

## ENTOMOLOGY.

We have deemed it necessary to devote a column of this paper to the above subject. It is necessary that the farmer should know somewhat of the insects that may at any time destroy, or at least materially lessen, the produce of his fields on which he has expended much time and money, and when, perhaps, his remuneration seems almost within his grasp. To be thoroughly good and successful farmers we must be conversant with the science of agriculture. The skilled hand and brawny arm are not enough; there must be, directing and controlling these the well-informed thoughtful mind. We are no advocates for mere book-farming, a bare theoretical acquaintance with the subject. There must be theory reduced to practice.

In our last issue we gave an extract from an essay by Rev. Mr. Bethune on that pest of the farmer, the wheat midge. From the same source we now give some extracts relating to another devourer of the products of the farmer, the Chinese bug.

The name of Chinese bug has, in the West especially, as appalling a sound in the ears of the agriculturist as that of the wheat midge has ever had amongst us. Happily the creature is but little known in this province, still it may obtain a foothold among us and prove a source of evil, as it has already been observed in Ontario. It appears desirable then that we should give some information respecting its nature and habits, when describing the special enemies of the wheat plant.

As far as we have been able to ascertain, the Chinese bug was first observed in the Province of Ontario in the autumn of 1866, by Mr. Johnson Pettit, of Grimsby. That so little is known of it in this country ought to be to us a subject of sincere congratulation. Since 1870 they have been a permanent plague to the farmers in the west, appearing every few years in perfectly incredible numbers and sweeping everything before them almost as completely as a swarm of locusts. The following vigorous and unvarnished account of their proceedings by an Illinois farmer will convey to the reader some idea of the havoc they create:

"There never was a better 'show' for wheat and barley than we had here on the 10th of June, and no more paltry crop has been harvested since we were a town; many farmers did not get their seed. In passing by a field of barley where the Chinese bugs had been at work for a week, I found them moving in solid columns across the road to a cornfield on the opposite side in such numbers that I felt almost afraid to ride my horse among them. The road and fences were alive with them. Some farmers were at work mending the road at the spot, and the bugs soon covered men, horses and carriages till they were forced to quit work for the day. The bugs took ten acres of that corn clean, before its hardening, taking being too much for their tools checked their progress. Another lot of them came from a wheat field adjoining my farm into a piece of corn, stopping now and then for a bite, but not long, though the corn was scarce in cussle. From wheat to sorgho was at least sixty rods. Their march was governed by no discernible law, and went where there was most to eat. If I, a neighbor, harvested one of the few fortunate fields, early sown and so lucky! we found them moving across his premises in such numbers that had we to drive out the family. House, crib, stable, well-curb, trees, garden-fences, one creeping mass of stinking life. In the houses as well as outside, like the loc of Egypt, they were everywhere, but in a single day they were gone."

In a future issue we will give the remedies, natural and artificial. We shall now give one more brief extract, describing their fecundity:

"In the spring when the grain has commenced to grow it issues forth from its hiding-place, and proceeding to the fields lays its eggs on the roots of the tender

grain wherever it can gain access to them. These eggs soon hatch and produce another brood. After a time they attain their full size, acquire wings, and proceed to provide for the continuance of their species. In the Western States the bug appears to have at least two broods in the year, and in the South even more. This fact coupled with its habits—like other true bugs—of taking food from the day of its birth to the day of its death, without the intermission of a quiescent pupal state, renders it so destructive and so difficult to combat."

For the Farmer's Advocate.

## Second Meeting of the North Norwich Farmer's Club.

## PRESIDENT'S ADDRESS—SUBJECT—SOILING.

Every farming district has an agricultural history of its own. In this district we are living in the era which might be called the *dairy era*. It is with that part of dairying which constitutes the feeding of stock that we have to deal to-night.

There are two systems of stock-feeding in vogue. One in which the cattle, &c., roam at large over the fields, the other under which the animals are kept in stables year-round, the feed being brought to them. This latter system is called *soiling*. For the present, however, it is more convenient to limit the term "soiling" to that time of the year in which there is pasture sufficient to keep an animal in good condition.

The advantages of soiling, real and apparent, over the system of pasturage are many. In thinking of them many of us look upon the system of pasturage as a practice to be utterly done away with. Whether our predictions will come true or not, time alone can tell. However, blind as we are as regards future events, we can discuss the subject, partly from experience, partly from hearsay, and partly from our own ideas. Knowing, therefore, so little, practically, about the subject we shall often have recourse to various standard works.

Mr. Stephens, in his "Book of the Farm," says that one acre of pasture is quite sufficient to maintain an ordinary sized ox from May to October. He also says that "33 head of cattle can be maintained by soiling on 17½ acres of grass the same length of time." There then we have a proportion of nearly 2 to 1 in favor of soiling, given by a man who says that soiling on a large scale is impracticable. Charles W. Dickerman, author of the latest American work on farming, says, "The experience of every stock-raiser who has given it a trial testifies that the profit is at least double." Thus we have too good authorities asserting that soiling gives double or nearly double the profit to that pasturing does. As far as our experience goes we can say nothing as regards the double profit, therefore we shall have to take their statements for granted until our knowledge is here read.

But let us take our own ideas and put them with these seemingly extravagant statements and follow them up. The first thing to be considered is what would be necessary to add to our present practice to enable us to soil profitably, and what in our present practice would be unnecessary in soiling.

The only things to be added to our present system are summer stabling and more hired help. I say summer stabling, because I do not remember of ever seeing a winter stable which would be suitable for summer soiling. In this country, where we think more of keeping out the cold of winter than the heat of summer, we build bank-barns and stone stables. The nearest approach to stables which were warm in winter and were also suitable for summer use that I ever saw was at the Hon. Geo. Brown's farm. In fact, his stables were nearly perfect for soiling. The buildings are high for being more stables, with nothing over head but the roof, while the generality of stables are so low that we can touch the floor above with our hands, if not our heads. Another advantage his stables have over ours for soiling is, the buildings are so wide that a horse and cart can pass through the feeding alley. Our feeding alleys are so narrow that we have no more than room enough to pass along with a forkful of hay. The general arrangement of our buildings is also faulty. For instance, farm buildings are generally placed on one side or end of the farm while they should be as near the centre as possible.

To draw green feed from one end of the farm to the other, and the manure back again would make a heavy bill against soiling. A small field should also be enclosed with the stables to exercise the cattle in. Pure water should be in abundance. The stables should have the best of ventilation. Lastly, every animal should have a loose box of its own.

In soiling we would be able to do away with all inside fences and probably line fences. We would have the use of the land which at present is occupied by those fences, and save the money, interest and labor now spent in building and repairing such fences. We would save the grass which cattle tramp down in pasturing, besides the bunches of rank grass which grow up through the droppings of the previous year. The time spent in driving the cattle to and from the pasture would also be saved. The exercise which the animals take to collect food, in pasturing, together with the fretting and teasing occasioned by flies would be abolished, and the flesh, milk and general health of the animal thereby enhanced. All summer-fallowing could also be done away with as the frequent mowings would keep the land perfectly free from weeds.

Mr. Stephens' arguments against soiling are as follows:—"To cut grass, however, for all the cattle on a large farm, to lead it to the steading, and to supply them with sufficient litter in summer, I consider an impracticable thing, were it for no other reason than that the crop of grain on most farms cannot afford sufficient straw to litter stock the whole year; and if the sheep are included in the soiling system, adequate accommodation could not be provided them. The only way to treat them would be to soil them upon the bare land in hurdles, as is common in many parts of England; but such a practice would not suit the variable and wet part of the climate of Scotland. The objection to grazing is that the manure of the animal is entirely lost, is not a valid one, because land constantly grazed will support stock for an indefinite length of time; and it would not do that if the ground did not actually receive nourishment in lieu of the grass taken from it. Dissipation of the dung dropped on pasture cannot be great. In dry weather the water is soon evaporated out of it, and in rainy weather the water dissolves it among the roots of the grass, converting it into a state of good liquid manure. The greatest waste of dung is from the consumption of it by insects, and yet these leave their bodies in the ground when they die. The objection is thus freely theoretical. Cut grass and carry it off every year, and see how long time will elapse ere it can no longer be cut until manure be again applied to the ground. Does not this circumstance of itself show that the dung dropped on pasture is not entirely lost; and that the land derives an advantage from pasturage that it can receive in no other way, such as the fresh state of the urine discharged upon and absorbed by it."

NOTE.—As regards bedding we can manage with the greatest ease by employing muck as a substitute for straw. Another great addition to the manure pile would thus be made. As far as exhaustion of the land goes, surely we do not calculate to never put the manure on the ground again.

Mr. C. W. Dickerman's arguments in favor of soiling are as follows:—"For milk cows and fattening stock, stall feeding the year round is certainly advisable. The experience of every stock-raiser who has ever given it a trial testifies that the profit is at least double. There is no doubt of it. If we could persuade every stock owner to adopt this soiling system, we should feel that we had done as much for our country as Fulton, Charles Whitney, or Elias Howe. It would increase the agricultural wealth of the country in a tenfold ratio. It would in five years pay the whole national debt. It is the only true economy in stock-raising. In our soiling system we include stall feeding, cutting and steaming feed, and the husbanding of manures. Its advantages are, first, *soiling in fences*. All the fences required (and all there ever ought to be on any farm) will be a good sized yard to exercise them in. Now, a man having one hundred and fifty acres of pasture often divides it into six lots. To fence these lots costs not less than one thousand dollars; the interest and repairs on which every year will be sufficient to pay a man for doing all the extra work of soiling fifty head of cattle. Can't you invest your one thousand to better advantage? Again, each of these fences take up land. Your one thousand dollars worth of fences takes up from three to four acres of land. A second consideration is the saving of land. Four acres each, or twelve head to fifty acres of land, are required by the pasturing system,

and often six acres each, or only eight head to fifty acres. Put this fifty acres under cultivation, and it will keep twenty-four head as well, yes, better than it now keeps eight or twelve. We have already seen that the saving in fences will pay all the extra expenses of soiling, leaving one thousand dollars to be invested in the additional stock that can be fed under the new system. We venture to say that one and a quarter acres in hay and grain for winter soiling, and three quarters of an acre in grain crops for summer soiling, will be sufficient per head for any stock. We have statements from a large number of reliable men who practice soiling, and not one of them allows more than two acres per head. It will thus be seen that the same number of acres can be made to feed twice or three times as many cattle by the soiling system. Third, is the saving in manure, and this is the most important consideration of all. Manure is valuable even on the virgin soil of the prairies. No amount of manure is wasted when applied even to these. We have already seen the soiling system enables the farmer to keep double the number of animals on the same amount of land; it will also double the value of the manure of each animal, thus making four times the amount of manure to return to the fields. No land will ever become "exhausted" under such a system, but will constantly increase in fertility. A fourth consideration is, that there will be a large extra product of milk, butter, or beef; enough to pay for the labor of soiling."

To show the thing more clearly, let us place the two systems under account as well as we can. Let us suppose a farm of 100 acres divided into six lots with fifteen head of cattle, if pasturing, and thirty if soiling. Let also the average value of the pastured cows milk be \$30 during the soiling period of five months, whilst the milk of those under soiling averages \$35.00 the same length of time. We will also suppose that the value of the manure stables is \$500.00, whilst in addition to the usual amount of help we have a man and a boy.

| SOILING.                                                                      | DR.       |
|-------------------------------------------------------------------------------|-----------|
| To one man's wages at \$15 per month, for five months.....                    | \$75 00   |
| One boy's wages at \$6 per month, for five months.....                        | 30 00     |
| Board for man and boy, at \$8 per month each.....                             | 80 00     |
| Interest on cows at \$30 per head, at twelve per cent, for five months.....   | 45 00     |
| Interest on extra buildings at twelve per cent.....                           | 60 00     |
|                                                                               | \$290 00  |
| SOILING.                                                                      | CR.       |
| By thirty cows' products, at \$35 per head.....                               | \$1050 00 |
|                                                                               | 290 00    |
| Profit.....                                                                   | \$760 00  |
| PASTURING.                                                                    | DR.       |
| To yearly expense of fencing and rent of land.....                            | \$75 00   |
| Trampling down of grass.....                                                  | 50 00     |
| Interest on cows, at \$300 per head, at twelve per cent, for five months..... | 22 50     |
| Time of driving cattle.....                                                   | 7 00      |
| Loss to cattle from undue exercise and flies.....                             | 30 00     |
|                                                                               | \$184 50  |
| PASTURING.                                                                    | CR.       |
| By fifteen cows' products, at \$30 per head.....                              | \$450 00  |
|                                                                               | 184 50    |
| Profit.....                                                                   | \$265 50  |

Comparing the profits of the two systems we have soiling in the advance by \$494.50. It is very hard, if not impossible, to make correct estimates of all the little things that come up. The case is something like the "Alabama claims" for "consequential damages," without end. However, if the estimates are anywhere near the truth, soiling has an immense advantage.

We come now to the foundation of all success in soiling, viz., the green crops to be raised and fed. For a list of crops for soiling, we will quote a few sentences from the "Farmer's Book." "The crops for summer soiling are winter rye, which comes first, and is excellent to let the stock down from dry to green feed; next clover and other grasses in succession; then rye again, for rye will furnish several cuttings during the season; then early rowed corn, oats, sorghum and other crops. Corn should be sown every fifteen days until

the first of August. Five acres of winter sown clover; of red clover; of oats."

To these muck and manure, Mr. Stephens says, dry, sandy soil not do on a wet 5 to 10 tons of manure. Orel grass of rapid growth, ed to shady place as clover, times in a so tendency to grow sider, would be ing. They res with oats the valuable feed.

In conclusion, just considered and I hope ere that will give i not think to g soiling by a ra corn next year arnful over t twice a day. That way, and not say that so as proof such a

Amongst th not necessary one quite imp will be able t without robbi pasture the ro large this yo horses, &c. Mr. Michae the next Pre his subject. New Durha

## WHAT TO DO

Now that the known, the m obvious, and but also what of the sympt abstraction of of cure. And play. I have lized by hea into a buck of the sufferer the normal po the water in cooled, its re nately whi by the cycli glassy eye ca If the per short, the an ly as well as cover suffice and to strug escape, the p perfect prog jury the m few hours t lessons of th overlooked, disease is to as experim time. Ther for the doct death so in passing by a Samaritan n be useful, scion on a fortunately, that any o fallen man, and upon i any just a trouble, it i the skin be angstroke, patient mus hydrant, st after backe until conse tence heat Wood.

Among t music com music teach by the resi the follow advertise teacher, ei been both vices."