

SASKATCHEWAN SOIL TESTING LABORATORY
1988-1989 Report

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Spring soil testing of farm fields in 1988 totalled almost 3000 fields, which was just slightly less than spring volumes of each of the previous three years. Large numbers of samples submitted from other sources brought the total sample receipts for July 1987 through June 1988 to a level just above that for any corresponding year. Contributing factors were probably the early harvest, the open fall for field sampling, some improvement in grain prices, the high stubble nitrogen test levels in drought-affected areas (resulting in lower N fertilizer recommendations), and some increase in farm test clientele due to pricing (no increase since 1982) and acceptable turnaround time for several years previous. Turnaround time for farm samples received in mid-October to mid-November exceeded the one-week (maximum) objective by up to about five days, and analysis time for some research projects also exceeded requirements. Additional instrumentation and personnel will be required to re-establish favorable turnaround time in the future for the higher volumes of both farm and research/consulting samples.

Table 1: Numbers of Samples Received by the Saskatchewan Soil Testing Laboratory, by years; 01 July 1985 to 31 January 1989.

Source of Samples	1985-1986	1986-1987	1987-1988	1988-1989
	July 1 to June 30			(July 1 to Jan 31)
	No. of Samples (No. of fields in brackets)			
Soil Samples				
Farm				
Complete (0-24")	39,360 (13,210)	44,175 (14,725)	51,075 (17,025)	64,122 (21,374)
N-Only (to 24")	1,809 (603)	1,476 (492)	1,344 (448)	1,158 (386)
0-6" Complete	1,363 (1,363)	799 (799)	719 (719)	462 (462)
Industry, Gov't	9,149	9,812	12,328	12,890
Dept. of Soil Science	8,427	7,395	8,045	8,846
University	3,662	3,003	2,392	1,957
Gardens	280	314	284	267
Plant Samples	2,426	6,811	4,882	3,087
Water Samples	747	648	734	460
Total Samples	67,493 (15,176)	74,433 (16,016)	81,803 (18,192)	93,249 (22,222)
Total-Fall Only	49,601 (11,509)	57,825 (12,878)	63,378 (15,283)	

The complete Farm Soil Fertility Test package includes determinations of soil test NO₃-N, P, K, SO₄-S, pH, and salinity, with interpretations/recommendations. The price for it has been held at \$24 per field since 1982, while the price for the Nitrogen-Only test has been held at \$15. Increases in fees for these tests prior to Fall 1989 are likely to be necessary.

Transmission of soil test reports by facsimile ("FAX") reduced the time required for customers also having this type of equipment to receive their soil test information. This service was first offered for the fall of 1988, and was used to transmit results for about a thousand tested fields.

A Soil Test Database program has been developed under the direction of Dr. J.R. Bettany. It will allow quick access to and summarization (on an R.M. basis, for example) of several years of Complete Fertility Test results. The longer term objective is to produce a production model integrating fertility and climate data. Software is also being developed to transmit results of other tests to research/industry clients as computer data files (rather than hard copy), to eliminate the need for re-entry of the data by the customer.

A Laboratory newsletter was started in 1988. Two issues were circulated to fertilizer dealers, extension personnel, and others on request. It includes soil testing and Lab news, as well as current soil fertility information.

Staff changes included appointment of Gary A. Kruger, B.S.A., M.Sc. as Laboratory Agronomist in February 1989.

Soil test levels reflected the serious general drought of 1988 and smaller areas of good production (NW and EC areas). Average nitrate levels in stubble fields were higher than in past years, and were generally about 20 lb/Ac higher than in 1987 (Table 2). Although the majority of stubble fields were high in soil nitrogen where the 1988 crop was very poor, not all are as high as anticipated; reducing stubble N fertilization rates due only to a poor preceding crop, or to generally high test levels in other farms or fields in the area, would be risky.

Table 2: Percentage of fields submitted in two selected nitrate-N test ranges; Fall 1984 through Fall 1988

	More than 45 lb/Ac (0-24")					More than 60 lb/Ac (0-24")				
	1984	1985	1986	1987	1988	1984	1985	1986	1987	1988
	-----% of fields-----									
SUMMERFALLOW										
Brown	55	68	69	67	81	28	44	41	39	60
Dark Brown	72	79	78	69	76	45	53	51	45	55
Thin Black	85	78	70	71	76	63	60	53	52	60
Thick Black	90*	84*	71*	66*	76*	74*	71*	61*	59*	65*
Gray Black	79*	78*	70*	68	68	58*	64*	51*	55	57
Gray	65*	64*	56*	64*	53	39*	51*	39*	51*	39
STUBBLE										
Brown	32	44	18	22	47	18	27	11	12	31
Dark Brown	37	27	17	17	49	23	16	10	10	35
Thin Black	32	22	12	13	37	21	13	6	7	23
Thick Black	26	16	18	17	49	14	9	9	8	35
Gray Black	8	6	9	11	36	3	3	5	6	23
Gray	9	4	9	8	22	4	2	4	4	16

*based on fewer than 300 fields; other data based on 300 to 3700 fields

NOTE: All data is from samples taken in the Fall of the indicated year only.

Summerfallow nitrogen test levels were somewhat above 1987 levels, though similar to longer term averages for all but the Brown Soil Zone. It is possible that effects of the severe early-season heat and drought on the soil could have resulted in enhanced mineralization rates later in the season. In comparison to 1987 levels, average Fall 1988 phosphorus levels were slightly higher, and fewer fields tested low in sulphur. Reduced nutrient uptake due to the poor crop in 1988, as well as heat/drought effects on the soil may be responsible.