

ORCHARD TILLAGE.

WE have frequently pointed out in these pages the necessity of thorough cultivation of the orchard.

The notion was prevalent twenty years ago that an apple or a pear orchard would thrive in grass, and many growers planted large orchards on their hardest land, thinking thus to reap harvests without the tough labor of ploughing and digging. It has taken all these years to prove conclusively the mistake of such a notion; each year of barren trees or of scarcity of fruit was thought exceptional until at last the hateful truth has dawned upon the planter that his ground and his trees were both wasting his time and his money, and that no high grade fruit would ever be produced without the same hard work and thorough cultivation that was necessary for garden crop.

Added to the crop failure is the change in markets. Twenty years ago apples of almost any grade would sell at \$2.50 per barrel, but now only A 1 apples will bring such a price, and second grades are not salable unless to the evaporator or the cider mill. Evidently then we must most completely change our methods to suit the changed conditions, and tillage is the first and most important consideration. Bailey arranges the benefits of tillage under three heads thus:

1. Tillage improves the physical condition of the land, (a) by fining the soil, (b) by increasing the depth of the soil, (c) by warming and drying the soil in the spring, (d) by reducing the extreme of temperature and moisture.

2. Tillage may save moisture, (e) by increasing the water-holding capacity of the soil, (f) by checking evaporation.

3. Tillage may augment chemical activities, (g) by aiding in setting free

plant food, (h) by promoting nitrification, (i) hastening the decomposition of animal matter, (j) by extending these agencies (g h i) to greater depths of soil.

Bulletin 40, Kansas Experiment Station, is so much in point that we quote it at length as follows:

There is no longer any question as to whether the orchards should be cultivated. Experience everywhere shows that cultivated orchards live longer, bear better and are more profitable than uncultivated orchards. Many of the experiment stations of the best fruit producing states have tried uncultivated orchards beside those that were cultivated and have collected opinions of the most observant fruitgrowers of their sections, and the considerate verdict in almost every case is that cultivation is necessary for healthy trees and first-class fruit. The principal orchardists of the state have expressed themselves on orchard cultivation. Out of 272 reports made to the Secretary of the State Horticultural Society, 130 advocate thorough cultivation till bearing time, and 130 urge continuous cultivation as long as it is possible to enter between the rows with horse and implement. Most of those advocating cultivation till bearing time only, live in the lower Kansas river district where the soil is very rich, deep and moist, and will produce fine crops of clover. The general practice in this district is to cultivate well till the trees are in full bearing and then seed to clover. West of Manhattan, clover does not succeed. Even if it should succeed it would not be profitable to sow it from the fact that all the moisture that falls in this region is required by the fruit trees, and any crop whatsoever simply robs them of the moisture they should have. For this