

SASKATCHEWAN SOIL TESTING LABORATORY REPORT

TO THE

SASKATCHEWAN ADVISORY COUNCIL ON SOILS

AND THE SOILS WORKSHOP

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I. Changes in Nutrient Requirement and Expected Yield Increase Guidelines

The introductory comments of the guideline tables were modified to include a description of the methods currently accepted in Saskatchewan for the determination of phosphorus, potassium, sodium, calcium, magnesium, copper, iron, zinc, manganese and boron. The fertilizer committee also approved the inclusion of a statement as follows: "for use by the Saskatchewan Soil Testing Laboratory and other Laboratories making fertilizer recommendations in Saskatchewan."

Tentative nitrogen recommendations for cereals, flaxseed, and sunflowers, grown in the Thin Black, Thick Black, Gray Black and Gray soil zones were changed as follows:

NO ₃ -N 0-24" (1b/Ac)		Thin Black, Thick Black, Gray Black & Gray			
Summerfallow	Stubble	From	To	From	To
0-10	0-15	45	60	60	75
11-20	16-30	30	45	45	60
21-30	31-40	15	30	30	45
31-40	41-60	0	15	15	30
41-50	61-75	0	0	0	15
51+	76+	0	0	0	0

These changes are in accord with recent reviews of data.

The tentative phosphate recommendations for crops other than cereals were modified to include the textural separation which was initiated several years ago. The net result is that all annual crops (except flax) grown on soils with a surface texture in the sandy clay to the heavy clay range will now receive a recommendation for some additional phosphorus.

A preliminary statement on the time of application for all common fertilizers was prepared for the leaflet currently distributed to all soil test users. The statements were essentially the same as that included in the Saskatchewan Fertilizer and Cropping Practices Bulletin in Saskatchewan. The specific statement for nitrogen fertilizers reads as follows:

"Annual Crops - nitrogen in excess of the rates recommended for seed-placement can be broadcast in fall or spring. Fall applied nitrogen, particularly urea, should be incorporated to reduce losses through erosion and volatilization. Fall broadcasting of nitrogen fertilizers is not recommended on coarse-textured (sand to sandy loam) soils in the Gray Black and Gray soil zones. Losses due to leaching are quite probable on these soils."

The residual method of applying phosphorus has been approved by the Fertilizer Committee for eroded soils and small areas severely deficient in available phosphorus. A comment to this effect has been placed in the leaflet distributed to farmers as well as the publications mentioned above.

II. Effect of Current Economics on Tentative N and P_2O_5 Recommendations

The fertilizer and grain prices used for the calculation of optimum rates by the Laboratory and given on the Soil Test Report are considerably different from current prices. The prices quoted on the back of the report can be adjusted as follows:

Crop	Price of N or P_2O_5 per pound				
	.16	.18	.20	.22	.24
Wheat	2.40	2.70	3.00	3.30	3.60
Barley	1.20	1.35	1.50	1.65	1.80
Rape	4.00	4.50	5.00	5.50	6.00

Since both nitrogen and phosphate are now valued at approximately .18¢ per pound the adjusted grain prices for wheat, barley and rape are \$2.70, \$1.35 and \$4.50, respectively. These prices are considerably below those currently expected by farmers. Therefore, our rates for both phosphate and nitrogen are conservative. The effect on phosphate rates, however, is minimal. Upward adjustment of rates are in the order of 0 to 10 lbs. P_2O_5 /Acre. For nitrogen, the effect is significant. Changes are in the order

of 0 to 40 lbs. N/Acre. The format of the soil test report will be changed in 1975-76 to include a print-out of the prices used in calculating optimum rates. This print-out will occur on the front page of the report and will allow annual adjustment.

III. Sample Submissions to January 31st, 1975

The number of fields sampled and submitted for diagnosis in 1974-75 to date as compared with last year were as follows:

	<u>1974-75</u>	<u>1973-74</u>
Complete Test	3,048	3,874
Nitrate-only Test	104	129
Fallow-only Test	328	204
Total	3,480	4,207

These data indicate a considerable decrease in number of fields sampled. This situation is somewhat anomalous in view of the excellent sampling season experienced in Saskatchewan in 1974. Two reasons have been suggested for the decrease in sample submissions:

1. The increased price for services offered by the laboratory;
2. A decrease in fertilizer dealer sampling.

IV. Soil Sampling Probes

The Laboratory has undertaken to distribute, at cost, a variety of manual soil sampling tools. Information on these tools and their cost has been distributed to most extension outlets. Thus far, the program has been successful. A large number of farmers have purchased the tool or have availed themselves of the loan services also extended by the laboratory.

V. The Sulphur Test

Unfortunately, the chemical difficulty encountered in the automated procedure for the determination of sulphur has not been overcome. Laboratory staff are now investigating the feasibility of an alternate method suitable for automated analysis. While several manual methods are available they are considerably more expensive. Therefore, a decision has been made to pursue the development of an efficient automated method. This procedure should be on stream before the fall of 1975.