THE FARMER'S ADVOCATE.

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is not appropriate for all alike. The large roundworms usually inhabit the small intestine and sometimes the stomach, and can be best attacked by remedies administered through the mouth, while the small "pinworms," as they are called, infest the large bowel, and can be better treated by injecting the remedy into the bowel than by administering it in the ordinary way. Intestinal worms, then, call for different treatment according to the locality in which they are found. To begin with those infesting the stomach and small intestines: There may be, and often is, more than one variety of worms present in this situation, but the commonest one is the large round worm, Ascaris myalocephala, and as the treatment which will cause its expulsion is equally useful for the other varieties, there will be no use in going into details about them. The Ascarides, as these worms are technically called, are sometimes present in enormous numbers in one horse. There is an instance on record where more than 1,800 were found in one horse.

Treatment should begin by dieting the horse for a few days. Give less grain and hay and more bran and soft feed until the bowels are slightly relaxed. Then let the animal fast over night and give in the morning the vermifuge dose, and follow it in a few hours with a dose of oil or aloes to clear it out of the system. The vermifuges employed for the horse are very numerous, and every veterinarian has his favorite remedy. But for those who are not within reach of professional advice I may say that oil of turpentine is generally a good remedy. It should be administered in a little milk while the animal is fasting, and followed by a dose of oil or aloes about two hours later. This course of treat-ment should be repeated two weeks later, in order to expel any worms that have developed in the meantime, and a course of tonic medicine will be very beneficial in restoring a healthy state of the intestinal canal.

The small pinworms which frequently infest horses give rise to itching at the root of the tail, and the hair is often worn from the tail by the horse's efforts to scratch the itching spot. The part of the intestine inhabited by these parasites is so far removed from the mouth that any remedies administered in that way become so much diluted by the time they reach the worms that they have little or no effect. Injections are more successful. They consist of some vermifuge remedy mixed with a certain quantity of bland fluid, such as milk or soapsuds. The whole quantity should not ex-ceed a quart, or it will not be retained in the bowel, and it should always be warmed to body heat Among the remedies employed in this way the favorites are decotions of quassia chips or of tobacco. Turpentine is effectual in this way also, injected with a little warm milk.

In conclusion, let me impress the fact that *healthy* animals do not offer a favorite home for parasites. It is the animal which is neglected, illfed, ungroomed, and overworked which is their usual victim. Every stockowner has it in his power to surround his animals with conditions unsuitable for the growth and multiplication of parasites, and it is hardly necessary to point out that it is to his interest to do so.

FARM.

Securing Seed Corn.

Humus in Its Relation to Soil Fertility. Mr. Harry Snyder, B. Sc., Professor of Agriculural Chemistry in the Minnesota University of Agriculture, contributes a worthy article upon humus, which is published in the Year Book of the U. S. Department of Agriculture, from which the following points are taken :-

From the very earliest times farmers have assigned a very high value to humus as a factor of soil fertility, and this belief was strengthened by the observed facts that soils rich in humus were, as a rule, highly productive, and that such materials as animal excrement or barnyard manure, which supplied the soil with an abundance of humus, possessed a marked fertilizing power. Recent experiments have shown, too, that there are sound scientific reasons for ascribing to humus a high value as a factor of soil fertility. The article goes on to show that humus influences the temperature, tilth, permeability, absorptive power, weight, and color of soils, and directly or indirectly controls to a high degree their supply of water, nitrogen, phosphoric acid, and potash.

A virgin soil may show a high state of productiveness for a number of years after it is brought under cultivation. Gradually, however, a decline in fertility is observed, which is slight at first, but more marked after a lapse of fifteen or twenty years. This decline in fertility is not so much due to the removal of essential fertilizing elements as the loss of humus, which causes the land to get out of condition mechanically. These statements are borne out by the Professor in citing experiments of various stations.

The loss of humus is an important factor in the decline of fertility; it is indicated by the fact that with methods of farming in which grasses form an important part in the rotation, especially those that leave a large residue of roots and culms, the decline in productive power is much slower than when crops like wheat, cotton or potatoes are continuously grown. Under grass and similar crops the soil humus increases from year to year.

Agriculturally considered, the two most important points regarding the composition of humus are (1) the presence of nitrogen as a constant constituent and (2) the chemical union of the humus with potash, lime, and phosphoric acid, forming humates. Most if not all the changes that organic matter undergoes are the result of the action of matter undergoes are the result of the action of microscopic organisms. Humus furnishes a medi-um peculiarly adapted to the activity of these organisms. The nitrifying organisms feed upon the humus, breaking down its organic nitrogenous constituents and producing nitrates which may be mached out in the dwinage on may be least in the washed out in the drainage or may be lost in the air if not appropriated by growing crops. Bare summer-fallowing has been very beneficial to the succeeding crop by increasing the available nitro-gen of the soil, but frequently more nitrogen is rendered available than is necessary for the following crop, and whatever the crop is unable to utilize is lost by leaching or else escapes into the air. The available nitrogen is thus increased, while the total nitrogen is greatly decreased.

Fall plowing, it is claimed, keeps the humus and nitrogen of the soil in better condition than late spring plowing, which turns the available nitrogen down under, while the inert organic nitrogen is brought to the surface.

In old soils the process of nitrification does not go on rapidly enough to furnish available nitrogen to the crop; in a new soil the process is nable to go on too rapidly. Deep plowing and thorough cultivation aid in nitrification, hence the longer a soil is cultivated the deeper and more thorough must be its preparation. The application of lime and wood ashes aids in the reduction of nitrogen of humus to available forms and prevents the formation of sour mold. Good drainage is also necessary to nitrification in the soil. The value of humates as plant food has been the subject of extensive investigations, many of which indicate that they are valuable forms of plant food. Besides numerous carefully conducted experiments at various stations, observations in field practice indicate that plants are capable of feeding on humates. The roots of plants, particularly those of grains, will always be found clustering around any decaying vegetable matter that may happen to be present in the soil. As to the means of increasing the humates of the soil, it is well known that barnyard manure is the son, it is were known that barryard manure is among the most lasting in effect of any of the fertilizers which can be applied. This is undoubt-edly due to the power which the manure has of uniting with the soil potash, phosphoric acid, etc., to produce humates. The plowing in of clover and other green manures as well as laying the lagd other green manures, as well as laying the land down to grass for a time adds materially to the store of humus and thus increases its producing power, not only chemically but by profoundly modifying the physical properties of the soil. This latter influence is most marked in relation to he water content as well as the temperature. Prof. Snyder closes with the following summary :-1. The decline in the crop-producing power of many soils is due to a loss of the partially decomposed animal and vegetable matters known as humus.

3. The loss of humus involves a loss of nitrogen, which is one of the elements composing humus. The loss of nitrogen from the soil is not always due simply to the nitrogen removed by the crop, but is frequently caused by waste of the humus by improper methods and systems of cultivation. 4. The humus of the soil is increased by the use

of well-prepared farm manures, green manures, and by a systematic rotation of crops in which grasses, or, preferably, clover, form an important part.

5. The loss of humus from the soil results in decreasing its power of storing up and properly sup-plying crops with water. Soils with a liberal amount of humus are capable of more effectually withstanding drought than similar soils with less humus. In arid regions the loss of humus from the soil is more serious than in the regions of continuous summer rains.

6. In sandy soils the loss of humus is most severely felt. In poorly drained soils, where there is a deficiency of lime, potash, and other similar materials, the humus may form sour mold, but this can usually be corrected by a dressing of lime, marl, or wood ashes.

7. Humus-forming materials, like the decaying animal and vegetable matters in farm manures, have the power of combining with the potash and phosphoric acid of the soil to form humates which are readily assimilated by plants when acted upon by the proper soil organism. These humates thus increase to a marked extent the available plant food of the soil.

8. Farm manures and other humus-forming materials are not only valuable for the elements of fertility which they contain, but also for the power of making the inert material of the soil more available to plants.

9. In soils where there is a good stock of reserve materials it is cheaper to cultivate fertility through the agency of humus than it is to purchase it in the form of commercial fertilizers.

A Hint for Hard Times.

" A STITCH IN TIME," ETC.

Many indifferent farmers have come to the conclusion in the last few years that agriculture cannot be profitably followed; at the same time have made no extra effort to economize, except, perhaps, in ways that are not commendable, such as allowing buildings, fences, vehicles or implements to go to wreck when a little timely attention would have kept them in fairly good condition. It is not necessary to mention that the times are not flourishing. but every individual has a deal to do with the prosperity of his own business. The writer has seen a farmer this very harvest who had neglected to have his old binder overhauled before harvest, and when his grain was dead ripe had to wait until the services of some neighbor who had finished cutting his own grain could be obtained. Such improvidence as this is seen very often upon farms whose owners consider themselves intelligent business men. Some men in such a predicament would have gone and bought a new machine, but that course would have been of doubtful wisdom, because, perhaps, a new casting or other part worth a couple of dollars would have put the machine in good running order. An old binder or mower is often condemned because of a wornout knife which a little careful scrutiny would have detected. The



The thrifty farmer is often known by his seed

corn pile. It is a good sign when we see strung overhead in the back kitchen, the workshop or the driving-barn, long rows or bunches of plump, well-developed ears, some golden, others flinty white, all ready to be shelled for next planting time

time. When the lower leaves and silk begin to brown (for the corn must be well matured), a favorite plan, where a small quantity only is required for home use, is to go through the standing rows, breaking off husk and all the best-looking ears into a bushel basket or other receptacle. When a little more than "just enough" is secured (for some ears may have to be thrown out afterwards), the coarse outer husk is next stripped off, and the rest used to form a long braid or bunch. These are strung on stout wires, out of reach of rats, mice, and moisture. Seed corn must be kept dry.

Another way in husking from the shock is to throw out in a pile by themselves the finest ears with the husks on ; then handle as above. If the intention is to secure large quantities for

sale to dealers or others, the above methods would prove "too slow." In that case cut the corn when properly matured, and put in small-sized shocks so that there will be no risk of heating. When it has stood long enough for the stalks to be well cured, it is then husked in the usual way, all inferior ears being thrown aside for hog-feeding, the best being gathered as husked and put into long, narrow cribs (say a couple of feet wide) so that the air can circulate freely through them, with a sound roof, eaves overhanging far enough to shed off all rain, and raised well off the ground. Inverted tin pans are sometimes set on the posts to prevent the rodents getting in. The cribs should be isolated from other buildings for the latter reason also. If the above hints are properly carried out, there should be no failure in securing seed corn, and more of it will likely be wanted in Canada next season than ever before, at the present rate of increase in the corn area and to fill the numerous silos that are going up.

2. The humus of the soil is decreased by the continuous cultivation of grain, cotton, potatoes, or any crop with which the land is kept constantly under the plow without the addition of any humusforming materials.

thing is to have machinery working well, but at as little expense as possible.

No doubt many farmers do not get more than half the service they are entitled to receive from their farm implements and machinery. Very often their farm implements and machinery. Very often the largest item of loss comes from exposure to the weather when not in use; but the lesser losses from neglect in oiling, tightening nuts, putting on washers, sharpening knives or putting on new ones, are large in a great many cases, and are indeed appalling in the aggregate if their cost could be computed. There is a tendency in the time of a rushing season to let things go. thinking that to rushing season to let things go, thinking that to get the present job done is all that need be attended

It is a profitable practice whenever possible to mend a thing showing signs of weakness before it breaks, which can often be done with wagon and buggy wheels and the like, as well as harness and many other contrivances that cost money and must be kept in use. Much repairing can be done at home without expense, but when a mechanic's tools and skill are needed it is economical to have him do the job. To sum up: Keep rigs and imple-ments always housed, in "shipshape," clean, well oiled and painted.

If every farmer would study his business in every way possible, economize where wisdom prompts—which would never direct a man in doing without a good agricultural paper, nor in starving his body, nor that of any person or animal upon his farm—there would be less discontentment, and bills coming in that cannot be met, than is now found upon many farms.

A case was reported from Kent, Eng., lately, where five inmates of one home were prostrated with sudden illness, caused by using milk which had been dosed by the milkman with boracic acid as a preservative. Cleanliness and proper tempera-ture so far as the latter can be maintained, are the ture, so far as the latter can be maintained, are the best preservatives.