

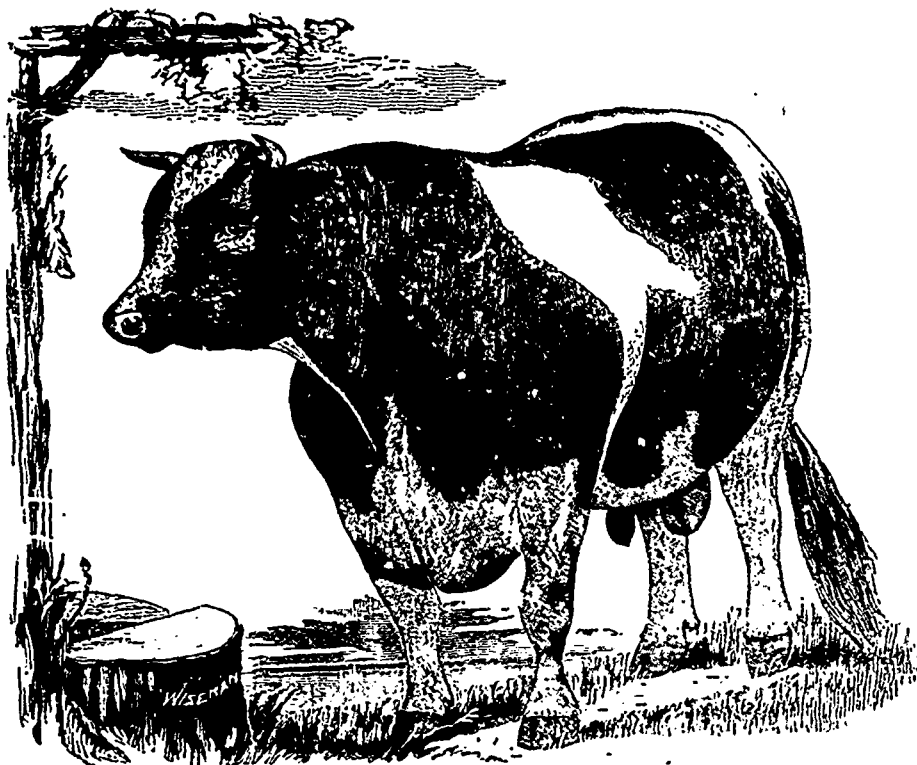
tinuously on the same land, with the same annual dressings of artificial manures, during thirty-six years.

On one wheat-plot, dressed every year for 36 years with 200 lbs. of sulphate of potash, 100 lbs. of sulphate of soda, 100 lbs. of sulphate of magnesia, $3\frac{1}{2}$ cwt.—336 lbs. of superphosphate, and 600 of ammonia salts, the average yield of the 36 years was $36\frac{1}{2}$ imperial bushels: just *three times* the average wheat-crop of the United States and four times that of the province of Quebec.

Of course, it did not pay, and no farmer would use such a mass of fertilising material. But, then, farmers do not grow wheat 36 years successively on the same land, and where farming is carried on in a regular systematic form of rotation, it is easy to see that a half-dressing of the above fertilisers

them with various manures; of which process I have given instances several times.

In the barley experiments the most striking result is the production of a thirty six years' average of $45\frac{1}{2}$ bushels per acre, on a plot dressed annually with $3\frac{1}{2}$ cwt. superphosphate and 275 lbs. nitrate of soda. Only three plots gave more, namely one dressed annually with 14 tons of farmyard manure, which averaged $48\frac{1}{2}$ bushels per acre, the maximum yield, and two manured with very elaborate and costly mixture of nitrate of soda and superphosphate paid better than any other dressing on barley, and probably it would have done the same in the case of wheat if it had been tried. The benefit of superphosphate on the barley crop is very clearly shown, as the plot dressed with 275 lbs. nitrate of soda alone



FIRST-PRIZE HOLSTEIN BULL MERCEDES PRINCE.

would suffice. Also, it must not be supposed that the alkalis would be wanted on ordinary soils—in other words, where farmyard dung is carefully preserved and expended at regular intervals over the whole arable land, a very moderate dose of superphosphate, and of nitrogen, in the form of sulphate of ammonia or nitrate of soda, will aid the soil in producing the maximum crop it is capable of yielding.

The unmanured plot, continuously sown with wheat for 46 years, has yielded an average of $13\frac{1}{2}$ bushels an acre! More than the average yield of the States, Canada, India, Russia, Australia, and the Argentine Republic!

To my mind, one of the most satisfactory points in the whole record is this: whereas, for the first few years *potash* had no effect at all on the Rothamsted land, of late it appears to have been needed, as one might expect after the annual removal of so many white-straw crops. And yet, strange as it may appear, the soil is still full of potash; at least, so the analysis says! But the chemist cannot tell in what state the potash is, whether available or not, and hence we derive the almost absolute necessity of setting to work to make the soil tell us its own tale by taking four or five plots and dressing

produced only $33\frac{1}{2}$ bushels an acre, or $12\frac{1}{2}$ bushels less than the one to which superphosphate was given in addition to the nitrate.

Adulteration of milk, &c.—When I explained to my purveyor of milk, last January, that I really could not stand milk, at 7 cents a quart, reduced one-third with water, he was good enough to say that if I would say nothing about it, he would only charge me 5 cents a quart! I thought that was bad enough for any country; but I lately received the "Monthly Report of Milk, Butter, Cheese, Lard, Baking-powders, Vinegars, Liquors, &c., examined by the Minnesota State Dairy- and Food-Commission, for August 1889," and after an attentive perusal of it I have come to the conclusion that there are worse places to live in than the province of Quebec.

Ex uno disce omnes: VINEGAR.—Of 55 samples sold as cider vinegar, 11 were pure, 13 were spurious cider vinegars made from the exhausted pomace from which the cider had been expressed, re-pressing vinegars as they are sometimes termed, and 31 were colored low-wine vinegars, con-