

RESEARCH REPORT RL1091

CONSERVATION 2000 SEEDER TRIALS, 1992

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BY:

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REPORT ON THE CONSERVATION 2000 SEEDER TRIALS

INTRODUCTION

The Alberta Farm Machinery Research Centre was approached by a local Conservation 2000 group to assist in the operation of a one pass seeder plot. The plot site was owned by Lorne Hickey and located at NW 20-7-20-W4. The site was suitable because it was sprayed with Glean the previous year. The plots were also located near a major road for good access.

DESCRIPTION

The plots were seeded to Kyle durum wheat at 75 lb/ac (84 kg/ha). Fertilizer (29-26-0) was applied at 40 lb/ac (45 kg/ha) with the seed. Total plot size was 25 ac (10 ha). Length was 850 ft (259 m) and total width was 1325 ft (530 m). The individual plots were seeded from east to west. The plots were seeded with four different seeders: the John Deere 752 All Till Drill, the Victory Seed-o-vator, the Great Plains No-Till Drill and the Morris Airseeding System. The Morris System consisted of a 6130 Air Seeder with an 8900 cultivator and a shank mounted ground rod. The John Deere drill was borrowed from the County of Lethbridge. The Great Plains and Morris units were test units from the AFMRC. The Victory unit was owned and operated by a local farmer. Every other Morris plot was packed with a packer drawbar. The arrangement of the plots was as shown in Figure 1.

The individual plots were swathed with a 21 ft (6.4 m) John Deere self-propelled swather and harvested with a Case IH 1482 pull type combine. Yield measurements were based on the 21 ft (6.4 m) width of the swather and the 850 ft (259 m) length of the plot. Yield data for the plots are shown in Tables land 2. A weigh wagon from the AFMRC was used to weigh the plot yields. The plots were seeded on May 1st, swathed on September 6th and harvested on September 12th.

RESULTS AND DISCUSSION

A statistical analysis of the yield data showed that the plot yields significantly varied because of seeding equipment and plot location. In other words, the field was not uniform in yield. A further statistical analysis showed that the John Deere yields were significantly different from the Victory and Morris without the packer drawbar plots. The Great Plains and Morris packed yields were statistically no different from the other seeders.

John Deere 752 All Till Drill

The John Deere seeded plots were lower in yield because of the weed competition. The crop should have been sprayed prior to seeding with the John Deere drill. Soil disturbance with the 752 drill was not significant.

Victory Seed-o-vator

The Victory Seed-o-vator completely tilled the soil while seeding. Spraying prior to seeding was not necessary.

Great Plains No-Till Drill

The Great Plains drill left many soil lumps on the surface after seeding. This was due to the moist soil conditions during seeding. This soil disturbance provided some weed kill during seeding. Spraying prior to seeding with the Great Plains drill is necessary under normal soil conditions.

Morris Airseeding System

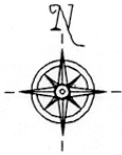
The Morris Airseeding system completely tilled the soil while seeding. Spraying prior to seeding was not necessary. The packer drawbar behind the airseeding system made no noticeable difference in yield because of the rainfall a few days after seeding. The shank mounted ground rod also may have provided enough packing for the seed in these conditions.

Table 1. Yield data from Conservation plot on Lorne Hickey's farm.

Seeder Make	Initial Weight	Final Weight	Weight Diff.	Yield bu/ac	Average Yield
Morris with packer	0	932	932	37.9	38.0
Morris with packer	1709	2644	935	38.0	
John Deere	932	1709	777	31.6	31.6
Great Plains	2644	3550	906	36.8	36.8
Victory	3550	4544	994	40.4	40.0
Victory	4544	5518	974	39.6	
Morris w/o packer	6530	7562	1032	42.0	41.6
Morris w/o packer	5518	6530	1012	41.2	
Great Plains	908	1814	906	36.8	36.9
Great Plains	0	908	908	36.9	
Victory	2818	3726	908	36.9	38.9
Victory	1814	2818	1004	40.8	
John Deere	3726	4534	808	32.9	32.9
Morris with packer	4534	5351	817	33.2	36.2
None	6316	6930	614	25.0	
Morris with packer	5351	6316	965	39.2	
John Deere	0	668	668	27.2	27.2
None	668	1382	714	29.0	
Great Plains	1382	2138	756	30.7	30.7
Victory	2138	2932	794	32.3	32.1
Victory	2932	3718	786	32.0	
Morris w/o packer	3718	4558	840	34.2	35.3
Morris w/o packer	4558	5454	896	36.4	
None	5454	6338	884	36.0	
Great Plains	6338	7208	870	35.4	35.4
Victory	7208	8105	897	36.5	38.2
Victory	0	982	982	39.9	
None	982	1670	688	28.0	
John Deere	1670	2586	916	37.3	37.3
Morris with packer	2586	3524	938	38.2	31.2
Morris with packer	3524	4120	596	24.2	
None	4120	4532	412	16.8	
John Deere	4532	5250	718	29.2	29.2
None	5250	5968	718	29.2	
Great Plains	5968	6804	836	34.0	34.0
Victory	6804	7688	884	36.0	37.1
Victory	7688	8630	942	38.3	
Morris w/o packer	0	824	824	33.5	spilled
Morris w/o packer	824	1800	976	39.7	39.7
None	1800	2522	722	29.4	
Great Plains	2522	3420	898	36.5	36.5
Victory	3420	4379	959	39.0	37.7
Victory	4379	5276	897	36.5	
None	5276	5818	542	22.0	
John Deere	5818	6560	742	30.2	30.2
Average					35.2

Table 2. Plot Yield Summary (bu/ac)

Repetition Number	Seeder		John Deere All Till Drill	Great Plains No-Till Drill	Victory Seed -o- vator	Average
	Morris Airseeder with Packer Drawbar	without Packer Drawbar				
1	38		31.6	36.8	40	36.6
2		41.6	32.9	36.9	38.9	37.6
3	36.2		27.2	30.7	32.1	31.6
4		35.3	37.3	35.4	38.2	36.6
5	31.2		29.2	34	37.1	32.9
6		39.7	30.2	36.5	37.7	36.0
Average	35.1	38.7	31.4	35.3	37.4	
Standard Deviation	2.9	2.6	3.2	2.2	2.5	
CV (%)	8.2	6.8	10.2	6.2	6.7	



IRRIGATION CANAL

John Deere No Till Drill

Victory Seed-o-vator

Great Plains No Till Drill

Morris Air Seeder

Victory Seed-o-vator

Great Plains No Till Drill

John Deere No Till Drill

Morris Air Seeder

John Deere No Till Drill

Victory Seed-o-vator

Great Plains No Till Drill

Morris Air Seeder

Victory Seed-o-vator

Great Plains No Till Drill

John Deere No Till Drill

Morris Air Seeder

John Deere No Till Drill

Victory Seed-o-vator

Great Plains No Till Drill

Morris Air Seeder

(75') (39') Victory Seed-o-vator

(38') (10') Great Plains No Till Drill

(38') (10') John Deere 752 No Till Drill

(70') (37') Morris Air Seeder

850'

70'
FIELD
ENTRANCE