

## WINTER-KILLING OF GRAIN AND OTHER PLANTS.

The phenomena which are commonly classed under this head are various, and the causes which produce them must also vary. Some of them are undoubtedly beyond our control; but others it is in our power to obviate, or at least to alleviate. More careful observation, and a collection of facts, will aid in determining these causes and the corresponding remedies.

Winter grain, as wheat and rye, suffer more than the common grasses, yet they will often endure an exposure which is astonishing. Last winter, rye, with a bare surface exposed to the fiercest north-westerns, during a zero temperature, not only survived, but came out in fine condition. But, if this exposure is accompanied with frequent freezings and thawings, the result is different—the roots are thrown out of the ground, torn and weakened, and if the plant lives at all it retains but a feeble vitality. Clover, under the same circumstances, suffers even more severely and entirely dies out, when the rye may live. This freezing and thawing is more destructive where the soil is moist or of a tenacious character, called *heavy*. The roots of clover are in this way so laid bare that they would die even without the cold. Some other plants as parsnips, are killed by this severe freezing in a damp soil, or where water stands on the surface. In the spring several inches of the top of the root will be found decayed, while the lower part remains sound. The biennial flowers, mullien pink, foxglove, and Canterbury bells, will not endure this severe freezing without protection.

Various shrubs, as some varieties of roses and the flowering almond, will live if the soil is well drained, while upon a moist soil with the same exposure they will be killed to the ground. The cause is not the same as in the case of winter grain, and the herbaceous plants just mentioned, for these meet the winter at all periods of their growth, and continue to grow whenever the ground thaws. But it is necessary that the shrubs should fairly mature their wood, and thus prepare for winter. A well drained soil enables them to do this most perfectly, and thus prepared, shelter from piercing wind being added, they will endure almost any degree of cold ever experienced in our climate.

The flower buds of some fruit trees as the peach, are killed by extreme cold, though the wood, if well ripened, may survive. Last winter, with us, at a temperature of eighteen degrees below zero, they were all killed, except those of some blood peaches. The young wood suffered somewhat, but they still ripened a fair crop of fruit, while other varieties of peach as well as apricots, did not produce a single blossom. At fourteen degrees below zero, a previous winter, the flower buds on a nectarine were all killed except on one limb, which being covered with snow, bore fruit, while the peach generally produced a fair crop.

The different kinds of grass and other plants which clothe our fields, are all more or less affected by the same causes. Those that are of the least value or positively injurious often endure the winter best, and take possession of the space vacated by better plants. Once noticing the extreme prevalence of a species of golden rod in the pastures of a good farmer, and throughout the neighborhood where the soil was similar, we asked the cause of its abundance. He replied, "The winter brought it in." Now if the winter had any effect to increase this plant, it could only have been by destroying the grasses which otherwise would have occupied the soil to its exclusion.

The covering of grain with straw has been recommended as a preventive of winter-killing, but this practice can never become general. Early sowing, by enabling it to get a good start and cover the ground, and thus shield its own roots from the repeated freezings and thawings is desirable. If it follows oats, their growth may serve as well as a coat of straw to shield it, and in the spring they will be out of the way, though if too abundant, they may choke the fall growth of the crop.

The preservation and cultivation of the belts of timber may do much to break driving winds, that sweep of the snow and expose the fields, but this is a slow operation, and it only by a general dissemination of a spirit to this effect, that any extensive good can be accomplished. It is true that a screen of evergreens will shield an orchard or garden, or protect a dwelling from the winds; but to break up the force of our storms through the country, the gorges through which the wind now draws must again be filled with forests and the hill tops stand bristling with their native guards. We have recently noticed the effects of clearing the forest from a single acre. The winds were allowed free sweep, and the halfway was blockaded with snow drifts, more than half a mile distant, where the snow was never known to accumulate before.