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The ROCKY MOUNTAIN HUSBANDMAN is designed to be, as the name indicates, a husbandman in every sense of the term, embracing in its columns every department of Agriculture, Stock-raising, Horticulture, Social and Domestic Economy.

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AGRICULTURAL.

In sowing grain, whether it be wheat, oats or barley, sown broad-cast or drilled, it is very essential to have the ground in good order. Fields should be cleaned of all rubbish that will not turn under, and the plowing should be done carefully. It is not required to be deep—that depending on the nature of the soil—but it should be thorough. After the seed has been well put in the ground it should be rolled with a large heavy roller. This crushes the clods and makes the ground smooth so that it will irrigate well; and last, but not least, renders the soil compact so that it will not dry out so soon. Vegetation is also claimed to start and grow better when the soil does not lay up too light. Besides when not rolled there are seeds left where the plant will be on lumps and rugged places exposed to the sun, and the land is more liable to wash. Those who have not adopted the system of rolling should try it once and become convinced of its advantages.

SMUT IN GRAIN.

Occasionally, and sometimes frequently, one may observe the heads of wheat, oats, barley, rye and the ears of corn filled with a black, powdery substance which is generally known as smut. When an ear of grain thus affected is examined, it will be seen that the substance of the grain is changed into this fine black powder, or that the grain is displaced by a puffy, swollen mass of the powder, the latter being more particularly to be seen in corn. This smut, when viewed under a microscope of high power, is seen to be composed of black, round balls which are so small that 1,000,000 of them would cover no more than one square inch of surface, and 4,000,000 of them are able to occupy the bulk of a single grain of wheat. These minute balls are the spores or seeds of a fungus, a plant which has several intermediate stages of growth, and finally reproduces a new set of spores.

The minute seeds are small enough to float in the atmosphere, to adhere without being noticed to the grains which are sown as seed, or to rest in the ground until they come in contact with the sprouting seed and infect the growing wheat. Immediately upon contact with a root of wheat the smut-spore strikes a filament into the tissue of the plant and infects it as with a poison. The parasite penetrates throughout the tissues of the plant, sometimes, as with corn, bursting out upon the stalk, but generally appearing in full development in the ear or spike when the grain is forming. The cellular tissue of the grain or plant thus infected by the fungus is occupied by a vast number of four-sided cells or cavities, separated by walls, and which are filled with a mass of very minute adherent granules, perfectly round and at first green, but afterward of a pale reddish brown color; at length the cell-walls disappear, the granules separate and appear as the black—but really rusty brown—powder which we call the smut. By proper treatment the smut-pores can be

made to germinate and grow while under observation, when the process of growth is seen to be, as usual with all fungoid vegetation, a throwing out of white threads called "mycelium," and the gradual formation of the brown spores or seeds which we know as smut in the substance of this mycelium.

When smut is abundant, crops are either totally ruined or so damaged as to be worth very little. Further, this smut is proved to be injurious to cattle which consume smutty fodder, and it is reasonably believed that much disease originates from the feeding of straw or corn stalks infested with smut. Fortunately we have an effective remedy within our reach. It has been discovered that caustic alkalies destroy the substance of the smut; and, also, that the application of sulphates of iron, copper and zinc have the same effect; of these latter the sulphate of copper—the commonly known blue vitriol—is the most useful. The usual method of applying these remedies is to steep the seed in a solution of the various substances. The solution may be made as follows and either the one or the other may be used as found convenient:

One pound of common salt in one gallon of water; one pound of glauber salts in one gallon of water; four ounces of sulphate of copper in one gallon of water.

Sufficient of the solution should be made to saturate the seed, or thoroughly moisten every grain. When the seed has steeped for two hours it is drained and spread upon a floor and sprinkled with dry lime in powder; that which has been air-slacked, by exposure to the atmosphere in a covered shed, until it falls to a fine dust, is best fitted for this use. The seed is then shoveled and stirred until each grain has been coated with the lime. In an hour or two it will be dry and may be sown. There are at least fifteen species of smut fungus known to botanists. The genus is known as *Uredo* by some, and as *Ustilago* by others. The species which attacks wheat is known as *Uredo Segetum*, or the wheat smut; that of corn as *Uredomyces*, the maize-smut. Other species infest oats, barley, rye, grasses, sedges, and reeds (or marsh grasses, so-called), and other plants. One infests the wild onion, and the same attacks the onions grown in gardens. The grasses most infested are orchard grass (*Dactylis glomerata*), and some varieties of *Poa*, more especially *Poa aquatica* and *Poa fluviensis*; but the cultivated species of this genus, or Kentucky blue grass, *Poa pratensis*, or *Poa compressa*, the June grass or spear grass of our fields, are not often attacked. There are other fungoid parasites which attack wheat. These are mildew, rust and bunt, the last being a species of smut known by the name of *foetida*, or stinking smut, or bunt, from its foul smell. The first and second are well known; the last is not so frequent, but is sometimes found in ripe grain, which, when ground in the mill or crushed in the fingers, appears as a mass of black dust of disagreeable scent. All these are subject to the same treatment as for the prevention of smut. Steeping is a sure remedy, and any farmer who neglects to avail himself of so simple a help should certainly refrain from complaint if he finds himself a sufferer. "Wisdom is a defense," and if we are wise we shall defend ourselves against this enemy, and use our influence to prevail upon neighbors to do the same. This and other evils are spread by the neglect of a few, or even of one, to use remedies, and the failure of one will lead to the stocking of the land of a hundred others, who may then justly complain of the injury.—*N. Y. Times.*

The statistical department of the English board of trade announces that the acreage under wheat is 10 per cent. less than in 1878; under oats, 1 per cent. less; 8 per cent. more acreage is under barley, and 6 per cent. more under potatoes.

NEW VARIETIES OF WHEAT.

Why may not our agricultural societies take a hint from the course lately decided upon by the Royal Society of England. This society has offered two prizes of £25 and £10 each, for distinctly new varieties of wheat which shall combine the largest yield of grain and straw per acre with approved form and size, smooth and thin skin, full and white kernel, and high specific gravity in the seed, and with bright, firm, and stiff straw. One sack must be delivered to the Society by each competitor, together with a sample bundle of straw, before the 1st of October next. A portion of each sample will be kept for comparison, and the remainder divided into equal portions, will be cultivated next year in four localities differing in respect of soil and climate. The prizes will be awarded for the best varieties of the crop of 1880, thus cultivated under the auspices of the Society, in the opinion of the judges they possess qualities which entitle them to distinction. The produce of the experimental crop of 1880 will be the property of the Society, and will be offered first to the competitors who submitted the seed. As our State Boards of Agriculture perhaps, are not prepared to carry out the experimental part of an enterprise of this kind, they may very properly turn the cultivation over to the agricultural colleges. There is in this another argument in favor of an attempt to unite the scattered agricultural forces of the country for the accomplishment of practical results.—*Farmers' Review.*

PROFITABLE USE OF WHEAT STRAW.

A few wheat farmers are trying the experiment of scattering their straw over the field and burning instead of allowing it to rot in a pile. It aids in destroying seeds of weeds and supplies potash otherwise lost. There is no doubt of it. And it will pay every wheat grower of Southern Illinois to do the same thing. On the rich bottom lands of the Mississippi and other streams it may not be so necessary, but on the higher rolling and hilly lands where the potash from the burned timber has all washed away, the fertility of the soil needs to be restored or the grain product will diminish till it ceases to pay for the labor expended. There is, perhaps, no easier way to restore this than the method adopted by Mr. Allan and described above. It is a much better plan than that of burning the straw in a pile and then distributing the ashes. In the Northwest and in California, where heading machines are used, the straw is left standing as it grew, and the soil is not so rapidly impoverished as in Illinois. But here, and in all sections where it is impracticable to use a header, every possible means should be used to increase the natural capacity for production. Wheat lands are like horses; it is much easier to keep them fat than to restore their fatness after it is once lost. After the straw is burned, the sowing of a barrel of salt broadcast upon every acre, will return four fold its cost in increased quantity and good quality of the next grain crop, or whatever crop may follow. It is an experiment easily tried, and worthy of trial.—*Cor. Inter-Ocean.*

A BIGGER PLOW.

In a recent issue of the St. Louis *Miller* appeared an item in regard to a large plow, built for the Iron Mountain railway. This was supposed to be the largest plow ever built. An exchange, however, disputes the statement, and says: A. Hirschheimer & Co., La Crosse, Wisconsin, last fall made a plow of the same kind which is considerably larger. Its weight and dimensions are as follows: Weight of share, landside and braces, 392 pounds; mold-board, 180 pounds; beam, 900 pounds; coulter and clasp, 180 pounds; clevis, 60 pounds; standard, 134 pounds; total weight of plow, 2,052 pounds. The sizes of the principal parts are: Beam, 16½ feet long, 17 inches

wide, 10 inches thick; landside, 9 feet long, 5 inches wide, 2 inches thick; standard, 40 inches long, 7 inches wide, 1½ inches thick; mold-board, 8 feet long, 26 inches wide, ½ of an inch thick; share, 5½ feet long, 12 inches wide, ½ inch thick. The plow will cut a furrow 39 inches wide, and was made for the Chicago, Milwaukee and St. Paul railway company. A locomotive is the steed that draws it. This is probably the first plow of the kind ever built.

DURING August 1,638 carloads of grain were landed at South Vallejo, Cal.

THE HOUSEHOLD.

WAYS OF COOKING TOMATOES.

Our favorite way of cooking tomatoes is to cook them slowly until the juice is evaporated sufficiently to form a thick pulp, then season with pepper, salt, and a generous piece of butter. A very pleasant change is made by stewing only until just done, seasoning as above, and thickening slightly with very fine cracker crumbs, or a little flour mixed smooth in cold water. If tomatoes are to be served with roast beef, a teaspoonful of chopped onion and a sprig of parsley cut fine may be added before stewing. Baked tomatoes are often relished by many who will not eat them cooked in any other way. Select large, smooth, and not over-ripe fruit, cut a piece from the blossom end, and scoop out the pulp; mix the latter with stale bread and chopped onion which has been fried in butter until yellow, some minced salt pork also fried, parsley cut fine, salt and pepper to taste. Put this dressing over a fire in a pan, and stir until hot; fill the cavities in the tomatoes with this mixture, arrange them in a dish, place a piece of butter on each and bake an hour. The quantities depend greatly upon the size of the fruit. For six tomatoes a tablespoonful of minced pork, two of onions and a teaspoonful of parsley will be found sufficient. Use as much dry bread as the pulp will moisten. Tomatoes may be scalloped in a large dish or in small shells. Peel and slice the fruit and alternate with crumbs, putting salt, pepper and butter on each layer. Finish with crumbs, and bake half an hour. Send to table in same dish.—*Ex.*

Pickled Onions.—Select small white onions, put them over the fire in cold water, with a handful of salt; when the water becomes scalding hot, take them out and peel off the skins; lay them in a cloth to dry, then put them in a jar; boil half an ounce of allspice and half an ounce of cloves in a quart of vinegar; take out the spice and pour the vinegar over the onions while it is hot; tie up the jar when the vinegar is cold, and keep it in a dry place.

Tomato Catsup.—One gallon tomatoes, one pint of vinegar, two tablespoonfuls of salt, two of black pepper, two of mustard, one of cloves, one dozen onions, sliced fine; boil all together till quite thick; strain through a colander; bottle and cork tight, and keep in a cool place.

Oatmeal Gruel.—Boil half an hour as before. Add some sweet milk, sugar, salt, and the yolk of an egg and boil ten minutes more.

A New Preservative Compound.—It has been found that the double borate of potash and soda has antiseptic properties. The compound is made by dissolving equal quantities of chloride of potassium, nitrate of soda and boracic acid; filter the solution, evaporate to dryness, and keep in a tight bottle, as the salt becomes wet in the air. It is claimed that this salt has no effect on the smell, taste or healthfulness of the substances to which it is added. It has been tried for preserving meats, making sausages, butter, and for tanning skins. Added to milk it will keep for a week; also added to beer or wine it retards the deterioration to which the inferior kinds of these drinks are subject.