

COMPARATIVE PERFORMANCE OF WHEAT VARIETIES IN NO-TILL AND CONVENTIONAL-TILL TRIALS

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OBJECTIVE:

To determine whether wheat varieties that are superior under conventional tillage are also superior under no-tillage.

METHODS:

Location	Logan Co.	Caldwell Co.	Shelby Co.
Harvest Year	1998	1999	1998-99
Cooperator	W. G. Farms	Gilkey Farms	Ellis Farms
Previous Crop	Corn	Corn	Corn
Conventional Tillage	Disk-ripper, Disk, Cultipacker	Disk-ripper, Disk, Cultipacker	Chisel Plow, Disk
Stubble Condition (no-till)	Flail-mowed	Flail-mowed	Standing
Planting Date	10/8/97	10/9/98	10/1/97; 10/12/98

Entries consisted of 46 commercial and public soft red winter wheat varieties in 1998 and 43 in 1999. Twenty-eight varieties were common to both years. Each variety was replicated 4 times at each location in both years. Conventional tests were planted with a 6-row cone seeder with double-disk openers in 7 " rows. Plot area was 60 square feet. No-till plots were seeded with a 7-row cone seeder equipped with John Deere 750 openers in a row spacing of 7.5 ". Plot area was 240 square feet. Seeding rates were approximately 325 seeds/sq. yd. for conventional tillage and 365 seeds/sq. yd. for no-till. Inputs such as fertilizer and pesticides were similar to those used by the cooperating farmers on their commercial wheat fields.

RESULTS:

Variety yield means are presented in the following three tables.

CONCLUSIONS:

There was very good agreement between no-till and conventional-till performance in terms of variety mean yield. For example, the correlation between no-till and conventional-till performance over two years in Shelby Co. was 0.85 (Table 1). Perfect agreement would have yielded a correlation coefficient of 1.0. When comparing no-till vs. conventional-till performance in Logan Co. in 1998 and Caldwell Co. in 1999, the correlation was 0.74 (Table 2). When data from all three locations in both years were considered, the correlation was 0.88 (Table 3). The take home message at present is that, in general, superior varieties will perform well under either tillage system. However, we will continue to test wheat varieties under conventional and no-till management in the foreseeable future.

TABLE 1. SHELBY COUNTY NO-TILL AND CONVENTIONAL VARIETY TRIAL, 1998-99

VARIETY	CONV: YIELD (BU/A)			NO-TILL: YIELD (BU/A)		
	1999	1998	MEAN	1999	1998	MEAN
2540	87.2	61.6	74.4	82.9	63.5	73.2
2552	98.3	65.1	81.7	100.4	64.2	82.3
2568	90.6	51.9	71.3	89.9	55.7	72.8
25R26	88.4	57.4	72.9	89.3	56.0	72.7
AG FOSTER & GAUCHO	81.0	43.5	62.3	77.6	50.7	64.2
AGRIPRO ELKHART	78.6	45.8	62.2	87.6	44.5	66.1
AGRIPRO FOSTER	79.4	43.2	61.3	72.7	46.7	59.7
AGRIPRO MASON	86.5	53.1	69.8	84.0	49.6	66.8
AGRIPRO PATTON	94.9	62.3	78.6	99.5	59.0	79.3
BECK 103	73.3	46.6	60.0	81.4	45.7	63.6
BECKER	66.8	41.9	54.4	79.2	46.2	62.7
CALDWELL	61.2	34.1	47.7	54.1	29.7	41.9
CLARK	76.1	48.5	62.3	82.1	40.6	61.4
COKER 9474	70.0	40.5	55.3	79.6	41.1	60.4
COKER 9663	83.0	52.2	67.6	93.7	57.4	75.6
FFR 522	75.8	45.8	60.8	75.2	42.1	58.7
FFR 555	80.6	42.1	61.4	83.0	47.9	65.5
FFR 558	75.2	44.6	59.9	79.7	50.0	64.9
GLORY	87.3	57.2	72.3	86.3	60.5	73.4
HYTEST W9850	80.5	53.4	67.0	79.3	57.9	68.6
JACKSON	84.1	40.7	62.4	87.2	42.6	64.9
KAS JUSTICE	66.5	45.2	55.9	75.7	49.5	62.6

KAS PATRIOT	66.2	45.9	56.1	81.4	41.7	61.6
KY 86C-61-8	84.0	48.8	66.4	85.3	50.6	68.0
MADISON	78.9	47.8	63.4	90.1	54.3	72.2
PATTERSON	75.4	48.4	61.9	83.1	45.7	64.4
POCAHONTAS	78.3	37.4	57.9	92.8	35.1	64.0
TERRA SR 204	81.2	48.4	64.8	79.2	46.2	62.7
MEAN	79.6	48.3	64.0	83.3	49.1	66.2

Correlation of Conventional, No-Till, 1998-99: 0.85

TABLE 2. LOGAN COUNTY (1998) AND CALDWELL CO. (1999) NO-TILL AND CONVENTIONAL VARIETY TRIAL

VARIETY	CONV: YIELD (BU/A)			NO-TILL: YIELD (BU/A)		
	1999	1998	MEAN	1999	1998	MEAN
2540	81.8	58.9	70.4	74.3	46.5	60.4
2552	95.3	41.2	68.3	96.8	41.8	69.3
2568	89.0	45.8	67.4	76.5	34.5	55.5
25R26	91.8	40.3	66.1	78.8	29.3	54.1
AG FOSTER & GAUCHO	83.0	41.1	62.1	100.3	29.7	65.0
AGRIPRO ELKHART	90.5	42.6	66.6	84.5	34.5	59.5
AGRIPRO FOSTER	84.3	36.4	60.4	81.8	26.2	54.0
AGRIPRO MASON	88.0	44.2	66.1	79.8	40.0	59.9
AGRIPRO PATTON	88.5	53.1	70.8	80.8	35.8	58.3
BECK 103	86.3	43.8	65.1	96.8	36.3	66.6
BECKER	80.5	31.2	55.9	79.0	15.6	47.3
CALDWELL	71.5	40.6	56.1	67.8	25.1	46.5
CLARK	67.5	35.8	51.7	60.5	25.4	43.0
COKER 9474	81.5	43.8	62.7	74.5	39.4	57.0
COKER 9663	103.8	48.1	76.0	87.0	46.5	66.8
FFR 522	85.0	35.7	60.4	74.0	32.6	53.3
FFR 555	87.0	26.5	56.8	89.3	21.6	55.5
FFR 558	86.5	43.3	64.9	76.5	28.3	52.4
GLORY	83.3	47.8	65.6	77.8	29.5	53.7
HYTEST W9850	86.3	52.7	69.5	82.3	41.0	61.7
JACKSON	100.3	33.7	67.0	89.8	30.7	60.3
KAS JUSTICE	79.8	56.3	68.1	71.5	38.3	54.9
KAS PATRIOT	93.8	40.0	66.9	89.5	30.3	59.9
KY 86C-61-8	87.0	32.7	59.9	80.3	25.3	52.8
MADISON	90.3	34.1	62.2	78.3	31.2	54.8
PATTERSON	77.8	44.2	61.0	70.0	29.1	49.6
POCAHONTAS	75.3	32.4	53.9	84.3	23.3	53.8
TERRA SR 204	76.3	35.3	55.8	72.0	28.7	50.4

MEAN 85.4 41.5 63.5 80.5 32.0 56.3

Correlation of Conventional, No-Till, 1998-99: 0.74

TABLE 3. CONVENTIONAL VS. NO-TILL, 1998-1999*

VARIETY	1998-99	
	CONV. YIELD (BU/A)	NO-TILL YIELD (BU/AC)
2540	72.4	66.8
2552	75.0	75.8
2568	69.3	64.2
25R26	69.5	63.4
AG FOSTER & GAUCHO	62.2	64.6
AGRIPRO ELKHART	64.4	62.8
AGRIPRO FOSTER	60.8	56.9
AGRIPRO MASON	68.0	63.4
AGRIPRO PATTON	74.7	68.8
BECK 103	62.5	65.1
BECKER	55.1	55.0
CALDWELL	51.9	44.2
CLARK	57.0	52.2
COKER 9474	59.0	58.7
COKER 9663	71.8	71.2
FFR 522	60.6	56.0
FFR 555	59.1	60.5
FFR 558	62.4	58.6
GLORY	68.9	63.5
HYTEST W9850	68.2	65.1
JACKSON	64.7	62.6
KAS JUSTICE	62.0	58.8
KAS PATRIOT	61.5	60.7
KY 86C-61-8	63.1	60.4
MADISON	62.8	63.5
PATTERSON	61.5	57.0
POCAHONTAS	55.9	58.9
TERRA SR 204	60.3	56.5
MEAN	63.7	61.2

Correlation of Conventional, No-Till, 1998-99: 0.88

*1998: Logan and Shelby Co. 1999: Caldwell and Shelby Co.