

foundation for developing a type satisfactory to the exacting consumer.

Insects and Disease.—Satisfactory methods have been devised for controlling most of the important insects that attack tobacco, particularly those damaging the crop during the growing period. Tobacco is also subject to a number of destructive maladies, such as the Mosaic disease, which occurs throughout the world, and the root-rot, a disease particularly troublesome in the Connecticut Valley. In 1906 the Department perfected a soil-sterilizing device, which has been used very successfully wherever root-rot is prevalent.

American vs. European Farming.

The World's Work for August contains a noteworthy article entitled, "Farming the Best of All Trades," written by Eugene H. Grubb, of Colorado, an unlettered man, who, after knocking about at all kinds of jobs till he was nearly forty, got hold of a couple of thousand dollars, and began farming in earnest. He has achieved a signal success, not only as a cattle breeder, in which line he won the two-year-old championship at Chicago in 1904 with a load of range bred and range grown Short-horns, but also as a potato grower. His Mt. Sopris farm now comprises 2,000 acres. Here in 1886 during his first year, he dug three and a half miles of irrigation canal with his own hands.

In 1900 he made his first trip to Europe, travelling slowly through France, Germany, Belgium and the British Isles. He was astonished to find that American farm practice was fifty years behind European farm practice. "Think," he says, "of our wornout soils and our uncertain crops, and compare them with Lord Rosebery's feat of growing 55 long tons (2,000 bushels) or more than 120,000 pounds of potatoes to the acre on land that has been cultivated for a thousand years. And there are no crop failures on his land, either; nor crop failures on other English or German growers' lands. Or think of William Dennis & Sons, who began forty years ago on six acres and who have grown rich by growing potatoes on 3,

000 acres of rented land, the valuation of which is \$500 an acre.

Two things strike to the root of the European farmers' success:

1. Care of the soil.
2. Selection of seed.

"European farmers think of nothing so much as they do of feeding the soil. Only two methods of restoring fertility to the soil are known to man, and these methods they practice ceaselessly. One is to grow on it and plow into it the leguminous plants: clover, alfalfa, rye, vetch. The other is to feed it fertilizers: a combination of the expensive minerals known to farmers as 'commercials' (nitrate of soda or other nitrogenous salts), and, best of all things, barnyard muck. Therefore, you will see William Dennis & Sons maintaining 600 head of cattle on a 3,000-acre farm, not primarily to produce beef or butter or milk, but to manufacture fertilizer so that they can grow the potatoes that have made them rich. They plant grass or vetch in the fields the day that a crop of early potatoes is lifted, so that another year of fertilizing may begin at once, and that the soil may be kept free of fungous and other injurious growths, and that it may be kept open and friable.

"On my own Mt. Sopris farm I run 500 head of cattle, rotating my crops on a six years rotation: two years in potatoes, four years in alfalfa and clover. Thus, of 500 acres of tillable soil (the rest of the farm is pasture uplands). I have every year 100 acres in intensive potato cultivation. I have never sold a stalk of hay from my farm, and would think it a crime to do so; for every wisp of hay that leaves it would mean the robbing of the soil of that much fertility. The proper method is: feed your land muck to make it fertile enough to raise more hay to feed to cattle to manufacture more muck to feed to the soil to grow dollars in the form of potatoes to buy more cattle for which to grow more hay to make more muck to feed the soil again. Always, as you value your farm, remember the generous but always hungry soil.

RESULTS AT HOME.

"You may ask, what have I achieved by my

theory? Last year, for example, I (and three neighbors who use the same methods and exchange experiences) had a full crop when every other farmer in our valley, on exactly the same kind of land and under the same conditions of climate, had a greatly lessened yield. I have twenty-six years' experience on the same lands, and the last twelve years I have applied these methods. During these twelve years I have had a steady increase in average yields. I have increased my yield of potatoes from 100 bushels to 400 bushels an acre; my yield of oats from 40 bushels to 100 bushels an acre; and wheat from 25 bushels to 50 bushels. And I have eliminated crop failure from my experience. When the soil is in perfect physical condition you will always have large yields.

"Another indispensable element in soil culture is tile drainage; so that air and water may be drawn freely downward through the soil from the surface of the earth. Strange as it may seem, drouth is least disastrous where the soil most readily permits water to sink through it. Tiling at a cost of \$40 an acre is a profitable permanent investment on land that is worth \$100 an acre for intensive cultivation—indeed, on any land.

"For 1909, the average yields per acre of the greatest potato yielding countries were: United Kingdom, 221.1 bushels; Germany, 208.9; France, 160.3; Russia, 111.5, and the United States, 94.4 bushels. The acreage of the United States in that year was 3,525,000 acres, and the total yield, 376,537,000 bushels; and yet 8,383,966 bushels, valued at \$3,766,034, were imported from more than nine foreign countries. If the better methods of Europe were employed in the United States, even estimating an average yield equal only to that of Russia, the least advanced of the civilized nations, our increased production would be 24,027,500 bushels—more than enough to duplicate our exportations of that year and to leave two and one half times the amount imported.

"European methods can be adapted to American conditions. I have made a reasonable fortune doing it, and have found happiness beyond the happiness of any other kind of life I have ever



Growing Celery at Kentville, Nova Scotia.

On the farm of A. V. Pineo. Mr. Pineo has grown a few thousand heads during the past couple of years, and hopes to develop the business to commercial proportions.