

about the third week of May, as there would be additional humus and nitrogen to be obtained by this method.

"The great improvement made in the soil by the annual plowing under of crops is clearly shown in figures given by Mr. G. T. Powell, Ghent, N. Y., U. S., at the annual meeting of the Ontario Fruit Growers' Association held at Whitby in 1899. After crimson clover, which had been used as a cover crop—had been ploughed under in an orchard for three years, the soil was analyzed and the following differences were found between that where the clover had and had not been ploughed in :

	Clover ploughed under for three years. Per cent.	No clover ploughed under for three years. Per cent.
Water....	15.00	8.75
Nitrogen..	.21	.12
Humus...	2.94	1.91
Phos. acid.	.015	.008

The gain per acre would be :

Water.....	6.25 per cent =	46,875 tons.
Nitrogen.....	.09 " =	1,350 lbs.
Phos. acid.....	.007 " =	105 lbs.

"Although such good results might possibly not be secured by the use of red clover, still the improvement in the land by such treatment would be very great.

"For the reasons mentioned in my report for 1898, the methods which are recommended above have not been adopted at the Central Experimental Farm since the spring of that year. Clover is used for a cover crop, but it is only ploughed under every two years. As the soil here is light and lacking in humus, but apparently contains plenty of moisture, a system of cutting the clover with a field mower and leaving it to rot in the orchard, has been followed. In 1898 five cuttings were obtained, the clover being from eighteen to twenty inches high at each cutting and just coming into bloom. It was estimated that from the first four cuttings 25 tons per acre of green crop were left lying on the field. Clover sown in 1898

was cut four times in 1899, and the crop from each cutting appeared fully as good as that of 1898. It can easily be imagined that this is improving the soil rapidly.

"Common red clover was sown in the orchards in 1899 on May 10, 17, 25 and 31; July 4, 11, 18 and 25. There was a good cover crop obtained from all of these sowings, with the exception of that on May 31, which did not germinate well, and from those of August 2, 9 and 16 at which time the weather was very dry and the seed did not germinate until September, and then but thinly. Clover sown on May 17 and 25, was nearly smothered by purslane, but eventually overtopped it and came on well and formed a good cover crop by autumn.

"In a part of the apple orchard where the soil is very poor, two green crops were ploughed under in the summer of 1899. On June 10, clover which had formed a cover crop the previous winter was ploughed under and the land was then re-sown with buckwheat, soja beans, English horse beans and field pease, with the following results :—

"Buckwheat sown broadcast on June 17th, at the rate of 2 bushels per acre, came up on June 23. Ploughed under on July 25th. Average height, 27 inches. Estimated yield, per acre of green crop, 8 tons, 335 pounds.

"Soja Beans :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up June 24. Ploughed under on August 7. Average height 14 inches. Estimated yield per acre of green crop, 3 tons 466 pounds.

"English Horse Beans :—Sown in drills 6 inches apart on June 17, at the rate of 4 bushels per acre, came up on June 27. Ploughed under on August 7. Average height 18 inches. Estimated yield per acre of green crop, 6 tons 592 pounds.

"Field Pease :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up on June 24. Ploughed