

Cover Crops in Northwest ND

Chet Hill

**WREC
Powers Lake
New Town
Crosby
Ray**

**Area Ag
Diversification
Spec**

**Williston R/E
Center**

Past Work with Cover Crops

- Started looking at cover crops at WREC in 2008 with a fall seeded cover crop
- 2009 – Very good year for spring seeded cover crop and no fall cover crop due to flea beetles
- 2010 – Very good year for spring seeded and fall seeded was mixed results
- 2011 - Average year for spring seeded and a very good fall cover crop

NDAWN weekly average data

**Week
Starting
Date**

Williston

**Max
Air
Temp
(°F)
graph**

**Avg
Air
Temp
(°F)
graph**

**Min
Air
Temp
(°F)
graph**

**Avg
Turf
Soil
Temp
(°F)
graph**

**Total
Rain
fall
(inch)
graph**

8/1/2008

87

73

59

75

0.6

8/8/2008

82

70

59

74

0.52

8/15/2008

90

75

61

74

0.05

8/22/2008

78

64

49

68

0.13

8/29/2008

71

59

48

64

0.79

9/5/2008

67

55

44

58

0.27

9/12/2008

76

61

46

60

0.37

9/19/2008

74

61

48

60

0.43

9/26/2008

71

57

42

56

0

10/3/2008

65

54

43

54

0.85

10/10/2008

43

36

30

41

0.49

10/17/2008

57

45

33

43

0.17

10/24/2008

54

41

28

39

0.01

10/31/2008

55

44

33

43

0

11/7/2008

37

30

22

33

M

11/14/2008

37

30

23

33

M

Averages:

65

53

42

55

Totals:

4.68

Max:

90

75

61

75

0.85

Min:

37

30

22

33

0

Std. Dev.:

17

14

12

14

Fall seeded cover crops

Date seeded 8/9/08 - Seeded East to West - 24 ft by 250 ft

****Biomass samples taken 10/15/08 & dried 160 degrees F then weighed**

<u>Treatment</u>	<u>Weight (lb/ac)</u>
1 Peas 40lb/acre , Ryegrass 5 lb/acre , Turnip .5lb/acre , Radish 1lb/acre	908
2 IH Lentils 30 lb/acre , Turnip 5 lb/acre	1,058
3 IH Lentils 40 lb/acre , Radish 5 lb/acre	816
4 Peas 50 lb/acre , Buckwheat 25 lb/acre	886
5 Peas 50 lb/acre , Oats 20 lb/acre	1,058
6 "N" Builder 60 lb/acre (1)	1,162
7 Grazer Mix 60 lb/acre (2)	1,098
8 IH Lentil 40 lb/acre , Oats 20 lb/acre	1,119
9 Peas 50 lb/acre , Oats 20lb/acre , Turnip 5lb/acre , Radish 5 lb/acre	1,035
10 Soybeans 40 lb/acre , Oats 20 lb/acre	1,180

(1) Includes: 4# Soybeans, 4# Lentils, 10# Peas, 1# S Clover,
.5#Turnip, 1# Radish, 4# Millet, 4# Oats, .3# Sunflowers

(2) Includes: 4# Lentils, 10# Peas, 1# S Clover, .5# Turnips, 1# Radish
4# Millet, 8# Oats, .3# Sunflowers



TREATMENT 7

Grazer Mix 60 lb/acre (2)

**(2) Includes: 4# Lentils, 10# Peas,
1# S Clover, .5# Turnips, 1# Radish,
4# Millet, 8# Oats, .3# Sunflowers**



Yield: 1,098 lb/ac

			2009		
NDAWN weekly average data for 16 weeks beginning August 1					
					
	Williston 5SW (		wdr		
<u>Week Starting</u>	Williston				
<u>Date</u>	<u>Max Air Temp (°F)</u>	<u>Min Air Temp (°F)</u>	<u>Avg Air Temp (°F)</u>	<u>Avg Turf Soil Temp (°F)</u>	<u>Total Rain fall (inch)</u>
8/1/2009	74	52	63	66	0.03
8/8/2009	85	55	70	70	0.4
8/15/2009	72	52	62	64	0.69
8/22/2009	81	57	69	67	1.65
8/29/2009	81	53	67	67	0
9/5/2009	81	53	67	66	0.11
9/12/2009	85	57	71	66	0.12
9/19/2009	80	48	64	64	0.02
9/26/2009	62	42	52	58	0.33
10/3/2009	45	34	39	47	0.29
10/10/2009	34	24	29	38	0.15
10/17/2009	54	35	44	43	0.69
10/24/2009	45	30	38	41	0.08
10/31/2009	56	31	43	40	M 0.00
11/7/2009	51	27	39	39	M
11/14/2009	51	25	38	35	M
Averages:	65	42	53	55	
Totals:					20M 4.56
Max:	85	57	71	70	20M 1.65
Min:	34	24	29	35	20M 0.00
Std. Dev:	17	12	14	12	

2009

NEWTOWN

	<u>BioMass</u> <u>Per Acre (lbs)</u>	<u>% Crude</u> <u>Protein</u>	<u>Seeding</u> <u>Cost/Ac</u>	<u>Haying</u> <u>Cost/Ac</u>	<u>Total</u> <u>Cost/Ac</u>	<u>Total</u> <u>Cost/tn</u>
4010 f.peas, Beach Oats	7,260	11.74	\$24.05	\$46.72	\$70.77	\$19.50
4010 Peas, Haybet Barley	9,486	14.37	\$24.80	\$58.59	\$83.39	\$17.58
ACGreenfix, Beach Oats	7,405	12.62	\$30.05	\$47.49	\$77.54	\$20.94
ACGreenfix, Barley	8,809	13.71	\$30.65	\$54.98	\$85.63	\$19.44
Hays Barley(2bu)	7,212	12.71	\$24.50	\$46.46	\$70.96	\$19.68
Beach Oats(2bu)	8,083	10.82	\$21.50	\$51.11	\$72.61	\$17.97
Young Oats(2bu)	9,002	10.66	\$21.50	\$56.01	\$77.51	\$17.22
Haybet Barley(2bu)	8,809	11.41	\$24.50	\$54.98	\$79.48	\$18.05
Siberian Millet(8#)	6,776	13.04	\$14.54	\$44.14	\$58.68	\$17.32
German Millet(8#)	5,372	12.27	\$14.54	\$36.65	\$51.19	\$19.06
Sorghum Sedan (8#)	7,647	13.47	\$14.14	\$48.79	\$62.93	\$16.46
Cowpea(25#)	1,452	15.68	\$34.50	\$15.74	\$50.24	\$69.21
Purple Top Forage Radish (5#)	4,017	19.61	\$15.75	\$29.43	\$45.18	\$22.49
Paja Turnip (5#)	2,952	18.58	\$15.75	\$23.75	\$39.50	\$26.76
Oats, Peas, Millet, Lentils	6,098	11.77	\$19.43	\$40.52	\$59.95	\$19.66
Millet, Lentils, Canola, Turnip	3,243	12.65	\$16.18	\$25.29	\$41.47	\$25.58
Oats, Peas, Barley	6,776	9.84	\$20.00	\$44.14	\$64.14	\$18.93
Pulse USA Prevent Plant	5,566	12.47	\$25.44	\$37.69	\$63.13	\$22.68
Pulse USA Early Planted Grazer	7,889	18.16	\$35.83	\$50.08	\$85.91	\$21.78
Pulse USA Early Small Seeded	5,614	16.99	\$25.65	\$37.94	\$63.59	\$22.65
Pulse USA Early N Builder	7,308	17.88	\$38.20	\$46.98	\$85.18	\$23.31
Pulse USA Original N Builder	5,663	16.01	\$32.67	\$38.20	\$70.87	\$25.03
Agassiz Blend	9,922	12.05	\$33.00	\$60.92	\$93.92	\$18.93
Barley, Peas, Turnip, Radish	9,486	11.31	\$19.45	\$58.59	\$78.04	\$16.45
Oats, Peas, Safflower, T and R	8,518	11.05	\$19.95	\$53.43	\$73.38	\$17.23
Lentil, Barley	8,615	11.06	\$20.75	\$53.95	\$74.70	\$17.34
Seeded: May 22, 2009						
Harvested: July 24, 2009	AVG.	6,884	13.54	\$23.74	\$44.71	\$68.46
					\$21.97	

STANLEY

	<u>BioMass</u>	<u>% Crude</u>	<u>Seeding</u>	<u>Haying</u>	<u>Total</u>	<u>Total</u>	
	<u>Per Acre (lbs)</u>	<u>Protein</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>	
4010 f.peas, Beach Oats	8,180	7.36	\$24.05	\$51.62	\$75.67	\$18.50	
4010 Peas, Haybet Barley	8,567	7.02	\$24.80	\$53.69	\$78.49	\$18.32	
ACGreenfix, Beach Oats	9,970	7.24	\$30.05	\$61.18	\$91.23	\$18.30	
ACGreenfix, Barley	8,180	7.27	\$30.65	\$51.62	\$82.27	\$20.12	
Hays Barley	13,020	6.50	\$24.50	\$77.44	\$101.94	\$15.66	
Beach Oats	10,987	7.60	\$21.50	\$66.60	\$88.10	\$16.04	
Young Oats	11,664	6.78	\$21.50	\$70.21	\$91.71	\$15.72	
Haybet Barley	12,584	8.02	\$24.50	\$75.11	\$99.61	\$15.83	
Siberian Millet	5,372	6.68	\$14.54	\$36.65	\$51.19	\$19.06	
German Millet	5,276	8.31	\$14.54	\$36.14	\$50.68	\$19.21	
Sorghum Sedan	5,518	8.78	\$14.14	\$37.43	\$51.57	\$18.69	
Cowpea	920	15.59	\$34.50	\$12.90	\$47.40	\$103.10	
Purple Top Forage Radish	5,082	11.96	\$15.75	\$35.10	\$50.85	\$20.01	
Paja Turnip	3,920	17.11	\$15.75	\$28.91	\$44.66	\$22.78	
Oats, Peas, Millet, Lentils	13,794	8.82	\$19.43	\$81.57	\$101.00	\$14.64	
Millet, Lentils, Canola, Turnip	7,018	12.22	\$16.18	\$45.43	\$61.61	\$17.56	
Oats, Peas, Barley	13,262	9.55	\$20.00	\$78.73	\$98.73	\$14.89	
Pulse USA Prevent Plant	8,131	6.80	\$25.44	\$51.37	\$76.81	\$18.89	
Pulse USA Early Planted Grazer	8,034	7.55	\$35.83	\$50.85	\$86.68	\$21.58	
Pulse USA Early Small Seeded	4,404	7.73	\$25.65	\$31.49	\$57.14	\$25.95	
Pulse USA Early N Builder	6,824	9.56	\$38.20	\$44.40	\$82.60	\$24.21	
Pulse USA Original N Builder	10,212	9.46	\$32.67	\$62.47	\$95.14	\$18.63	
Agassiz Blend	14,133	7.68	\$33.00	\$83.37	\$116.37	\$16.47	
Barley, Peas, Turnip, Radish	9,148	7.36	\$19.45	\$56.79	\$76.24	\$16.67	
Oats, Peas, Safflower, T and R	13,213	7.12	\$19.95	\$78.47	\$98.42	\$14.90	
Lentil, Barley	14,181	7.59	\$20.75	\$83.63	\$104.38	\$14.72	
Seeded: May 22, 2009							
Harvested: August 14, 2009	AVG.	8,907	8.76	\$23.74	\$55.51	\$79.25	\$21.56

WREC

	BioMass	% Crude	Seeding	Haying	Total	Total
	<u>Per Acre (lbs)</u>	<u>Protein</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>
Lentil, Barley	3,824	15.10	\$20.75	\$28.39	\$49.14	\$25.70
Peas, Oats, Safflower, T and R	3,485	15.72	\$19.95	\$26.59	\$46.54	\$26.71
Barley, Peas, Turnip, Radish	3,775	18.91	\$19.45	\$28.13	\$47.58	\$25.21
Soybean, Oats, Millet, Sunflower	3,436	14.95	\$19.51	\$26.33	\$45.84	\$26.68
Agassiz blend	2,807	18.12	\$33.00	\$22.97	\$55.97	\$39.88
Pulse USA - Original N Builder	2,565	21.39	\$32.67	\$21.68	\$54.35	\$42.38
Pulse USA - Early N Builder	2,130	18.65	\$38.20	\$19.36	\$57.56	\$54.06
Pulse USA - Early Small Seeded	2,130	15.41	\$25.65	\$19.36	\$45.01	\$42.27
Pulse USA - Early Planted Grazer	2,130	17.60	\$35.83	\$19.36	\$55.19	\$51.83
Pulse USA - Prevent Plant	2,420	16.28	\$25.44	\$20.91	\$46.35	\$38.30
Seeded: May 27, 2009						
Harvested: July 23, 2009	AVG.	2,870	17.21	\$27.05	\$23.31	\$50.35
					\$37.30	

Spring Seeded - 2009

SUMMARY (AVG.)

			BioMass	% Crude	Seeding	Haying	Total	Total
	Planted	Harvested	<u>Per Acre (lbs)</u>	<u>Protein</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>
Williston R/E Center	27-May	23-Jul	2,870	17.21	\$27.05	\$23.31	\$50.35	\$37.30
New Town	22-May	24-Jul	6,884	13.54	\$23.74	\$44.71	\$68.46	\$21.97
Stanley	22-May	14-Aug	8,907	8.76	\$23.74	\$55.51	\$79.25	\$21.56

****Fall Seeded – No yield data due to flea beetles and grasshoppers at both Crosby and WREC**

			2010		
NDAWN weekly average data for 16 weeks beginning August 1					
	Williston 5SW (	wdr			
	Williston				
	<u>Max</u>	<u>Min</u>	<u>Avg</u>	<u>Avg</u>	<u>Total</u>
<u>Week</u>	<u>Air</u>	<u>Air</u>	<u>Air</u>	<u>Turf</u>	<u>Rain</u>
<u>Starting</u>	<u>Temp</u>	<u>Temp</u>	<u>Temp</u>	<u>Soil</u>	<u>fall</u>
<u>Date</u>	<u>(°F)</u>	<u>(°F)</u>	<u>(°F)</u>	<u>Temp</u>	<u>(inch)</u>
				<u>(°F)</u>	
8/1/2010	81	58	70	70	1.52
8/8/2010	84	61	72	72	0.3
8/15/2010	82	54	68	69	0
8/22/2010	83	56	69	68	0.44
8/29/2010	68	50	59	61	0.84
9/5/2010	67	50	58	61	0.63
9/12/2010	61	41	51	56	0.02
9/19/2010	59	43	51	52	0.21
9/26/2010	75	45	60	57	0
10/3/2010	76	45	61	57	0.04
10/10/2010	67	39	53	55	0
10/17/2010	60	33	46	49	0.01
10/24/2010	43	26	34	43	0.61E
10/31/2010	58	32	45	41	M
11/7/2010	45	29	37	40	M
11/14/2010	27	16	22	34	M
Averages:	65	42	54	55	
Totals:					24M 4.62E
Max:	84	61	72	72	24M 1.52E
Min:	27	16	22	34	24M 0.00E
Std. Dev.:	16	13	14	11	

COVER CROP SUMMARY 2010

<u>COVER CROP (LBS/ACRE)</u>	<u>STANLEY</u>	<u>NEW TOWN</u>	<u>CROSBY</u>	<u>WREC</u>	<u>AVERAGE</u>
Top Turnip	2,178	2,856			2,517
Sugar Beet	2,130	2,662			2,396
Forage Radish	3,582	3,872			3,727
4010 Forage Peas	8,180	9,535			8,857
4010 Forage Peas, Hayes Barley	8,470	7,938			8,204
4010 Forage Peas, Young Oats	8,664	9,099			8,881
Hayes Barley	10,793	8,518			9,656
Haybet Barley	8,615	7,212			7,913
Cocktail (Mountrail mix)	9,293	7,986			8,639
Pulse USA Cold Tolerant	5,566	6,098	4,598	1,549	4,453
Pulse USA Grazer	6,050	5,566	5,179	2,130	4,731
Pulse USA N Builder	7,308	5,469	6,195	1,791	5,191
WREC Oats, Peas, Safflower, R & T	5,518	8,857	6,921	2,614	5,977
WREC Barley, Lentils, R & T	9,099	9,196	7,599	2,807	7,175
WREC Oats, Soybeans, Sunflower, Millet, R & T	13,600	8,131	4,743	2,178	7,163
WREC Oats, Peas, Canola, Millet, R & T	8,664	9,438	6,147	2,323	6,643
Pulse USA Early Planted Small Seeded	8,470	5,905		2,081	5,485
German Millet	5,953				5,953
Triticale	0				0
Sorghum Sudan	0				0
Oats	8,373				8,373
Haybet Barley, AC Greenfix	9,244				9,244
Young Oats	10,842				10,842
Radish	5,227				5,227
Cocktail 2	5,276				5,276
Cocktail 3	8,034				8,034
Durum				2,178	2,178
WREC Barley, Sunflowers, R & T				3,098	3,098
Pulse USA Prevent Plant			6,147	1,694	3,920
Pulse USA Late Planted Small Seeded			6,873		6,873
	6,890	6,961	6,045	2,222	
Planted:	5/10/2010	5/10/2010	5/12/2010	5/20/2010	
Harvested:	7/21/2010	7/22/2010	7/26/2010	8/2/2010	

Fall Seeded - 2010

WREC

Dry Weight

Biomass/acre

Stubble

Fallow

Stubble

Fallow

1 WREC Barley, Lentils, R & T

0.12

0.33

581

1,597

2 WREC Oats, Soybeans, Sunflower, Millet, R & T

0.13

0.18

629

871

3 Pulse USA N Builder

0.18

0.39

871

1,888

4 Pulse USA Late Planted

0.11

0.31

532

1,500

5 Pulse USA Cold Tolerant

0.04

0.41

194

1,984

Planted: 8/25/2010

Harvested: 10/19/2010

				2011	
NDAWN weekly average data for 16 weeks beginning August 1					
	Williston 5SW (	wdr			
	Williston				
	<u>Max</u>	<u>Min</u>	<u>Avg</u>	<u>Avg</u>	<u>Total</u>
	<u>Air</u>	<u>Air</u>	<u>Air</u>	<u>Turf</u>	<u>Rain</u>
<u>Week</u>	<u>Temp</u>	<u>Temp</u>	<u>Temp</u>	<u>Soil</u>	<u>fall</u>
<u>Starting</u>	<u>(°F)</u>	<u>(°F)</u>	<u>(°F)</u>	<u>Temp</u>	<u>(inch)</u>
<u>Date</u>				<u>(°F)</u>	
8/1/2011	84	63	73	72	0.2
8/8/2011	80	55	68	67	0.03
8/15/2011	81	54	68	67	0.01
8/22/2011	89	60	75	70	0.45
8/29/2011	77	53	65	64	0.28
9/5/2011	88	53	70	64	0
9/12/2011	64	42	53	58	0.2
9/19/2011	76	47	61	56	0.97
9/26/2011	79	48	63	58	0
10/3/2011	70	49	60	58	0.32
10/10/2011	59	38	48	48	0.09
10/17/2011	60	33	47	45	0.07
10/24/2011	49	29	39	40	0.12
10/31/2011	48	27	37	38	M 0.00
11/7/2011	45	22	33	35	M
11/14/2011	28	9	19	29	M
Averages:	67	43	55	54	
Totals:					20M 2.74
Max:	89	63	75	72	20M 0.97
Min:	28	9	19	29	20M 0.00
Std. Dev.:	18	15	16	14	

COVER CROP SUMMARY 2011

<u>COVER CROP</u>	<u>WREC</u>	<u>N TOWN</u>	<u>P. LAKE</u>	<u>RAY</u>	<u>CROSBY</u>	<u>CROSBY2</u>	<u>AVG</u>
Pulse USA N Builder	4,259	4,453	4,792	4,501	4,051	7,599	4,411
Pulse USA Grazer	3,920	4,792	5,614	3,678	3,025	5,905	4,206
Pulse USA Prevent Plant	4,066	3,001	4,066	3,630	3,591	4,985	3,671
Pulse USA Early Planted Small Seeded	2,420	2,517	3,146	2,710	2,449	5,130	2,648
Pulse USA Cold Tolerant	3,533		5,082	3,388	2,483	4,646	3,621
Pulse USA Salt Tolerant	3,678		5,130	4,840	3,538	5,614	4,297
WREC Oats, Saff, Peas, R & T	3,243		4,840	4,404	3,407	4,501	3,974
WREC Oats, Peas, Canola, millet,R & T	3,098	3,678	5,421	5,034	3,262	6,147	4,099
WREC Barley, Lentil, Soybean	2,856	4,017			3,770	6,340	3,548
WREC Oats, soybeans, Millet, SF, R&T	3,775		6,292	4,743	4,443	7,454	4,813
Foxtail Millet		3,146			4,530	5,372	3,838
Sorghum Sudan		3,678					3,678
Everleaf Oats		4,501					4,501
Radish		2,033			2,923	5,372	2,478
Turnips		4,259			2,410	2,565	3,335
Sugar beets		4,259					4,259
4010 Peas		4,259					4,259
Haybet Barley		5,130					5,130
Haybet Barley, 4010 Peas		5,034					5,034
4010 peas, Everleaf Oats		6,486					6,486
Corn	4,985						4,985
Agassiz					4,051	6,873	4,051
	AVERAGE	3,621	4,078	4,931	4,103	3,424	5,607
Planted:	6/1/11	5/19/11	6/2/11	6/2/11	7/27/11	7/27/11	
Harvested:	8/15/11	8/16/11	8/16/11	8/16/11	9/16/11	10/26/11	

Divide County Cover Crop Trial

Seeding Date - July 27, 2011

Cooperator - Greg Jacobs

NE ☐ of Section 34, T164N-R95W (Mentor Township)

Pulse USA
N Builder
(2)

Pulse USA
Prevent Plant
(4)

Pulse USA
Small Seeded
(6)

WREC
Oats/SF/Peas
Turnip
Radish
(8)

WREC
Peas/Canola
Oat/Turnip
Radish
(10)

WREC
Oats/Soybean
Millet/Radish
Turnip
(12)

Radish
(14)

Millet
(16)

Pulse USA
Grazer
(1)

Pulse USA
Cold Tolerant
Trinity
(3)

Pulse USA
Salt Tolerant
(5)

Agassiz
Mix*
(7)

WREC
Oats/Millet
Turnip
Radish
(9)

WREC
Barley/Lentil
Soybean
(11)

WREC
Oats/Radish
Safflower
Pea/Turnip
(13)

Turnip
(15)

Crosby Fall Seed Plot

CROSBY - Fall Seeded

	9/16/2011	10/26/2011
	Biomass/acre	Biomass/acre
¹ Pulse USA Grazer	3,025	5,905
² Pulse USA N Builder	4,051	7,599
³ Pulse USA Cold Tolerant	2,483	4,646
⁴ Pulse USA Prevent Plant	3,591	4,985
⁵ Pulse USA Salt Tolerant	3,538	5,614
⁶ Pulse USA Small Seeded	2,449	5,130
⁷ Agassiz	4,051	6,873
⁸ WREC Oats, SF, Peas, R & T	2,831	4,937
⁹ WREC Oats, Millet, R & T	4,293	4,453
¹⁰ WREC Oats, Peas, Canola, R & T	3,262	6,147
¹¹ WREC Barley, Lentil, Soybean	3,770	6,340
¹² WREC Oats, soybeans, Millet, SF, R&T	4,443	7,454
¹³ WREC Oats, Peas, Saff, R & T	3,407	4,501
¹⁴ Radish	2,923	5,372
¹⁵ Turnip	2,410	2,565
¹⁶ Millet	4,530	5,372

****Seeded 7/27/11. Harvested 9/16/11**

****some plots had wheel tracks through them**

3,441

5,493

Pulse USA Grazer



August 23



September 16
3,025 lbs



October 26
5,905 lbs

Planted: July 27th

Pulse USA N Builder



August 23



September 16
4,051 lbs



October 26
7,599 lbs

Pulse USA Cold Tolerant



August 23



September 16

2,483 lbs



October 26

4,646 lbs

Pulse USA Prevent Plant



August 23



September 16
3,591 lbs



October 26
4,985 lbs

Pulse USA Salt Tolerant



August 23



September 16

3,538 lbs



October 26

5,614 lbs

Pulse USA Small Seeded



August 23



September 16
2,449 lbs



October 26
5,130 lbs

Agassiz Mix



August 23



September 16
4,051 lbs



October 26
6,873 lbs

WREC Oats, SF, Peas, T and R



August 23



September 16
2,831 lbs



October 26
4,937 lbs

WREC Oats, Millet, T and R



August 23



September 16
4,293 lbs



October 26
4,453 lbs

WREC Oats, Peas, Can, T and R



August 23



September 16

3,262 lbs



October 26

6,147 lbs

WREC Barley, Lentil and Soybean



August 23



September 16
3,770 lbs



October 26
6,340 lbs

WREC Oats, Soybean, Millet, T and R



August 23



September 16
4,443 lbs



October 26
7,454 lbs

WREC Oats, Saff, Pea, T and R



August 23



September 16
3,407 lbs



October 26
4,501 lbs

Radish



August 23



September 16
2,923 lbs



October 26
5,372 lbs

Turnip



August 23



September 16
2,410 lbs



October 26
2,565 lbs

Millet



August 23



September 16



October 26

COVER CROP SUMMARY 2011

<u>COVER CROP (LBS/ACRE)</u>	<u>WREC</u>	<u>N TOWN</u>	<u>P. LAKE</u>	<u>RAY</u>	<u>CROS(F)</u>	<u>CROS2(F)</u>	<u>AVG</u>
Pulse USA N Builder	4,259	4,453	4,792	4,501	4,051	7,599	4,411
Pulse USA Grazer	3,920	4,792	5,614	3,678	3,025	5,905	4,206
Pulse USA Prevent Plant	4,066	3,001	4,066	3,630	3,591	4,985	3,671
Pulse USA Early Planted Small Seeded	2,420	2,517	3,146	2,710	2,449	5,130	2,648
Pulse USA Cold Tolerant	3,533		5,082	3,388	2,483	4,646	3,621
Pulse USA Salt Tolerant	3,678		5,130	4,840	3,538	5,614	4,297
WREC Oats, Saff, Peas, R & T	3,243		4,840	4,404	3,407	4,501	3,974
WREC Oats, Peas, Canola, millet,R & T	3,098	3,678	5,421	5,034	3,262	6,147	4,099
WREC Barley, Lentil, Soybean	2,856	4,017			3,770	6,340	3,548
WREC Oats, soybeans, Millet, SF, R&T	3,775		6,292	4,743	4,443	7,454	4,813
Foxtail Millet		3,146			4,530	5,372	3,838
Sorghum Sudan		3,678					3,678
Everleaf Oats		4,501					4,501
Radish		2,033			2,923	5,372	2,478
Turnips		4,259			2,410	2,565	3,335
Sugar beets		4,259					4,259
4010 Peas		4,259					4,259
Haybet Barley		5,130					5,130
Haybet Barley, 4010 Peas		5,034					5,034
4010 peas, Everleaf Oats		6,486					6,486
Corn	4,985						4,985
Agassiz					4,051		4,051
	AVERAGE	3,621	4,078	4,931	4,103	3,424	5,510
Planted:	6/1/11	5/19/11	6/2/11	6/2/11	7/27/11	7/27/11	
Harvested:	8/15/11	8/16/11	8/16/11	8/16/11	9/16/11	10/26/11	

<u>COVER CROP MIXES</u>	BioMass <u>Per Acre (lbs)</u>	Seeding <u>Cost/Ac</u>	Haying <u>Cost/Ac</u>	Total <u>Cost/Ac</u>	Total <u>Cost/tn</u>
Pulse USA Grazer	5,905	\$32.35	\$40.62	\$72.97	\$24.72
Pulse USA N Builder	7,599	\$31.83	\$49.66	\$81.49	\$21.45
Pulse USA Cold Tolerant	4,646	\$32.90	\$33.91	\$66.81	\$28.76
Pulse USA Prevent Plant	4,985	\$26.52	\$35.72	\$62.24	\$24.97
Pulse USA Salt Tolerant	5,614	\$25.19	\$39.07	\$64.26	\$22.89
Pulse USA Small Seeded	5,130	\$20.05	\$36.49	\$56.54	\$22.04
Agassiz	6,873	\$33.28	\$45.78	\$79.06	\$23.01
WREC Oats, SF, Peas, R & T	4,937	\$17.28	\$35.46	\$52.74	\$21.37
WREC Oats,Millet, R & T	4,453	\$16.64	\$32.88	\$49.52	\$22.24
WREC Oats, Peas, Canola, R & T	6,147	\$17.68	\$41.91	\$59.59	\$19.39
WREC Barley, Lentil, Soybean	6,340	\$18.58	\$42.95	\$61.53	\$19.41
WREC Oats, soybeans, Millet, SF, R&T	7,454	\$18.77	\$48.88	\$67.65	\$18.15
WREC Oats, Peas, Saff, R & T	4,501	\$17.68	\$33.14	\$50.82	\$22.58
Radish	5,372	\$15.73	\$37.78	\$53.51	\$19.92
Turnip	2,565	\$15.93	\$22.81	\$38.74	\$30.21
Millet	5,372	\$14.08	\$37.78	\$51.86	\$19.31

Using the 10/26/11 harvest date

						50/50		
	BioMass	Seeding	Haying	Total	Total	Haying	Total	Total
<u>COVER CROP MIXES</u>	<u>Per Acre (lbs)</u>	<u>Cost/Ac</u>	<u>Cost/ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>
Pulse USA Grazer	5,905	\$32.35	\$44.99	\$77.34	\$26.20	\$27.06	\$59.41	\$20.12
Pulse USA N Builder	7,599	\$31.83	\$55.28	\$87.11	\$22.93	\$32.21	\$55.13	\$14.51
Pulse USA Cold Tolerant	4,646	\$32.90	\$37.35	\$70.25	\$30.24	\$23.24	\$53.48	\$23.02
Pulse USA Prevent Plant	4,985	\$26.52	\$39.41	\$65.93	\$26.45	\$24.27	\$50.72	\$20.35
Pulse USA Salt Tolerant	5,614	\$25.19	\$43.23	\$68.42	\$24.37	\$26.18	\$50.55	\$18.01
Pulse USA Small Seeded	5,130	\$20.05	\$40.29	\$60.34	\$23.52	\$24.71	\$48.23	\$18.80
Agassiz	6,873	\$33.28	\$50.87	\$84.15	\$24.49	\$30.00	\$54.49	\$15.86
WREC Oats, SF, Peas, R & T	4,937	\$17.28	\$39.11	\$56.39	\$22.85	\$24.12	\$46.97	\$19.03
WREC Oats,Millet, R & T	4,453	\$16.64	\$36.17	\$52.81	\$23.72	\$22.65	\$46.37	\$20.83
WREC Oats, Peas, Canola, R & T	6,147	\$17.68	\$46.46	\$64.14	\$20.87	\$27.80	\$48.67	\$15.83
WREC Barley, Lentil, Soybean	6,340	\$18.58	\$47.64	\$66.22	\$20.89	\$28.38	\$49.27	\$15.54
WREC Oats, soybeans, Millet, SF, R&T	7,454	\$18.77	\$54.40	\$73.17	\$19.63	\$31.76	\$51.40	\$13.79
WREC Oats, Peas, Saff, R & T	4,501	\$17.68	\$36.47	\$54.15	\$24.06	\$22.80	\$46.86	\$20.82
Radish	5,372	\$15.73	\$41.76	\$57.49	\$21.40	\$25.44	\$46.85	\$17.44
Turnip	2,565	\$15.93	\$24.71	\$40.64	\$31.69	\$16.92	\$48.60	\$37.90
Millet	5,372	\$14.08	\$41.76	\$55.84	\$20.79	\$25.44	\$46.23	\$17.21
			AVE.	\$64.65	\$24.01		\$50.20	\$19.32

						50/50		
	BioMass	Seeding	Haying	Total	Total	Haying	Total	Total
<u>COVER CROP MIXES</u>	<u>Per Acre (lbs)</u>	<u>Cost/Ac</u>	<u>Cost/ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>	<u>Cost/Ac</u>	<u>Cost/Ac</u>	<u>Cost/tn</u>
Pulse USA Grazer	3,025	\$32.35	\$27.50	\$59.85	\$39.57	\$18.32	\$50.67	\$33.50
Pulse USA N Builder	4,051	\$31.83	\$33.73	\$65.56	\$32.37	\$21.43	\$53.80	\$26.56
Pulse USA Cold Tolerant	2,483	\$32.90	\$24.21	\$57.11	\$46.00	\$16.67	\$62.67	\$50.48
Pulse USA Prevent Plant	3,591	\$26.52	\$30.94	\$57.46	\$32.00	\$20.03	\$52.04	\$28.98
Pulse USA Salt Tolerant	3,538	\$25.19	\$30.62	\$55.81	\$31.55	\$19.87	\$51.42	\$29.07
Pulse USA Small Seeded	2,449	\$20.05	\$24.00	\$44.05	\$35.98	\$16.57	\$52.54	\$42.91
Agassiz	4,051	\$33.28	\$33.73	\$67.01	\$33.08	\$21.43	\$54.52	\$26.91
WREC Oats, SF, Peas, R & T	2,831	\$10.93	\$26.32	\$37.25	\$26.32	\$17.73	\$44.05	\$31.12
WREC Oats,Millet, R & T	4,293	\$10.93	\$35.20	\$46.13	\$21.49	\$22.17	\$43.66	\$20.34
WREC Oats, Peas, Canola, R & T	3,262	\$10.93	\$28.94	\$39.87	\$24.45	\$19.04	\$43.48	\$26.66
WREC Barley, Lentil, Soybean	3,770	\$10.93	\$32.03	\$42.96	\$22.79	\$20.58	\$43.37	\$23.01
WREC Oats, soybeans, Millet, SF, R&T	4,443	\$10.93	\$36.11	\$47.04	\$21.18	\$22.62	\$43.80	\$19.72
WREC Oats, Peas, Saff, R & T	3,407	\$10.93	\$29.82	\$40.75	\$23.92	\$19.48	\$43.40	\$25.48
Radish	2,923	\$10.93	\$26.88	\$37.81	\$25.87	\$18.01	\$43.88	\$30.02
Turnip	2,410	\$10.93	\$23.77	\$34.70	\$28.79	\$16.45	\$45.24	\$37.55
Millet	4,530	\$10.93	\$36.64	\$47.57	\$21.00	\$22.89	\$43.89	\$19.38
			AVE.	\$48.81	\$29.15		\$48.28	\$29.48

Using the 9/16 /11 harvest date

Final Thoughts

- Fall seeded cover crops still questionable in the region
 - Moisture
 - Insects
 - Frost
- What is the correct amount of bio-mass?
- Spring planted cover crops provide very good yields

QUESTIONS????



