

**MANAGEMENT PRACTICES – 2015**  
**AREA IV SCD/ARS RESEARCH FARM**

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

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

**FIELD F2, PIONEER P63HE60 SUNFLOWERS**

Previous crop – Overland winter wheat

03/20/15 Contractor broadcast urea @ 80 lb N/ac.  
05/11/15 Sprayed field w/Durango @ 32 oz/ac + Spartan @ 4.8 oz/ac.  
06/04/15 Field planted w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.  
06/16/15 Contractor sprayed field w/Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
06/30/15 Contractor sprayed field w/Express @ 2 oz/ac + Savvy @ 5.6 oz/ac + Volunteer @ 6 oz/ac.  
08/13/15 Contractor sprayed field by air w/Lamda Star EC @ 3 oz/ac + Trophy Gold @ 2.2 oz/ac.  
10/21/15 Field harvested w/JD 9650 combine and 6-row all crop head (1986 lb/ac).

**FIELD F3, ELGIN ND SPRING WHEAT**

Previous crop – Pioneer sunflowers

03/20/15 Contractor broadcast urea @ 80 lb N/ac.  
04/27/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.  
08/14/15 Field harvested w/Case IH 9230 and 45 ft straight head (42.7 bu/ac).  
09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

**FIELD F4, OVERLAND WINTER WHEAT**

Previous crop- Glenn spring wheat

09/30/14 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
03/20/15 Contractor broadcast urea @ 80 lb N/ac.  
07/30/15 Contractor desiccated crop w/Durango @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
08/04/15 Field harvested w/Case IH 9230 and 45 ft straight head (49.0 bu/ac).  
09/17/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

**FIELD F5, PIONEER P05T24R SOYBEANS**

Previous crop – Glenn spring wheat

03/20/15 Contractor broadcast urea @ 50 lb N/ac.  
06/08/15 Field seeded w/JD 1750 MaxEmerge XP planter @ 180,000 seeds/ac.  
07/20/15 Field sprayed w/Barbarian Max @ 24 oz/ac + Jackhammer @ 1 qt./100 gal.  
10/16/15 Field harvested w/JD 6620 combine and 16 ft. flex head (37.1 bu/ac).

**FIELD F6, KOMO BUCKWHEAT**

Previous crop – Glenn spring wheat

03/20/15 Contractor broadcast urea @ 50 lb N/ac.  
06/11/15 Field sprayed w/Roundup @ 32 oz/ac + N-tense @ 1 qt/100 gal.  
06/15/15 Field seeded w/Bourgault @ 70 lb seed/ac + 70 lb/ac 11-52-0.

07/21/15 Sprayed field w/Volunteer @ 8 oz/ac + Savvy @ 20 oz/ac.  
09/14/15 Field swathed w/20 ft. Versatile swather.  
10/07/15 Field harvested w/JD 6620 combine and pickup head (1220 lb/ac, 20% of field drowned out).

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

##### **FIELD G1 (FORMER TREE PLOT), PIONEER P63HE60 SUNFLOWERS**

Previous crop – Pioneer corn

03/16/15 Field harvested from previous year.  
05/06/15 Contractor broadcast urea @ 80 lb N/ac.  
06/08/15 Field sprayed w/Roundup @ 32 oz/ac + Ntense @ 2 qt./100 gal.  
06/10/15 Field planted w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.  
06/16/15 Contractor sprayed field w/Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
06/30/15 Contractor sprayed field w/Express @ 2 oz/ac + Savvy @ 5.6 oz/ac + Volunteer @ 6 oz/ac.  
08/13/15 Contractor sprayed field by air w/Lamda Star EC @ 3 oz/ac + Trophy Gold @ 2.2 oz/ac.  
10/22/15 Field harvested w/JD 9650 combine and 6-row all crop head (1333 lb/ac).

##### **FIELD G1, ELGIN ND SPRING WHEAT**

Previous crop – Glenn Spring wheat

05/06/15 Contractor broadcast urea @ 80 lb N/ac.  
05/08/15 Contractor sprayed Roundup @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
05/13/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.  
08/27/15 Field harvested w/Case IH 9230 combine and 45 ft. straight head (54 bu/ac).

##### **FIELD G2, PIONEER P8107HR CORN**

Previous crop – Glenn spring wheat

05/06/15 Contractor broadcast urea @ 80 lb N/ac.  
05/08/15 Contractor sprayed Roundup @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
05/27/15 Field seeded w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.  
06/16/15 Contractor sprayed field w/Staunch @ 12.6 oz/ac + Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
10/30/15 Field harvested w/Case IH 9230 and 12-row header (82.1 bu/ac, 25-30% wind damage).

##### **FIELD G3, FALLOW**

Previous crop – Glenn spring wheat

06/16/15 Contractor sprayed field w/Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
07/22/15 Contractor sprayed field w/Durango @ 32 oz/ac + Detonate (Banvel) @ 2.5 oz/ac + Jackhammer @ 2 qt/100 gal.  
09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

##### **FIELD G4, ELGIN ND SPRING WHEAT**

Previous management – Fallow

03/20/15 Contractor broadcast urea @ 70 lb N/ac.  
04/23/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.

08/10/15 Field harvested w/Case IH 9230 w/45 ft straight head (57.1 bu/ac).  
09/17/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

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

##### **FIELD H1, VERNAL ALFALFA**

Previous crop – Alfalfa establishment w/oats nurse crop

06/24/15 First cutting done by Northern Lights Dairy (1 ton/ac @ 15% moisture).  
08/03/15 Second cutting done by Northern Lights Dairy (1.75 ton/ac @ <15% moisture).  
09/11/15 Third cutting done by Northern Lights Dairy (0.5 ton/ac @ 15% moisture).

##### **FIELD H2, PIONEER P8107HR CORN**

Previous crop – Dry peas

05/06/15 Contractor broadcast urea @ 80 lb N/ac.  
05/08/15 Contractor sprayed Roundup @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
05/18/15 Field seeded w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.  
06/16/15 Contractor sprayed field w/Stauch @ 12.6 oz/ac + Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
11/21/15 Field harvested w/Case IH 9230 and 12-row header (56.4 bu/ac, 25-30% wind damage).

##### **FIELD H3 WEST, PIONEER P8107HR CORN**

Previous crop – Jerry and Overland winter wheat

05/06/15 Contractor broadcast urea @ 80 lb N/ac.  
05/08/15 Contractor sprayed Roundup @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
05/18/15 Field seeded w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.  
06/16/15 Contractor sprayed field w/Stauch @ 12.6 oz/ac + Roundup @ 32 oz/ac + Jackhammer @ 1.5 qt/100 gal.  
11/21/15 Field harvested w/Case IH 9230 and 12-row header (66.4 bu/ac, 25-30% wind damage).

##### **FIELD H3 EAST, ELGIN ND SPRING WHEAT**

Previous crop – Pioneer sunflowers

03/20/15 Contractor broadcast urea @ 80 lb N/ac.  
05/04/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.  
8/13/15 Field harvested w/ Case IH 9230 and 45ft. header.

##### **FIELD H3 SOUTH (“waterhole”), Flooded**

Previously – Flooded

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

See ‘Management Strategies for Soil Quality’ (page 40)

##### **FIELD H4, VEGA DRY PEAS**

Previous crop – Jerry winter wheat

04/17/15 Field seeded w/JD 750 @ 150 lb/ac + 50 lb/ac 11-52-0.  
07/30/15 Contractor desiccated crop w/Durango @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.  
08/13/15 Field harvested w/JD 6620 combine and flex head (48.2 bu/ac).

#### FIELD H4, PIONEER P05T24R SOYBEANS

Previous crop – Pioneer corn

- 03/20/15 Contractor broadcast urea @ 50 lb N/ac.
- 06/05/15 Field seeded w/JD 1750 MaxEmerge XP planter @ 180,000 seeds/ac.
- 07/20/15 Field sprayed w/Barbarian Max @ 24 oz/ac + Jackhammer @ 1 qt./100 gal.
- 10/16/15 Field harvested w/6620 and flex head (25.6 bu/ac).

#### FIELD H4, ELGIN ND SPRING WHEAT

Previous crop- Pioneer soybeans

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 04/29/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.
- 06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.
- 08/14/15 Field harvested w/Case IH 9230 combine and 45ft. straight head (50.0 bu/ac).
- 09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

#### FIELD H4 OVERLAND WINTER WHEAT

Previous crop- Glenn spring wheat

- 09/30/14 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.
- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 07/30/15 Contractor desiccated crop w/Durango @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.
- 08/10/15 Field harvested w/Case IH 9230 w/45 ft straight head (52.0 bu/ac).
- 09/17/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

#### FIELD H5, PIONEER P63HE60 SUNFLOWERS

Previous year – Pioneer corn

- 03/22/15 Field harvested from previous year.
- 05/06/15 Contractor broadcast urea @ 60 lb N/ac.
- 05/11/15 Sprayed field w/Durango @ 32 oz/ac + Spartan @ 4.8 oz/ac.
- 05/28/15 Field planted w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.
- 06/30/15 Contractor sprayed field w/Express @ 2 oz/ac + Savvy @ 5.6 oz/ac + Volunteer @ 6 oz/ac.
- 10/14/15 Field harvested w/JD 9650 combine and 6-row all crop head (1814 lb/ac).

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

##### FIELD I1, ELGIN ND SPRING WHEAT (CONTINUOUS SPRING WHEAT 31 YRS).

Previous crop – Glenn spring wheat

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 05/13/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.
- 06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.
- 09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.
- 08/26/15 Field harvested w/Case IH 9230 w/45 ft straight head (48.4 bu/ac).

#### FIELD I2, SY SOREN SPRING WHEAT

Previous crop – Koma buckwheat (north half), camelina research (south half)

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 05/13/15 Field seeded w/JD 750 drill @ 139 lb seed/ac + 50 lb/ac 11-52-0.
- 06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.
- 08/27/15 Field harvested w/Case IH 9230 w/45 ft straight head (59.0 bu/ac).
- 09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

#### FIELD I3, CROPLAN 460E SUNFLOWERS

Previous crop – Pioneer corn

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 05/11/15 Sprayed field w/Durango @ 32 oz/ac + Spartan @ 4.8 oz/ac.
- 06/04/15 Field planted w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.
- 06/30/15 Contractor sprayed field w/Express @ 2 oz/ac + Savvy @ 5.6 oz/ac + Volunteer @ 6 oz/ac.
- 08/13/15 Contractor sprayed field by air w/Lamda Star EC @ 3 oz/ac + Trophy Gold @ 2.2 oz/ac.
- 10/19/15 Field harvested w/JD 9650 combine and 6-row all crop head (1636 lb/ac).

#### FIELD I4, ELGIN ND SPRING WHEAT

Previous crop – Pioneer sunflowers

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 05/07/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.
- 06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.
- 09/11/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.
- 08/20/15 Field harvested w/Case IH 9230 w/45 ft straight head (39.2 bu/ac).

#### FIELD I5, OVERLAND WINTER WHEAT

Previous crop – Glenn spring wheat

- 09/30/14 Field seeded w/JD 750 drill @ 1.3 million seeds/ac @ 60 lb/ac 11-52-0.
- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 07/30/15 Contractor desiccated crop w/Durango @ 32 oz/ac + Jackhammer @ 2 qt/100 gal.
- 08/07/15 Field harvested w/Case IH 9230 w/45 ft straight head (43.1 bu/ac).
- 09/17/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

#### FIELD I6, CROPLAN 460E SUNFLOWERS

Previous crop – Jerry winter wheat

- 03/20/15 Contractor broadcast urea @ 80 lb N/ac.
- 06/02/15 Field planted w/JD 1750 MaxEmerge XP planter @ 24,000 seeds/ac.
- 05/11/15 Sprayed field w/Durango @ 32 oz/ac + Spartan @ 4.8 oz/ac.
- 06/30/15 Contractor sprayed field w/Express @ 2 oz/ac + Savvy @ 5.6 oz/ac + Volunteer @ 6 oz/ac.
- 08/13/15 Contractor sprayed field by air w/Lamda Star EC @ 3 oz/ac + Trophy Gold @ 2.2 oz/ac.
- 10/20/15 Field harvested w/JD 9650 combine and 6-row all crop head (2397 lb/ac).

FIELD 17, ELGIN ND SPRING WHEAT

Previous crop – Glenn spring wheat  
 03/20/15 Contractor broadcast urea @ 80 lb N/ac.  
 05/08/15 Field seeded w/Bourgault drill @ 1.3 million seeds/ac + 70 lb/ac 11-52-0.  
 06/16/15 Contractor sprayed w/Everest @ 0.8 oz/ac + Widematch @ 17 oz/ac + Audit @ 0.3 oz/ac + Propimax @ 3.2 oz/ac.  
 08/21/15 Field harvested w/Case IH 9230 w/45 ft straight head (40.9 bu/ac).  
 09/17/15 Contractor sprayed w/Roundup RT3 @ 32 oz/ac + 2, 4-D LV6 @ 14 oz/ac + Jackhammer @ 1.4 qt/100 gal.

Summary of Area IV Research Farm yields, costs, and net returns.

Field	Crop	Variety	Yield	Moisture	Cost <sup>1</sup>	Net Return <sup>2</sup>
			(per ac)	(%)	(\$/ac)	(\$/ac)
F2	Sunflowers	Pioneer P63 HE60	1986 lb	8.0	256	31
F3	Spring wheat	Elgin ND	42.7 bu	13.5	196	-42
F4	Winter wheat	Overland	49.0 bu	13.7	173	6
F5	Soybeans	Pioneer P05 T24R	37.1 bu	8.8	150	152
F6	Buckwheat	Komo	1220 lb	16.0	192	76
G2	Corn	Pioneer P8107HR	82.1 bu	14.0	172	88
G3	Fallow		-----	-----	46	-46
G4	Spring wheat	Elgin ND	57.1 bu	13.5	188	18
H1	Alfalfa	Vernal 1 <sup>st</sup> cutting	1.0 ton	15.0	103	102
		2 <sup>nd</sup> cutting	1.75 ton	15.0		
		3 <sup>rd</sup> cutting	0.45 ton	15.0		
H2	Corn	Pioneer P8107HR	56.4 bu	14.5	172	6
H3 west	Corn	Pioneer P8107HR	66.4 bu	14.5	172	38
H3 east	Spring wheat	Elgin ND	55.0 bu	13.0	178	20
H4 (a)	Dry peas	Vega	48.2 bu	11.0	112	163
H4 (b)	Soybeans	Pioneer P05 T24R	25.6 bu	8.8	149	59
H4 (c)	Spring wheat	Elgin ND	50.0 bu	14.4	196	-16
H4 (d)	Winter wheat	Overland	52.0 bu	13.5	173	16
H5	Sunflowers	Pioneer P63 HE60	1814 lb	8.8	218	45
I1	Spring wheat	Elgin ND	48.4 bu	14.3	196	-22
I2	Spring wheat	SY Soren	59.0 bu	14.0	196	17
I3	Sunflowers	Croplan 460E	1636 lb	8.5	229	8
I4	Spring wheat	Elgin ND	39.2 bu	14.0	196	-55
I5	Winter wheat	Overland	43.1 bu	13.5	173	-16
I6	Sunflowers	Croplan 460E	2397 lb	8.5	229	119
I7	Spring wheat	Elgin ND	40.9 bu	14.2	196	-49

<sup>1</sup>Production costs calculated from actual field operations and inputs. Input and machinery-related costs (labor, fuel, repairs, depreciation, overhead) based on 2014 prices. No crop insurance, land, or management costs were included.

<sup>2</sup>Net returns calculated based on prices received for crops sold to-date (Alfalfa \$66.22/ton; Buckwheat \$0.22/lb; Corn \$3.17/bu; Peas \$5.70/bu; Soybean \$8.14/bu; Sunflower \$14.50/cwt; Spring Wheat \$3.60/bu; Winter Wheat \$3.65/bu), and represent returns to land and management.