

AGRICULTURAL HINTS.

ABOUT HARD ROADS.

Their Advantages to Farmers Set Forth by A. G. Judd, of Dixon, Ill.

A hard road is a road that is by artificial means prepared with a surface of much more permanent and solid material than that of its natural state. The kind of material used for such artificial surface may differ with the locality or the use for which the road is intended.

The abundance of stone and gravel in a county makes it possible to build excellent roads at a reasonably moderate cost, and the probabilities are that they are the only materials that we shall use in constructing any of the country roads of Lee county.

Brick, wooden blocks, asphaltum, etc., are used for building roads in cities, but I shall not describe the various modes of construction, as I understand that they are not included in this subject.

Let us realize at once that different compositions of soil require different treatments in order to make equally serviceable roads. In this county we have practically three classes of soil to be recognized: First, black loam; second, yellow clay; third, sandy loam. There are certain conditions, such as springy, quicksand or mucky places, liable to occur in localities where any



A, an entire width of right of way; B and C, such a distance as commissioners think necessary to protect from fence or hedge; C, C, ditches at side of road, and used for summer, or dirt, road; D, stone or gravel.

of these three kinds of soil exist, so I shall treat drainage in a few general remarks, and trust that the "road commissioners" of each district will be intelligent enough to determine what to do in their particular locality.

The prime requisite of every good road is a thoroughly underdrained road. When this is not naturally so by reason of a porous subsoil, it may be economy to put in a line of tile, from two to four feet below the center of the road, of sufficient size to carry off the ground water. There may be spots where it is best to put in a line of tile on each side of the road.

Ditches along the sides to carry off the surface water are among the necessary elements of a good road. These ditches should be of a uniform grade, so as to carry the water on its nearly level grade as possible, in order to prevent washing, and connect with proper culverts or natural watercourses. Great care should be used in making these side ditches not to get them deep enough to be dangerous in turning off from the main road either day or night.

Now let us turn our attention to the construction of a stone road upon our ordinary soil that does not need tile drainage; and that we may better understand each other, I will draw an illustration:

Knowing how much money is to be spent each year, determine the cost per rod, and proceed to prepare the number of rods by grading up the natural dirt to the desired height and width. It is desirable to have roads around the main cities for at least two miles in each direction not less than 18 or 20 feet in width, as they are used so much by the city folks for pleasure riding that it is necessary to have them wide enough for safety at all times.

After the grading is finished, it is best, but not the common practice, to put on the heavy roller and roll the bed thoroughly, that it will better keep its shape and support the heavy loads, for it is not the stone filling that supports the load, but the dirt beneath supports both the stone roof and the loads upon its surface as well; therefore, too much pains cannot be taken with the dirt bed.

Stone or gravel, when properly broken and packed together, forms an impermeable roof that water cannot enter. One of the great mistakes of road-making is in not rolling the dirt bed, but simply grading up and putting the stone on. The result is that the loads pass over the center first, the stones settle into and pack down the dirt in the center, and in a short time a road that when built had the properly curved surface becomes almost or quite level, thus allowing water to stand on its surface until evaporation and absorption remove it. While thus standing, it has a tendency to soften certain grades of stone, and allows them to wear away faster, thus producing ruts and requiring needless repairs.

An 18-foot road requires six cubic yards of crushed stone and one and one-half cubic yards of dressing to the rod, making it nine inches deep in center and tapering to four or five inches on the sides. After the entire number of rods is properly stoned and dressed, furrows should be plowed along each side, throwing the dirt against the edge of the stone, thus forming a bank to keep it in place, and prevent its working off and becoming scattered over the adjoining portions of the roadway.

Then when the road is properly trimmed and leveled off to a nice grade to the outer edge of the ditch, take the big roller, commence at this outer edge, roll lengthwise, going around in a land, and finishing up in the center. Thus you put an improved roof on the ditch and greatly lessen its liability to wash.

You pack the outside stone first, and that binds and holds the center stones in place, thus preserving the elevated line of the road and putting it in best shape to bear the surface traffic.

Such a road, where stone is reasonably convenient, can be built by contract for about \$5.25 per rod, and where part or all of the hauling is done by volunteer work, the cost is greatly reduced. Gravel, not needing to be crushed, and being so much easier to be taken from the pit, can be put on for half, or even less than half, the cost of stone.

For clay roads, the only material difference is that the side ditches must be deeper and the cone higher.

For sandy roads make the side ditches more shallow and the cone wider and flatter. They should be built, if possible, when the sand is wet, for then the grains of sand have a tendency to stick together and will pack some, so that by getting the stone or gravel roof on while in that condition, the road is much more apt to retain its shape and durability.

Sometimes there are narrow or "single-track" hard roads built at one side of the main road, intended to be used only during the muddy season. There is no material difference in the manner of building stone roads of different widths.

Narrow tracks are usually adopted only by districts remote from cities and available material. They are frequently covered with drifted snow, the hedges or fences shading them so that the snow does not get off until late, thus rendering them unavailable when most needed.

McAdam and Telford are the names usually applied to stone roads. The former is the one generally adopted in this country, and consists of breaking the stone fine.

Pieces larger than an egg should be broken smaller. It is desirable to have them range from a hickory nut to an egg in size.

Telford's system consists in putting larger stones on the bottom and covering with small ones.

Such roads insure level or easy grades and equal serviceability at all seasons of the year. While costing some more at the outset, the expense of maintenance is so much smaller that after completion they become actual income-producers. They increase the comfort of travel; they place the markets of the great grain centers at the farmer's door every day of the year, thus enabling him to take advantage of the temporary rise in the markets occasioned by muddy roads during certain portions of the year. They bring the farmer's family in touch with nearly all city privileges; enable them to attend lectures, and various evening entertainments.

A good road raises the value of the adjoining lands anywhere from ten to four hundred per cent. Land that could not find a buyer at \$50 per acre has sold for \$200 an acre after a stone road was built, thus making it available to city markets as a truck farm.

The farmer is bending his every energy to the solving of the problem of cheaper production. When we consider the facilities for quick and economical transportation furnished by railroads and steamships to almost every part of the world, it behooves us to put ourselves in direct contact with the push and energy of commercial activity, and save our share of the \$550,000,000 lost yearly on account of bad roads.—Farm and Fireside.

THE POWER OF MONEY.



Yes, "money makes the mare go." When properly applied in building roads whereon with loads she can get right up and glide.—Good Roads.

Flowers in the Dooryard.

Next to a good vegetable garden in value is a neat and well-kept dooryard, in which the well-fed farmer can satisfy his taste for beauty and bloom, and his children can grow up to appreciate the refining influence of flowers, which some one has called "the smiles of God." Kendall Perry tells of an humble home which was enriched by flowers and shrubbery and well-kept walks, and we have no doubt the people who lived there enjoyed themselves much better than they would in a grand new house with a barren yard about it. Cultivate flowers, not only because they brighten life, but because it is the cheapest form of pleasure possible, bringing with it the richest results in the lives we live.—Farm and Fireside.

Pedigree is full of promise, but will not, of itself, give milk or make butter.

FARM AND GARDEN.

FERTILIZING DEVICE.

Good Thing for Places Where the Work Is Done by Hand.

We present a very simple and practical device for putting on fertilizer by hand. We have used it for four years when wanting to put fertilizer into rows continuously, and not having a fertilizer attachment on planter.

The sack used for holding the fertilizer should be of the best quality of cotton, woven for grain, so as to be tight against the escape of the finest portion of the dust, and can be used in two different ways. The plan best for carrying



and handling is like the illustration. Get a tin spout about six inches long, made at the tinner's, with one end bulged considerably, like a funnel, as at A. Cut a hole just large enough to let the tube through from the inside, then wrap the edges down tight to the tin tube with strong cord. This tin tube should be placed about half way between the bottom and top of the sack.

A strap 1 1/2 inches wide and eight to twelve inches long is sewed on the bottom of sack with strong cord attached, to tie up mouth at C, after putting in fertilizer. I used the old gum hose from my grain drill to fit over the tin tube, the latter being made to fit in the gum tight. By placing the sack over the head with strap resting on opposite shoulder from side the sack is to be worn, the fertilizer naturally settles to center of sack ready to run out of the gum tube.

By placing the hand at B the tube can be guided and the flow of fertilizer regulated by pressure on the gum hose, and the mixture can be shaken up by the lower part of arm, to prevent clogging. The fertilizer can be scattered over any width of row by zigzag motion of hand. This arrangement will allow any speed that the operator may want to use. A hole of, say 1 1/2 inches, will allow a large amount of fertilizer to pass out, which may be lessened by the speed of operator in walking as well as in the use of the pressure of the hand on the gum tube.—George E. Scott, in Ohio Farmer.

ORCHARD AND GARDEN.

In setting trees for a wind break, take those of a close-growing habit.

Currants will grow and bear fruit 25 years if they are properly cared for.

If the bark of the fruit trees is split by frost, cover the wound with grafting wax.

Washing suds and sink water will help the grapevine wonderfully in its growth.

When setting out peach trees cut them back to within two feet of the ground.

Black knot is best kept in subjection by cutting off and burning all affected branches.

In planting shade trees the hardness of the trees should be given preference over rapid growth.

One advantage of well-drained land is that the fruit comes to maturity earlier than on undrained land.

Generally the plum tree will need jarring to prevent the work of the curculio, no matter what variety has been planted.

There ought to be plenty of room for all kinds of fruit on every farm. Grow a good supply of small fruits as well as of tree fruits.

By stirring the soil after every rain the weeds will be more evenly destroyed than in any other way, besides securing a better growth of plants.

While the best land is none too good for strawberries, any land that will grow good crops of corn or potatoes will grow a good crop of strawberries.

Mulching prevents the early flow of sap by preventing the ground from warming too early, and in this way often prevents injury by late frosts.—St. Louis Republic.

Floors for Poultry Houses.

You may think that any kind of a floor will do for poultry houses, if so look at the benefits and non-benefits derived from poor or good floors. Have you not noticed fowls that had the roup just because the floor was damp or admitted draughts through its openings? Have you not noticed the numerous vermin harbors many floors have? The fowls stand during the day on the floor; their feet are in direct contact with it and their entire body being close to the floor it must surely be of some consequence as to the condition of the floor.—Farmers' Voice.

THE GRASSY FLAVOR.

Why Change in Feed Should Always Be Made with Caution.

It is one thing to have a pleasant grass flavor and quite another to have a rank grassy odor to the milk, traces of which will be found in the butter. The cause for the rank flavor can be found in intestinal derangement due to the change of feed. A radical change in feed should always be made with caution and be made gradually.

To change suddenly from dry feed to green feed will derange the digestive apparatus as surely as a sudden change from green feed to dry feed. And the change should always be made when the stomach is full. That is, do not give an animal food to which it is unaccustomed when its stomach is empty. Give it first a feed of that to which it is accustomed, and then add a little of the new feed, increasing the proportion of the new kind of feed with each meal until a full feed of the new kind is given, the old kind being gradually diminished meanwhile.

In changing to grass the way to apply this method is to turn the cows for an hour or so into the pasture, first giving them their usual dry feed, then take them off the pasture for the remainder of the day. The time they are allowed to run in pasture can be lengthened each day until they are left there all day. This will ordinarily require but three or four days for the change, but it is well to turn into a pasture of flush grass but an hour or so at a time when it is wet with dew, unless the stock had become accustomed to full grass previously. That is, changing from a poor pasture to a flush pasture is itself liable to make trouble if done inconsiderately. The cow will be apt to fill herself with rich grass beyond what she is accustomed to, and it will generate gases in the stomach and cause bloat at the worst, and when the worst does not occur there is still danger of inflammation of the intestinal canal, which will cause looseness and give the milk a rank odor and flavor. Stock should therefore be left in the new pasture but part of the day at first, if the feed is much better than in the old pasture.—Agricultural Epitomist.

FOR BREECHY ANIMALS.

A More Humane Device Than Blind Boards or Hopples.

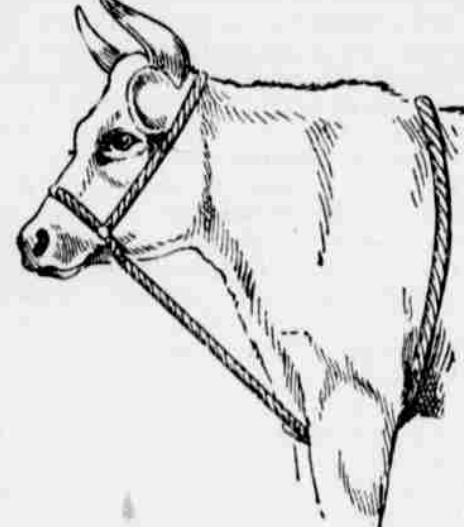
It is inhuman to put blind-boards, hobbles and other constructions upon cattle that are given to jumping fences. These heavy affairs fret the animal and impair growth and production. They often also endanger the animal's life. A simple and humane device is shown in the illustration, which may be used

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for both cattle and horses. It is simply a light piece of rope arranged upon the animal's head as a halter, then passed between the forelegs and around the body, when it is fastened securely. It should be arranged so that the animal can just raise its head to a natural position, but no further. To jump over a fence an animal must always raise its head above the normal position. If there appears danger that the animal when feeding may get a forefoot over the rope it can be held up close to the breast by a light cord passing around the neck. The rope will stretch somewhat with use, but can be shortened up as required.—N. Y. Tribune.

The Head of the Dairy Herd.

Daniel Munroe says: The most important of all selections is the head of the herd. The bull we breed from should combine as much concentration of the very best family records as we can positively buy or breed. The value of a good bull was finely illustrated last summer, when one of the largest dairies in the province was disposed of at public sale—95 head of young things, three generations, bred from the herd and sired by a choice thoroughbred bull, were offered, and brought prices that must have been gratifying to the owner in return for his investment, while the purchasers were equally well pleased with their end of it. But that was not the end; the influence of that bull will live on for many years scattered over the province to the great benefit of the dairy interest. Moral: Don't look at the dollars too long when you need a good bull.

Ration for Dairy Cows.

Sudden changes of the ration do not prove of advantage with dairy cows. A change of food should be gradual. It requires but very little to cause a cow to fall off in milk, and the feeding should be done judiciously. Oilmmeal should always be used by commencing with a small quantity, half a pound a day being sufficient, increasing an ounce a day until a pound or more of the meal is allowed. It should be mixed with other food, as it sometimes "gums" in the mouth and may be rejected.

WORTH A SMALL FORTUNE.

The Parasol of the Summer Girl Is a Very Costly Affair.

The fashionable young woman has a whole cabinet of curiosities, to say nothing of a small menagerie, on her parasol handles this spring. Enough quartz and crystal to form a geologist's collection and enough birds and beasts to start a zoological garden seem to be a necessary feature of the well regulated feminine wardrobe.

The new parasol handles easily supply this required feature. Even the gay flowered silk covers of the parasols sink into insignificance when compared with the handles. A realistic toad mounted on a green enamel stick forms one of the most favored parasol handles, while carved wood parrot heads in a variety of colors are also considered good form. These handles belong to imported parasols, which are generally made of changeable Dresden green silk. To own one it costs \$12. The grass linen sunshade, when lined with green silk, also has a parrot or toad perched on the top of the handle.

A special novelty this season is the changeable taffeta silk parasol, with a purse attached to the handle.

The handles are of carved wood, with a kitten's or dog's head on the top. The purse is in dark or light leather, and is fastened to the handle by elastic bands. To the women who know not the privilege of a pocket this combination of a parasol and purse will be found most convenient, especially in crowded cars, where to hold the pocket-book in the hand, cling to the strap and carry one's bundles is well-nigh an impossibility.

All the new parasol handles measure from seven to nine inches in length, and many of them are very costly. Those of natural wood and bamboo are used for ordinary wear. When the cover of the parasol is Dresden or Persian silk, these wood handles have a crystal ball in the same color as the foundation of the silk at the top. Sometimes the crystal ball is half covered with a tracery of gilded silver, which adds to the effect, and incidentally to the price.

Even parasol handles have succumbed to the miniature craze. One of the most beautiful handles seen this spring was made of tortoise shell, ornamented with an exquisitely painted miniature outlined with a decorative design in gold.

The gold and silver handles with the jeweled tops illustrate one of the ways in which the society woman disposes of her wealth. There are gold handles with a ball top, studded with turquoise, and other handles of gold or burnt ivory, with a single large gem at the top. An exquisite burnt ivory handle with an irregular tracery of gold has a gleaming topaz for the top. Another of mother of pearl is capped with an amethyst set in tiny pearls.

A magnificent parasol of yellow silk and duchesse lace has a twisted gold handle, with a ball at the top. This ball is the feature of the handle, though it would not appear so to the casual observer. But if a certain hidden spring is touched the ball opens and a bit of a watch is found ticking away inside.

One of the most expensive of the new parasols is of black chiffon and duchesse lace, with the entire handle of white crystal. At the top the crystal is formed into an elongated ball, inlaid with bits of vari-colored enamel. The parasol handles of wood, with the cluster of fruit as the decoration, are both new and novel. For the young woman devoted to golf there is a parasol handle which represents her golf stick. It is generally used with a grass linen parasol.—N. Y. Sun.

POURED IN WRONG.

That Placed the Other Half of the Liquor on Top.

A preacher with views on the temperance question was walking soberly along a dusty road. A farmer with an empty wagon, save that it contained a gallon jug, overtook him and asked if he did not wish to ride. The preacher, assenting, climbed into the wagon, and as they jogged along toward the next village the two fell into conversation.

Now, the preacher had his suspicions concerning the jug and led the talk around to the subject of temperance, expounding his views at great length and with appropriate emphasis. Much to his surprise, his companion quite agreed with him. Nevertheless the preacher still continued to suspect the jug.

"My friend," he said presently, "would you mind telling me what you have in the jug here?"

"Rum," said the farmer.

"I feared so," continued the preacher "Now, my dear friend, you have quite agreed with all I have said on this great question of temperance."

"Yes."

"Can you not give a proof that you mean what you say and pour out this accursed liquor?"

"No."

"But I cannot understand—"

"Wall," said the farmer, "ye see I'd do it for ye, only half the liquor in that jug belongs to my brother."

"Then empty your half, my friend."

"But I can't do that, nuther. Ye see, his half's on top."—Boston Budget.

—Coffee very slightly retards the process of digestion. A weak infusion of coffee seems rather to promote than to retard. A 40 per cent. infusion delays digestion 2 1/2 times the normal period, and a 60 per cent. concoction delays it five times the usual period.