Agricultural Department.

GRASS LANDS

Speaking of permanent pastures, Prof. Beal, of the Michigan Agricultural College, remarks: "Among all the nations of the earth, none, that I am aware of, have given so much and so careful attention to pastures and meadows as our friends of the British Isles. Rent is there very high. To be a successful farmer, everything must be done to the best advantage Slip shod farming there will not afford a living, as it often does in our newer country Although they follow out a certain rotation of crops, and are able to give good reasons for such rotations, yet they are nearly, if not quite, unanimous in keeping a part of the farm in permanent pasture or meadow. The longer a piece has been seeded the better it suits them. According to their belief and practice, a pasture never becomes very good until it has been seeded six or more years. In their opinion, 'it is certainly undesirable to break up tolerably good pastures for the purpose of converting them into arable land.' It is the general belief, so far as I can learn, that permanent pasture, when properly managed, yields a better quality of grass or hay than one newly seeded, and that the quantity does not diminish with the age of the pasture."

The Country Gentleman says: The same opinion prevails in this country with pastures on rich alluvium, but our drier climate somewhat modifies the conditions for the success of permanent grass lands On dry uplands, the grass crop, whether for meadow or pasture, is more apt to diminish after a few years, unless heavily top-dressed with fertilizers, which, in order to become well diffused by rains among the roots of the plants, must be applied in autumn or winter. We have, however, been led to question whether in this country the same amount of manure applied in enriching a deep, well-prepared soil, sown alone with grass seed at least five times as thick as in common practice, would not produce a fine dense mat of grass, nearly equal to that of the best permanent grass lands. The experiment has never been as thoroughly tried by way of a test experiment as it should be. Even in moist and cool England, a continued application of fertilizers is required to keep up the grass crop.

The varying opinions given by different English authorities quoted by Prof Beal, furnish additional proof of the well-known fact that special manures give greatly varying results in different localities. J. Dixon, Cheshire, says

"After 20 years of experience I have no hesitation in pronouncing bones to be pre-eminent above all other manures for the improvement of grass lands, when permanency as well as cost are considered." He is decidedly in favor of raw bones, ground and applied in early spring. He cites one case treated with broken bones 70 years previous, where the effect was still very marked. In one case, about 1,000 pounds of bones to the acre in two years caused the yearly rent of an acre to go from 30 shillings up to 60 shillings, with a greater profit to the tenant. He gives other cases—among them a farm of 160 acres on which the farmer expended £400 sterling worth of bones in a year. The stock formerly kept consisted of 20 cows, and 3 or 4 horses and colts After treating with bones the fields pastured 43 cows, 16 head of young stock, 5 horses, and 4 colts, and one-fourth of the farm in tillage. Similar results were produced on almost every farm in the neighborhood

Prof. Voelcker modifies this view by remarking "The effects produced by the application of bone dust to pastures are very variable. On the porous land of Cheshire and similar soils on the red sandstone formation the result is very striking. On land which is wet and cold and rests on a poor, undrained subsoil, bones often produce no effect" He recommends, in all cases, a trial on a small scale.

Clement Cadle states that he has seen bones do no good whatever, and says that it is impossible to tell with certainty what fertilizers will do best on any soil till they have been tried S H. Thompson, a prominent farmer of York, says that coarsely pulverized bones, with farmyard manure, produce lasting results, often very marked for twenty years, but good barnyard manure is the standard, and never fails to improve grass lands. But in the report for 1875, Mr. Lawes, the most celebrated English experimenter, says. "The application of bones to grass land is not recommended for general adoption. They appear to be chiefly adapted to the exhausted pastures of certain localities The same is true with lime. Every man must experiment" He adds, "I am disposed to think that a dressing of dung once in 5 years, and 200 pounds of nitrate of soda the other 4 years, is about as good an application as can be used."

Prof. Beal further justly observes

"Experiments to be of much value must be kept up for a long time. As Prof. Voelcker says, 'Field experiments, in order to be practically useful, should always be tried for a succession of years under as great a variety of conditions as regards soil, time and mode of application, and crops, as possible.' This should be continued from year to year according to the same plan as fixed upon in the previous years. Some of the best experiments made, at great expense, in England, were tried for 20 successive years before arriving at satisfactory conclusions"

PLANK FLOORS RUINOUS TO HORSES.—Cannot some genius invent a kind of stable floor that can be kept clean without too much labor, which will not ruin the feet of horses standing upon it? Our horses have not much to do in the winter season, and we have noticed a tendency in them to become lame, but as they got over it upon driving, we paid but little attention to the matter. The past winter we have kept but one horse, and as a public conveyance ran between our place and office, we have preferred to patronize that, and let our horse stand in the stable. After the sleighing disappeared and the roads became bad he had but little exercise, and we noticed that he was becoming lame. Supposing that he would improve as soon as spring work commenced, we paid but little attention to it, until he became so lame that he could not strike a trot, and his limbs seemed weak and tender, although we could find no sore or tender spot, nor were his limbs swollen. We consulted a veterinary surgeon, who could neither find cause for lameness nor prescribe a remedy. We determined to try an experiment We made a fence including a small plot of grass, and turned him out, cutting grass for him. Now for the results. For three or four weeks before turning him out he had been getting lamer and lamer, until he became unable to trot. In one week from the time we turned him out he could trot off quite lively, and now he has nearly recovered. He seemed to be lame in every foot, and especially in his hind feet, and we have no doubt that standing idle on a plank floor caused his hoofs to become dry, hard and contracted, so that they pressed upon the tender frog If any of our readers know of a substitute for plank floors, that will obviate the difficulties we have presented, we should be glad to hear from them.—*American Rural Home.*

DANGER OF WHIPPING HORSES.—In his work on the "Education of Horses," Prof Magner says. I would caution those who train or use horses against exciting the ill-will of the animal. Many think they are doing finely, and are proud of their success in horse-training, by means of severe whipping or otherwise rousing and stimulating the passions, and then, from necessity, crushing the will, through which the resistance is prompted. No mistake can be greater than this, and there is nothing so fully exhibits the ability, judgment and skill of the real horseman, as the care and tact displayed in winning instead of repelling the action of the mind. The affections and better nature must be appealed to in training a horse, as well as in training a child. A reproof may be intended for the good of the child, but if only the passions are excited the effect is depraving and injurious. This is a vital principle, and can be disregarded in the management of sensitive, courageous horses, only at the imminent risk of spoiling them. I have known many horses of naturally gentle character to be spoiled by being whipped once, and one horse that was made vicious by being struck with a whip once while standing in his stall. I have referred to these instances to show the danger of rough treatment, and the effect that may easily be produced by ill-usage, especially with fine blood horses and those of a highly nervous temperament. Many other cases might be cited, as such are by no means uncommon. Sensitive horses should never be left after they have been excited by the whip or other means, until calmed down by rubbing or patting the head and neck, and given apples, sugar, or something of which the animal is fond.

TURKEY BREEDING.—A flock of well grown turkeys make such an agreeable addition to the receipts of the farm, and they are often raised with so little trouble, that I wonder at the seeming indifference of so many farmers with reference to them. The rules for breeding are simple and easily understood, and failures are due to two prominent causes—one, the weather, which, in some seasons, puts at fault the utmost possible care; the other negligence. A hot and dry season is well nigh an essential for success with turkeys. This is so important that it is of little use to be in haste to get turkeys hatched early, as we may do with chickens, though old birds are tough enough, young ones are exceedingly tender. If brought out by the first of June, it will, in most cases, be early enough. Even if they live through such chilly and damp weather as is common in May, they will not grow much until hot weather and bugs come to their relief; but, let them hatch out in June, in weather which drives the breeder to the shade, and little turkeys just enjoy it. they will stretch themselves in the sun and "lay off" with every token of delight. Damp, chilly weather is their ruin; rain abomination. morning dew a poison sure to blight the hopes of inexperienced or careless breeders Turkeys must be allowed to range very freely to insure success, but not while the grass is wet—that is, during the first two months or so of their lives. After that, one need not be quite so particular. Early turkeys not being advisable, the first litter of eggs from a hen may be reserved for a common hen in May, and the turkey hen be invited to lay a second litter, which she will do if broken up. I think the earliest turkeys do better in any case with a common hen, as she roams less and the chicks become more tractable, and the females from among them make more manageable mothers for next year.—*Rural World.*

THE FARMER'S FRIEND—THE CROW.—The poor crow finds every man's hand against him, notwithstanding the service he does to those who till the ground. If they do not kill him on sight, it is only because he is usually a match for even the most sharp-sighted gunner. He is quite as fond of bugs and worms, and little field mice and young snakes, as he is of the farmer's corn. He is a good policeman about the farmhouse, and drives away the hawk, who can do twice the amount of mischief he is guilty of. He hunts the grass-fields and pulls out the caterpillars and all manner of pests, and probably saves many other crops, if he is hard on the corn. A gentleman had a tame crow who trotted after him as he went out to wage his annual war on the squash bugs. His sable attendant put his head on one side and watched him a few minutes, as if to see how he did it. Comprehending the business, at last, he went for those bugs with a will, and cleared the patch in fine style. He took it for a business the remainder of the season, insuring a fine crop.—*Our Dumb Animals.*

—A Maine farmer, says a correspondent of the Portland *Advertiser*, is sure, from numerous experiments, that crows can count three, and no more than three. "In the centre of the cornfield was a small board shanty, and the farmer noticed that whenever he was in this building, although he was quite concealed from the crows, they would never come down to be shot. As soon as he left the field, however, they would come down by hundreds. They could evidently count one. The idea occurred to him to test their further skill in mathematics. The next day he took his son to the shanty, and after a time, sent him home, thinking that after the crows had seen one person leave the field, they would suppose the danger past, and come down. But they wisely kept aloof, and not until after he had himself started for home, did they venture to alight in the corn. The next day he took two persons with him, with the same result. first one person left the field, then another, the crows cawing their approval, but remaining in their safe position, and not until the third person had been seen to depart from the field would the cunning creatures trust themselves within gunshot of the little building. The next day half a dozen persons entered it. Presently one of them went back across the field. The crows mentioned the fact among themselves, but kept their distance, among the trees. Another person went away, with the same result. Directly a third emerged from the building and disappeared. The unhappy crows, having reached the end of their mathematical rope, came down in platoons, to their deferred breakfast, unaware of the three armed enemies still remaining in the building, who at once opened fire upon the poor birds, whose great misfortune was that they were unable to count more than three This experiment was tried repeatedly, with six, seven and eight persons, but the crows never failed to take the position that there could be no more than three, and when three departed, they invariably descended to their doom."

PREPARATION OF SOIL.—Success in gardening depends largely upon properly preparing the soil in the spring Simply plowing is not sufficient, It stirs the soil only a few inches in depth and only imperfectly that distance. The use of the spade does the work much more thoroughly and may be extended to any depth desired. A portion of the manure should be spaded in and well mixed with the soil. The work of spading is not a very formidable undertaking: it offers a good opportunity for sedentary persons to take a healthy exercise in the cool of the morning before going to their day's work. One need not confine himself to a single spading of the soil, several will do it no harm, but much good. The more thoroughly the fertilizers are mingled with the soil, the greater will be their effect. Lumps, if there are any in the soil, must be disposed of in some way, either by pulverizing or raking off. Soil should not be worked when wet, for it is then liable to dry in hard lumps Thorough spading, abundant manuring and repeated raking will secure a good preparation of soil for a successful garden.—*Lewiston Journal.*

DOMESTIC.

GOLD-FISH.

"How beautiful!" she exclaims, as she stands gazing at my window, in which is hanging a globe containing a couple of ruby gold-fish

"Such a lot of time and trouble it must take to keep them!" declares her companion, at the same time gazing with admiring eyes on the brilliant golden beauties as they float, dive, and execute the most indescribable twists and turns in their crystal palace.

"Yes," replies the first speaker, with an audible sigh, "if I could spare the money, but you know—" and she metaphorically clasps her purse, and with heartless inconsistency turns away from one of the most beautiful of God's creation, and orders that "love" of a bonnet, which you know cost nothing less than five-and-twenty dollars.

When will we learn to discover the true and the beautiful When will we appreciate the wonders that He has created, and discard the hollow mockeries of to-day. But it is not for me to moralize, and so to my subject.

The first thing, after deciding to keep fish, is to purchase a globe mine held about three quarts, and cost the enormous sum of one dollar. The globes may be bought of any establishment selling china ware. Be sure and ask for French plate glass, examine carefully, and refuse those containing flaws or irregularities. If you can not afford a globe, or wish to experiment, you can procure one of those old fashioned wide-mouthed candy jars.

The fish, costing five-and-twenty cents apiece, you can get of any bird-fancier. Lift your eyes from the tantalizing beauty of the large fellow's, and select two not longer than three or three and a half inches (I am supposed to be stocking a globe holding three quarts of water)

Take a quantity of silver or common white scouring sand, and, after thoroughly cleansing in several courses of water, distribute it on the bottom of the globe to the depth of an inch. Filling the vessel to within half an inch of the top with fresh river water, sink in the sand several or as many pieces of water-plant as your fancy and good judgment dictate, being careful not to crowd the globe, and thus impede the free motions of the inmates.

Any pond or running stream contains numerous varieties of delicate water-plant, which is absolutely necessary in your globe. Slips or cuttings, when fastened in the sand, will soon send out their lovely little branches, adding greatly to the beauty and cleanness of your globe, as well as to the sustenance and longevity of the gold-fish.

Several tadpoles—these are the best of scavengers, and, of course, are necessary—a dozen of water-snails, and one or more "dace" will make your outfit complete, and one of which you will never tire

We have now come to the most important part of our subject, namely, food. Garden worms, not more than three at one time, cut in fine bits, are greatly relished, and indeed are their chief food. Fresh beef in winter is a good substitute. Bread is not at all deleterious, as is a too common supposition. As fresh-water contains any number of animalcules, never feed your fish oftener than once in two weeks, and when you think their appetite has been appeased, you must change the water.

It is a never-failing sign when the fish will persist in floating around the top in search of air, that the water is impure and the globe needs renewing with fresh water.

Never let the fish hang for any great length of time in the sun, and once a day, if possible, let the cool air upon them. When it is desired to change the water, the inmates must not be removed with the hands, but with a simple little net made of any thin material.—*Harper's Bazar.*

PLAIN SUET PUDDING.—One pint of milk, one-half pound of suet, chopped fine, three eggs well beaten; one-half teaspoonful of salt, add flour gradually until you have made a thick batter; tie in a cloth which has been dipped in boiling water, and well sprinkled with flour; let the water boil before putting in the pudding, and boil two hours. To be eaten with canned or preserved fruit.

SOFT GINGERBREAD.—One cup of molasses, one-half cup of sugar, one-half cup of butter, three cups of flour, two tea-spoonfuls of saleratus, dissolved in a cup of boiling water, one egg, and ginger and salt to suit the taste. This will make two loaves. Bake in shallow tins.

POOR MAN'S SWEET CAKE.—One cup of sugar, one cup of sour cream, one-half cup of butter, one egg, one-half teaspoonful of soda, one-half nutmeg, grated fine, flour enough to make a stiff batter. Bake in a slow oven.