

SOFT WHITE SPRING WHEAT PRODUCTION IN SASKATCHEWAN
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Idaho, Washington, Oregon, and California is the production base for soft white wheat in North America. Soft white production represents a little over 10% of the total U.S. crop. The crop was introduced to the irrigation farmers in southern Alberta in 1925. For the next 40 years a series of varieties were imported from the Pacific Northwest states. They were, for the most part, poorly adapted to the Canadian Prairies.

Lemhi 62 and its successor Springfield arrived on the scene in the late 60's and early 70's. They demonstrated a real potential yield advantage over the hard red springs under intensive irrigation. However, these varieties were still quite susceptible to rust and powdery mildew.

Saskatchewan's new intensive irrigators were grasping for crop alternatives in the early 70's. Several choose soft wheat and now have grown it for over a decade. Leigh Crowle, of Agriculture Canada in Saskatoon, screened many new lines and was the first to demonstrate several promising dwarf and semi-dwarf selections. The most notable is the variety Fielder. Bred at Aberdeen, Idaho, Fielder is a bearded semi-dwarf type with strong straw and improved resistance to powdery mildew and rust. In 1976, the milling industry contracted the first commercial scale production of the newly licensed variety. Yield and quality evaluations of soft white spring wheat entries at Saskatoon and Outlook by S. Jana, of the Crop Science Department, also confirmed Fielder's superiority in 1976.

Jana, in turn, investigated a soft wheat breeding program to add greater rust resistance for this production in the eastern prairies. This program leadership has now been assumed by Robert Baker of the Crop Development Centre. In 1980 Baker evaluated 16 entries at Saskatoon and Outlook. Considering grain and flour yield, protein, alpha-amylase, viscosity and rust resistance, 1981 will see 4 of these entries reevaluated plus co-operation with Julian Thomas of Agriculture Canada in Lethbridge where a new soft white spring wheat breeding program has been established.

Basic extension information on how to produce this new high yielding wheat was a limiting factor for Saskatchewan farmers in the 70's. Les Henry of the Soils Department included Fielder in 1977, 78 and 79 while evaluating the effect of nitrogen fertilization and irrigation scheduling on the yield, nitrogen content, and nitrogen uptake of irrigation wheats (see attached summary of results). This data serves as our bench mark for soft white spring wheat production recommendations.

Soft white spring wheat is a low protein wheat. This classifies the end use of flour milled from Fielder as a blending flour or in preparation of pastries, cookies, crackers, etc. Compared to hard red spring wheat, Fielder, when milled, produced a white flour of finer particle size.

Originally grown only under contract to domestic millers of pastry flour, production of soft wheat for many years was limited to about 30,000 acres in southern Alberta. Over the last decade production has steadily increased to about 150,000 acres in 1980. Robin Hood Multifood Inc. in Saskatoon and Ogilvie Flour Mills in Medicine Hat, currently contract about 100,000 acres. During periods of over supply soft white spring wheats move into Ontario mills to be blended with their soft white winter wheats, and also into Canadian food aid programs to the third world nations. High protein stocks that grade 4CW SWS move as feed grains every year.

The Soft White Winter Wheat Growers Association of southern Alberta lobbies hard for their commodity. The lack of an export market was also recognized by the Canadian Wheat Board. The prices received by growers compared favourably with the hard wheat (see attached summary).

In 1980, Brian Fedak of the Canadian Wheat Board supervised a program of 500 grower contracts, each of 40 irrigated acres of Pedigree Fielder. Thirty-eight contracts were held in Saskatchewan. Field inspections were performed on each contract by the Canadian Seed Growers Association. Estimated yield, purity, seeding rate and potential weed contamination were examined. One consigned car (73 bus/ac) was promised on samples grading 1, 2, or 3 CW SWS with a protein content of 10.5% or less. Samples grading 4 CW SWS were not accepted.

A profile of the 1980 soft wheat producers is attached. This data is totally based on a survey of grower experience.

Movement of the 1980 crop has been brisk in southern Alberta. The asking price for soft wheat is strong (see attached summary). Good market interest is reported from the Pacific Rim (Korea, Taiwan, Indonesia).

The 1981 Canadian Wheat Board Market Development Program has been expanded to 1,000 grower contracts, each of 50 irrigated acres of pedigree Fielder. The market quota is similar to 1980. This program is a breath of new life to soft white spring wheat production. There is even a slight level of competition in the market place. By this time next year the Canadian Wheat Board will have a good assessment of this commodity. My prediction for the 1981 production is 180,000 acres in western Canada.

RECOMMENDATIONS FOR SOFT WHEAT PRODUCTION

1. Select a field that you have a definite knowledge of soil fertility, weed population and that you can seed early and water regularly and uniformly. Fields with low organic matter (less than 2 percent), coarse soil textures or solonchic subsoil are poor choices for Soft White Spring Wheat production.
2. Seed between April 28 and May 10, 1981. Fielder has a longer growing season and is a rust susceptible variety. Apply 40 pounds of phosphate seed placed. Do not seed Fielder on dryland corners or non-irrigated field margins. The protein levels produced may be over 15% in those field areas.
3. Fertilize with nitrogen as soil tests recommended for hard wheat to maximize yield. If you lack confidence in your irrigation system's 1981 reliability, carefully reduce your nitrogen application. Lower rates of available nitrogen may reduce protein but will certainly decrease yield potential.
4. Herbicides registered for all wheats are expected to be safe for Fielder. If you have a special weed situation check with the herbicide manufacturer.
5. Irrigation management is essential to achieve high yields and low protein. Start irrigation early. Fielder normally uses 10-15% more water than hard wheat. Fielder is less tolerant of stress than our well adapted hard red spring wheat. Early stress can be observed as a flushing of a second growth at shot blade stage. Later stress can be observed as an early desiccation of the lower leaves.

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Other detailed information on the agronomic and economic production considerations of soft white spring wheat may also be directed to the irrigation agronomists at Saskatchewan Agriculture, Box 9, Outlook, Sask. S0L 2N0 867-8683.

FIELDER SOFT WHITE SPRING WHEAT TEST AT OUTLOOK
By Les Henry

Average Yield (Bus./Acre) for 1977-78 and 79 at D. Tomaszewicz's

Actual lbs. of Nitrogen Applied	Full Irrigation	Dry Early June Then Full Irrigation	Irrigated Once Then Dry In Late June Then Full Irrigation	Dryland Stubble
50	61.0	49.4	47.9	18.7
75	65.3	57.0	51.3	18.7
100	68.5	58.2	56.5	18.7
150	77.7	60.6	59.2	17.6

Average Percent Protein for 1977-78-79

50	8.7	9.6	10.0	13.3
75	9.2	9.8	10.9	13.9
100	9.4	10.4	10.9	14.3
150	10.5	11.2	11.4	15.0

NOTES:

- 40 lbs./acre of phosphate was applied seed placed.
- Seeding was in the first week of May.
- Standard weed control was implemented.
- Yield potential observed were from 80 to 90 bushels per acre.
- Efforts to minimize protein levels below 10.5% were achieved by proper irrigation.
- Low application rates of nitrogen greatly reduced yield.

NITROGEN GUIDELINES FOR IRRIGATED SOFT WHEAT

Soil Test

Available Nitrogen in Top 24 Inches (pounds/acre)	Recommended Application of Nitrogen to Crop (pounds/acre)
0-5	140
6-10	135
11-15	130
16-20	120
21-25	115
26-30	110
31-35	105
36-40	100
41-45	95
46-50	90
51-55	85
56-60	80
61-65	75
66-70	70
71-75	65
76-80	60
81-85	55
86-90	50
91-95	45
96-100	40
101-105	35
106-110	30
111-115	25
116-120	20
121-125	15
126-150	0
151+	0

From 1980-81 Nutrient Guidelines for Saskatchewan

PROFILE OF 1980 SOFT WHEAT PRODUCERS

From Summary of 1980 C.W.B. Producer Information Questionnaire

	Saskatchewan	Alberta
Average Yield	61 bus/ac.	73 bus/ac.
Range of Yields	42-80 bus/ac.	30-115 bus/ac.
Grade 3 C.W.S.W.S. (Balance Grade Higher)	85%	28%
Farm Size Over 640 Acres	78%	31%
Fieldler Grown First Time	72%	12%
Field Soil Texture Light	32%	19%
Very Dry Seeding Conditions	71%	53%
Farmers Reporting Fieldler More Than 10% Better Than Other Wheat	75%	82%

1980 BUDGET FOR SOFT WHEAT PRODUCTION COST

By Saskatchewan Agriculture

CASH INPUTS		
Seed	1.5 bus.	\$ 7.50
Fertilizer - N	100 lb.	23.00
- P	40 lb.	2.60
Chemical		
Wild Oat & Millet Spray	75%	9.00
Broadleaf Chemical	100%	5.00
TOTAL CASH INPUT		<u>\$ 54.10</u>
CASH COSTS		
Hail Insurance		\$ 4.50
Taxes		1.50
Water Tax		9.00
Pivot Maintenance		4.08
Pivot Fuel (10 inches)		16.30
Equipment - Repairs		9.26
- Lub		.70
- Fuel		8.45
Building Maintenance & Repairs		1.25
Insurance on Building Equipment & Stored Grain		3.00
Hired Labour		9.23
Miscellaneous & Overhead - 7%		8.46
Operating Interest 18% for nine months		<u>17.46</u>
TOTAL CASH COSTS		<u>\$ 93.19</u>
TOTAL VARIABLE COSTS		<u>\$ 147.29</u>

CANADIAN WHEAT BOARD - FINAL PAYMENT COMPARISON

1979	Initial	Adjustment	Final	Total
	(- - - - -)	Dollars Per Tonne	(- - - - -)	(- - - - -)
1 C.W.R.S.	156.16		40.270	196.43
2 C.W.R.S.	150.56		37.082	187.64
3 C.W.R.S.	145.56		33.623	179.18
1 C.W.S.W.S.	145.56		40.619	186.18
2 C.W.S.W.S.	142.56		42.619	185.18
3 C.W.S.W.S.	138.56		42.619	181.18

1978	Initial	Adjustment	Final	Total
	(- - - - -)	Dollars Per Tonne	(- - - - -)	(- - - - -)
1 C.W.R.S.	110.230	18.370	31.927	160.527
2 C.W.R.S.	106.500	18.370	26.930	151.800
3 C.W.R.S.	102.000	18.370	29.738	150.108
1 C.W.S.W.S.	110.230	18.370	24.364	152.964
2 C.W.S.W.S.	109.000	18.370	24.594	151.964
3 C.W.S.W.S.	108.000	18.370	21.594	147.964

1977	Initial	Adjustment	Final	Total
	(- - - - -)	Dollars Per Tonne	(- - - - -)	(- - - - -)
1 C.W.R.S.	110.230		10.073	120.303
2 C.W.R.S.	107.660		6.145	113.805
3 C.W.R.S.	104.350		2.817	107.167
1 C.W.S.W.S.	110.230		10.073	120.303
2 C.W.S.W.S.	109.130		10.433	119.563
3 C.W.S.W.S.	107.660		10.063	117.723

1976	Initial	Adjustment	Final	Total
	(- - - - -)	Cents Per Bushel	(- - - - -)	(- - - - -)
1 C.W.R.S.	\$ 3.00		18.829	\$ 3.188
2 C.W.R.S.	\$ 2.93		6.077	\$ 2.990
3 C.W.R.S.	\$ 2.84		- - -	\$ 2.840
1 C.W.S.W.S.	\$ 3.00		18.829	\$ 3.188
2 C.W.S.W.S.	\$ 2.97		19.829	\$ 3.168
3 C.W.S.W.S.	\$ 2.93		18.829	\$ 3.118

1975	Initial	Adjustment	Final	Total
	(- - - - -)	Cents Per Bushel	(- - - - -)	(- - - - -)
1 C.W.R.S.	\$ 2.25	\$ 1.50	23.075	\$ 3.981
2 C.W.R.S.	\$ 2.18	\$ 1.50	16.869	\$ 3.849
3 C.W.R.S.	\$ 2.09	\$ 1.50	2.370	\$ 3.827
1 C.W.S.W.S.	\$ 2.25	\$ 1.50	23.075	\$ 3.981
2 C.W.S.W.S.	\$ 2.22	\$ 1.50	24.064	\$ 3.961
3 C.W.S.W.S.	\$ 2.18	\$ 1.50	23.048	\$ 3.910

1974	Initial	Adjustment	Final	Total
	(- - - - -)	Cents Per Bushel	(- - - - -)	(- - - - -)
1 C.W.R.S.	\$ 2.25	\$ 1.50	72.414	\$ 4.474
2 C.W.R.S.	\$ 2.18	\$ 1.50	62.624	\$ 4.306
3 C.W.R.	\$ 2.09	\$ 1.50	67.209	\$ 4.262
1 C.W.S.W.S.	\$ 2.25	\$ 1.50	72.414	\$ 4.474
2 C.W.S.W.S.	\$ 2.22	\$ 1.50	73.414	\$ 4.454
3 C.W.S.W.S.	\$ 2.18	\$ 1.50	72.414	\$ 4.404