wheat grown by the following applications yielded:—

	Gluten.	Starch.	Bran, Sol. matter and moisture
With human urine,	35.1	30.3	25.6
" bullock's blood,	34.2	41.3	25.5
" human excrement,	33.1	41.4	25.5
" sheep's dung,	22.9	42.8	34.3
" goat's do,	32.9	42.4	24.7
" horse's do,	13.7	61.6	24.7
" pigeon's do.,	12.2	63.2	24.6
" cow's do.,	12.0	62.3	25.7
Soil not manured,	9.2	66.7	24.1

In general, therefore, the wheat grown in ground manured with the most highly azotised matters yields the largest quantity of gluten.

Every farmer who has experience is well aware that it frequently happens that wheat crops are so seriously injured during winter, by the inclemency of the weather, especially by severe frosts and heavy rains on ill-drained land, as well as by the attacks of grubs and other vermin, that towards the latter end of spring they present a very melancholy aspect, the crop being thin and the plants weakly. Sometimes this is the case to an extent so alarming that the wheat is ploughed up to make room for a crop of oats or barley.

On this account it is a very judicious practice to give a top-dressing in spring, which causes the plants to come away with vigour, and likewise to tiller freely, so as to occupy to advantage the spaces left blank by the winter failures.

Such a top-dressing is especially desirable in soils that are naturally too light to carry a heavy wheat crop. The manures generally employed for this purpose, and found by the experience of farmers and the researches of chemists to be the best, are

Nitrate of Soda.
Sulphate of Ammonia.
Superphosphate of Lime, (Dissolved Bones.)

Professor Johnston arrives at the conclusion, that in some cases, even so small a quantity as two bushels of dissolved bones will produce as good a crop of turnips as sixteen or twenty bushels of bones applied in the usual form—a conclusion that has led to great economy in the application of manure, and has recommended Superphosphate of Lime to the serious attention of all farmers as one of the most profitable manures that could be applied to the soil. As a top-dressing to all grain crops it is invaluable.

Nitrate of Soda and Sulphate of Ammonia have likewise been applied as a spring top-dressing to wheat with the best results; the former is especially to be used where, from deficiency of soil or inclement weather, the straw is weak.

The following experiment by Mr. Barclay, quoted by M. Boussingault, (*Rural Economy*, p. 419), indicates the beneficial effects of an application of Nitrate of Soda to wheat, both as respects straw and grain:—

	Without nitrate.	With nitrate.	Difference in favour of the nitrates.
WHEAT—31 bush. 2 pks. 35 bush. 3 pks. 4 bush. 1 pk.			
STRAW—20 cwt. 19 lb. 23 cwt. 2 qrs. 26 lb. 3 cwt. 2 qrs. 7 lb			

That sulphate of ammonia supplies an excellent manure for wheat, either when applied as a spring top-dressing or otherwise, has been well shown by the experiments of M. Schallenmann.

Mr. Stevenson has shown that the good effects of nitrate of soda are not confined to the crop to which it is immediately applied, but extend over a series of years. In fact he found the effects to be more decided upon the third crop after the application. He has no doubt that saline manures in general *influence the produce throughout the whole rotation*, which of course greatly enhances their value.

The wheat crop, like all other cultivated crops, is liable to the attacks of various parasites and other maladies. One of the most destructive, and certainly the most universal of these, is Smut, the remedy for which, and Rust, has been already so fully detailed in connection with the preparation of seed, that it is not necessary to enter upon further details. The wheat midge (*Cecidomyia tritici*) is likewise very hurtful in certain seasons. In the Carse of Gowrie alone, during the years 1826-8 & 9, it was estimated that this insect cost the Carse farmers £90,000. By using a skim coulter in winter ploughing, the pupæ may be buried too deeply to allow of the midges coming up next summer. It is well that it is only in certain favourable seasons that this pest is enabled to attack the wheat crops fiercely,—for we know of no effectual remedy to ward off its assaults.

HEMP CULTURE IN NOVA SCOTIA.

In a ship-building country a Rope Factory is one of the first requisites. Through the enterprize and enlightened views of one of our leading merchants that want is now supplied. A Rope Factory not only contributes to the success of the "Ship Manufacture," but likewise opens a new market to our farmers. If Hemp can be grown in Nova Scotia as well as in Russia or the United States, there is no good reason why our own farmers should not benefit by this branch of industry. Now we know that Nova Scotia is very well adapted for the growth of Hemp Fibre, and we trust that some enterprising farmers will try their hand at its production this season. The following article from the *Toronto Globe* is suggestive:—

We were recently shown some very fine samples of hemp fibre, produced from hemp grown by Mr. J. G. Joly, of Quebec, on his farm at Point Platon. Mr. Joly has written a very interesting letter to the *Gazette des Campagnes*, which we have translated from the French, and condense from it a few facts showing that hemp can be profitably grown in Canada, and that our ropemakers would do well to encourage home growth instead of importing the raw material from Russia and Kentucky.

He says that hemp was extensively grown in Canada when it was under French rule, and that quantities of it may yet be found growing in a wild state on many of the older farms in Quebec. He gives the result of a trial with seed from the so called "wild hemp," seed imported from Piedmont, and from Missouri. The Missouri seed produced the finest plants, but the plants grown from wild hemp were but little inferior, and equal to the Piedmontese, while they ripened sooner than the others. The yield of raw hemp is given as 14,400 lbs. per acre, which, sold at a farthing per pound, gives a return of $60 per acre, besides the seed, which yields an oil equal to linseed oil for painters use.

He states that the hemp can be grown equally as well as flax, and the operation of scutching and heckling it can be done in a flax mill, with a little alteration in the rollers, or by wooden hecklers, constructed chiefly for the purpose; the hemp in its raw state is rather bulky for carriage, but when prepared by hand or machinery it is greatly reduced in bulk, and is then worth much more. The price of Russian hemp at Quebec is given at 9 cents per pound, so that if we can grow an article equal to it, which he says can be done, hemp growing would become a profitable branch of agriculture. It takes six pounds of steeped raw hemp to make a pound of hemp ready to spin, or make into rope, and he says the raw material would readily bring a halfpenny per pound if steeped, and conveniences could be had for scutching and heckling it. Perhaps this matter may engage the attention of Canadian ropemakers, and they could be induced to encourage a home growth of an article now largely imported at a great expense.

Mr. Joly left at our office some very fine samples of Canada Hemp, grown at Quebec, and prepared, some by hand and some by machinery; also, some specimens of rope manufactured from this hemp; a small quantity of the oil expressed from the seed; and also some cake for feed, manufactured after the manner of linseed cake.

From the success which Mr. Jolly has met with in Quebec, where, we are informed, sixty farmers have grown this crop, we think it very desirable that a trial of it should be made in Ontario. Of course we would not advise any extensive experiments at first, but operations on a small scale might be sufficient to indicate the suitability or otherwise of our climate for the growth of hemp. Those who have scutching mills for flax should bear this subject in mind.

THE HESSIAN FLY AND WHEAT MIDGE.

The following lucid account of the Hessian Fly and the Wheat Midge of the Dominion, is from the pen of a Toronto correspondent of the London *Gardener's Chronicle*, and will be read with interest and profit by our wheat growing farmers:—

The Hessian fly, Cecidomyia destructor, first attacks the newly sown fall wheat in the