

DICKINSON EXPERIMENT STATION DICKINSON, NORTH DAKOTA MAIN FIELD				107 Fallow	76 Wheat No till Re crop	75 Wheat Cont. crop	44	43	12	
167	138	137	108	106 Wheat No till Re crop	77 Wheat Cont. crop	74 Wheat on fallow	45	42	13	
166	139	136	109	105 Wheat Cont. crop	78 Wheat on fallow	73 Fallow	46	41	14	
165	140	135	110	104 Wheat on fallow	79 Fallow	72 Wheat No till Re crop	47	40	15	
164	141	134	111	103 Sun Flrs. on Wheat Stub	80 Fallow Bly Stub	71 Barley on S. Flr.	48	39	16	
163	142	133	112	102 Barley on S. Flr.	81 Wheat on fallow	70 Fallow Bly Stub	49	38	17	
162	143	132	113	101 Fallow Bly Stub	82 Sun Flrs. on Wheat Stub	69 Sun Flrs. on Wheat Stub	50	37	18	
161	144	131	114	100 Wheat on fallow	83 Barley on S. Flr.	68 Wheat on fallow	51	36	19	
160	145	130	115	99 Sun Flrs. on Wheat Stub	84 Fallow	67 Wheat on S. Flrs.	52	35	20	
159	146	129	116	98 Wheat on S. Flrs.	85 Wheat on fallow	66 Sun Flrs. on Wheat Stub	53	34	21	
158	147	128	117	97 Fallow	86 Sun Flrs. on Wheat Stub	65 Fallow	54	33	22	
157	148	127	118	96 Wheat on fallow	87 Wheat on S. Flrs.	64 Wheat on fallow	55	32	23	
156	149	126	119	95 Corn on Wheat Stub	88 Fallow	63 Wheat on Corn Stub	56	31	24	
155	150	125	120	94 Wheat on Corn Stub	89 Wheat on fallow	62 Corn on Wheat Stubble	57	30	25	
154	151	124	121	93 Fallow	90 Corn on Wheat Stub	61 Fallow	58	29	26	
153	152	123	122	92 Wheat on fallow	91 Wheat on Corn Stub	60 Wheat on fallow	59	28	27	

CROPPING SYSTEMS RESEARCH

This trial was designed to include a comparison of several crop rotation sequences as follows:

Treatment 1: Compares a two year rotation of wheat and corn with a two year fallow-wheat rotation. Early corn varieties for grain production will be used in this comparison.

Treatment 2: Compares a two year rotation of wheat and sunflowers with a two year fallow-wheat rotation.

Treatment 3: Records production in a four year cropping sequence of sunflower on wheat stubble, barley on sunflower stubble, fallow on barley stubble and wheat on fallow.

Treatment 4: Compares wheat on fallow, wheat on continuous cropping and wheat on no-till recrop.

In 1983 fertilizer was applied on all recrop, corn and sunflowers at the rate of 80 lbs. N, 30 lbs. P₂O₅ and no K₂O. All wheat on fallow received 40 lbs. N, 30 lbs. P₂O₅ and no K₂O. All land to be fallowed was not fertilized.

Weed control in 1983 was as follows: Alachlor at 2 lbs. /acre and Dicamba at .25 lb/acre were used in a tank mix on corn. Trifluralin at .5 lb/acre preplant, incorporated was used on sunflower and Diclofop at .75 lbs. /acre and Bromoxynil at .25 lb/acre.

Varieties used in the 1983 cropping systems trial were: Alex Wheat, Morex Barley, Keltgen 582 Corn and Interstate 7775-S Sunflower.

Tillage on fallow to prepare a seedbed was with a spring tine cultivator and harrow. Continuous crop stubble, sunflower stubble and corn stubble land were double disked in preparation for seeding, as was all wheat stubble planted to corn or sunflowers. Excellent yields recorded for all crops in all rotation systems were the result of a combination of high fertility, ample reserve soil water, adequate seasonal precipitation, reasonably good growing conditions and satisfactory cropping management.

Yields recorded for the 1983 trial are summarized in Table 37.

Table 37. Yields – Cropping Systems Trial, 1983

Crop and Rotation	Yield - Bushels Per Acre				Average Test Weight
	R1	R2	R3	Average	
Wheat on:					
Fallow	49.5	43.2	45.6	46.1	62.0
Continuous Crop	39.3	40.1	36.2	38.5	63.5
No-till Recrop	37.7	42.4	36.9	39.0	63.5
Sunflower Stubble	44.8	47.9	45.6	46.1	63.0
Fallow	50.3	51.1	45.6	49.0	62.0
Corn Stubble	51.1	43.2	47.2	47.2	63.0
Fallow	45.6	48.7	44.8	46.4	62.0
Barley on:					
Sunflower Stubble	60.9	74.6	58.9	64.8	46.5
Corn on:					
Wheat Stubble					
Grain yield/bpa	75.3	69.5	73.0	72.6	56.0
Silage yield tons/acre	9.2	11.8	9.9	10.3	----
Sunflower on:					
Pounds Per Acre					
Wheat Stubble	1545	2040	1839	1808	24.0
	1769	1674	1835	1759	24.0

Winter Wheat on Stubble vs. Winter Wheat on Fallow

The same seven varieties of winter wheat that were seeded on summer fallow at Dickinson were also planted on stubble recrop. Both trials were seeded with the John Deere Hoe Drill on September 13, 1982, and harvested on August 1, 1983. Fertilizer application was 40 lbs. Nitrogen Broadcast on the recrop and 50 lbs. 18-46-0 applied with the drill at seeding on both treatments.

Table 38. Yield Comparison – Winter Wheat on Stubble Recrop and Fallow

Variety	Yield – Bushels/Acre	
	Fallow	Recrop
Roughrider	63.5	23.6
Froid	55.3	24.8
Norstar	66.3	21.8
Winoka	62.2	18.4
Agassiz	66.6	25.4
Rose	68.2	24.2
Rita	64.9	23.3
Trial Average	63.9	23.1