

CEMENT MORTAR.

Instruction in Mixing It For Making Pipes or Drainage.
A subject that interests farmers is the making of concrete pipe, either for use in irrigating systems or as a substitute for clay tile in drainage. From the Arizona experiment station come the following practical details of the manufacture of such pipes in molds of two feet in length. The method of mixing the cement mortar will be useful for other kinds of cement work also.

The sand should be selected with the greatest care. It should be free from clay or dirt and preferably composed of grains of varying sizes. Roughly speaking, the strongest and densest sand for mortar contains two-thirds coarse grains and one-third much finer grains. Often a gravelly sand can be passed through a half inch mesh screen and then mixed with one-half its volume of the sand.

A cement should be selected which is very finely ground, rather slow setting and of unquestioned soundness. Assuming the pipe to be fifteen inches in diameter and the proportions of the mortar to be one part cement to three and one-half parts sand, a batch can be made up as follows: One barrel (four sacks) of cement and three and a half barrels (seven wheelbarrows) of sand. The sand and cement should be mixed dry and turned three times with shovels. Water is then added in an amount sufficient to bring the mortar to a "dry" consistency—that is, such condition as will require much tamping to cause water to stand on the surface.

The batch should then be turned twice or three times and coned. It is profitable to work the mortar thoroughly.

Labor and Curing.
Three men—two to tamp and one to shovel the mortar—are a satisfactory team and can mix, mold and sprinkle at the rate of forty pipes per day of nine hours. The tamping must be done in small layers, not over three inches at a time.

An important feature in the manufacture of cement pipe is the curing. About twenty-four hours after the pipes are made they should be sprinkled with water so long as they seem to absorb it freely. For a week thereafter they should be wetted every day. They should then cure in the air for a week or two before being laid in the ground.

On the third day after molding a cement pipe a wash of pure cement should be applied on the inside of each length with a plasterer's brush.

Sugar Beets on Alkali Soil.

Beet fields subject to alkali are described as being characterized by a very uneven stand, considerable irregularity in the size of the plants and the prevalence of chlorosis of the older leaves and of sprouting taproots. The cause given for these effects is that the alkali retards or prevents the germination of the seed or that it destroys the plants after germination. Clay soils were found to present greater difficulties in this respect than sandy soils. Attention is called to the fact that when the density of the soil solution becomes too great the vitality of the seed is destroyed, or, in the case of already growing plants, the passage of water from the soil into the plant is checked. The strength of the soil solution in Colorado analyses was found to be 2.97 per cent of alkali where the soil moisture was equal to 20 per cent and to 5.93 where it was only 10 per cent. On the field in question the heavy adobe soil two days after irrigation contained from 18 to 20 per cent of water on the side of the plant next the water furrow, but several days after irrigation the moisture content had fallen to 8 to 12 per cent, and the plants, while still growing, were suffering from lack of water.—G. W. Shaw, California.

Fruit and Flowers

SUCCESS WITH PLUMS.

Good Effect of Mulching and Spraying in the Spring.

By JAMES ELWIN, Minnesota.
Last winter, 1906-7, I bought a straw stack in order that we might mulch my plum trees to keep them back in the spring in case a late frost might come after blossoming. We only mulched about one-half and mulched them in February, when the ground was frozen. As the season was very backward I could not tell if it held them back or not, but I do know that on those that were mulched the fruit was better and more of it, owing to the mulch retaining the moisture around the tree. On trees that were not mulched the fruit in a number of cases wilted and dried up before ripening.

The spring of 1906 was the first year we sprayed. We sprayed before the trees were in blossom with bordeaux and paris green and commenced the second spraying after the fruit had formed. With only a knapsack sprayer it was slow work, and we were unable to finish the orchard. All the trees that were sprayed twice had very fine fruit, and those that were sprayed only once were inferior. A number of the trees that were sprayed twice yielded two sixteen-quart crates of elegant fruit.

Early in 1907 I purchased a barrel sprayer, which made the work easy. One man would drive and pump and two would spray. By this means we could spray 200 trees an hour. We sprayed twice last year, using bordeaux and arsenate of lead.

Black Aphid.
The first three years black aphid was very prevalent among the trees, especially the De Soto. Last summer after the second spraying I noticed nearly all of the new shoots were covered with this pest and thought perhaps spraying had not helped it, but in a few days, to my surprise, I found it all gone and concluded the insects working down to the part that was sprayed obliterated them. In conclusion I wish to impress on the minds of those raising plums that it is not advisable to offer them for sale in bushel baskets.

Roots for Farm Animals.

Roots as a part of the ration have a decided value for all kinds of domestic animals. Professor T. F. Hunt and associates in a recent bulletin of the New York Cornell experiment station in discussing this subject call attention to the fact that their effect is tonic as well as nutritive and that breeders and feeders of farm animals for exhibition purposes find roots invaluable. For most purposes the roots are chopped or sliced before feeding. Various hand and power machines are on the market for this work. Generally speaking, roots should not be fed alone, as they carry too much water. A feed may vary from twenty-five to fifty pounds a day for a thousand pounds of animal, according to the amount of dry concentrates and roughage fed. It is usual to put the cut roots into the feed box and distribute the ground grain over them. For poultry, however, the whole roots may be given, allowing the fowls to pick them. It is said by some that turnips and rutabagas impart a flavor to milk. However, if no roots are in the milking room at the time of milking and they are fed just after milking this may be avoided.

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FRIEND TO FRIEND.

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AN INSTANCE.

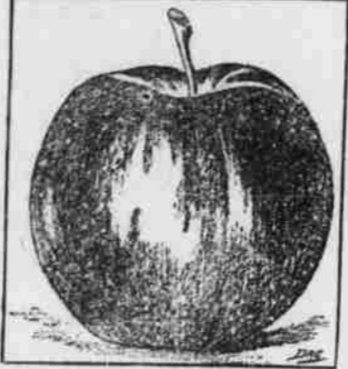
Lacy Sudbret, of Lenoir, N. C., had been troubled with a very bad cough for over a year. She says: "A friend brought me a bottle of Chamberlain's Cough Remedy, brought it to me and insisted that I should take it. I did so and to my surprise it helped me. Four bottles of it cured me of my cough."

THE MAGNET.

Promising Early Winter Apple of Rich Yellow and Crimson.

This promising early winter variety is a seedling of Winesap which originated with the late Dr. J. Stayman at Leavenworth, Kan. The first commercial introduction of the variety appears to have been by J. W. Kerr, who catalogued it for the fall of 1898 and spring of 1899 as "Stayman No. 1."

It is evident, however, that at different times different names were used



MAGNET APPLE.

for this variety, as Red Sap, Magnet and Magnet, the latter name being the one now adopted.

The fruit is described by William A. Taylor as being of a rich yellow color washed with crimson over almost the entire surface and indistinctly striped with dark purple and covered with whitish bloom; dots variable in size, numerous, yellow or red. The flesh is yellowish, stained with red, fine grained, half tender and juicy. The case is small, with numerous brown seeds; the flavor, rich subacid, with quality very good; season September to December in eastern Kansas, about the same as Jonathan.

Ostrich Plume Fern.

Among the newer ferns is the New Ostrich Plume (Nephrolepis pinnatifida), also known as the Taraxacum fern. This is truly a marvelous fern and must be seen to be appreciated, says a writer in Floral Life. It is of easy culture, has free or vigorous growth and is well adapted for house culture, for conservatory or for greenhouses. The beauty of this fern is very striking and is justly compared with the plume of the ostrich. The fronds are not nearly as long as those of the Pteris fern and are also much broader and heavier. The small plume of the fronds are again subdivided, or once more than the Pteris, and the feathery effect is very fine and striking. These miniature fronds keep growing; hence there is a lighter shade of green at their ends, the main portions showing a darker shade, the whole effect adding greatly to the beauty of the plant.

Injury From Winter Winds.

In some of the prairie states, where the winter winds are both cold and dry, it is very desirable that the soil be well filled with moisture when winter sets in, since during the whole of the winter evaporation from the young fruit tree is constantly going on, and if the moisture is not in the soil to meet this demand the result is the serious injury or even death of the tree.

Oats in Montana.

Of thirty-four varieties of oats tested for several seasons at the Montana experiment station Progress, Swedish Select and Siberian were the highest yielders.

Greatest Corn States.

All the states that produced more than 100,000,000 bushels of corn in 1907 were Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, Missouri and Texas. It is worthy of remark that the only other state which produced up to the limit mentioned was the youngest state of all—namely, Oklahoma—and that her corn crop for 1907 is set down at 113,265,000 bushels.

Imports of Nuts.

In the eleven months ended November, 1907, nuts to the value of \$9,450,701 were imported into the United States. Of this total almonds represented 27 per cent, walnuts 23 per cent and coconuts 14 per cent.

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FOR ARLICK.

Train No. 67. Leave Independence, daily, 7:30 a. m.; 10:30 a. m.; 1:30 p. m.; 4:30 p. m.; 7:30 p. m. Arrive Arlick, 8:15 a. m.

Train No. 71. Leave Independence, daily, 7:30 p. m.; 10:30 p. m. Arrive Arlick, 4:20 p. m.

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Train No. 64. Leave Dallas, Sunday only, 6:30 a. m.; 10:30 a. m.; 1:30 p. m.; 4:30 p. m.; 7:30 p. m. Arrive Independence, 6:30 a. m.

Train No. 65. Leave Dallas, daily, 1:30 p. m.; 4:30 p. m.; 7:30 p. m. Arrive Independence, 1:30 p. m.

(This train connects at Monmouth for Arlick.)

Train No. 72. Leave Dallas, daily, 1:30 p. m.; 4:30 p. m.; 7:30 p. m. Arrive Independence, 1:30 p. m.

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Train No. 76. Leave Dallas, daily, 1:30 p. m.; 4:30 p. m.; 7:30 p. m. Arrive Independence, 1:30 p. m.

FOR ASPARAGUS.

Suitable Fertilizer, With Formula For Home Mixing.

There are a great many acres of asparagus raised where a complete fertilizer is used, and many of them are commercial brands bought from dealers for that express purpose. A fertilizer that will analyze 4 per cent nitrogen, 8 phosphoric acid and 10 potash is as good as all around article as can be recommended for general use, writes a grower in Rural New Yorker. A formula for this mixture for asparagus only would be nitrate of soda, 300 pounds; sulphate of ammonia, 100 pounds; tankage, 200 pounds; acid phosphate, 1,000 pounds, and muriate of potash, 400 pounds. Bone may be substituted for tankage if more desirable. The main object of either tankage or bone is to get a mixture dry enough to drill. In discussing fertilizers for this crop I do not wish to be understood as advocating a complete fertilizer.

When Applied.

In my own practice I use acid phosphate and potash, three parts of the former to one of the latter. Mix thoroughly and apply broadcast very early in the spring or late winter and work in the soil with future cultivations. The farther down near the roots this is left when feeding time begins the better. The nitrogenous part of my fertilizer—usually nitrate of soda—apply broadcast when cutting season is over. I fully endorse the mixing of fertilizers at home for this or many other crops in preference to paying a greater price for an unknown article, and further than that the grower who knows his soil and its requirements can feed more intelligently by applying that which is deficient in larger quantity and withholding that which is not needed.

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