STALLS FOR COWS

COMFORT A CONDITION PRECEDENT TO PROFIT IN THE DAIRY.

A cow stall, which is termed the "Model," is shown in the accompanying illustration. It may be as narrow as one pleases, but the width and length should be proportioned to the size of the occupant. We do not consider 3½ feet any too much room for the cow of average size. The construction of this stall is such that when standing the rack in front forces her back a few inches so that all droppings fall well

"MODEL" COW STALL.

to the rear. The bar across the stall at the rear should be fastened to the floor just in front of the hind feet when standing with her head to the rack. This bar serves the double purpose of retaining the bedding in place and of encouraging the cow to move forward when about to lie down, bringing her head under the projecting rack. The bottom of this rack should be from 35 to 40 inches above the floor. A shallow manger may extend across the full width of the stall in place of the slanting box shown in the engraving.

The cow is fastened with a halter about the head and instead of removing the headpiece every time the cow is to be loosened attach a stout safety snap to the end of the rope and snap this into the ring under the throat, letting the cow wear the head-piece all the time.

In discussing the subject of cow stalls, Hoard's Dairyman says: "We believe partitions are an important and much neglected feature and should be adopted in every stable, regardless of the manner of fastening or restraining animals. The danger of cows stepping on one another, and, especially of injuring teats and udders, is altogether too possible to be safely ignored, and to go into a stable and find a cow standing with another on either side lying down suggests that the standing cow is not as comfortable as she would like to be. And comfort is a condition precedent to profit."

Cooling Milk For Shipping.

Few farmers who haul their milk to the creamery take much pains in cooling their milk, and I doubt if it is absolutely necessary if it is delivered before it sours, says a correspondent of Hoard's Dairyman. But for those who ship their milk to cities or deliver directly to private families cooling milk is an important factor in the milk business.

There are a great number of ways of cooling milk, but the easiest and most scientific way in my experience is this:

First of all get a correct thermometer and take the temperature of the water you intend to use to cool your milk with.

Invest in an aerator, or cooler. Any kind is better than none at all, as they are all made to cool and aerate the milk in a better way than stirring it in a can or bucket.

After you have been working at your milk trying to cool it off for a certain length of time and you think it ought to be cool enough by this time, don't fail to take the temperature of the milk and don't depend on guesswork, for more cans of milk have been lost by guesswork than any other way I know of.

Shippers who ship their milk to large cities often complain of "sour milk" marked on their statement when they get their checks. They are generally those who do not understand "cooling" their milk properly. They don't know the temperature of their spring water; they don't know how cool their milk is when they ship it, and then the dealer they ship to is blamed for it all because he refuses to pay them full price for their tainted and sour milk.

Some New Uses For Milk.

From the casein derived from milk by coagulation, we are told by L'Industrie Laitiere (Paris), is now made an artificial ivory known as lactite, from which are manufactured billiard balls, toothbrush handles, combs, etc. The same journal informs us that by treatment of the same casein "certain manufacturers prepare a paste of powder that can be used instead of eggs in some kinds of cookery, while costing only half as much." The casein combined with alkaline bases makes a hydraulic cement. The curd is cut into bits, which are dried rapidly and then finely powdered. The powder is mixed with 20 per cent of pulverized quicklime. Finally curdled milk has been for some time used in whitewashing buildings and to prevent scaling. For this purpose it is mixed with lime so as to make a thick liquid. Lactarine is a preparation of almost pure casein, which, dissolved in ammonia, is used to thicken colors employed in cotton printing.

Oleo and Honesty.

The American people have given oleo men a chance to be honest, says The Rural New Yorker. They had a chance to sell their inferior fat for just what it is. They did not wish to do this; they wished to sell it as butter, and so they made up as close a counterfeit as they could. It is always right and fair to give people a chance to be honest if they really desire to be so. If they refuse to be honest, the only thing left is to force honesty upon them.

ARID SOILS.

Their Physical Condition Is Favorable to Plant Growth.

Some interesting peculiarities of arid soils have been brought out by the investigations of the California experiment station. It is found that the soils of the arid region are as a rule sandy, silty or pulverulent and rarely contain clay. Kaolinization and the subsequent formation of clay goes on in them to a very limited extent, being partially replaced by the formation of zeolitic compounds. There is practically no difference between soil and subsoil. The "sand" of such soils includes some quartz particles, but is made up largely of particles of other rock minerals. The soils are as a rule richer in plant food than soils of humid regions, this being especially true of lime (12-14 to 1), magnesia and potash (¾ to 1). The humus content is smaller, but the amount of nitrogen is about the same, since the humus of arid soils is from three to five times as rich in nitrogen as that of humid regions. Nitrification is also more active, and the nitrates are not leached out.

The occurrence of "alkali" salts in the soils of the arid regions is independent of either present or former conditions. The salts are the educts of the soil from the weathering process, and in consequence of deficient rainfall have failed of being leached into the subdrainage. They very commonly contain notable amounts of water soluble potash salts, also nitrates and frequently alkali phosphates. Aside from these water soluble ingredients alkali soils always contain large amounts of acid soluble plant food.

The presence of alkali carbonates (usually the sodic salt) acts most injuriously, not only in being directly corrosive of the bark of roots and stems, but also in so deflocculating the soil as to render tillage and drainage impossible. This can be remedied by the transformation of the sodic carbonate into sulphate by means of land plaster in the presence of water. Soils so treated become profusely productive unless overcharged with sodic salts.

Outside of the axes of valleys the alkali salts are usually contained within the first four feet from the surface down. Within this limit they migrate up and down according to the moisture conditions, but are apt to accumulate particularly at the average depth to which the annual rainfall penetrates. We can therefore ascertain by the examination of a four foot column of soil the total amount of salts which under favorable conditions may either accumulate within six inches of the surface or be more or less evenly distributed through the soil column. We can thus determine beforehand the practicability of reclaiming such lands for cultivation under existing economic conditions, taking into consideration the ascertained toleration of the salts by the several crops.

The physical conditions of arid soils are especially favorable to extensive root growth and to the capillary rise of water, thus enabling plants to grow with a limited amount of water in the soil. The alkali salts present also assist in collecting and conserving moisture. The abundant supply of readily available plant food present contributes to the vigorous growth of plants.

Club Root of Cabbage, Etc.

The curious malformation called club root is seen in cabbage, turnips and allied plants and is caused by a parasite of so low an organization that the scientists are in doubt whether to call it a plant or an animal. If this organism is once introduced into the soil, it is almost impossible to eradicate it totally, as it is capable of developing and of living there for some years at least independently of the cabbage or other host plants.

The progress of the disease is so rapid that seedling cabbages grown in infested soil will often be badly clubbed before they are large enough to transplant. Four or five weeks is ample time for the clubbing of every root in a bed.

The germs may be disseminated in manure from feeding clubbed roots to

TURNIP SHOWING CLUB ROOT.

stock or from throwing them into the compost pile. It is also clear that clubbed roots should not be allowed to remain to decay on the surface of the soil.

Remedial measures include destroying clubbed roots by burning or deeply burying them or boiling before feeding to stock. Deep plowing in autumn, rotation of crops and liming are other preventions. An important measure is the suppression of cruciferous weeds, such as shepherd's purse, kale, wild mustard, pepper grass, false flax, etc., which serve as hosts for the club root parasite.

Roads of Sawdust.

Any strong, fibrous substance and especially one which holds moisture, such as the refuse of sugar cane or sorghum and even common straw, flax or swamp grass, will be useful. Spent tanbark is of some service, and wood fiber in any form is excellent. The best is the fibrous sawdust made in sawing shingles by those machines which cut lengthwise of the fiber into the side of the block. Sawdust is first spread on the road from eight to ten inches deep, and this is covered with sand to protect the road against fire lighted from pipes or cigars carelessly thrown or emptied on the roadbed. The sand also keeps the sawdust damp. The dust and sand soon become hard and packed, and the wheels of the heaviest wagons make but little impression upon the surface. The roadbed appears to be almost as solid as a plank road, but is much easier for the teams. The road prepared in this manner will remain good for four or five years and will then require renewing in some parts. The ordinary lumber sawdust would not be so good, of course, but if mixed with planer shavings might serve fairly well.

All Should Help.

The farmers cannot and ought not to be expected to build good roads unassisted by the other industries of the state. This fact is now fully recognized by all who have made careful study of the problem of securing permanent highways. It is further evident that money contributed for road construction ought not to be used in the wasteful and ineffective way in which road taxes in the past have been expended.

Road Notes.

Every person partakes of his environment. Don't live in a mud locked community.

Mud is highway robbery.

We should never tire speaking a good word for the broad tire.

Everything that tends to make roads better helps the bicycle business.

Willed $40,000 to Good Roads.

Patrolman S. Robinson of the Boston police department, who died recently leaving $53,000, has bequeathed $40,000 to the town of Gilmanton, N. H., the income to be expended for good roads. The remainder of the fortune is divided among the friends, relatives and police associates of the old man, who was styled "the Hermit of the Police Court."

HIGHWAY REPAIRS.

MAINTENANCE AS IMPORTANT AS CONSTRUCTION.

Material Should Be Placed Along the Road and Holes Filled as Soon as Discovered—Proper Methods of Repairing and the Cost.

As the old world has had its civilization longer, so has it developed to a higher degree than have we in the newer western world the science of road building. With the art of proper construction has grown the knowledge of proper maintenance. In America many states and municipalities have learned how to build their streets and highways well, but there has so far been a sad and general lack of proper and systematic maintenance, says the Brooklyn Eagle. The agitation in favor of good roads which has been pressed so vigorously in recent years, owing in a great measure to the development of the bicycle and its universal use, has led to splendid results. But the work is as yet but half accomplished, for while thousands of miles of improved highways have been built throughout the United States their maintenance has not been properly provided for.

H. B. Fullerton of Brooklyn, who has long taken a deep interest in the subject of good roads and who was recently elected national chairman of the highway improvement committee of the League of American Wheelmen, had some interesting things to say upon the subject of road maintenance.

"In New Jersey, New York, Connecticut, Massachusetts and on Long Island there are some good roads, which are taken care of, but not in a scientific or proper manner. This is directly due to the old luxurious and most unsatisfactory manner of having the road tax worked out by day's labor. Any one familiar with this system knows just what it means and how poorly the little done is accomplished. Spring comes. The highway commissioner turns to his books to see how many days each one is down for to cover his road tax. Work is reckoned at about $1 a day for a man and from $1.50 to $3 a day for a team.

"Well, when those men congregate to do the work it is like a meeting at the crossroads grocery, and lots more talking is done than work. In addition what is done is done as each separate individual thinks best. There is no system, and

IMPROVED HIGHWAY.

the result is disastrous in the extreme. It is the same virtually with our suburban macadam roads. What is needed is a country roadmaster with thorough scientific knowledge of proper road building and the experience to put that knowledge into practical use. As it is every highway commissioner works on his own individual lines and theories. One believes in a high crown on his roads, another a flat one and so on."

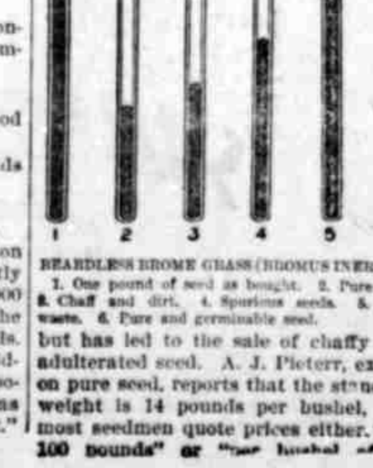
In discussing specific examples Mr. Fullerton mentioned the famous Merrick road on Long Island, with which he is thoroughly familiar. "That is one of the oldest macadam highways in this section," he said. "It has stood the heaviest wear of any road in this country without a question, for it forms the only means which the farmers of the island have had for reaching the market. Over 1,500 market wagons have been counted going over that road in one day, and many of them carried as much as six tons of freight. The road has been repaired in various ways, but without proper system. Various portions have been looked after by different roadmasters. One would cut down weeds along the sides, another would go along in the spring and fill up holes, generally using the refuse that had worked off at the sides, a material worse than dust, for it had worn round and would roll under wagon tires and start boring holes at once. Sharp broken material must always be used, as it packs and becomes adhesive. For that very reason wash gravel is little better than useless. Then some other repairer would try to fill up ruts and holes with loam which washed off at the first shower.

"But I remember one section of that road, about five miles long, which was kept in perfect repair because by proper and scientific methods, and it cost less than any other portion on which work was done. Piles of proper repair material were kept along the road at stated intervals, and every hole was filled as soon as discovered and the filling stamped down solid. These holes and gullies were not merely filled in haphazard, but they were cut out with clean edges clear through the top layer of macadam and then built in and stamped. This work was done at all seasons of the year whenever the holes appeared.

"It costs at most $50 a year to maintain a mile of macadam road, provided it be done in a proper manner. That figure is what Massachusetts has paid, but it was due in a measure to a landslide which increased the cost and in addition covered some bridge building. Their engineer informed me that with scientific methods macadam highways could be maintained in perfect order for from $15 to $30 per mile per annum."

Brome Grass Seed.

Beardless brome grass has come into great favor in the west. This has not only made the price of the seed high,



BEARDLESS BROME GRASS (BROMUS INERMIS).
1. One pound of seed as bought. 2. Pure seed. 3. Chaff and dirt. 4. Spurious seeds. 5. Total waste. 6. Pure and germinable seed.

but has led to the sale of chaffy and adulterated seed. A. J. Pieters, expert on pure seed, reports that the standard weight is 14 pounds per bushel, and most seedmen quote prices either "per 100 pounds" or "per bushel of 14 pounds."

The figure illustrates the amount of good seed and waste in one pound of a commercial sample. The seed contained more than 40 per cent of chaff and less than 10 per cent of the total could be used, the balance being waste.

Value of Good Roads.

State Highway Commissioner McDonald of Connecticut has made a computation in which, to show the importance of highway improvement, he fixes the annual loss by bad roads in that state at $2,282,500. He estimates the annual depreciation on horses at $135,000, excessive horsepower required at $1,029,000, cost of support of horses while roads are impassable at $150,000, useless repair of roads at $333,000 and loss by lawsuits caused by bad roads at $12,500. The estimate is based on 15,000 miles of highways in the state and 43,000 horses.—New York Evening Post.

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