

the lands all through the Southern States, which have been exhausted by slave labour and improvident farming, are now being daily renovated by these chemical manures; that immense manufactories of these manures are being established all over the States, and an immense amount of capital is being invested in them; that the use of such manures in Canada is inevitable in the course of a very short time, and that the minds of our farmers ought and must be prepared to receive the revolution in agriculture which the use of chemicals is certain to produce.

VECTIS.

### Destroying Seedling Thistles

To the Editor.

SIR,—Permit me to make a few remarks on the "Note by Editor" to my previous article on the thistle in the February number of *THE CANADA FARMER*, where it is candidly admitted that the smothering system of "Publicola" may undoubtedly clear a field of one crop of thistles, (which is the only one thing up to the present that has been contended for), but what, it is asked, becomes of the countless myriads of seeds with which the soil is filled? a matter which has hitherto not been discussed. The destruction, or the subjugation, of the parent plant has been exclusively considered. Some even repudiated the idea of the thistle propagating itself by seed; but, happily, this strange notion no longer exists; for we are told in the "Note," countless myriads of seeds remain in the soil to germinate and fill the places of their exterminated parents, and then, "what is to prevent this?" This is a question I am anxious to answer. In the careful and pains-taking experiments recorded by "C" in the June number of 1869, page 201, he says the results of these experiments was "death, root and branch, but seedlings afterwards grew again from seed; but the first and second year they are easily destroyed." Now, had "C" stated how these seedlings are to be destroyed so easily at one and two years old, it would have met and answered the question propounded by Editor. "C" has undoubtedly given a latitude of one year too much for the seedling thistle to be "easily destroyed." A seedling thistle can be easily distinguished from the parent till after midsummer; but after the parent has been cut in the middle of July, or at harvest time, and has pushed up another vigorous bunch of leaves, then from this time the seedling takes rank with the parent, the one cannot be distinguished from the other and the seedling of this year will surely mature its seed the next, but never in the first year. Thus to destroy them "easily" it must be done the first year, and it can be done as well as any other perennial.

Instead of allowing them after harvest to grow on unmolested to the end of the growing season and ripen all their leaves, before

the middle of September the cultivator (not the plough) should be put over all stubbles infested with seedling thistles, and again before the middle of October; the second time it might be done a little deeper than the first. Care should be taken not to miss any portion of the ground. This process will not only destroy existing plants, but will excite the seeds of weeds that are on the surface to grow, which is equivalent to their destruction, whereas the plough would bury all such seeds where they would remain in a state of perfect preservation till they were again brought to the surface. To go over stubbles infested with thistles with the cultivator twice will only take half as much time as it would to plough it, and is practicable for all; and after the thistles have had a second growth after harvest, to be thus cut off twice in the fall will be found far more efficient in the destruction of even the parent plant than ploughing, or even such fallowing as the majority of farmers can afford to give. Twenty years ago I have destroyed long established patches of thistles on pasture land, without ever disturbing a root, only by mowing the tops off, and never suffering them to ripen or mature in the fall. I have also killed out the most obstinate patches of couch grass without disturbing the roots, with only occasional hoeings, so that the tops were never allowed to mature.

Settling in this locality, where thistle growing is a rule in all fields, and if there are exceptions they are unknown to me, and my own land being well supplied, I resolved as soon as I could to try the clover system, and this county being pre-eminently suited for the growth of clover, I felt no demurring about the result. A hundred years ago it was as great a nuisance in England as it is here; but the plan they adopted was just the opposite of that which is here in Canada insisted on. In *Loudon's Encyclopedia* I find it stated that "the thistle delights to grow in ploughed fields," and instead of fallowing for its subjugation, English farmers seeded the infested fields down into meadows, and so left them for seven years to accomplish that which they as utterly failed to do with the plough as the Canadians do at this day. I would here remark that the thistle cannot increase, or propagate itself, on clover leys or meadows. The seeds that might lodge, or even vegetate in spring, would surely come to nought. It might just as well germinate in a wooden box with the lid on; for without light and air the young plant must die, and in neither of the foregoing cases could it obtain that light and air.

I would challenge any farmer in Canada, to say, or prove, when he laid down a field in pasture, and such pasture should have just two small patches in thistles and no more, that at the end of seven years he had three patches, or even two large ones. Apart from the consideration of the seedling thistle, the plough has been, and is, the most perfect instrument to propagate the old plant by the

roots. In ploughing stubbles or meadows late in the fall, with an abundance of well matured thistle heads, they come in contact with the opposite slice as the mould-board twists them over, and their heads get bent upwards, and a large portion of their upturned roots, just covered with earth, are in the best possible position to throw up several new shoots from the otherwise latent buds. The land so ploughed late in the fall is often in the best possible condition to sow in the spring without farther ploughing, and the result is, a double number of parent thistles, to say nothing about seedlings; and hence, ploughing is the only one efficient method to practical farmers for the successful propagation of the Canada thistle.

I contend that the complete subjugation of this pest by the fallow system is impracticable. It is an old saying as well as true, that "one year's seeding makes seven year's weeding," and it is saying too much on behalf of one year's fallowing that all the seeds of any one plant weed can all be brought to the surface and be excited to growth,—even if the farmer could plough his fallow for twenty consecutive weeks; therefore, I fail to see how the evil is combated and exterminated by one year's fallowing. I contend farther that the admissions of those who advocate the fallow system prove its inefficiency. "C," in the article to which I have already alluded, says, and very truly, "we know that fallowing in dry, hot weather will kill thousands of thistles, but some few old roots remain uninjured, any quantity of seed also remains ready to sprout and grow on being exposed to the air." So that his notion of fallowing did not combat with the seedlings, "the source of the evil." His plan of ploughing the thistles in the middle of June, and then to keep combatting them to the end of the growing season (say four months) is a very serious affair, and not one farmer in ten will, or can, attend to it as prescribed; and if any of the thistles escape, all the labour (or most of it) is lost for that year.

In place of the foregoing expensive remedies, and their more than doubtful success, as proved to demonstration by the advocates themselves, I offer the clover system, which involves no trouble, no loss, nor any doubt in its results, and have answered to the best of my abilities the new element introduced into this discussion, by the query respecting the seedling. In answer to this, I propose that the cultivator be used twice in the fall, instead of ploughing in; after which it is beneficial to plough the land, and this system should be continued so long as the prevailing thistle scourge remains. Without deranging his operations (if he willed it) the farmer could walk over his hundred acres, in five years, with the clover system, when not a seed-bearing thistle would be found in his once disfigured fields; then as to the seedlings, they are, (as "C" remarks) easily destroyed the first, but not the second, year.

PUBLICOLA.