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CORNHUSKER ECONOMICS

High Plains Ag Lab Rotations Show Fallow Still Works in Western Nebraska

| Market Report | Yr Ago | 4 Wks Ago | 7/17/09 |
|--|-----------|--------------|---------|
| <u>Livestock and Products,</u> | | | |
| <u>Weekly Average</u> | | | |
| Nebraska Slaughter Steers, 35-65% Choice, Live Weight. | \$97.22 | \$80.31 | \$83.20 |
| Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb. | 112.84 | 125.35 | 111.76 |
| Nebraska Feeder Steers, Med. & Large Frame 750-800 lb. | 108.15 | * | 105.52 |
| Choice Boxed Beef, 600-750 lb. Carcass. | 170.77 | 140.00 | 137.39 |
| Western Corn Belt Base Hog Price Carcass, Negotiated. | 77.47 | 56.53 | 57.41 |
| Feeder Pigs, National Direct 50 lbs, FOB. | 24.77 | 31.36 | 35.45 |
| Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean. | 82.28 | 56.26 | 62.46 |
| Slaughter Lambs, Ch. & Pr., Heavy, Woolled, South Dakota, Direct. | 111.62 | 111.00 | * |
| National Carcass Lamb Cutout, FOB. | 278.32 | 261.06 | 254.37 |
| <u>Crops,</u> | | | |
| <u>Daily Spot Prices</u> | | | |
| Wheat, No. 1, H.W. Imperial, bu. | 7.40 | 5.35 | 4.66 |
| Corn, No. 2, Yellow Omaha, bu. | 5.60 | 3.74 | 3.02 |
| Soybeans, No. 1, Yellow Omaha, bu. | 14.28 | 11.75 | 10.19 |
| Grain Sorghum, No. 2, Yellow Dorchester, cwt. | 9.23 | 6.14 | 5.04 |
| Oats, No. 2, Heavy Minneapolis, MN, bu. | * | 2.06 | 2.18 |
| <u>Feed</u> | | | |
| Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton. | 190.00 | * | * |
| Alfalfa, Large Rounds, Good Platte Valley, ton. | 77.50 | * | * |
| Grass Hay, Large Rounds, Premium Nebraska, ton. | * | * | * |
| Dried Distillers Grains, 10% Moisture, Nebraska Average. | 179.00 | 130.37 | 85.00 |
| Wet Distillers Grains, 65-70% Moisture, Nebraska Average. | 65.25 | 47.45 | 35.50 |
| *No Market | | | |

The High Plains Ag Laboratory (HPAL) in Sidney, Nebraska is the dryland research site for the University of Nebraska located in the Panhandle. In addition to the typical small plot agriculture experiment areas, there is a significant dryland production area. There are a total of 718.5 acres in production, divided into 27 individual fields, ranging from the smallest unit at 19.7 acres to the largest at 36.7 acres. Within these fields there are presently seven different crop rotations, each with winter wheat as the base crop, including everything from the traditional wheat-fallow system to a continuous cropping system.

The difficulty with comparing the economics of long-term rotations on the production acres lies in the need to generate income in much the same manner as a typical Nebraska Panhandle farmer. The producer may tell us that he is in a specific rotation, but economic and environmental conditions may force him to be flexible in terms of the rotation from year to year. The HPAL has only seen three of the seven rotations stay consistent over the six years since 2003 (although the continuous rotation has seen a change from two years of wheat to a forage pea since 2006). The three consistent rotations that will be considered for this discussion are: **Rotation 2**, wheat-fallow; **Rotation 3**, wheat-wheat-sunflower-millet; and **Rotation 6**, wheat-sunflower-fallow-wheat-millet-fallow. Each of the crops in the rotation is included in the rotation in each year, with the wheat-fallow having two of each crop, meaning that there are four fields in Rotation 2, while there are six fields included in Rotation 6. Table 1 (on next page) shows the rotations and yields by field and crop each year.

For simplicity's sake, there will not be any farm program payments or crop insurance indemnity payments included in any of the results reported here. The net return values will be a return to land and management value. Although management may change incrementally depending on the crop, there is little difference in the management intensive system that the University of Nebraska uses on this farm. Direct payments and land costs are similar for each acre on the farm, so there is no real gain from including these costs and returns into this analysis. The crop prices used are the Western Nebraska annual average prices for



each crop in the marketing year that the crop is produced. Cost of production is determined using the Nebraska Crop Budgets for the relevant years of production.

The returns for each rotation are calculated based on the acres of each crop, and then the weighted average is reported in Table 2. The average for the entire six-year period is reported in the furthest right hand column.

The traditional wheat-fallow rotation presents the highest average return, most consistent returns, highest single annual return (2008) and the least risk of loss. This rotation is followed closely by the six-year rotation that includes fallow. If the insurance indemnities for the complete loss of the 2004 crops of

sunflower and proso millet, the later two rotations will have a higher average return. There may be other crop insurance indemnities on the wheat that would likely not change the overall ranking of these rotations. This evaluation agrees with much of the recent research completed that suggests that at least one year of fallow in a three- to four-year rotation may be more profitable than continuous dryland cropping systems in Western Nebraska.

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Table 1. Field Identification by Rotation and Crop Yields on a Per Acre Basis by Year (2003 - 2008).

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|--|--------------|--------------|--------------|--------------|-------------|--------------|
| Rotation 2 - Wheat-Fallow (WF) | | | | | | |
| Field 4 - 30.3 acres | W - 57.7 bu | F | W - 34 bu | F | W - 39.7 bu | F |
| Field 5 - 22.5 acres | F | W - 48.8 bu | F | W - 24.4 bu | F | W - 60.1 bu |
| Field 14 - 21.8 acres | W - 59.9 bu | F | W - 35.7 bu | F | W - 41.7 bu | F |
| Field 15 - 31.3 acres | F | W - 48.3 bu | F | W - 27 bu | F | W - 51.5 bu |
| Rotation 3 - Wheat-Wheat-Sunflower-Millet (WWSF) to Wheat-Sunflower-Millet-Forage Peas (WSMP) | | | | | | |
| Field 6 - 35.9 acres | M - 18.3 bu | W1 - 10.6 bu | W2 - 15.5 bu | S - 707 lb | M - 30.2 bu | P - 2200 lb |
| Field 7 - 32.2 acres | W1 - 35.3 bu | W2 - 12.4 bu | S - 1588 lb | P - 650 lb | W - 35.1 bu | S - 1103 lb |
| Field 8 - 33.9 acres | W2 - 41.2 bu | S - 0 lb* | M - 68.1 bu | W1 - 10.4 bu | P - 1941 lb | W - 29.4 bu |
| Field 9 - 36.7 acres | S - 490 lb | M - 0 bu* | W1 - 18.4 bu | W2 - 12.9 bu | S - 968 lb | M - 25.6 bu |
| Rotation 6 - Wheat-Sunflower-Fallow-Wheat-Millet-Fallow (WSFWMF) | | | | | | |
| Field 19 - 22.4 acres | F | W - 39 bu | M - 64.2 bu | F | W - 57.8 bu | S - 997.3 lb |
| Field 20 - 23.8 acres | S - 404 lb | F | W - 24.8 bu | M - 18.4 bu | F | W - 58.6 bu |
| Field 21 - 23.4 acres | W - 43.6 bu | S - 0 lb* | F | W - 32.8 bu | M - 28.3 bu | F |
| Field 22 - 25.1 acres | F | W - 35.1 bu | S - 1521 lb | F | W - 35.1 bu | M - 32.6 bu |
| Field 23 - 25.7 acres | M - 19.1 bu | F | W - 23.1 bu | S - 658 lb | F | W - 52.2 bu |
| Field 24 - 23.7 acres | W - 55.9 bu | M - 0 bu* | F | W - 30.5 bu | S - 1274 lb | F |

* Spring crops lost to hail in 2004

Table 2. Return to Land and Management for Three Rotations on the High Plains Agriculture Laboratory, Sidney, Nebraska, 2003-2008.

| Rotation | Crop | Annual Net Return by Crop (\$/Acre) | | | | | | 6-Year Average |
|------------------------|--------------|-------------------------------------|------------------|-----------------|------------------|----------------|-----------------|----------------|
| | | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | |
| WF | W. Wheat | 119.46 | 101.55 | 27.32 | 46.57 | 148.80 | 349.77 | |
| | Fallow | (37.89) | (45.90) | (31.13) | (33.93) | (49.50) | (41.18) | |
| | W. Wheat | 126.55 | 92.81 | 32.69 | 57.67 | 160.48 | 285.53 | |
| | Fallow | (37.89) | (41.52) | (32.30) | (33.93) | (47.70) | (41.18) | |
| Rotation Income | | \$40.98 | \$27.43 | (\$1.64) | \$10.29 | \$50.95 | \$138.77 | \$44.46 |
| WWSM and WSMP | W. Wheat 1 | 42.08 | (41.70) | (18.93) | (49.02) | 148.80 | 357.01 | |
| | W. Wheat 2 | 61.07 | (44.73) | (16.54) | (27.54) | | | |
| | Sunflower | (21.27) | (66.96) | 108.42 | (9.09) | 95.84 | 204.68 | |
| | Proso Millet | (9.19) | (34.26) | 142.16 | | 44.08 | 13.59 | |
| | Forage Peas | | | | (105.05) | (65.12) | (12.16) | |
| Rotation Income | | \$16.66 | (\$46.61) | \$50.63 | (\$46.01) | \$55.40 | \$135.22 | \$27.55 |
| WSFWMF | W. Wheat 1 | 74.06 | 56.82 | 5.25 | 57.44 | 244.69 | 335.31 | |
| | Sunflower | (53.28) | (76.14) | 83.78 | (1.47) | 148.44 | 162.92 | |
| | Fallow 1 | (31.54) | (31.09) | (24.99) | (44.74) | (36.04) | (40.39) | |
| | W. Wheat 2 | 129.88 | 50.20 | 6.64 | 49.22 | 113.63 | 296.06 | |
| | Proso Millet | (11.04) | (42.30) | 97.49 | 2.27 | 44.83 | 44.43 | |
| | Fallow 2 | (31.54) | (24.85) | (20.99) | (31.54) | (40.59) | (38.76) | |
| Rotation Income | | \$12.22 | (\$11.19) | \$24.27 | \$4.86 | \$76.39 | \$128.31 | \$39.14 |

Rotation definitions: WF = Winter Wheat - Fallow; WWSM = Winter Wheat - Winter Wheat - Sunflower - Proso Millet; WSMP = Winter Wheat - Sunflower - Proso Millet - Forage Pea; WSFWMF = Winter Wheat - Sunflower - Fallow - Winter Wheat - Proso Millet - Fallow