

REPORT OF THE CHEMIST.

(FRANK T. SHUTT, M.A., F.I.C., F.C.S.)

LABORATORY OF THE CENTRAL EXPERIMENTAL FARM,
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WM. SAUNDERS, Esq., F.R.S.C., F.C.S.
Director, Dominion Experimental Farms,
Ottawa.

SIR,—I have the honour to submit to you the second annual report on the work of the Chemical Department of the Experimental Farms accomplished by me since last February, the date of my first report. This report consequently contains but the result of nine months' labour. It consists of first, an epitome of the chemical analyses made of various substances relating to agriculture, and secondly, an account of my inspection of English and Continental Laboratories, and of some of the Experimental Stations of Germany visited during the past summer.

WHEAT.

In the concluding paragraph of my last report mention is made of a series of analyses of various wheats, chiefly the Red Fyfe and Ladoga varieties—then just begun. The original Ladoga grain was imported from Russia and was grown in a latitude some 600 miles north of that of Ottawa, where the summer is consequently much shorter than in our North-West Provinces. During the summer of 1887 a large number of farmers in the various Provinces of the Dominion cultivated this wheat from samples supplied to them by the Experimental Farm at Ottawa. Accompanying the samples was a request to send in a report on the growth, yield and length of time required by this wheat to mature. It was also requested that a specimen of the grain reaped from the sample be forwarded to the Farm. By this means it was expected that definite and reliable information would be obtained as to whether this wheat ripens earlier than the Red Fyfe and would thus be likely to escape some of the early frosts occasionally so detrimental to the wheat crop of the North-West. All important as the questions of yield and early ripening are, there remained another of equal consequence—the composition of the wheat. This could only be ascertained by chemical analysis. To arrive at the respective values of the Red Fyfe and Ladoga wheats from the chemical standpoint—was then the object of the investigation. In February, when the work was begun, we were unable to obtain the flour of the Ladoga wheat manufactured by the Roller process. The analysis of all the samples was consequently made on the whole grain, and are thus strictly comparable. My report on this work was completed last June, but publication has been deferred in order that the results of some direct determinations of the gluten in Red Fyfe and Ladoga flours, from samples of these varieties of wheat lately ground might be added. This report will be issued in bulletin form for distribution among the agricultural population and others interested in this important matter. It contains, in addition to a full account of the constituents of the wheat, the deductions which may be drawn therefrom. I shall here, therefore, give but a synopsis of the extent of the work and the conclusions reached.

Twenty-eight samples of wheat were analysed, as follows: twelve of Ladoga, six of Red Fyfe, three of Saxonka, two of Kubanka and one each of the following