

his more energetic neighbour, and hence his sole aim in breeding has been to obtain animals for his dairy. His surplus stock have not realised the high prices of the Jerseys, and have thus gone into the hands of practical dairy farmers, as may be seen by the cattle in Hampshire and the adjoining counties, radiating from Southampton as a centre, being largely characteristic of Guernseys.

The Guernsey man's faith in a cow having a golden skin, with gilding in her ears, on and around her horns, and at the end of her tail, was too firm to be shaken, and he has handed down to us a dairy farmer's cow of quiet and gentle disposition, and yielding large quantities of rich milk and butter. The establishment of the English Guernsey Cattle Society marked an important epoch in the history of the breed, and great results have been attained. The careful registration of the purity of all animals has given a great impetus to the breed, and especially increased its value as a long-descended race with fixed dairy characteristics, making the breed of especial value for crossing on the ordinary stock of the country.

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## AGRICULTURE.

Paris, September 29.

According to an Arab tradition, wheat was brought to man by the archangel Michael; the size of the celestial grain was then equal to that of an ostrich's egg; but as man advanced in wickedness, the volume of the grain proportionately diminished, till at the epoch when Joseph was sold by his brethren, the size of the grain of wheat had diminished to the volume of a pea. The agriculturists of France do not aspire to augment the size of the grain of wheat, but to increase the number of grains per acre. On the subject of grain raising, continental, but above all French, farmers are in a positive flutter. Their sheet anchor they maintain, lies in the raising of wheat, and to do this effectively, soils must be cultivated on scientific principles: that is, have land in good tilth, from ploughings: in good heart, from supplemental fertilizers: secure vigorous plants, by careful selection of sound seed, and allow the plants to stool, by sowing in drills.

The majority of the agricultural opinion in France, independent of political thinking, for the latter disappears before the interests of the pocket, is in favor of keeping out Indian, Australian, and American cereals, at present surtaxed to the extent of 50 fr. per ton. Bread is rapidly rising in price, and by the close of the year, the expediency of suspending that duty may have to be summarily decided. Without examining the question, if the world's grain harvest this year be sufficient for the world's food, French people have to face the stern fact, that the yield in their wheat harvest is a good one-fourth inferior to what is required for the ordinary wants of the nation, and that about 700 millions fr. must be expended in hard cash to purchase the deficiency. Russia has not much spare grain to export, her winter raised grain comes from Poland, around Kiev, and the Baltic sea-board; spring grown corn, is peculiar to the southern provinces. It is well to note that the mean average price, per cwt. in France, of wheat, is in francs,  $12\frac{1}{2}$ ; of barley,  $7\frac{3}{4}$ ; of rye,  $7\frac{1}{2}$ , and of oats  $8\frac{1}{2}$ .

The average yield of wheat per acre in France is 37 bushels—the bushel of wheat varies in weight, from 60 to 62 lbs. The annual wheat crop in France, is 305 million bushels: she requires for actual necessities, 330 million bushels, of which 40 millions are for seeding. This year, her harvest has only returned 234 million bushels, or 96 millions less than the total positively required. The best year France saw for

wheat, was 1874, then the total yield was 400 million bushels, or 70 millions in excess of her total wants, and that she exported. The aim of her agricultural doctors then is, to arrive at the raising of 480 million of bushels annually, which, after comfortably catering for her own necessities, would leave some 130 million bushels to supply the permanent yearly wants of England—some 96 million bushels—and so out America, Australia and India out of that market.

To reach this ideal, French farmers would have only to augment the yield of wheat per acre, from 17 to 28 bushels. Now bad as the expired season has been, well managed soils have, in different regions of France, produced 28 bushels per acre; and in a good meteorological year, as high as 44 bushels. An extra bushel of grain implies an extra 7 fr. By an expenditure of 50 fr. per acre on dephosphorized and powdered clinkers, and nitrates, 35 bushels per acre, other conditions being equal, are obtained without difficulty. The import duties on breadstuffs bring into the French treasury per annum 150 fr. millions. It is suggested that the government allocate one-third of this sum to aid farmers to purchase fertilizers. If the large proprietors fail to set the small holders the example of intelligent processes of culture, and of economical personal expenditure, there is nothing left for "Young France" but that they emigrate bodily to some new country. There is still another cure before matters come to this strait, and which is being seriously discussed, that of financial societies purchasing lands at low prices which cannot be profitably cultivated, and converting them into commercial farms, with all the scientific and mechanic processes of modern agriculture applied to their exploitation. France has clearly staked the existence of her agriculture on wheat farming, though a wise person never puts all his eggs in one basket; if beaten out of the market by America, Canada, Australia, India, and the Argentine Republic, she will have to throw up the sponge. Old Europe must "advance", as do her young rivals.

The potato disease has this season appeared with marked severity. Like the poor, it is always with us. Perhaps there are as many cures for the malady, as for the phylloxera. There must certainly be excepted from the multitude of perfect cures, the remedy recommended and made known by Mr. Prillieux, the head inspector of agricultural education. As early as 1886, he drew the attention of the Central Society of Agriculture to the efficacy of a solution, employed by the Bordeaux Vineyard proprietors, to destroy the mildew which devastated their vines. The mildew was produced by a mushroom—the *peronospora infestans*. Now it is exactly the same parasite which attacks the potato plant; and as in law, like case, like rule, so in physiology, like disease, like cure. On the first appearance of a spot on the leaves, sprinkle the latter with the following solution, commonly known as "Bordeaux Broth": 6 parts of lime, and 6 of blue vitriol, dissolved in 100 parts of water. It has been tried this season on early potatoes; two plots were marked off in the first days of August, in a field where the spots showed; one plot received the broth, the other none. When the potatoes were raised, not a single diseased tuber existed in the plot that had been treated with the preservative liquid, while in the other, 32 per cent of the tubers were unsound. It must not be forgotten, the official position of the gentleman who attests the experiment. And why not? The same mushroom attacks the vine, and the latter is saved: the same mushroom attacks tomatoes, and is similarly got rid of. Indeed were it not for the "broth" the tomato crop in the south of France would ever be a failure.

While on the subject of potatoes, a discussion is taking place relative to the connection between the flowering of the plant and the development of the tubers. In our temperate climates, the flowering of the potato plant is limited: the ma-