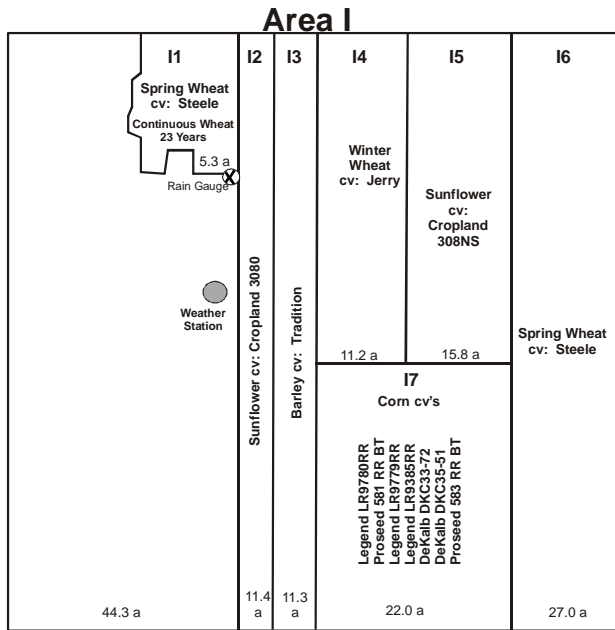
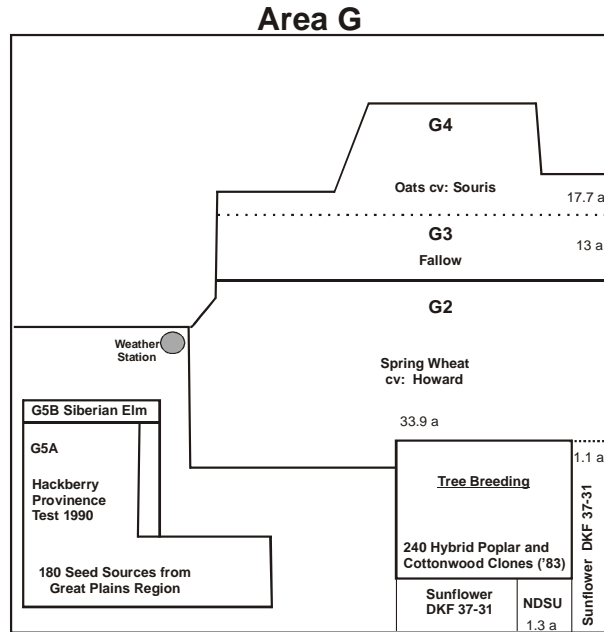


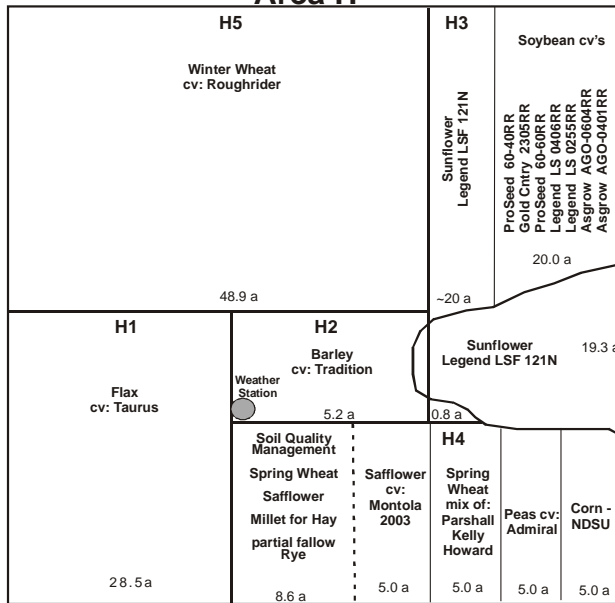
# Area IV Cooperative Research Farm 2007 Crop Plan



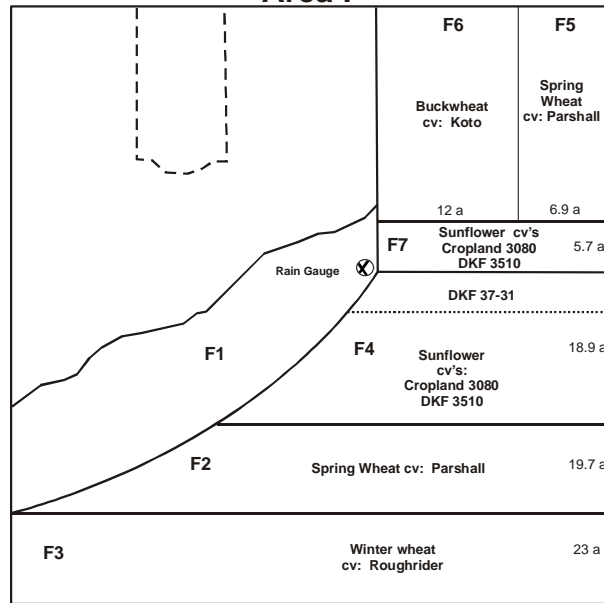
NE 1/4 Section 20 T138N R81W



SW 1/4 Section 8 T138N R81W



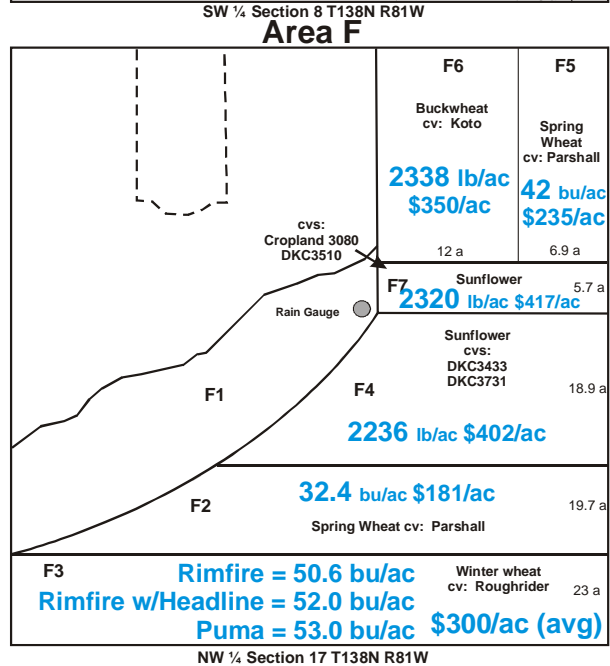
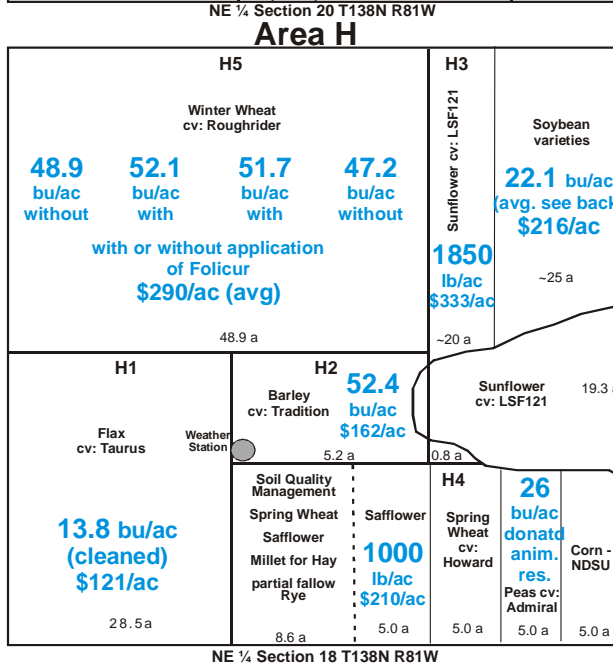
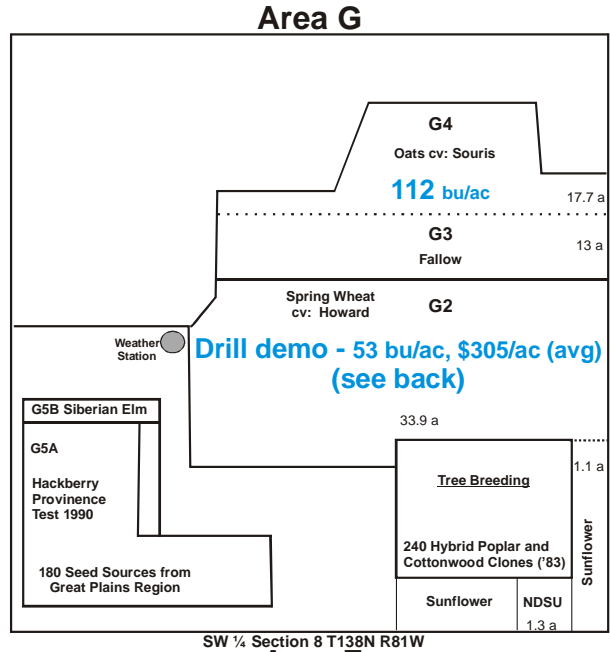
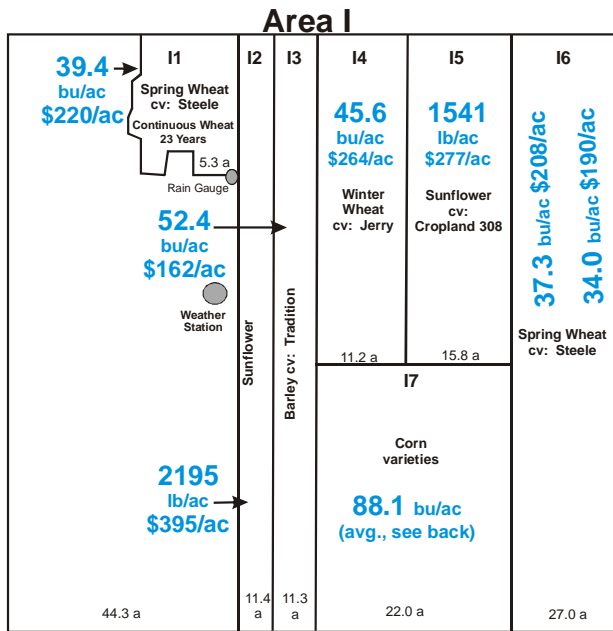
NE 1/4 Section 18 T138N R81W



NW 1/4 Section 17 T138N R81W

# 2007 Area IV Research Farm Crop Yields

(11-20-07)



**List of Crops grown**

1. Barley
2. Buckwheat
3. Corn
4. Flax
5. Oats
6. Peas
7. Safflower
8. Soybean
9. Spring wheat
10. Sunflower
11. Winter wheat

<b>Environ. Smart Nitrogen (ESN)</b>	
<b>Crop: Safflower</b>	Yield
Treatments	lb/ac
Control (no N)	<b>1050</b>
All Urea	<b>1084</b>
All ESN	<b>1068</b>
50-50	<b>1023</b>

<b>Soybeans</b>	Cv.	Yield
Proseed	60-40	17.4
Proseed	60-60	24.3
Gold Cntry	2305	21.0
Legend	0406	23.1
Legend	0255	17.7
Asgrow	0604	24.5
Asgrow	0401	26.4

Drill demo - field G2	Fertilizer	
	Drill	Liquid
	Yield (bu/ac)	
Sunflower	59.2	51.5
JD750	57.6	50.4
Bourgault	58.3	48.5
Late seeded (Bourgault)	47.4	

**Corn varieties - 2007**

			Yield (bu/ac)	Moisture (%)	Test wt.
DeKalb	DKC 33-72	CP	77.2	18.6	55.8
DeKalb	DKC 33-72	SP	82.8	18.1	56.9
DeKalb	DKC 35-51	CP	96.4	19.3	54.1
DeKalb	DKC 35-51	SP	87.7	18.8	53.8
Legend	LR9385RR	CP	87.9	19.7	52.8
Legend	LR9385RR	SP	94.8	19.5	55.3
Legend	LR9779RR	CP	85.5	18.3	56.9
Legend	LR9779RR	SP	66.5	18.2	57.3
Legend	LR9780RR	CP	91.5	18.3	54.1
Legend	LR9780RR	SP	83.7	17.5	53.5
Proseed	581 RR BT	CP	96.2	18.4	54.2
Proseed	581 RR BT	SP	89.9	18.2	54.3
Proseed	583 RR BT	CP	96.2	21.1	54.4
Proseed	583 RR BT	SP	97.1	20.7	55.1
		<b>AVG</b>	<b>88.1</b>	<b>18.9</b>	<b>54.9</b>

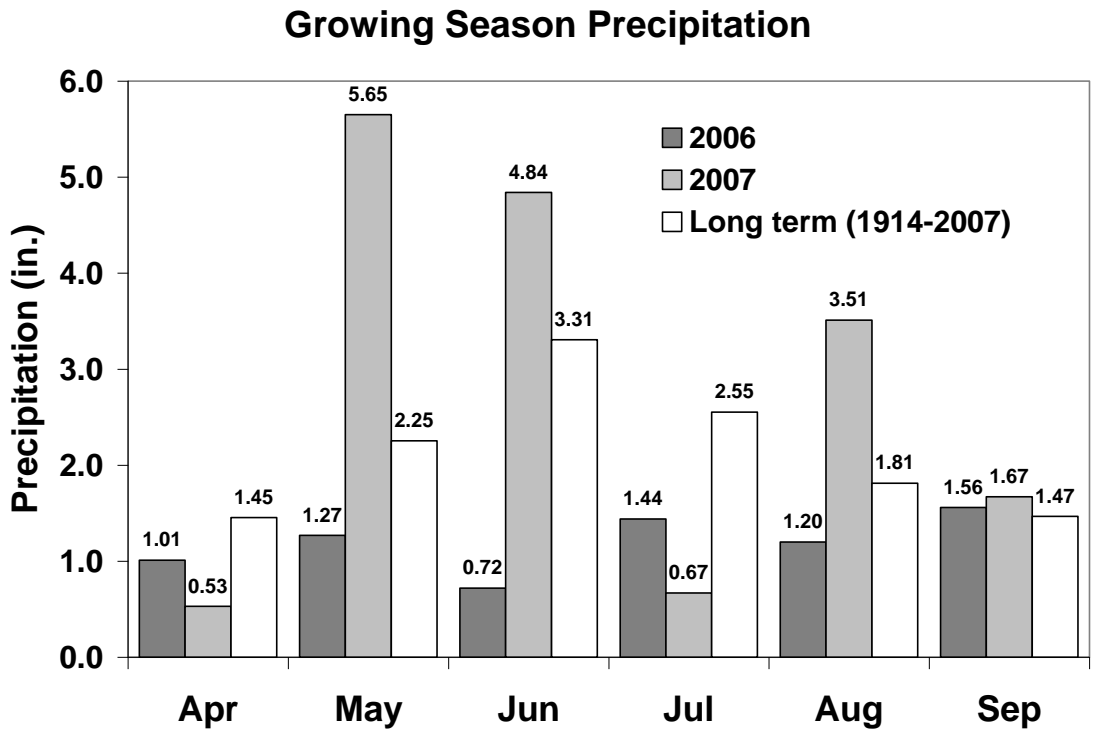


Figure 1. Growing season precipitation (April – September) for 2006, 2007, and long-term average growing precipitation at Mandan, ND.

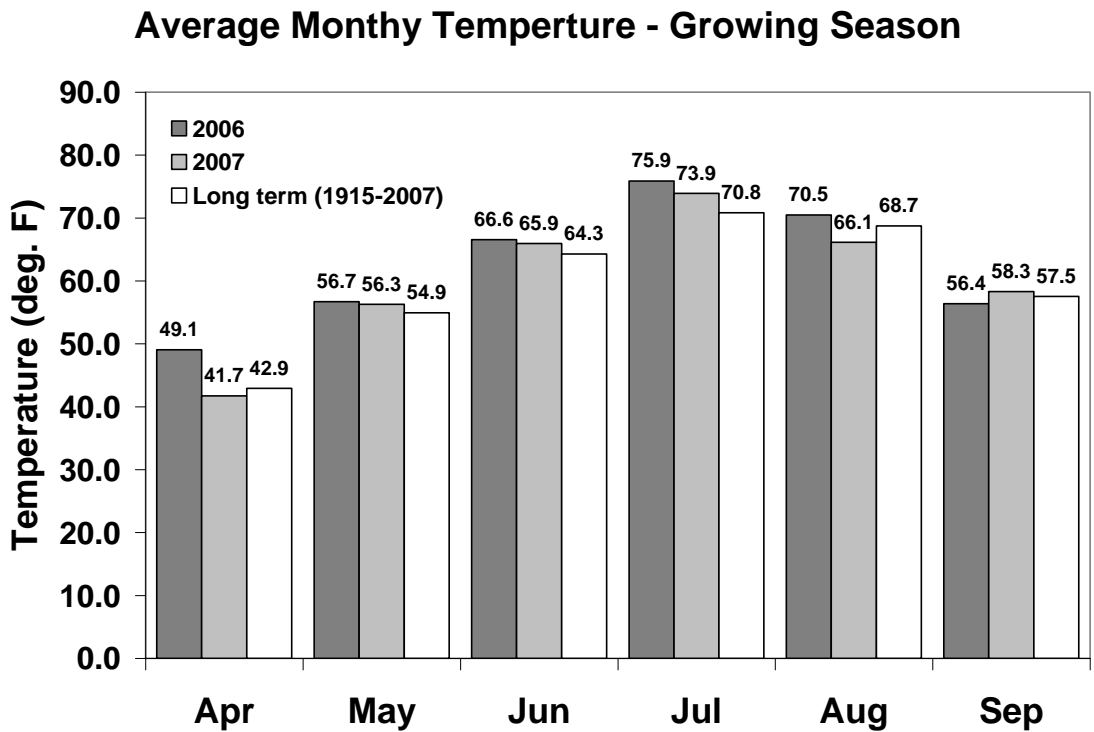


Figure 2. Growing season average monthly temperature (April – September) for 2006, 2007, and long-term average growing precipitation at Mandan, ND.

## **MANAGEMENT PRACTICES – 2007 AREA IV SCD/ARS RESEARCH FARM**

### **AREA-F FIELD OPERATIONS, NW ¼ Section 17 T138N R81W**

**FIELD F1** This conservation bench terrace area has been excluded from the total acreage leased by AREA IV SCDs since 1987.

#### **FIELD F2, PARSHALL SPRING WHEAT**

- Previous crop – Skip-Row Sunflower Variety Trial
- 3/19/07 Contractor spread fertilizer (urea @ 60 lb/ac).
  - 4/21/07 Contractor spread liquid fertilizer (27-0-0-1 @ 10 gal/ac) + Roundup (32 oz/ac)
  - 4/25/07 Seeded with Sunflower drill @ 1.3 million viable seeds/ac (starter fertilizer applied w/seed: 11-52-0 @ 50 lb/ac).
  - 5/18/07 Sprayed w/Everest @ 0.5 oz/ac + Bison @ 16 oz/ac on the south side & w/Puma @ 6 oz/ac + Bison @ 16 oz/ac on the north side.
  - 7/26/07 Swathed field w/25' New Holland HB25.
  - 8/15/07 Harvested w/New Holland CR970; yield 32.4 bu/ac.
  - 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.
  - 9/18/07 Contractor sprayed w/Glystar Plus @ 16 oz/ac + Ammonium sulfate @ 5 gal/100 gal water.
  - 9/19/07 Seeded Roughrider winter wheat w/Bourgault drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.

#### **FIELD F3, ROUGHRIDER WINTER WHEAT** (Headline donated by BASF, Rimfire donated by Bayer Crop Science)

- Previous crop – Steele Spring Wheat.
- 9/13,14/06 Seeded at 1.3 million viable seeds + 50 lb/ac of 11-52-0 w/seed (Bourgault drill).
  - 3/16/07 Contractor bulk spread fertilizer(urea 50 lbs/ac).
  - 5/09/07 Field sprayed w/Bison @ 1.5 pt/ac + Puma @ 4.65 oz/ac on the north half & w/Bison @ 1.5 pt/ac + Rimfire @ 20 oz/ac + Headline @ 9 oz/ac on the south half.
  - 7/20/07 Swathed field w/25' New Holland HB25.
  - 7/30/07 Harvested w/New Holland CR970; Bison + Puma, 53 bu/ac; Bison + Rimfire, 50.6 bu/ac; Bison + Rimfire + Headline, 52.0 bu/ac.
  - 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.

#### **FIELD F4, SUNFLOWERS** (Seed donated DeKalb and Cropland Genetics)

- Previous crop- Roughrider and Jerry Winter Wheat.
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.
  - 5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.
  - 6/11/07 Seeded north strip w/DKF 37-31 & south w/Cropland 3080 & DKF 3510 as alternating every 3 rows (seeded w/JD Max Emerge II @ 24,000 seeds/ac).
  - 7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)
  - 8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.

11/1/07 Harvested w/ New Holland CR970 and Sunmaster (model 1095) all-crop head (2236 lb/ac).

**FIELD F5, PARSHALL SPRING WHEAT**

Previous crop – Soybeans  
3/19/07 Contractor bulk spread Urea at 60/lbs/ac.  
4/21/07 Contractor spread liquid fertilizer (27-0-0-1 @ 10 gal/ac) + Roundup @ 32 oz/ac)  
4/26/07 Seeded with Sunflower drill @ 1.3 million viable seeds/ac and 50 lb/ac 11-52-0.  
5/18/07 Sprayed w/Puma @ 6 oz/ac + Bison @ 16 oz/ac.  
7/26/07 Swathed field w/25' New Holland HB25.  
8/15/07 Harvested w/New Holland CR970, 42 bu/ac.  
8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.

**FIELD F6, KOTO BUCKWHEAT** (seed donated by MinnDak of Dickinson, ND)

Previous crop – Roughrider, Yellowstone and Jerry Winter Wheat  
5/13/07 Contractor sprayed w/glyphosate @ 1 qt/ac + Request @ 2 qt/100 gal. water.  
6/16,20/07 Field seeded w/Bourgault @ 52 lb/ac + 50 lb/ac 11-52-0 w/seed.  
6/20/07 Sprayed w/Roundup @ 16 oz/ac + AMS @ 5 gal/100 gal water.  
9/10/07 Swathed field w/25' New Holland HB25.  
10/5/07 Harvested w/JD6620 (2338 lb/ac).

**FIELD F7, SUNFLOWERS** (Seed donated DeKalb and Cropland Genetics)

Previous crop – Corn Varieties  
3/19/07 Contractor bulk spread Urea at 60/lbs/ac.  
5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.  
6/11/07 Seeded w/Cropland 3080 & DKF 3510 as alternating every 3 rows.  
7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)  
8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.  
11/1/07 Harvested w/New Holland CR970 and Sunmaster (model 1095) all-crop head (2320 lbs/ac)

**AREA-G FIELD OPERATIONS, SW ¼ Section 8 T138N R81W**

**FIELD G1, SUNFLOWERS** (Seed donated DeKalb)

Previous crop – Yellowstone Winter Wheat.  
3/19/07 Contractor bulk spread fertilizer(urea @ 60 lbs N/ac).  
5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.  
6/11/07 Seeded w/JD Max Emerge II @ 24,000 seeds/ac DeKalb DKF 37-31.  
7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)  
8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.  
11/1/07 Harvested w/New Holland CR970 and Sunmaster (model 1095) all-crop head (1500 lbs/ac)

**FIELD G2, HOWARD SPRING WHEAT** (Axial donated by Syngenta)

- Previous crop – Flax
- 3/19/07 Contractor bulk spread Urea @ 60 lb N/ac on south half.
- 4/21/07 Contractor spread liquid fertilizer equivalent to 60 lb N/ac (27-0-0-1 @ 10 gal/ac) + glyphosate @ 32 oz/ac) on north half.
- 4/27/07 Seeded w/JD750, Sunflower, and Bourgault drills all calibrated to seed 1.3 million viable seeds/ac + 50 lb/ac of 11-52-0 w/seed.
- 6/06/07 Sprayed w/Bison @ 16 oz/ac + Axial @ 8 oz/ac + Headline @ 3 oz/ac.
- 7/27/07 Field swathed w/25' New Holland HB25.
- 8/10/07 Harvested w/New Holland CR970: Urea – JD750 (57.6 bu/ac), Sunflower (59.2 bu/ac), Bourgault (58.3 bu/ac);
- 8/15/07 Harvested w/New Holland CR970: Liquid N – JD750 (50.4 bu/ac), Sunflower (51.5 bu/ac), Bourgault (48.5 bu/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

**FIELD G3, FALLOW**

- Previous crop- Kelby Spring Wheat
- 5/01/07 Field sprayed w/Roundup Ultra Max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 5 gal/100 gal water.
- 6/20/07 Sprayed w/Roundup @ 16 oz/ac + AMS @ 5 gal/100 gal water.
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

**FIELD G4, SOURIS OATS** (seed and combining donated by Gartner Seed Farm)

- Previous management- Chemical Fallow
- 3/19/07 Contractor bulk spread fertilizer(urea @ 50 lbs N/ac).
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/ac.
- 5/10,11/07 Seeded w/JD750 @ 1.3 million viable seeds/ac (2.8 bu/ac) + starter fertilizer (50 lb/ac, 11-52-0) w/seed.
- 6/06/07 Sprayed field w/Bison @ 1 pt/ac.
- 8/8/07 Field swathed w/25' New Holland HB25.
- 8/15/07 Harvested (112 bu/ac, 35 lb/bu) by Gartner Seed Farm.
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

**AREA-H FIELD OPERATIONS, NE ¼ Section 18 T138N R81W**

**FIELD H1, TAURUS FLAX** (seed donated Dwight Johnson seeds)

- Previous crop – Komo Buckwheat
- 3/19/07 Contractor bulk spread fertilizer(urea 50 lbs N/ac).
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/100 gal water.
- 5/2,3/07 Flax seeded field with Bourgault drill @ 56 lb/ac + starter fert. @ 50 lb/ac (11-52-0).
- 6/06/07 Sprayed w/Assure II @ 6 oz/ac + Destiny crop oil @ 1 gal/100 gal water.
- 6/07/07 Sprayed w/Bison @ 16 oz/ac.
- 8/31/07 Swathed field w/25' New Holland HB25.
- 9/04/07 Harvested w/JD6620 (13.8 bu/ac, 56.5 lb test wt, 12% dockage)

- 9/18/07 Contractor sprayed w/Glystar Plus @ 16 oz/ac + Ammonium sulfate @ 5 gal/100 gal water.
- 9/19/07 Seeded Roughrider winter wheat (west half) w/Haybuster drill & Jerry (east half) w/Bourgault drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.

### **FIELD H2, TRADITION BARLEY**

- Previous crop – Sclerotinia Biological Control Studies
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.
- 4/21/07 Sprayed w/Roundup @ 32 oz/ac + AMS @ 5 gal/100 gal water.
- 4/26/07 Seeded barley @ 1.3 million viable seeds/ac w/Haybuster 107 drill + 50 lb/ac 11-52-0 w/seed.
- 6/04/07 Sprayed w/Bison @ 16 oz/ac.
- 7/20/07 Swathed field w/25' New Holland HB25.
- 8/15/07 Harvested w/New Holland CR970 (52.4 bu/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.
- 9/18/07 Contractor sprayed w/Glystar Plus @ 16 oz/ac + Ammonium sulfate @ 5 gal/100 gal water.
- 9/20/07 Seeded Jerry winter wheat w/Haybuster 8000 drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.

### **FIELD H3 WEST, SUNFLOWERS**

- Previous crop – Steele Spring Wheat.
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.
- 5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.
- 6/18/07 Seeded Legend LSF 121N @ 24,000 seeds/ac w/JD Max Emerge II.
- 6/20/07 Sprayed w/Roundup @ 16 oz/ac + AMS @ 5 gal/100 gal water.
- 7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)
- 8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.
- 11/01/07 Harvested w/New Holland CR970 w/Sunmaster Model 1095 all-crop head (1850 lb/ac).

### **FIELD H3 EAST, SOYBEAN VARIETIES (seed donated by Legend Seeds, Gold Country, Proseed, and Asgrow)**

- Previous crop – Skip-Row Corn.
- 5/13/07 Contractor sprayed w/glyphosate @ 1 qt/ac + Request @ 2 qt/100 gal. water.
- 6/20/07 Sprayed w/Roundup @ 16 oz/ac + AMS @ 5 gal/100 gal water.
- 6/19,20/07 Field was seeded to soybean @ 175,000 seed/ac w/JD Max Emerge II in 30 in. rows. All seed was inoculated.
- 7/30/07 Contractor sprayed w/Roundup @ 1 qt/ac + Request (amm sulfate) @ 2 qt/100 gal. water.
- 10/30/07 Harvested w/JD4420 w/flex head (22.1 bu/ac average); see crop yields map.

### **FIELD H3 SOUTH, SUNFLOWER/FALLOW (Intermittent water pond area)**

- Previous crop – Roughrider Winter Wheat.
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.



- 5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.  
No crop seeded because of standing water.
- 7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.
- 9/18/07 Contractor sprayed w/Glystar Plus @ 16 oz/ac + Ammonium sulfate @ 5 gal/100 gal water.
- 9/19/07 Seeded Roughrider winter wheat w/Bourgault drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.

#### **FIELD H4, SOIL QUALITY MANAGEMENT**

##### **FIELD H4, SAFFLOWER (ESN urea donated by Agrium, Inc.)**

- Previous crop – Steele Spring Wheat.
- 3/22/07 Applied Sonalan @ 11 lb/ac on the surface of the soil.
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/100 gal water.
- 5/02/07 Seeded with JD750 drill @ 200,000 viable seeds/ac + 50 lb/ac 11-52-0. N applied at seeding as Environmentally Smart N (ESN) or urea or a 50-50 mixture @ 60 lb N/ac.
- 6/11/07 Sprayed w/Assure II @ 6 oz/ac + Destiny crop oil @ 1 gal/100 gal water (north end of field outside of ESN plots).
- 6/21/07 Sprayed w/Harmony GT @ 1/12 oz/ac + Preference NIS @ 0.1 qt./ac + UAN @ 1.5 qt/ac.
- 8/29/07 Sprayed w/Roundup @ 1 pt/ac + Brash @ 1 pt/ac + crop oil @ 1 pt/ac + AMS @ 5 gal/100 gal water to desiccate large kochia.
- 9/19/07 Harvested standing w/JD4420 (1000 lb/ac); see crop yields map.  
Sprayed field.

##### **FIELD H4, SPRING WHEAT (MIX OF PARSHALL, KELBY & HOWARD)**

- Previous crop – Yellowstone Winter Wheat.
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/ac.
- 5/01/07 Seeded with Bourgault drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.
- 6/06/07 Sprayed w/Bison @ 16 oz/ac + Axial @ 8 oz/ac + Headline @ 3 oz/ac.
- 8/15/07 Field was straight combined (26.3 bu/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

##### **FIELD H4 EAST, ADMIRAL PEAS (seed donated by Pulse USA)**

- Previous crop- NDSU Corn Variety Trial.
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/ac.
- 5/03/07 Seeded with JD750 drill @ 350,000 seeds/ac + 11-52-0 @ 50 lb/ac w/seed.
- 6/11/07 Field sprayed w/Rezult @ 3.2 pt/ac + Raptor @ 2 oz/ac + AMS @ 5 gal/100gal + Destiny, i.e. crop oil / surfactant @ 1 pt/ac.
- 7/27/07 Harvested w/JD4420 and flex head (26 bu/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

#### **FIELD H4 EAST, NDSU CORN VARIETY TRIAL**

- Previous crop – Admiral Peas.
- 3/19/07 Contractor bulk spread Urea at 60/lbs/ac.
- 5/01/07 Field sprayed w/Roundup Ultra max @ 22 oz/ac + 2,4-D @ 4 oz/ac + AMS @ 0.5 gal/ac.
- 5/10/07 Seeded varieties (NDSU corn varieties x plant population)
- 6/11/07 Sprayed w/Roundup Ultra Max II @ 16 oz/ac + Sterling @ 6 oz/ac + AMS @ 5 gal/100 gal water.
- 7/02/07 Contractor sprayed w/liquid fertilizer @ 30 lb N/ac.
- 7/06/07 Sprayed w/Roundup Ultra Max II @ 16oz/ac + Status @ 2.5 oz/ac + Destiny crop oil @ 16oz/ac + AMS @ 5gal/100gal water.
- 11/15/07 Harvested varieties w/Hege plot combine, cleaned up w/JD6620.

#### **FIELD H5, ROUGHRIDER & JERRY WINTER WHEAT**

- Previous crop – Tradition Barley
- 9/26,28/06 Seeded west ½ Roughrider w/Hoe drill, West ½ of East ½ Jerry w/Hoe Drill & East ½ of East ½ w/Bourgault)
- 3/16/07 Contractor bulk spread fertilizer(urea 50 lbs/ac).
- 5/09/07 Sprayed field w/Bison @ 1.5 pt/ac + Headline @ 8 oz/ac.
- 6/21/07 Aerial sprayed (Folicur @ 4oz/ac + NIS @ 2.5 oz/ac) middle 41 ac.
- 7/20/07 Swathed field w/25' New Holland HB25.
- 7/27/07 Harvested w/New Holland CR970 (52 bu/ac w/Folicur; 48 bu/ac w/o Folicur).
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

#### **AREA-I FIELD OPERATIONS, NE ¼ Section 20 T138N R81W**

##### **FIELD I1, STEELE SPRING WHEAT (CONTINUOUS SPRING WHEAT 23 YRS).**

- Previous crop – Spring Wheat Agripro 603 CL
- 3/19/07 Contractor bulk spread Urea at 60/lbs N/ac
- 4/21/07 Contractor spread liquid fertilizer (27-0-0-1 @ 10 gal/ac) + glyphosate @ 32 oz/ac)
- 4/24/07 Seeded w/Sunflower drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.
- 5/16/07 Sprayed w/Everest @ 0.5 oz/ac + Bison @ 16 oz/ac.
- 7/24/07 Swathed field w/25' New Holland HB25.
- 8/1/07 Harvested w/New Holland CR970 (39.4 bu/ac)
- 8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

##### **FIELD I2, CROPLAND 3080 SUNFLOWERS (seed donated by Cropland Genetics)**

- Previous crop – Agripro Spring Wheat
- 3/19/07 Contractor bulk spread Urea at 60/lbs N/ac
- 5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.
- 6/05/07 Seeded w/JD Max Emerge II row crop planter @ 24,000 seeds/ac.
- 7/05/07 Sprayed field for grass control (Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac)
- 8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.

10/30/07 Harvested w/New Holland CR970 + Sunmaster model 1095 all-crop head (2195 lb/ac)

### **FIELD I3, TRADITION BARLEY**

Previous crop – Sunflowers  
3/19/07 Contractor bulk spread Urea at 60/lbs N/ac  
4/21/07 Sprayed w/Roundup @ 32 oz/ac + AMS @ 5 gal/100 gal water.  
4/27/07 Seeded barley w/Haybuster 107 @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.  
6/04/07 Sprayed w/Bison @ 16 oz/ac.  
7/19/07 Swathed field w/25' New Holland HB25.  
8/16/07 Harvested w/New Holland CR970 (52.4 bu/ac).  
8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

### **FIELD I4, JERRY WINTER WHEAT**

Previous crop – Freyr Spring Wheat  
3/16/07 Contractor bulk spread urea @ 50 lbsN/ac.  
5/09/07 Sprayed field w/Bison @ 1.5 pt/ac + Rimfire @ 20 oz/ac.  
7/20/07 Swathed field w/25' New Holland HB25.  
7/25/07 Harvested w/New Holland CR970 (45.6 bu/ac).  
8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac + Brash @ 16 oz/ac.

### **FIELD I5, CROPLAND 308NS SUNFLOWERS** (seed donated by Cropland Genetics)

Previous crop – Roughrider Winter Wheat.  
3/19/07 Contractor bulk spread Urea at 60/lbs N/ac.  
5/13/07 Contractor sprayed w/Spartan @ 5 oz/ac + glyphosate @ 1 qt/ac + AimEW @ 0.5 oz/ac + Request @ 2 qt/100 gal. water.  
5/21/07 Seeded w/JD Max Emerge II @ 24,000 seeds/ac.  
7/05/07 Sprayed field for grass control w/Arrow @ 6 oz/ac + Crop oil @ 1 pt/ac.  
8/4,14/07 Contractor aerially sprayed field w/AsanaXL @ 8oz/ac + Dynamic NIS @ 3pt/100 gal. water for insect control.  
10/31/07 Harvested w/New Holland CR970 + Sunmaster model 1095 all-crop head (1541 lb/ac).

### **FIELD I6, STEELE SPRING WHEAT**

Previous crop – Sunflowers (north half), Spring Wheat (south half)  
3/19/07 Contractor bulk spread Urea at 60/lbs N/ac on west half.  
4/21/07 Contractor spread liquid fertilizer (27-0-0-1 @ 10 gal/ac) + Roundup @ 32 oz/ac) on east half.  
4/24/07 Seeded with Sunflower drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.  
5/16/07 Sprayed w/Everest @ 0.5 oz/ac + Bison @ 16 oz/ac.  
7/24/07 Swathed field w/25' New Holland HB25.  
7/31/07 Harvested w/New Holland CR970 (east, 51 bu/ac; west, 56 bu/ac).  
8/22,23/07 Contractor sprayed w/Roundup RT @ 16 oz/ac @ Brash @ 16 oz/ac.  
9/18/07 Contractor sprayed w/Glystar Plus @ 16 oz/ac + Ammonium sulfate @ 5 gal/100 gal water.

9/20/07 Seeded Jerry winter wheat w/Bourgault drill @ 1.3 million viable seeds/ac + 11-52-0 @ 50 lb/ac w/seed.

**FIELD I7, CORN VARIETIES x CONVENTIONAL (CP)/SKIP-ROW (SP) PLANTING**

(seed donated by DeKalb cvs DKC 33-72 & DKC 35-51, Legend seeds cvs LR9385RR & LR9779RR and Proseed cvs 581RRBT & 583RRBT)

Previous crop – Sunflower (Crop sequence project)

3/19/07 Contractor bulk spread Urea at 60/lbs N/ac.

4/21/07 Sprayed w/Roundup @ 32 oz/ac + AMS @ 5 gal/100 gal water.

5/17,18/07 Field was seeded w/JD Max Emerge II @ 24,000 seeds/ac.

6/20/07 Contractor sprayed /Original Max glyphosate @ 22oz/ac + Sterling @ 4 oz/ac + Alliance (amm sulfate) @ 5gal/100gal water.

11/14/07 Harvested w/New Holland CR970 + Sunmaster model 1095 all-crop head (88.1 bu/ac average).

**MANAGEMENT STRATEGIES FOR SOIL QUALITY**  
 Dr. Donald Tanaka, Steve Merrill, Mark Liebig, and Joe Krupinsky

Treatments (minimum- and no-till for each rotation):

1. Continuous spring wheat (CSW+); straw chopped and spread
2. Continuous spring wheat (CSW-); stubble left in place, straw removed
3. Spring wheat – millet for hay (SW-M)
4. Spring wheat – safflower – fallow (SW-S-F)
5. Spring wheat – safflower – rye (partial fallow, cover crop) (SW-S-R)
6. Spring wheat – fallow (SW-F)

Crop	Planting	Cultivar/ type	Planting rate – viable seeds/ac	Fertilizer – Urea & 0-44-0	Drill	Harvest
Spring wheat	5/01/07	Parshall	1.3 million	60 lb N/ac recrop; 30 lb N/ac fallow + 10 lb P/ac.	JD750	8/03/07
Safflower	5/01/07	Montola 2003	300,000	60 lb N/ac + 10 lb P/ac	JD750	9/19/07
Rye	9/29/06	Dacold	1.3 million	50 lb/ac 11-52-0	Haybuster 8000	6/12/07 sampled 6/14/07 sprayed 6/25/07 tilled
Millet (hay)	6/6/07	Manta – Siberian red	4 million	60 lb N/ac + 10 lb P/ac as 11-52-0	JD750	8/15/07 sampled 8/16/07 swathed

Residue from previous crops was uniformly distributed at harvest. All no-till plots were sprayed with Roundup Ultra MaxII (20 oz./a) prior to seeding while minimum-till plots were tilled with an undercutter about 3 inches deep prior to seeding. Spring wheat, safflower, and millet were seeded with a JD 750 no-till drill with N fertilizer banded at seeding and P applied with the seed at seeding.

- Summary:
1. Growing season precipitation (May through August) for 2007 was 145% of the long-term average 9.92 inches.
  2. Spring wheat in SW-M and SW-S-R had the lowest yields.
  3. Residue removal (CSW-) did not reduce spring wheat yield when compared to leaving the residue in place (CSW+).
  4. Safflower seed yield was greater for SW-S-R than SW-S-F.

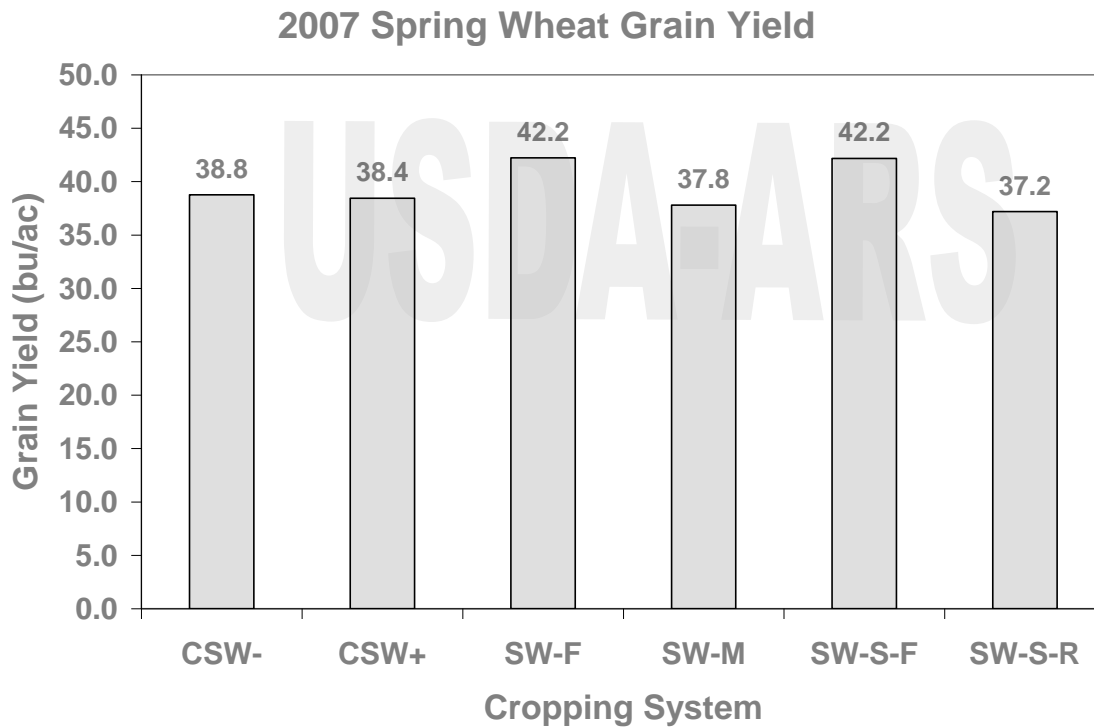


Figure 3. Spring wheat grain yield as influenced by cropping system. Yields are the average of minimum and no-till.

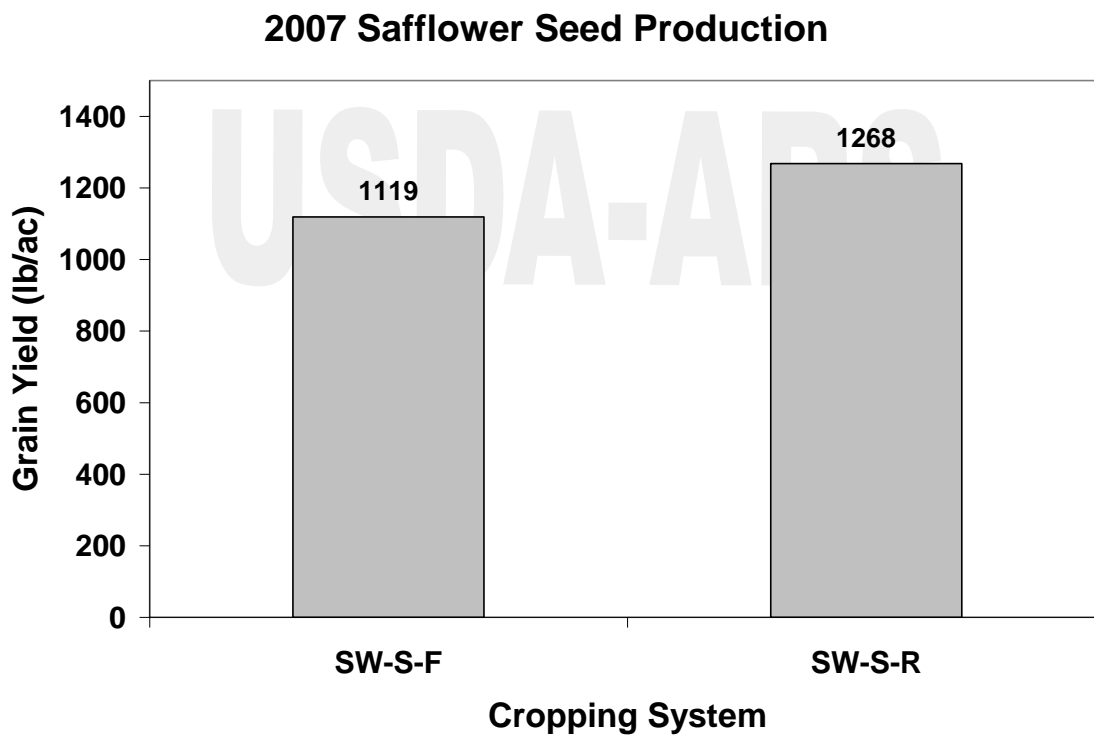


Figure 4. Safflower seed yield as influenced by cropping system. Yields are the average of minimum and no-till.

### 2007 Rye and Millet Total Dry Matter

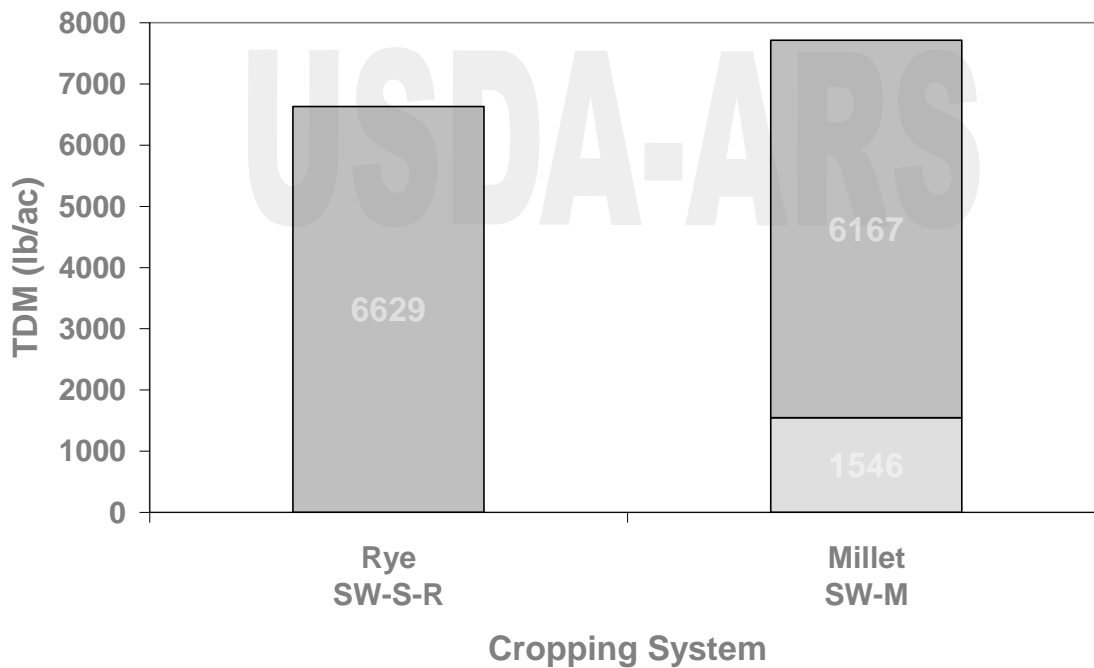


Figure 5. Total dry matter production for rye used as partial fallow and Siberian millet used for hay.

## Integrated Crop / Livestock Systems – 2007 Summary

Don Tanaka, Eric Scholljegerdes, Mark Liebig, Scott Kronberg, Jon Hanson (Jim Karn and Ron Ries – retired)

### Late fall grazing (Phase 2, 1 Aug. – end of Nov.)

Phase II of the Integrated Crop/livestock systems project evaluates the second most critical time period for a cow/calf operation. This time period is from late July through November when native range may not be of adequate quality to maintain the rate of animal weight gain.

Cropping system:

1. Oat underseeded with alfalfa / hairy vetch / red clover.
2. BMR sorghumsudan underseeded with sweet clover / red clover.
3. Corn for grain and the crop residue grazed.

Oat mix was grazed first and was to be grazed standing; however, the reproductive cycling of the cows did not coincide with the optimum time to graze the oats so it was swath grazed. It is thought that swath grazing results in better utilization of the forage. BMR sorghumsudan was to be grazed second but it was decided upon combining the corn the small swaths of corn residue would be better grazed before significant snowfall. Therefore, corn was harvested for grain and the residue was grazed second. The sorghumsudan was swathed and grazed last.

Table 1. Crop parameter for 2007.

Crop	Cultivar/type	Planting	Planting rate	Fertilizer	Drill	Swathed / Harvest
Oats	Everleaf	5/17 (12) 5/18 (6)	1.0 million viable seeds/ac	30 lb N/ac (urea) 50 lb/ac (11-52-0)	JD750	8/15/07
Hairy vetch	Haymaker plus		7 lb/ac			
Alfalfa / Red clover	Vernal / common		3.5 lb/ac each			
BMR sorghumsudan	Legend LSS 430BMR	6/14 (6 & 12)	320,000 viable seeds/ac	30 lb N/ac (urea) 50 lb /ac 11-52-0	JD750	9/18/07
Sweet clover/ Red clover	YB / common		8-10 lb/ac total			
Corn	Legend LR9779 RR	5/15 (6) 5/16 (12)	25,380 seeds/ac skip-row	60 lb N/ac (urea) 50 lb/ac 11-52-0 seed treated w/Jump Start	JD Max Emerge II	11/02/07



Table 2. Grazing length, average daily gain, and forage quality.

Crop	Days of grazing	ADG (lbs/day)	Protein (%)
Oats*	46	-0.68	11.5
Sorghumsudan	48	1.8	10.1
Corn (stover)	38	2.1	7.4

\*Calves were present while grazing oats. Stocking rate was 8 head on 12.6 acres.

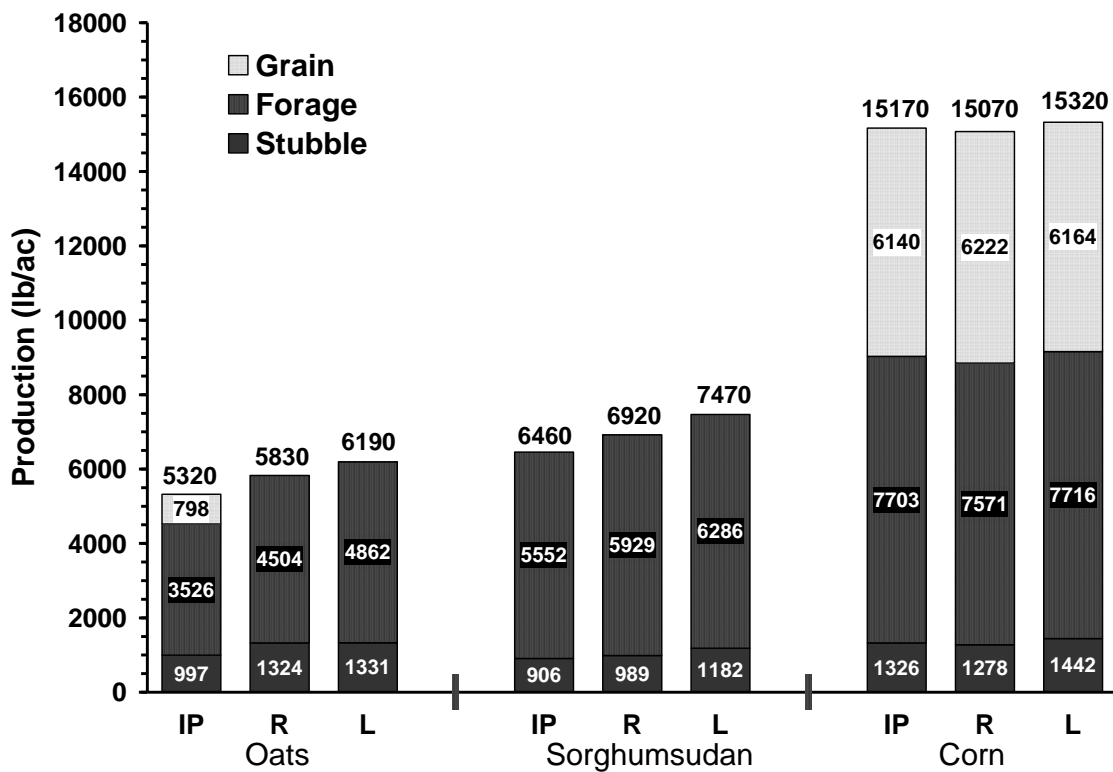


Figure 6. Grain and biomass production of three cropping systems. IP = grain harvested residue left in-place. R = grain harvested residue removed. L = residue or forage swath grazed by livestock.