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The Field.

Average Production of Wheat in Great Britain.

As the English market rules the price of wheat all over the world, anything bearing on the probabilities of the yield there, or anything showing how the averages may be correctly estimated, is as important to Canadian, whose surplus finds its market in England, as to British farmers.

The average number of acres under wheat in the United Kingdom is found to be 3,600,000; and this average has not varied more than four per cent for many years—in fact a variation of 1 to 3 per cent is about the usual figure. This shows that the encroachment on the arable land by the growth of the large towns is just counterbalanced by the addition of new land, by the reclamation of waste, the abolition of fences, the stratening of roads, etc.

The average production of wheat per acre in Great Britain is, as we shall show below, 29½ bushels to the acre. It will be noticed that the greatest variation in the number of acres under wheat—four per cent—will only affect the total production to the extent of about four million and a half of bushels—which is not enough to affect the price seriously. It follows that the question of the probable yield is the vital point upon which prices hinge; and here we get at some astonishing figures when we compare the yield of a good year and of a bad year. The Board of Trade returns show that the average produce per acre may range from twenty-three bushels, which was the yield in 1872, to thirty-four bushels, the yield of 1868—an immense range and one which explains the violent fluctuations of the price of this cereal. As stated, the total produce is only affected to the extent of four per cent, either way, by the difference in the average amount of land under wheat. But the influence of the seasons may diminish or increase the yield by one-third.

The result of the examination of a vast array of statistics seems to prove that twenty-nine and a half bushels to the acre is the average wheat yield of Great Britain. This average has been variously estimated by different authorities, from time to time, at amounts varying from each other by five or six bushels.

In 1850, Mr. Caird concluded that it was not more than 26½ bushels. In 1868 he raised his estimate to 28 bushels, which was also Mr. McCulloch's estimate in 1853. Messrs. Lawes and Gilbert, in 1868, quoted estimates of various authorities, ranging from 28 to 32 bushels, and remarked that "perhaps the most generally assumed average is 29 bushels." According to the Rothamsted computation, the average yield of wheat per acre over the 16 years 1852-67 is, for England and Wales, 28½ bushels; for Scotland, 27½ bushels; for Great Britain, 28½ bushels; for Ireland, 23½ bushels; and for the United Kingdom, 28½ bushels. In the year 1861 the *Mark Lane Express* collected from more than 500 correspondents in England estimates of the yield in bushels per acre of wheat, barley, oats, beans, and peas, taking an average for the ten years, 1852-61. These averages varied considerably between one county and another, wheat ranging from 22½ bushels to 34½ bushels per acre, the general average for England being 29 bushels. In 1870 the *Chamber of Agriculture Journal and Farmers Chronicle* collected a very large number of estimates. The county averages varied 22 bushels in Devonshire to 33½ bushels in Kent; the six counties giving the lowest yields are Devonshire, Cornwall, Shropshire, Durham, Northumberland, and Herefordshire; and the six counties giving the highest yields are Kent, Essex, Cambridgeshire, Lincolnshire, Huntingdonshire, and Northamptonshire. The general average yield per acre for England is 29.9-10 bushels; and nearly following Messrs. Lawes and Gilbert for the other divisions of the kingdom, we have for Wales 27 bushels, Scotland 29 bushels, Great Britain 29.9-10 bush-

els, Ireland 25 bushels, the Islands 28 bushels, and the standard average for the United Kingdom 29½ bushels.

Last year, in Great Britain, the area under wheat was 3,833,000 acres, which is above the average. Elaborate returns of the yield go to show that the average crop of 1874 was 31 bushels per acre—a bushel and a half above the average. The total production was 118,824,000 bushels, which is six per cent. over the average total yield.

The average price of wheat in England, during the last eight years, has ranged from 51s 8d per quarter (\$1 52 per bushel) in 1868, to 69s. 3d per quarter (\$2 08 per bushel) in 1867, and 61s 3d. per quarter (\$1 84 per bushel) in 1873-4. As we write, the price of wheat in London is about 43s. per quarter (\$1 29 per bushel). This time last year, it was 61s per quarter (\$1 83 per bushel). There is much food for thought in these figures.

Injury to Drains by Roots of Trees.

THE CANADA FARMER lately published an article advocating the cutting down of isolated and useless trees in fields and fence corners, giving, as one of the principal reasons for such measures, the damage done to drains by the far-reaching roots. This same trouble is noted in Great Britain as becoming unendurable, since the introduction of tiles and pipes for drainage purposes. It would be as much as an English farmer's head was worth to cut down a tree without the consent of his landlord, and in many cases, even the landlord, being only a tenant for life, has no power to give such consent. It is no matter how carefully or efficiently a drain is put down. If there be a tree within hailing distance, the roots will creep stealthily along, and, as if endowed with the keenest intelligence, will find a crevice or joint. Through this a rootlet will insert itself and in a short time will increase to a fibrous mass, choking the pipe, cutting off the flow of water and completely bewildering the unhappy owner of the drain.

The subject was recently brought before the Edinburgh Botanical Society by Thomas Greig of Glencairn, who has had some costly experience of the ability of trees to become nuisances. In one case, in conveying water from the fountain-head through an orchard to his entrance lodge, he had a 2-inch pipe with sockets, but in two years the supply of water ceased, the pipes not being beyond 1 foot deep in the ground, the water rose to the surface where the stoppage occurred, and the green color of the grass at once shewing where the drain should be opened, the pipes were found filled with rootlets from the apple trees.

Again, the lead pipe that supplied the water to the mansion from the fountain-head ceased to do so; and, thinking that a frog had got into the pipe, he had it uncovered and cut into 10-yard lengths. The third cutting revealed the cause—not a frog, but a bunch of rootlets, extending for a considerable distance inside the pipe, proceeding from a small fibrous rootlet that had entered the pipe by a small crack almost invisible.

"Having laid down, continues Mr. Greig, a leaden drain upwards of 1,100 yards length with 8-inch pipes for a considerable portion of the distance, followed with 6 inches and 4 inches as they proceed: I with the drain, also laying a number of side drains into it, which brought off a large supply of water from a considerable area of flat land, at the end of two years I was in no small degree surprised to find that no water issued from the pipes, but remained on the surface of the land. I sent for the person who had executed the work to meet me on the ground; and, on receiving his assurance that he had himself put in the whole of the pipes most carefully and superintended his men filling in the drains, so that he felt confident none of the pipes could be disturbed, we came to the conclusion that the roots of the willows must be the cause; and on digging down to the pipes found them completely choked by rootlets, so hard pressed together that it was with

difficulty they could be removed. What appears remarkably strange is that the willows had been planted within 2 yards of a dam, and had grown there for at least fifty years. They sent their roots to a distance of 20 feet to 25 feet, passing under the cart road, and entered the pipes at the depth of 7 feet from the surface. I had, however, no alternative but to cut down this beautiful row of tall, handsome willow trees, which were greatly admired by visitors to the glen. Had I used spigot and faucet pipes, having them well cemented at the joints, this might have been prevented, but the distance of the drain from the trees did not lead me to suspect danger from the roots. Eight or ten weeks ago, I observed water again lodging on the surface of the land, and the farmer having seen it for a few days, was quite unable to account for it. I went to the outlet of the drain and found little or no water issuing from it; and although I had cut down the willow trees adjacent, the bark was not removed from the trunk, consequently twigs soon grew and had a connexion with the roots. I immediately set men to open the drain, and on getting to the pipes found them filled with rootlets; the first taken out was a splendid specimen, but my gardener threw it a distance from him, on hard ground, and it was so squarish that I did not bring it. The portion of the bunch of rootlets now on the table was next to it; having been six weeks in a dry place it has lost the round appearance it had when taken from the pipe. I must now call your attention to the small twig from which that huge mass has proceeded, which leads me to think that the aim of the rootlets is to support themselves, and not to convey nutriment to the parent tree, for there is not sufficient passage for the sap to rise."

"A Poor Farm."

"Will those houses pay interest on the money invested?" queried neighbour N., with a knowing kind of look.

"I think they will," I replied; "they cost me \$800 each, exclusive of work done by the men engaged on the farm. The interest would amount to \$56 yearly at 7 per cent. That is a small amount in comparison with the trouble and annoyance of having men boarding in the house, especially as some of them are not very pleasant associates. Not only that, but you can always rely on securing the best workmen if you have good and comfortable quarters provided for them.

The best men, as a rule, have a family to provide for, and wish to make them as comfortable as circumstances will permit. They do not come to you or me to enquire what their services are worth. They know that they can command the highest wages, and we ought to know that it is to our interest to accede to their demand if not too exorbitant."

"That is all very true," continued neighbour N.; "still, that is not to the point."

"Very well; I will give you the benefit of my last month's experience, and think it ought to satisfy you. One of the best men receives \$35 per month, including interest. Another receives \$27. Now we will see what the latter has cost me:—Wages, \$27; damaged cart, \$5; damaged gate and harness, \$2; lost time, \$6.50; total, \$40.50. You see the good man cost me \$35, and the poor one \$40.50." "Not a bad showing," continued neighbor N., "but you know accidents will happen."

"When a man cannot drive a team through a twelve foot gate he must either be drunk or something worse."

"I will tell you what I would do with such a man," said neighbor N., in rather an excited tone; "I would kick him out on the road." "There is just where you put your foot in it. You know that neighbor S., who had his bars and several head of cattle burned a short time ago, had done just what you said you would do; and see the consequences. The man at once set fire to his buildings, for which he is now in prison; but that will not replace