

wheat is sown late, it often escapes in the fall, from the weather becoming too cold for the eggs to hatch or the maggots to live. But there is often much destruction done by the spring brood hatching out from the eggs laid late in the fall, or by the flies that come out of the chrysalides in May. These can do little injury to wheat that has got well forward in autumn and makes a strong quick growth in spring, while on the late sown and weaker plants it often commits great havoc. When the fly attacks the wheat in spring, its effects are not often very noticeable till the stalks shoot up, when from being weakened at the joints—the spring brood attacks the joints higher up than the fall brood does—they break down, and the field looks as if a herd of live stock had been running through it.

Those varieties of wheat having a strong flinty coating on their stalks and joints often resist the attacks of the spring brood successfully, but none can resist the attacks of the fall brood. While we cannot give any method that will result in destroying this pest when once it has found access to the wheat field, there are many ways in which we can to a certain extent prevent its ravages from becoming severe. In sections where the fly prevails largely and does much damage in autumn, we can either sow the wheat so late as to preclude the probability of the eggs hatching, or the maggots destroying the stalks, before cold weather stops their proceedings; or a strip of land in each field intended to be occupied may be sown a fortnight earlier than usual, when most of the flies will deposit their eggs on this early sown patch, and the later sown will escape, as the female fly dies as soon as she has laid her eggs, and the maggots never move from the place on which they are hatched. On a late sown crop, if the heavy roller is run over the land when dry, most of the maggots will be crushed out.

After all, the very best preventive of the ravages of this as well as other insects is to have the land in such good heart, and the soil under such good cultivation, that the wheat soon acquires strength to resist the attacks of its enemies, and will tiller out so much that new stocks grow up in place of those destroyed or affected by the fly.

On farms that have been long cleared, and where wheat has been much grown with few intervening crops, the Hessian fly sometimes effects such a lodgment that it appears year after year, and as the soil becomes less rich, and the wheat plant less able to make a quick growth and obtain a flinty covering to the stalk and joints, the crop gets poorer in yield from being less able to resist its attacks. The only way to destroy it is to cut the crop high up, and then set fire to the stubble and burn it along with the fly or its pupæ.

A somewhat similar fly, called the "Wheat ravager," at one time threatened the entire destruction of wheat growing in Australia,

but was put an end to by the simple plan of cutting off the wheat heads by machinery, leaving the straw standing, and then, as soon as the crop was removed, setting fire to the straw, which being long and dry, burnt quickly with a great heat, not only killing out all insects, but also the seeds of all weeds near the surface of the soil, leaving the land clean and mellow for the next crop to be harrowed in on the burnt surface; the ashes of the straw forming a good manure for the following wheat crop. It was very common then to grow several crops of wheat in succession on the same land.

Clover as a Shade.

There is probably no other plant in the world of such value to the farmer for this purpose. It furnishes the most perfect protection to the soil during the fierce, drying heats of summer. Being a constantly deciduous plant, its leaves are perpetually falling, and soon form a delicate covering for the entire soil, sufficiently thick for shade, and easily penetrated at all points by the air, which is the great carrier to the worn-out soil of those atmospheric elements that are to enrich it.

In this way the clover plant not only contributes directly to the fertilizing of the soil by giving its own substance to it, but it furnishes a protective covering to the entire ground, which encourages and stimulates those chemical processes by which the hungry and exhausted soil is recuperated from the vast supplies of nutriment that are held in the atmosphere. In this important junction it stands unrivalled, and becomes to the farmer the most valuable fertilizer in the world, as it does not impart fertility, like most manures, in spots, but to the entire soil, which becomes renovated throughout.

Tillage vs. Pasture.

An ox or six sheep will gnaw off all that grows on an acre of grass between April and October, and no labour is expended in the process. But the same acre, well manured, would produce thirty tons of roots, which would feed at least five oxen for six months better than the grass had fed one ox for five months. Whatever aid we may obtain from mechanical appliances, the acre of arable, and the five oxen, and next year's crop of wheat will employ a considerable amount of labour. Generally speaking, it appears the country has found the cheap system more profitable than the other, in spite of the improvement of mechanics. But when the land is fertilized by means of the waste of towns, the cost of growing a ton of roots or a quarter of wheat will be reduced, and there will be a reaction in favour of arable cultivation, with great advantage to the country.—*Agri-cultural Gazette.*

Stirring the Soil in Summer.

During the driest weather, there exists the greatest necessity for constantly stirring the soil among the corn and root crops. It may seem an anomaly to most farmers, yet it is nevertheless true, that the more you stir the soil during the dry season the more moisture can the crop imbibe. The freshly stirred soil is a great attractor of moisture and ammonia from the atmosphere, and what is imbibed at the surface during the night, especially when dews are heavy, is quickly conveyed down to the roots of the plants grown on the surface. Even on the lightest soils, the advantages of the practice are great. Our farmers do not yet sufficiently appreciate the advantage to be derived from a frequent use of the horse-hoe or turnip-cultivator. Instead of one only being kept, every farmer who grows five acres or more of roots should have one for every five acres he puts in corn, potatoes, or other roots, so that every available horse on the farm can be put to work in the early mornings and the evenings, to run the implements between the rows as often as possible, even though it should be on land that is perfectly clean, and seemingly not requiring such work to be done to it. When rain falls, this work may be suspended till the moisture is absorbed into the soil. Keep the cultivators going whenever possible, and you will reap rich results in a larger and better yield of corn or roots, more than will ten times overbalance the additional labour, which can be generally given when least available elsewhere.

Prof. Caldwell says in France and Germany, clover is put in pits when cut and allowed to ferment slightly; it comes out tender and excellent.

TURNIP FLY.—A correspondent of the *Gardener's Chronicle* strongly recommends dusting with lime in dry weather, as a remedy for the turnip fly.

LIQUID MANURE.—A correspondent of the *Annan Observer* says:—"The most simple, and perhaps best, method of utilizing the liquid manure flowing from a farm-yard was exemplified last season by Mr. John Thomson, of Nutberry Farm, Kirkpatrick-Fleming, whereby he obtained 220 cartloads of rich manure, which was spread in the drills, like farm-yard dung, on a seventeen acre field, and, with the addition of a little turnip manure, produced one of the best crops of Swedes in the district. The method is simply this:—Select a spot to which there is a natural fall from the midden-stead and from the farm-yard generally, and there dig an oblong pit down the slope, beginning at nothing but 4 feet deep at the bottom, and of a width of from 8 to 10 feet by 25 to 30 feet long, and conduct into this pit at the top, by pipe-tiles, the whole of the extra sap and