

out of a box of green hops, which, I suppose must escape in the steam.

Diseased or mouldy hops require more heat and more close attention than a sound hop; and often hops diseased will be very bad at the bottom of the poles, and some at top of poles sound, as my friend Door Russell's, in 1867. I found by taking them off the kiln hot, that the diseased hops, which had begun decomposing when picked, almost all break up leaving sound hops to shew—as when examined by dealers they always open a whole hop.

Now as to using brimstone: As a general thing, there is too much used. Of course it depends on what condition the hops come off the poles, there is a kind of rust on hops that brimstone will help, and there is a sort of causer comes on hops that brimstone will not affect; and there is one kind of a green hop that may be benefited by using brimstone, taking them a straw color, and there is another kind of green hop it had better be kept off entirely. If the dryer be a good judge, he will make the proper distinction.

One thing more: Growers often pick hops too soon, and then brimstone too strong, to make them look as if they had come to maturity. I have always used more or less brimstone, still I hold that no hop has that fine, sweet flavor that a really good judge can detect, when brimstone has been used. My mode of using it is to use a little after the first fire, if they need it, for three or four hours, and by no means use too much at a time, but often, and in small quantities, as the hops may require. Still, I think, as a general thing, hops would suit brewers better, if there was never another pound of brimstone used.

I would strongly urge upon growers under no circumstances to pick their hops too early. Among other objections, the vines are, by premature picking of the hops, greatly damaged. And when they are picked, do not let one picker stand all day filling a box, nor should they be left in the sack. In either case, the hops often heat, and are damaged.

I will give you the principal reasons why hops should be treated as I say:—

1. They should be spread on the kiln soon after being picked, for the reason that they will heat in the sack within three to five hours after being picked.—The greener hops, or the first picked, if the day be warm, will heat within three hours, or, if diseased or mouldy, they will heat sooner, and after being heated in the sack, never can be brought back to the original flavor they would possess if dried as soon as picked, or spread on the kiln, where they will keep cool until cured, or a fire started.

2. There should be a fire started as soon as possible after they are on the kiln, and keep a good, strong heat from four to six hours, and then a slow, gradual heat until they are seen to open on the top of the kiln.—The result would be, if the fire were allowed to go down after the heat has been up, say two hours, the hops would be full of steam, which would settle back, and the hops would be a leaden, dull color, and also affect the flavor.

3. There cannot be more than from 12 to 15 inches well cured on any kiln at a time. The result is, you will heat or over-dry the bottom ones before you dry the top ones, unless you should take from 15 to 20 hours to cure the kiln, and even then they would sour.

4. There should be plenty of air below the stoves. Here is where most of dryers fail. When the hops lie on the cloth 12 to 15 inches thick, it requires a strong current of cold air to drive the hot air through them; and the result is, if you do not have it, the hops will have a dull, wilted color, and also affect the flavor.

5. A kiln of hops should never be turned. The result of turning them when about one-half or two-thirds dried through is this: The damp hops, which are on the top, are, of course, full of steam, and heavier than when put on the kiln, are either mixed with the dry ones, or, if turned with a shovel, are put directly under the dry ones—consequently, the steam having to pass through the dry hops to escape, gives them a bad, dull color.

6. I will add they should be spread on the kiln as evenly as possible, so that they will all dry about the same time; and, as I have mentioned, after these are seen to open on the top of the kiln, then make a slow fire and go through them with the feet, and they will be dry enough, or three-fourths of the stems will be cured down, and the remaining one-fourth will cure in the pile, and be fully cured. I will add that they should lay from 15 to 20 days before being pressed. But if it should be necessary to press immediately, two slow fires should be made after mixing with feet, with care not to over-heat them, as the heat passes through the dry hops very quickly.

English Farmers Lectured.

Mr. J. J. Mechi, the celebrated English agriculturist, writes to the *Mark Lane Express* a characteristic letter, from which we make an extract as follows:—

"Like reform, the trade and other great political changes, agricultural reform must be carried by agitation. Carried, it certainly will be, because truth will prevail in the end, and the prospect of an empty stomach is so alarming an affair that it will have a very sharpening effect upon the perceptive organs. Although by means of machinery, they cannot help showing a dislike to a reaping-machine, although I lend it to them, with horses, at two shillings per acre, and thus put money in their pocket, but they see that it displaces human labor, and as that is their 'stock in trade,' we ought not to be angry with them, although it and the threshing-machine relieve them from their most severe labor; but we have also farmers' prejudices impeding agricultural profit and progress.

There is a mistaken attachment to the open farmyard and its escaping manure, instead of adopting the covered yard principle, although the latter is proved to be the most advantageous; but landlords are perhaps most responsible for this prejudice, because, as they will not allow their tenants to sell straw for paper making, (as I do), the tenants, whose capital will not permit the consumption of all the straw as food, are compelled to use it as a mop or sop to absorb the falling rains and the washings from untroughed buildings. Land-owners and tenants, too, should remember that the value of a ton of straw as mere manure is only 12s 6d. (see Lawes), while it can be sold for paper-making and other uses at more than 40s. per ton, and as food it is worth fully that sum." Covered yards require less than half the straw used in open yards. For every five tons of straw sold compel a tenant to purchase and consume one ton of rape or good cotton-cake or linseed-cake, and both the land and the farmer's purse would be improved.

Another mistaken and most unprofitable practice is that of taking the animal to the food instead of bringing the food to the animal—I mean as regards cattle and horses—and the rearing of large flocks of sheep, which latter should be close folded within iron hurdles, removed twice daily. This reform will be a "big job," and a long time coming, because we were for centuries a pastoral people, and are only now emerging from permanent pasture, which still encumbers one-half of the United Kingdom. Some 400 years ago there was a great outcry about its decreasing, but it was then as twenty acres to one acre of arable; now it is one for one. The same remark applies to animals as to ourselves—it cannot be right to be compelled to walk, sleep, and deposit on our food.

Another tremendous responsibility attaches to our land-owners and law-givers. To the first I would say, down with your hedges and useless timber; let your tenants be in a position to use the profitable steam-plow, which requires large and rectilinear fields, and no longer permit me to be astonished by hearing from a Devonshire land improver that he had thrown six fields into one, and in reply to my question, how large it was now, said six acres, and seemed astonished at my being astonished. 'Oh!' he said, 'in the next little parish (not 100 miles from Exeter) there are 171 miles of fences; but he could not tell me how many trees. Artificial shelter at the present rent of land is cheaper than natural hedges and trees, and although we are still obliged to use timber for a few fast frigates, iron, nothing but iron, is becoming 'the order of the day,' and will be so many long years after our wooden ideas have vanished.

Potato Blight and Rot.

Dr Thomas Taylor, of Washington, D. C. communicates to *The Lens* the result of experiments upon potatoes, from the examination into the chemical and structural theories of Dr Lyon Playfair and the fungoid views of several leading mycologists.

Among other tubers, one-half of a potato brought from Santa Fe, New Mexico, was placed in water with a diseased specimen and the other half in water to which sugar had been added. An Ohio potato was similarly arranged, and the effect of allowing it thus to remain for a considerable period noted. On the twentieth day, the Ohio specimen had entirely dissolved, while the Santa Fe potato was unharmed. Comparing the portions in the sugared water, the Ohio tuber appeared a mass of infusorial life, mycelium, and budding spores, with a strong odor, no starch cells being discernible.

The New Mexican specimen showed few infusoria, and the starch granules arranged in cellulose, between which bundles of mycelium and budding spores appeared in profusion. No liberated granules were visible. Since these experiments, other northern and eastern varieties have been tested by fungoid solutions in contrast with some of the New Mexican varieties giving like results, clearly demonstrating the superiority of the Santa Fe potatoes, over all others thus far examined, in respect to their powers of resisting fungoid and infusorial action.

We note that the government is about to test, by samples of every variety of potato from the above mentioned locality, their anti fungoid qualities in the open field and in contrast with the usual varieties grown in that section of the country. *Scientific American.*

Roots as Manure.

It has been found that the roots of a good crop of red clover left in an acre of land after the removal of the crop weigh 6,580 pounds, or from three to three and a half tons. The same examination gave the weight of an acre of rye roots at 3,460 pounds. (A similar experiment gave the weight of the roots of alfalfa from one acre at over five tons). All of this matter is, of course, valuable for the use of such crops as may be grown during or after its decomposition. The well known superiority of clover as a manuring crop, however, is not due alone to the greater amount of organic matter, taken mainly from the atmosphere, which the roots supply, but also to the position in which this matter is deposited.

The roots reach deeply into the soil, and on their decomposition they serve to draw moisture from the lower soil, and by the decomposition of fertilizing matter to a considerable depth, they induce the descent of the roots and crops to a point where they are much more sure of a supply of moisture during the dry seasons than they could be if nearer the surface. Then again, these deeply penetrating roots traverse parts of the subsoil not heretofore open to vegetation, and in their decomposition they produce a chemical effect on the inorganic substances that lie along their courses, and help to render them, too, serviceable for future crops. *American Agriculturist.*

Wasted Trouble.

There is no use in manuring land to grow weeds; in buying tools to rust out under a stone wall, in erecting buildings to rot away for want of paint and care; in buying animals and leaving them to the unhindered action of disease; in accumulating manure to fill the air with its exhalations, and the brooks with its leachings; in raising forage to floor a barnyard with; in buying land to yearly lose its strength and virtue; in growing crops to feed unheeded insects. Yet more than one of these defects may be seen in almost unrestrained operation on every farm in the country, and the extent to which they lower the average success of our farmers is greater than would be believed. *New York Herald.*

Mr. J. J. Mechi says:—From long practice and observation, I venture to predict that the future of agriculture, as regards the well-feeding of the people, and the profit of the farmer, will depend upon meat-making, and wheat and barley growing concurrently, especially on that extensive portion of the kingdom suitable for cereals rather than for pasture.

Resuscitate Bones.—Mr. Potter Warren, of New Hampshire, at a recent Agricultural Convention, gave the following easy and cheap formula for reducing bones. If the farmer will set aside a cask, in some convenient place, for the reception of bones, and throw all that are found on the farm into it, he will be likely to find a collection at the end of the year that would prove a valuable adjunct to his manure heap:—"Place them in a large kettle mixed with ashes, and about one peck of lime to the barrel of bones. Cover with water and boil. In twenty-four hours all the bones, with the exception, perhaps, of the hard shin-bones, will become so much softened as to be easily pulverized by hand. They will not be in particles of bone, but in a pasty condition, and in excellent form to mix with muck, loam or ashes. By boiling the shin-bones ten or twelve hours longer, they will also become soft." *Plantation.*