

vious furrow slice; at the same time it undercuts and lifts the standing side of the furrow, so that the next operation of the surface plow is more effective, besides requiring less power. A smaller size of this tool is used to run between corn and row crops when first above the ground, lifting the rows on each side of its track without abrading the roots, and leaving the whole in fine tilth; it does not, however, remove any weeds from the surface, but rather encourages their growth in common with that of the desired crop. After its use, say ten days or less, when the ground has settled, then the weeds are all removed by another horse tool known as the

*Root Cleaner.*—Of which Professor Mapes has a great variety. These skim the surface, between rows, to a depth varying from two to four inches or more, by forcing a V shaped piece of steel, point forward between the rows, with a comb behind placed at an angle. The soil and weeds in passing over this comb are separated, the soil falling through, and the weeds, however small, riding over the comb so as to be left in the sun with their roots freed from soil so as to decay readily. These are of various widths and kinds to do away with hand hoeing of row crops entirely. The driver does not follow this tool so as to walk over the disturbed soil, but walks in the next row before its disturbance. With a small mule this tool is made to do the work of forty men with hoes, and in a much more perfect manner.

*Knox's Horse Hoe* is also an admirable tool, being a compound of the root cleaner and two small plow shares, so arranged that they can be made to throw the earth toward, or remove it from, corn or other crops. It has many useful applications, and is an admirable tool.

*Pratt's Ditching Machine.*—This machine, with the help of a pair of oxen or horses, will dig 75 rods per day of ditch 16 inches wide and three feet deep. Prof. Mapes has drained a seven

acre field with it the present season. The drains, however, are made five feet deep, the lower two feet being dug by hand in the usual way.

*Horticulture.*—In this department Prof. Mapes has made great strides.—He raises large quantities of the finer kinds of fruit for market, most of which are sold to the Broadway fruit dealers.

The Vineyard contains about 1200 vines in full bearing, and we have never seen a finer display of fruit or better wood. No disease is to be seen among the grapes, the greater portion of which are Isabella and Catawba. The other kinds cultivated embrace the following:—Norton's Seedling, Hibernians Madeira, Bland's Virginia, Charter Oak, Rulander, Portuguese Blue, Concord, etc.

*Pears.*—Both standards and dwarfed on quince stocks are largely raised, and we have never seen a pear orchard in so fine a condition—many of the small trees having 200 pears each of the largest size and in perfect condition. The farm has many hundred fruit trees of other kinds; Apples, Plums, Peaches, Apricots, Cherries, etc.

*The Small Fruits.*—Of these there is a great variety and in large quantities.

*Strawberries* in many varieties, including Hovey's Seedling, Black Prince, Myatt's Eliza, Victoria, British Queen, Prolific Hautboy, Scarlet Cone, etc.

*Raspberries*—Of these a fine display, and include the following kinds, viz.: Fastolf, Franconia, True Red Antwerp, and others.

*Blackberries*—Lawton's, White, Black cap, etc.

*Gooseberries*—100 varieties of the best kinds.

*Currants*—Large Red Dutch and White Crystal.

*Hot-Beds and Cold Frames.*—Of these there are about 300 lights, and a large number of cold frame shutters. Large sales are made of plants to Market Gardeners and others from these frames, and they include all the kinds of plants required.

Several acres are appropriated to Market Gardening, all of which are