Smut in Wheat.

A correspondent, writing to the *Western Farm Journal*, says on this subject: The question has been asked through our agricultural journals scores of times, in the past twenty years, and as many answers and remedies recommended. In an experience of wheat-growing of over twenty years, but one sure remedy have I been able to find, that would entirely prevent smut in wheat, and that is Blue Vitriol. I have washed seed wheat in strong brine, as strong as salt would make it; while the wheat was damp have sifted on air slacked lime just before sowing. The salt and lime were beneficial to the wheat, and, no doubt, to some extent prevented smut, but in no case, with me, entirely so.

Recipe.—For eight bushels clean wheat, 1½ pounds Blue Vitriol in 3 gallons of water; on the day or evening previous to sowing take the amount of wheat designed for the day's sowing, place it on the barn floor, and apply the vitriol water a little at a time, keep shoveling the wheat over as you apply the vitriol water until all the wheat is well saturated, it will be in good condition to sow next morning. I have let it lay three days before sowing, without any detriment to the seed. The vitriol should be dissolved with hot water; then fill up with cold water in proportion as above indicated.

Some years ago I made a strong brine, for the purpose of floating out, or off, some oats that were in my seed wheat; after the wheat was dry, or partially so, after being put through the brine, I applied the vitriol water; a neighbor, knowing of this treatment, said to me that not one grain of this wheat would grow; that the brine was all the wheat could stand, and that anything as powerful as Blue Vitriol would certainly kill it. The wheat was sown, and we both had the satisfaction of seeing it come up, and grow, and make a good crop. Some eighteen years ago I tried this vitrioling wheat on a small scale as an experiment, taking two bushels of seed from the same bin that I took seed from for my main crop, and treated it to the vitriol as above stated. I sowed it the same day and beside the main crop, all put in in the same manner; from the seed of this two bushels not a smut head nor a smut ball could be found, for it was not there, while the main crop was quite smutty, so much so that at harvest time it could plainly be seen up to the line of the vitriol wheat, proof beyond doubt. The[re] are some varieties of wheat that are quite sure to smut, and, as a rule, they are of our best varieties; in these it will pay to prevent smut, as every bushel of smut balls costs us as much to raise as a bushel of wheat, and this is lessened in value by reason of the smut. There is no need, or any excuse for growing smutty wheat; as a rule, we farmers do not take pains enough with any of our field seeds, from wheat to potatoes.

Rotation for Gravel Loam.

At a farmers' meeting held in Michigan, recently, J. W. Wing, of Scio, gave the following system of rotation employed on his farm, which consisted of gravel loam. We copy from the report of proceedings in the Michigan Farmer: I will take a piece of clover sod that has been mowed one year and pastured two, break it up late in the fall or spring, and plant it to hoed crops, corn, potatoes, rutabagas, beets, etc. When these crops come off, put upon the land what manure can be spared, plough the land again in the fall or early in the spring, and sow it to oats or barley (barley is best for the next crop). When this crop comes off, plough the land again as soon as possible, drag and cultivate well, and early in September sow to wheat, with three quarts of timothy seed, in the fall, to be followed by six quarts of clover seed per acre in the spring, the clover to be mowed one year and pastured two, and left as we found it for the second rotation.

If I wished to sow more acres of wheat than my stubble land furnished I would plough up a sod when the clover was in bloom, cultivate well, and sow to wheat as before, and immediately upon the taking off of this crop I would plough the land again, harrow thoroughly, and give it a dressing of compost or fine manure, cultivated in; then sow to wheat, timothy and clover. If the land and seed are clean, the second crop will often be as good and sometimes better than the first. I think a clover sod ploughed when the clover is in bloom, is as good as fifty loads of manure to the acre. If any one thinks otherwise, let him dig up a cubic foot of such sod, wash all the earth out, and weigh the roots and clover, and make his estimate from that.

Blue Grass.

Blue grass can be sowed any time of year, almost, but it should be sowed when the ground is moist, or just before a rain or snow. The best time, however, is in early spring, from the last of February to first of May. Sow on the surface, after barley, spring wheat, or oats have been harrowed in. If sown on wheat, it should be done early in the fall, and if sown on old meadows or pastures, they should be harrowed with a sharp harrow. If sown on snow, mix with the seed about as much damp, unleached ashes; if the ground is bare, mix with the seed about half the bulk of land plaster, rubbing the two thoroughly together before sowing.

The quantity of seed depends upon circumstances. If sown on mellow ground and brushed in, three-fourths of a bushel to a bushel per acre will be sufficient; if sown on hard ground, or the seed is not brushed in, more will be required. It is a good plan to sow about half a bushel of blue grass and a few quarts each of clover and timothy per acre. After the two latter have run out, the blue grass has possession, with a good sod and root.

The best soil is limestone, or loam with dry subsoil; but it will grow on any kind of land except a poor sandy soil, or soil that is under water a large portion of the time. Red top is the best grass for the wet soil.

Experience has proven that land well set to blue grass will yield double the pasture of our common grasses, and it is more nutritious—stock fattens faster on it and milk and butter are much better flavored. Blue grass affords much better winter pasture than any other grass. Many people think that what is called June grass in some localities, is blue grass, but this is a mistake. June grass is light and almost worthless, and dies out in summer, while blue grass is heavier than most other grasses, and lives the year round, as well as year after year. I had the privilege last summer of seeing seven different varieties of this grass at Cincinnati, as they were sent from the field, tied up in bunches. Some of these were much better than others, and those who purchase seed should therefore be careful to know what they are getting.—*Cor. Ohio Farmer.*

A Good Hay Rack.

There are many forms of hay and grain riggings, says the *Country Gentleman*, but as far as my experience and observation extend, the one shown in the accompanying illustration (fig. 1) possesses more desirable qualities than any other. The dimensions of each piece are given, and by referring to the cut, its construction is made an easy matter by any person handy with tools.

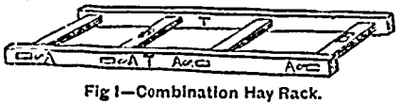

Fig 1—Combination Hay Rack.

T T are bed pieces of pine or other straight-grained light wood, 14 or 16 feet in length, 8 inches wide and 3 inches thick; if of oak or other hard wood, 2½ inches thick will give sufficient strength. Four cross pieces, *B*, of hard wood, 1¼ inches thick and 6 inches wide, are mortised and firmly secured to the bed pieces. This constitutes the frame or foundation and is shown in fig. 2. It is frequently used separately, to haul rails, boards, stones, manure, &c., and is a convenient, strong, and handy arrangement for the purpose. In fig. 1 is shown the rigging complete, of which its four cross pieces or arms, are 7½ feet in length, 5 inches wide, and 2½ inches thick.

If designed for a "sectional rigging," and to prevent side movement, a half-inch groove is cut into the lower sides of the cross arms, so that they fit closely upon the bed pieces. To prevent a forward or backward movement, eight strong iron hooks are attached by staples to the sides of the cross arms, and when placed upon the bed

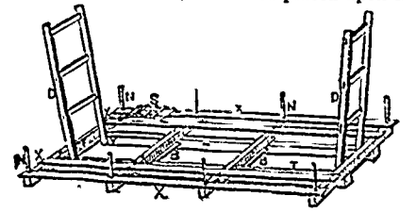

Fig. 2—Frame or Bed Pieces.

pieces are readily hooked into the staples, *A*. Thus arranged, one man can easily place the rigging upon or take it from the wagon. Or if desired, bolts may be used to fasten all together, by passing them through the cross arms and bed pieces; there is not 25 cents difference in the expense.

Standards, *D*, can be either stationary or hinged so as to be quickly lowered, raised, or removed, by a small bolt as shown at *Y*. The standards should be 6½ feet high, and quite strong, to withstand the pressure of the load, as well as to serve as a ladder. The boards, *X*, should be of the same length as the bed pieces, and 1 inch thick and 6 inches wide, of straight-grained light wood. Wooden pins or stakes, *N*, are inserted as shown, and should be only slightly sharpened. Should the hind wheels project above the boards, *X*, then bridge over them as shown at *S*. Paint, and keep under shelter when not in use.

ROTATION IN PENNSYLVANIA.—A Pennsylvania farmer gives the following as the usual rotation practised in that State: We put lime on a sod field, turn down for corn next year, cover with well-rotted stable manure, and turn again for corn, then two crops of wheat. The second time we sow wheat we also sow clover and timothy, then mow or pasture one year; then we begin and turn to corn again So, we come round to grass every four or five years. We believe in clover as the crop to get up the soil. We think the best way to get up a thin soil, is to mow a clover field for hay; then, when the second growth is grown about fifteen inches, turn cattle or sheep on to trample down the clover. Then put on about seventy-five or eighty bushels of lime per acre in the fall; the following spring, turn the clover and lime down and plant in corn. Clover, with lime and a little manure, will bring a quite thin soil to a good rich soil in a few years.

Management of Grass Lands.

Prof Stockbridge addressed the recent meeting of the Maine Board of Agriculture on this subject. We extract as follows: There are many sterile pastures—soil with no nitrogen and little phosphoric acid in it, because the cattle have carried it all off in milk and bones. This must be top-dressed. The land has been robbed of its mineral elements and its nitrogen, and you must top-dress it to make it bear a crop. If you can get them, use wood ashes. Even at 35 cents per bushel the speaker said he could get rich on the poorest farm in New England. This is just what has been taken from the land, and if they can be put back, it is just what is wanted. But it is not enough. To 20 bushels of wood ashes use 50 lbs. of sulphate of ammonia, and you have for a cost of $6, a top-dressing for an acre of pasture that will last for three or four years. If you have not wood ashes, use 180 lbs. sulphate of ammonia, 70 lbs. muriate of potash, and 100 lbs. of a good superphosphate. Mix this and apply it to two acres. The third class of pastures are those that can be ploughed. Sunshine and air renovate the soil, and pastures that may be ploughed and pulverized, should be. It may have been in sod 50 years, and if there is any clay in the soil it has become hard and impervious to water and air, therefore it should be ploughed. Thoroughly till this pasture, manure it with the mixture just spoken of, and seed it with herds grass, blue grass, red top, red and white clover, and about two bushels rye to the acre. The rye will start quick, the cattle will eat it readily, the rye will protect the grass, and by the second year the grass will be well grown. By this course the speaker has seen land brought up from where it took five or six acres to keep a cow, to where it took but two, and all pasture lands of this description would be benefited by this course. —*Ohio Farmer.*

Ploughs and Ploughing.

In times past farmers have thought any plough good enough that would cut a wide furrow and run level. But we notice more inquiry of late, and the better class of cultivators are experimenting with all the new inventions in hopes of finding one plough that combines all the merits, and none of the defects so common to almost all now in use. We have had several very good working ploughs, so long as we could keep them bright and have them scour; but a damp day or two with a plough not in use, or even sometimes if left out over night in damp weather, and it could not be made to scour all day in our black, clay loam soils. One-horse ploughs, especially in fine, well-worked ground, would scarcely ever scour—not doing good work, and, of course, drawing hard. In sheer desperation we have tried every plough recommended by the seller, on condition that if it scoured we would pay for it, and if not, return. Some steel ploughs would do pretty well, but on certain soils in a dry, mellow condition they would clog. Last spring a very homely plough, made at Albion, Mich., was recommended by a party selling it here, and we took it home, without the least idea of being able to use it. We tried it, and kept trying it, but have never found a place where it would not scour; even though left wet a week it does not rust deep, but will scour the first rod—the surface being made so very hard that there seems to be no wear to it, and the rust cannot get hold. We have since seen another make of chill-hardened ploughs that works nearly as well. These chill-hardened cast-iron ploughs must supersede all others on black, sticky soils. A light two-horse plough of this kind runs quite as easy for one horse as an ordinary cast-iron plough for two, and does much better work. We have decided to discard all our old cast-iron ploughs and substitute those instead.—*Cor. Rural New Yorker.*

Large Seeds Preferable.

A series of carefully conducted experiments in Europe and America afford striking results in favor of the use of large and carefully selected seeds for sowing. Not only had these yielded larger crops from the same number of plants, as compared with the small, but a much greater percentage of the latter had frequently failed to germinate at all, notwithstanding that in both cases the seeds were perfectly formed. The reason assigned is feasible, viz., that the greater vitality of the larger plants enabled them to overcome obstacles which the smaller ones could not surmount.

Professor Caldwell of New York publishes two of these experiments in the *Tribune*:

Beans and peas were planted in the garden, small and large seeds of each kind being planted on adjacent plots, the beans 12 inches apart each way, and the peas in rows 10 inches apart and 2 inches apart in the row. Not only was the crop carefully harvested and measured when ripe, but the progress of growth was closely watched during the season. The larger and more uniform growth of the plants from the larger seeds, from the beginning to the end of the