

## THE CULTIVATION OF HOPS.

Before a large gathering of hop growers and those interested in kindred lines in the district of Tenbury, England, a few weeks ago Prof. A. D. Hall, director of the Rothampstead experimental station at Kent, England, gave a lecture on the growing and treatment of hops. The professor confined his remarks chiefly to the manuring and drying of hops, basing his statements on the result of experiments conducted at his station during the past nine years.

Dealing with the question of manures, Prof. Hall pointed out that different plants required different foods to feed upon. The soil itself contained an enormous amount of food for plants, probably enough to grow 100 or 150 crops, without manure. Different plants possessed their own peculiar powers for getting this locked-up material in the soil and assimilating it to their use. In the case of the hop plant this was not so. It was a plant which was a free feeder and certainly the soils needed special treatment when they had to grow hops. If they began with farmyard manure, there was a question of whether they would give the ground a heavy dressing, say of this, sufficient to last for three years; or apply a less quantity, and manure every year. The former had a certain advantage as there was a saving of labor in having only to spread every three years. He did not advise trying to grow hops without farmyard manure, as with the latter the vine grew stronger, the soil was aerated, and kept cooler and moister in the summer.

Supposing the hop growers applied fifteen or twenty tons of farmyard manure per acre every three years, they had to consider whether that was enough, and to answer that question they must consider the nature of the manures and the requirements of the plants. Every plant took three things from the soil—nitrogen, phosphoric acid, and potash. The nitrogen, existed in the farmyard manure, phosphoric acid in bones and basic slag, and potash in kainit, wood ash, etc. Nitrogen made the plant grow and forced the vine and leaf very much. If applied to a corn crop it increased the straw, and when applied to the hop crop it increased the leaf, but there was not much hop; there was long growth, and delay in ripening. The hop itself was soft, and did not weigh heavily. Bearing in mind that farmyard manure chiefly supplied the nitrogen, and when applied freely it brought about these results, the growers had to correct this manuring by attention to the other ingredients, and what the hop plant could not get from the soil, it had to be supplied in an artificial way. Phosphoric acid was concerned in all that concerned the ripening of the plants, and when applied to a field of barley it made a difference of ten days or a fortnight in the earlier ripening of the grain. It had a good effect in the ripening of

the hop crop, particularly on cold, wet soils. Potash produced sugar and starch in such plants as mangolds, potatoes, etc., and on dry, sandy soil it did some good, but it was not so necessary to the well-being of the hop crop.

Another important point was the time at which manure was applied. Some put it on as late as June or July and this renewed the growing properties of the plant at a time when it should be ripening. The growers wanted the hop to stop growing at a certain point and ripen. If they interfered with this process by late manuring, they would be picking growing hops when they should be ripe, or picking ripe and green together. They should manure early in the season and avoid late manuring. Some had an idea that such manures as were put on the hop crop, if applied early, were washed out of the soil, but this was erroneous, as they were held in the soil.

Dealing with the quantities to be applied and the cost, the professor pointed out the importance of obtaining an analysis of the soil before manuring was commenced, as it depended very much upon the quantity of lime in the soil as to what artificial manures they should use. Where no lime existed an artificial like sulphate of ammonia would be poisonous to a soil which had no lime in it. If they began in the winter by applying fifteen to twenty tons of farmyard manure, they could follow this in the spring with 5 cwt. of fish guano or 8 cwt. of rape dust. Supposing there was a quantity of lime in the soil, they could safely put on 4 cwt. of fish guano and 4 cwt. of steamed bone flour; or, where these were not desirable, 6 cwt. of basic slag. There was a prejudice against the use of nitrate of soda but it should not be applied later than April, and not used in large quantities, say one or two cwts.; or, where there was plenty of lime in the soil, sulphate of ammonia might be used. In some seasons, when the plant seemed to be shut, it needed a little sustenance just as it was coming into burr and a slight dressing of farmyard manure would be affective.

Where growers did their farming without farmyard manure, nothing was better than shoddy, but this should be analysed, as that was the only way of determining its value. In the spring they could apply 8 cwt. of fish guano or 12 cwt. of rape cake, costing about 50s., or 1 cwt. of nitrate of soda or sulphate of ammonia. On poor land this quantity should be reduced for it is only good land that would answer to a liberal manuring. It was necessary to keep the plantation healthy, and lime was useful for that purpose. Some soils responded very readily to a dressing of lime, and it brought into action a great deal of manure which had accumulated in them. Where powdered lime was not obtainable, it was best slacked under cover, only using a small quantity of water, and then applied with a distributor or

sulphurator, using about a half-ton to the acre.

In conclusion the lecturer made some remarks on the drying of hops, pointing out that the hop contained three parts of water, and they wanted to get this out of them in a way that should leave no visible steam or vapor. To do this a large fire should be made which, in three or four hours, would bring the air under the layer of hops to about 140 degrees. After passing through the hop it would be 85 degrees, and leave the kiln at about 75. The hops should be turned and drying completed with a falling temperature. No firing should be done during the process of drying. The sulphur should be put on when the fire had reached the proper stage for drying, as it was only effective when there was moisture in the hops.

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## HOLSTEINS AT ST. LOUIS.

The Holstein-Friesian cattle breeders of the United States, are going to make a big exhibit at the coming world's fair at St. Louis. The association of these breeders has just issued a circular to its members, in which it says in part: "Public esteem and the merits of the breed demand that a creditable show of our cattle be present at this great exposition. Realizing the importance of a representative exhibit of Holstein-Friesians at St. Louis, the association has offered special prizes for exhibits of its cattle, which, together with the regular prizes offered by the exposition, make a sum to be competed for, in amount never before offered at any live stock show. It will be seen from the arrangement of prizes offered, that the large and small breeder have an equal chance of winning something, and that it would be hardly possible for any herd of ordinary merit to show at St. Louis and win nothing."

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R. J. Stoner, a merchant of Oakville, is building a creamery, which will be ready for operation by the first of March. To get the co-operation of the farmers he has put the stock on the market and offers to sell it to the patrons and take a percentage of cream in payment. There is plenty of money behind the enterprise to insure its success. Heretofore most of the cream has been sent to Seattle. Oakville is the center of a very prosperous community, and each year more attention is being given to the dairying.

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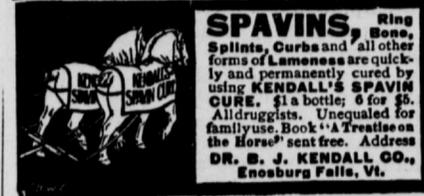
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