

the upper portions over the surface and through the soil of lower lying districts. No available depth of drain yields pure water, and it has long been proved by analysis that water from a manured field contains soluble salts of any manures used; it must evidently be an advantage to pass such water over and through other lands. We throw out the hints for what they may be worth; we think deep draining and irrigation may work together with advantage.—*Builder*.

LIQUID MANURE.—Prof. Sprengel, the celebrated German chemist, asserts that each cow produces annually 18,000 pounds urine, which contains of solid matter 900 pounds. This solid matter is fully equal to the best guano, weight for weight, so that the liquid manure of every cow kept on a farm for one year, is worth, when applied to the crops, more than \$20 annually, and so in proportion to all the rest of the domestic animals. It may be said that in no other department of rural economy does the American farmer lose so much by neglect, as in the management of solid and liquid manures.

HAY REQUIRED TO KEEP A HORSE.—A correspondent of the *Wisconsin Farmer*, who has given careful attention to the subject, says that five pounds of hay at a feed, or fifteen pounds per day, with twelve quarts of oatmeal, or its equivalent in shorts, will keep a good sized horse in fine condition for all road or farm work, and is amply sufficient. Some will keep on considerably less; this however is a fair average.

THE ART OF AGRICULTURE.—A great deal has been written and said about the science and art of agriculture, but for practical guidance the whole thing is in a nut shell. It consists in these two rules—make the land rich, and keep the weeds down. If any person who tries to raise any plant will follow these two rules he will succeed, and if he does not follow them he will not succeed.

Agricultural Intelligence.

Kansas a Sheep Country.

It appears from a letter of Governor Medary, of Kansas, recently published in the *Ohio Cultivator*, that that territory is peculiarly well adapted to the raising of sheep, particularly the fine and short woolled. The country is described as unusually rolling, without swamps or wet marshes; the hills in some places approach to mountains, with wide and dry valleys, having sufficient inclination of surface to afford good natural drainage. The climate, like all high

rolling prairie of great extent, is peculiarly dry with clear sky. Winter continues about three months, thermometer occasionally below zero but generally mild, dry and pleasant. In some of the lower valleys sheep require but little artificial food or protection during winter, as but little snow falls in such situations. There is but little drizzling rain, which is so injurious to sheep. Millions of acres of the best pastures are said to be yet unoccupied in the organic counties, extending 500 miles to the foot of the mountains, which may be occupied with sheep and cattle for little more than the expense incurred in providing shepherds, and abundance of hay can readily be procured. The Legislature has exempted sheep, buildings, and pastures from taxation. This is a glowing picture which the original may not fully realize.

WHEAT PLANTED IN HILLS.—We noticed, a year ago, the experiment of D. Yant, of Evans, O., in planting an acre of wheat in hills using a little over five pounds of seed to the acre. The hills were 20 by 15 inches square with five kernels in each. He now reports the result in the *Ohio Farmer*, from which we learn that the grubs and cutworms destroyed full one-half of it, and that it yielded at the rate of 17 bushels per acre, or 204 bushels for one of the seed. Mr. Y. says: It stood enormously; thirty, forty, sixty and some large well filled heads from one grain were common, and I have 111 stalks of wheat that grew from a single seed, yielding about 4 bushels, and a rye plant that produced 183 heads containing over 10,000 grains—about this is neither mistake nor guess work. Wheat, fifteen inches apart in the drills will not be so good, and to what extent liberal manuring, and some cultivation, may carry the yield, has yet to be tested."

SHEEP FOR WOOL AND MUTTON.—J. S. Tibbels, says in the *Michigan Farmer*, "If wool was my object, I would breed the Spanish Merino; if mutton solely was my object, I would breed either the South Downs, Leicesters or Cotswolds."

REMEDY FOR SMUT IN WHEAT.—A Northern correspondent of the *Country Gentleman* says the following has proved successful to him: To the first bushel of seed take 10 tablespoonfuls of blue vitriol, and soak 24 hours. Then pour off the brine, and dry seed with lime. Keep the brine, and to every bushel of seed add one spoonful of the vitriol and wash and skim as before, except the 24 hours soaking, and I think Tyro will soon be clear of smut in his wheat.