalfa, 2 year Corn

2 year Alfalfa, 2 year Corn Silage

Continuous Corn

Results: Tables C-45, C-46 and C-47

**Table C-45. Alfalfa and Corn Rotation- Corn
Marshfield, WI - 2010.**

Rotation	Yield bu/A	Moisture %	Test Weight in.	Harvest Population ppa	Stalk Lodging %
AA <u>CC</u>	149.4	30.5	49.1	29,137	1.3
AA <u>CC</u>	148.9	31.4	49.3	28,169	0.7
A <u>ACC</u>	137.2	31.0	49.1	29,137	0.0
A <u>ACC</u>	139.0	30.9	49.2	29,234	0.4
Continuous Corn	132.0	30.0	48.8	28,362	1.1
Mean	141.3	30.8	49.1	28,808	0.7
<u>Probability (%)</u>					
Treatment	>50	>50	>50	>50	19.2
<u>LSD 10%</u>					
Treatment	NS	NS	NS	NS	1.0
CV (%)	10	5	1	6	95

**Table C-46. Alfalfa and Corn Rotation- Alfalfa
Marshfield, WI - 2010.**

Rotation	Yield 19-Aug tn dm/A
<u>AA</u> ACC	1.11
AA <u>A</u> CC	1.12
AA <u>A</u> CC	0.92
<u>A</u> ACC	0.91
A <u>A</u> CC	0.91
<u>A</u> ACsCs	1.08
A <u>A</u> CsCs	1.03
Mean	1.01
<u>Probability (%)</u>	
Treatment	>50
<u>LSD 10%</u>	
Treatment	NS
<u>CV (%)</u>	18

**Table C-47. Alfalfa and Corn Rotation- Corn Silage
Marshfield, WI - 2010.**

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	.	67.5	87	31,944	7.4	22.5	44.0	64.3	44.3	35.1	74.4	3810	.
AACsCs	.	68.0	83	27,878	7.6	22.0	43.1	63.7	44.9	35.6	74.5	3812	.
Mean	.	67.7	85	29,911	7.5	22.3	43.6	64.0	44.6	35.3	74.5	3811	.
<u>Probability (%)</u>													
Treatment	.	>50	42.3	19.2	>50	>50	>50	34.4	>50	>50	>50	>50	.
<u>LSD 10%</u>													
Treatment	.	NS	NS	6,115	NS	NS	NS	NS	NS	NS	NS	NS	.
CV (%)	.	2	5	9	9	6	5	1	6	8	1	2	.