

MEASURING THE RAINFALL ON THE FARM

CAREFUL RECORDS OF THIS CHARACTER WILL BE FOUND INTERESTING, AND THEIR VALUE INCREASE AS THE FACTS THUS GATHERED ACCUMULATE.

By D. A. SEELEY.

From seed time to harvest the tiller of the soil is continually dependent upon the weather. There is little use of sowing the seed unless the soil is in the right state as regards warmth and moisture to start the process of germination, as the germ in the seed will decay if the ground is too wet and cold, or will dry up and die under the effects of a parching sun.

After growth has begun, the development of the plant is largely a matter of adequate water supply and heat, granted that the soil is fertile and properly cultivated. Careful experiments have shown that a water supply of about 300 pounds is required for the production of one pound of corn. This amount of water must be carried up through the roots of the corn plant, distributed through its cell structure, and evaporated through its surface of stalk and leaves, in order that one pound of corn may grow and ripen.

With but half the required water supply needed for complete development, the plant will reach only half its normal size and weight. If the weather is cold and cloudy, a plant cannot grow normally. It is true that some forms of vegetation survive the temperature of the frigid zone, but it is equally well known that the growth here is stunted and sickly, compared with that found in temperate and tropical regions.

Decided benefits may be derived at times if, through the aid of proper instruments, weather changes can be foreseen, and a properly exposed rain gauge is the best indicator of the amount of rain that falls at any time. Keeping a rainfall record is one of the most interesting tasks that a farmer or gardener can undertake. By



Rain Gauge With Measuring Tube Attached.

adding the depth of each rainfall to the combined depth of those preceding, he may find exactly what the season's supply has been, and by noting the condition of a given crop from time to time he may be able to form an idea as to how it has been affected by the moisture received. Furthermore, the preservation of these records will enable him to compare the rainfall and crop conditions for any season with those of other seasons.

Any cylindrical vessel exposed in an open space, where surrounding trees or buildings are far enough away not

to stop the rain, will indicate the amount of rainfall. An ordinary tin can with straight sides will serve the purpose, if the top be entirely removed.

It is obvious that the depth of water collected in a vessel having sloping sides would not represent the actual rainfall; and it is also evident that the correct catch would not be obtained, even with a good gauge, if it were placed under the eaves of a building or near a wall or tree which would shelter it.

The rainfall is measured regularly, morning and evening, by inserting a rule and observing how high the rule is wetted. The ordinary rule, marked in eighths and sixteenths of an inch, may be used; but in order to compare the results with the records of the Weather Bureau, it is well to use a rule marked off in tenths of an inch.

Such a simple rain gauge has this objection: that the rainfall in any one day is frequently so small that it cannot be measured with much accuracy. To obviate this difficulty, the receiving vessel may be made with a funnel shaped bottom, to which is attached, below, a tube with an opening whose area is one-tenth of the receiving vessel. A rainfall which would measure one inch in the upper vessel will then measure ten inches in the measuring tube; the readings therefore can be more accurately made. The readings taken from the measuring tube must, of course, be divided by 10, in order to get the actual rainfall. An illustration of such a gauge is herewith shown. In the standard rain gauge the upper cylinder has an inside diameter of eight inches, while the diameter of the measuring tube is 2.53 inches.

SHALLOW BREAKING

Where sod is turned less than four inches, the breaking may be called shallow. The simplest form of shallow breaking is what is called "sodding in of a crop." In this case the sod is turned two or three inches, and should be flat. The seed is dropped in every third or fourth furrow, and covered by the next slice of sod. Sometimes a roller is run over the ground to smooth and pack the sod. The crop is not usually cultivated. This method produces fair crops when there is sufficient in amount and well distributed, but one should not be disappointed at the failure of a crop under this method. Practically it is a way of getting rid of the sod and at the same time taking chances on getting some yield from the land. The common method is to turn the sod three or four inches deep and then to drag it lightly with a spike-toothed harrow, the teeth of which are slanted back.

Where the sod is thin, the shallow breaking is often worked up, thoroughly with the disc and spike-toothed harrow, and a very good seed bed made.

Any shallow breaking of sod land, except in the case of sandy land, should be regarded as makeshift, for it does not permit of the best storage of moisture. The crop is placed entirely at the mercy of the season. It should only be done where circumstances make it impossible to apply the better methods.—J. D. Tinsley.

POT-TOES FOR WINTER

My way of keeping potatoes during the winter is to select a high piece of ground that will drain itself well. I put a lot of hay on the ground and put the potatoes on the hay, piling them up nicely. I then cover with hay or straw as thick as I think best, then put a light layer of dirt on the hay, and as the season gets colder, I put on more dirt. To keep potatoes in the spring for summer use, put them in a dark room and give them plenty of air, sprinkling some air-slacked lime over them. Also keep all sprouts off of them, and you will have potatoes until you can raise new ones.—B. F. Miller, Kansas.

COMBINING POULTRY AND FRUIT RAISING

ALLOWING POULTRY FULL RANGE OF THE ORCHARD AIDS IN KEEPING THE TREES FREE FROM INSECTS, THUS INSURING MORE PERFECT FRUIT.

By HORACE ATWOOD.

Fruit culture and the production of poultry products can frequently be combined in a most satisfactory manner. There are several reasons why fruit and poultry can be produced economically together. In the first place, fowls are very destructive to insect life, and if sufficiently large numbers are kept, few of the larger insects, which may spend a portion of their time on the ground among the dead leaves and grass, will escape. The destruction of insects tends, of course, to make the trees more healthy and the fruit produced more perfect.

The amount of fertility, too, which may be added to the soil through the droppings of the fowls, is a matter of no small importance, when considered for a series of years. Medium sized fowls, like the Leghorns, require about a bushel of grain per year, and larger fowls considerably more. The greater part of the nitrogen, potash, and phosphoric acid present in this grain passes into the excrement, and when it is scattered uniformly over the surface of the soil should become more fertile from year to year, thus making the trees more thrifty, vigorous and productive. In these ways, then, will the fowls benefit the trees, while on the other hand the shade furnished by the orchard on the sultry days of summer adds to the comfort and well being of the fowls, and thus increases the profit which may be derived from them.

In connection with orcharding, it is important to have the poultry work so arranged as to interfere as little as possible when the trees demand most attention, namely, in the spring, when it is necessary to spray, and in the autumn, at harvest time. Keeping fowls for egg production can be made to meet this requirement more nearly than any other branch of the poultry business.



Prize Winning Gamecock.

Colony houses should be scattered through the orchard. The shape or size of these houses is quite immaterial, provided that the hens are not overcrowded, and that the houses are dry and comfortable.

A house sixteen or eighteen feet wide and twenty feet long will accommodate about seventy-five fowls of the smaller breeds, and one house per acre would be sufficient. These houses should face the south or southeast, so as to receive as much sunshine as possible in winter. The back wall, on the north side of the house, should be double boarded, so as to be perfectly tight and warm, and the south side should be provided with an opening which can be closed in cold and stormy weather by a canvas or duck curtain. The perches should extend

the entire length of the house at the rear, and should be provided with dropping boards underneath, which the nests may be located.

The dry mash system of feeding can be used. This reduces the cost of labor for feeding to a minimum. This system consists in keeping constantly available to the fowls a mixture of ground grains and beef scrap. A mixture which has been found to be very satisfactory consists of equal parts, by weight, of cornmeal, ground oats and wheat bran. To this mixture is added about 10 per cent of beef scrap. In addition to the dry mash, the fowls should be fed at least once a day some whole grain, such as a mixture of corn, wheat and oats. In the winter time, when the fowls are confined to the houses, this should be scattered in the straw or litter, which should cover the floors of the houses. In summer the whole grain may be scattered outside.

Laying hens of the size of Leghorns require from sixty to seventy pounds of grain and beef scrap per head yearly. At the present prices for grain, this will cost about one dollar per fowl each year.

Young fowls, when properly fed and cared for and given free range in an orchard, as outlined, will lay, at the very lowest estimate, ten dozen eggs per year. At an average price of 25 cents per dozen, these would be worth \$2.50, or a profit, above the cost of feed, of \$1.50 per hen per year.

Every fall, a short time before the layers begin to moult, they should be culled over, and a few of the best birds reserved for next year's breeders. The houses should then be cleaned, disinfected and put in readiness for the reception of the pullets, which should be moved into their winter quarters at the beginning of frosty weather.

EGG PRESERVATION

By R. M. West.

The primary principle to be observed in the preservation of eggs is the protection of the interior from contact with the air. The most effective way of doing this is to immerse them in a water solution of sodium silicate, usually known as "water-glass." Sodium silicate can be obtained from any druggist at from 45 to 60 cents per gallon. One gallon should be sufficient for about 50 dozen eggs.

Mix one part of the sodium silicate with from ten to twelve parts of water. Some water-glass is so thick that with this dilution, the eggs will float. In such a case, add enough more water to make them settle to the bottom of the liquid.

Use only clean water, from which the air has been removed by boiling. Be sure that it is cold before mixing it with the water-glass.

Pack the eggs in a jar or clean wooden keg, and add the preserving solution in sufficient quantity to cover the eggs. No part of the shell should be exposed to the air.

The packed eggs should be kept cool. A cellar is the best place for storing them. Pack only strictly fresh eggs. Stale eggs will not keep for any length of time under any conditions, and they may affect the fresh eggs which are packed with them.

Do not wash eggs before packing them. Washing removes from the shell the mucilaginous coating which nature provides for their temporary preservation.

Eggs preserved in this way retain their original fresh flavor perfectly, they are not discolored, the yolk retains its normal consistency for several months.

Other methods of preservation, though less satisfactory in their results, will keep eggs for from three to four months in such condition that they may be used for cooking purposes. A preserving mixture which has given fair results is made up of 3-4 pounds of fresh lime mixed with 4-5 pounds of salt, and the whole dissolved in eight gallons of water.

Eggs may also be preserved fairly well for a few months by packing dry in a mixture of equal parts salt and sawdust.

EVEN A HOG NEEDS PURE AIR.

Some people think a hog can get along anyway, anywhere and anyhow—he is contented as "just a hog," and no thought is taken for his health or comfort.

As he is nothing more than a good chunk of money if properly developed, it is a foolish waste to neglect him. The hog has no more sentiment attached to a pen, but he will think or suffer according to the way he is treated.

Drafts are prime promoters of colds, which develop into pneumonia and what is generally known as swine fever.

It is important that the bottom boards of the hog house should be thoroughly well battened and the divisions between the pens should be treated in the same way.

Too many men who keep hogs pay no attention to the ventilation of their winter quarters, or if they attempt to ventilate at all they do little more than leave a few cracks round the bottom through which the cold air can get in, but provide no way for it to get out.

Ample ventilation should be provided from the top of the house, and not by underneath drafts.—S. C. Miller.

KEEP THE COWS COMFORTABLE

If stock is made uncomfortable by being fed at irregular times, so that they spend a great deal of their time expecting to be fed, the discomfort shows in lower production. If they are made uncomfortable by having a poor bed, by being roughly handled, by having a dog set on them, or by being left out in the cold or allowed to go thirsty, these conditions result in decreased production.

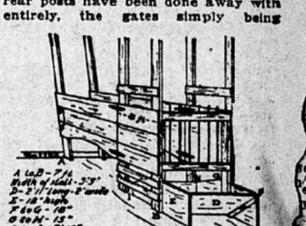
One of the great advantages of weighing the milk every day, from each cow, is that it gives one a quick check on any condition that brings about discomfort to his animals. If any cow shows a dropping off of her milk flow, as a rule a little observation will show that she has been made uncomfortable in some of the ways mentioned above, and knowing these facts, the farmer is able to check these unfavorable conditions quickly.

If you want to know how long to allow cows to stay out in the winter, just take off your coat and go out in the yard and stand around awhile. When you begin to feel uncomfortable and feel like going into the house, put the cows in the barn.

A COMFORTABLE STALL

This style of stall affords a great degree of comfort to the cow. The distinguishing features of the stall are the movable manger and rack whereby the length of the standing room in front and behind may be varied to suit the individual cow, and the fastening for the animal, which consists of a rope or chain across the rear end of the stall, to keep the cow from backing out.

The stall should be 3 feet wide at centers. The entire stall, from A to B (see cut), is 7 feet in length. The gates (which should all swing one way), are about 4 feet long. The rear posts, if used, should slant, as shown in the cut, to allow the milker a little more room. In some stables these rear posts have been done away with entirely, the gates simply being



chained or roped together. As usually built, the front rack or panel is made of 2x4 frame-work, with 7-16 inch iron rods; and this frame-work is fastened solidly to the manger; but the manger and frame-work are not attached to the sides of the stall, but left loose, so as to be adjusted to the length of the cow. In some cases, however, the rack is hinged at the top and the bottom allowed to swing in the manger, so that it may be swung toward the front several inches. This allows the cow a little more freedom in getting up and lying down. Wooden slats may be substituted for the iron rods, or in some cases a section of iron wire fencing is used in place of the rods. The rope across the rear of the stall is usually stapled at one side and hooked with an ordinary harness-strap at the other.

Mental suggestion sometimes works with persons of plastic nature, but you have to use visible argument with a mule.

RAISING POTATOES ON PRINCE EDWARD'S ISLAND.

Prince Edward Island is one of the most successful producers of the potato. Its total area under cultivation is less than 1,800 square miles; the annual yield of the potato crop averages 4,000 bushels.

The most favorable results have been obtained in fields that have not been manured for many years. The opinion prevails that manure pollutes the potato and disposes it to rot before and after digging. Newly cleared woodlands yield large crops for many successive years without the addition of any fertilizer. To aid exhausted soil commercial fertilizer is used. It has been found that lime, cinders, and coal ashes thrown on a field will set up scab. It would thus appear that this disease may be due to mechanical irritation in the soil. To prevent rot, great attention is given to the time of digging. The best time has been found to be when the tops begin to grow a dark green, not when they have turned black. When the latter happens, the potato has already begun to rot. By observing these methods, a white, smooth, rounded root of medium size is secured. The best potatoes are shipped in boxes, carefully selected, and marketed as No. 1 and No. 2.

RAISE MORE MULES.

The objection many farmers raise to the use of mules is that they do not breed, that they are stubborn, often vicious, and that they are entirely unsuited to pleasure purposes.

Those objections are worthy of consideration, but the many good qualities of these sturdy beasts seem to more than offset them.



A \$400 VIRGINIA MULE.

From a commercial standpoint, it may be well to remember that a pair of 6-year-old mules, well matched, well broken, and well grown, weighing from 1100 to 1300 pounds each, will bring from \$550 to \$600.

More mules should be raised by the farmers all over the country. Breed your heavy-set mares to a good-sized, stylish Jack, and when your colts come, take care of them and they will prove to be about the most profitable stock on the place, either to work or to sell.

The farmer's life is an independent one.

FOOD VALUE OF MILK

By Carolyn L. Hunt.

It is a commonplace saying that milk, or is a more specific, cow's milk, is a perfect food. This may be taken to mean that it contains, first, materials which children need for growth; second, materials which young and old alike need for the repair of their bodily machinery; and third, materials which both need for fuel, i. e., to provide them with heat and with the energy necessary for work. It should not be understood, however, to mean that it has these ingredients in such proportions that it can serve satisfactorily as an exclusive food for a grown person or even for a child. Though it is the best substitute for mother's milk, it must be "modified" more or less before it can be used even for infant feeding with good results.

It is likewise a commonplace saying that milk is a cheap as well as a nutritious food. It is true that the prices of all kinds of foods rapidly changing. It is not so easy as it once was to make the comparisons that are necessary to show which particular foods are really cheap, but while the prices of food materials vary, the composition of most of them remains unchanged, and it is always possible to compare their nutritive values. A quart of milk supplies practically as much of both protein and energy as three-quarters of a pound of beef of average composition or eight average eggs, and can generally be bought for less money. In case milk is 8 cents a quart, beef 30 cents a pound, and eggs 24 cents a dozen, 10 cents spent for milk will buy a little more protein and much more energy than 10 cents spent for beef or eggs. The nutritive value are taken into consideration, and, as a matter of fact, they always form the greater part of the bulk of human food; but of the animal foods which are usually combined with the vegetable foods, milk is one of the cheapest.

In spite of the fact that milk is recognized as a nutritious and a cheap food, there seems to be a general tendency to think of it not as a possible substitute for other more expensive foods, but rather as an addition to the bill of fare. To illustrate, milk is frequently used as a beverage without the reduction of the amount of meat or other protein foods served. From the point of view of the need of a body, this may be considered extravagant and the serving of a glass of milk or of a bowlful of soup or of such desserts as custards and baked milk, or the use of generous quantities of milk or white sauce on vegetables, offers an opportunity to cut down the allowance of meats and eggs.

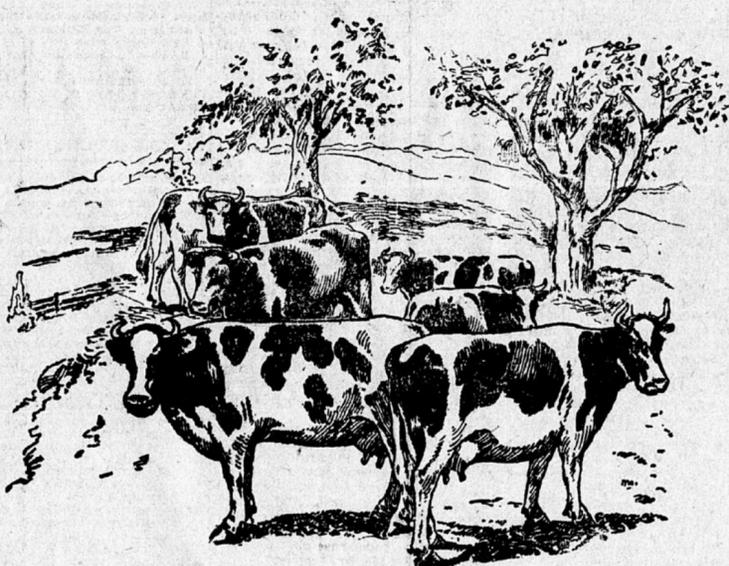
RAIL-FENCE PHILOSOPHY.

It would be a pity, indeed, if the great forest reserves should be sacrificed to the politician and the lumber stealer.

Neighbor Slowfoot seems to think that when the crops stop growing he might as well stop work—and there are others.

Put up new "Shooting Forbidden" signs.

DAIRY FARMING IS PROFITABLE



ECONOMY IN THE USE OF FENCE POSTS

CAREFUL SELECTION OF THE WOOD AND PRESERVATIVE TREATMENT SAVES TIME AND MONEY.

It has been estimated by the U. S. Department of Agriculture that the farmers of the single State of Iowa use every year \$1,400,000 worth of new fence posts, which cost the equivalent of \$600,000 for setting them in the ground. Without doubt a part of this expenditure might be saved.

The opportunity for economy is found, first, in using the kinds of posts which, taking into account both cost and durability, are cheapest in the long run, and, secondly, by treating the posts to prevent decay. When a farmer sets a post which will have a comparatively short life, he loses not only through having to buy a new post, but also because of the additional labor involved in setting it. It is true that in both cases no money outlay may be involved, for he may set the posts himself, after getting them from his own woodlot. Of the posts used last year in Iowa, seventy per cent, it is estimated, were grown on the farms where they were used, or were obtained from other farmers' or woodlot owners, and only thirty per cent were bought from lumber dealers. Nevertheless, the farmer is out his labor and the part of the product of his

woodlot which is used up, even though he does not pay out any cash.

The average life of a fence post is stated to be fourteen years, and the average cost 13.7 cents. There is, however, great difference in the lasting properties of different woods. Osage orange lasts more than five times as long as willow, and for length of service it heads the list of post timbers in the State. The comparative life of other posts is shown in the following list, ranging from the longest period to the shortest: Red cedar, locust, white oak, northern white cedar (or arbutus), catalpa, black walnut, butternut, red oak, and willow.

The average cost of posts varies for different woods, and for the same woods in different localities. Red cedar is most expensive, at an average of 26.34 cents each, and willow the cheapest, at 6 cents.

Taking into consideration the time a post will last, and the cost of buying it and setting it in the ground, the conclusion must be drawn that the osage orange post is the most economical in Iowa, followed by white oak,

butternut, willow, white cedar, and red oak, in the order named.

Comparatively few posts of some of these woods are used. Catalpa and butternut together do not constitute one per cent, while white oak exceeds forty per cent. From white oak, the highest, the numbers used range down in the following order: White cedar, osage orange, red cedar, willow, black walnut, locust, butternut, and catalpa. A few posts are cut from other woods.

Preservative treatment increases the life of all wooden posts and more than doubles the period of usefulness of those which are mostly sapwood. The two million dollars spent yearly by Iowa farmers in buying and setting fence posts might be materially lessened by putting into practice the well-known methods of wood preservation. It costs much less to treat a post than to buy a new one and set it in the ground, and in addition much wood could be saved for other purposes. The Department of Agriculture has made a special study of practical methods of preserving farm timbers, so that it is able to inform interested inquirers how to do this for