

Soils and Crops

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Mating the Breeding Flock.

On many farms the problem of improving the poultry has been complicated by the lack of one fenced enclosure to confine the best hens during the breeding season. Only one colony house and a fenced yard is needed. In this enclosure can be placed a number of the best hens mated to the best male bird that can be raised or purchased. Then the eggs from this small flock can be used to develop the breeders for the coming year.

On most farms there will be many hens that can be classed as useful birds although not quite good enough to use as breeders. These can be given free range during the breeding season and if hen hatching is used, the free range flock will furnish the setting hens to hatch and brood the chicks from the eggs laid by the best stock.

Frequently farm flocks do not improve rapidly because the best hens lay first and are broody first. When the best layers become broody they are set upon eggs laid by inferior layers that have just started. This removes some of the best layers from the chance of egg production for a long period. More improvement would be possible if the eggs from the best layers had been placed in an incubator and these hens allowed to continue laying to reproduce themselves as often as possible during the breeding season.

The number of roosters necessary to mate with a breeding flock is a debatable question and, of course, depends on the individuality of the male birds. The male is sometimes blamed for a lack of fertility that is due to the hen. The male is half the flock but it is the hens that produce the eggs. If the hens are overfat or lacking in vigor they will not produce good hatchable eggs even when mated with the best male birds.

A mating is not necessary for each fertile egg as experiments have proved that fertility will be present in eggs laid by a flock as long as two weeks after the males have been removed. This means that the breeder must wait about two or three weeks before the results of accidental matings will show no effect. It has been found that the first eggs after a mating will be infertile for about ten days. The practical value of this means that the breeders should be mated up about three weeks before eggs will be used or sold for hatching.

Investigations in trapnesting and pedigree hatching have proven that some hens lay eggs which are never fertile, while other hens lay eggs that nearly always produce vigorous chicks. A general rule in mating is to use eight females to a male in the Asiatic breeds, ten or twelve females to a male in breeds like Rocks and Wyandottes. Fifteen females to a male is all right with Leghorns. In many cases a larger number of females per male have brought very good results but, of course, they might not be depended upon. When the fowls are on free range the fertility seems to run better with a smaller number of males than when the breeding pens are closely yarded.

How to Raise Goslings.

The growing popularity of geese in this country makes it advantageous for every farm woman to study the subject of goose raising if she wishes to make the most of her poultry and gain the greatest profit from the food which the farm produces. While geese are almost an essential because of the feed which they save, geese in connection with hens will bring in surprising returns for the time and money invested. We have found that they not only keep themselves during the summer and fall, on the grass and waste fruit from the orchard, but the other poultry, especially the ducks, will eat a much greater amount of herbage because of running with the geese.

Because of this fondness for green



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The Dairy

Watch the new hired man milk and see if he does thorough work. Nothing is more costly than hired help that steadily dry up the cows by stopping the process of milking before the flow has ceased. A young boy with undeveloped hand muscles should not be trusted with heavy-milking cows. He may soon have very sore hands and prefer to half milk the cows rather than own up to it. A well-trained dog may be a help in driving cattle, but many dogs bring up the cows on the run and worry them. Such methods are not good for milk production and irritate the disposition of animals which are naturally very nervous. A dog barking loudly around the barn at milking time is not a good business proposition. I believe it pays a farmer to drive in the cows himself when they are near the barn and not let the dog bother them.

If you have a sick cow, give the veterinarian half a chance to save the animal by calling him early. When a cow is devitalized from sickness and half dead, the veterinarian may be blamed for losses, though not responsible. Cows take larger doses of medicine than men, and medicine costs money. The veterinarians do a lot of good in the live stock business and farmers can learn much from them. Their fees should be promptly and cheerfully paid. The writer does not know any vets that are profiteers or any that have become unduly wealthy from their practice.

When they are from twenty-four to thirty-six hours old, I give the first feed. Even then they will never eat much and sometimes will eat only grass. They never have the appetites for grain that young ducks develop. They should be fed alone as they cannot eat as fast as ducks or chicks and there is danger that they may starve to death. Bread and milk makes the best feed, although I sometimes make a Johnny cake of cornmeal and middlings with a little soda and moistened with milk or buttermilk, then baked quite hard. When ready to feed, moisten with milk or water but do not have it sloppy. If it is possible to feed the bread, however, it will give much better results and even a considerable expense for the first few weeks will pay in the end.

If they can be kept from indigestion and from getting wet or cold, there should be little difficulty in raising them. It is well to feed about five times a day for the first two weeks, gradually lessening the feeds until by the time they are about two months old the morning and evening feeds will be enough. They require a great amount of pasture, however, and if the weather is wet, they must be given plenty of chopped grass and weeds. They should have water deep enough so they can wash out their eyes and arranged so they will not get wet. It is better not to give it at meal time. If the weather is at all favorable, put on the grass every day, for the little feet will spread out if kept long on a board floor. One must be careful, however, that the little fellows do not become cold or damp.

If for any reason they are wet, wipe dry, then wrap warmly and let them dry by the heat of their own bodies. I have never had much success in raising them after they became real wet. If they can be kept wet and strong until they begin to feather, there is little trouble to raise them. After they are feathered they can shift for themselves and may be turned on pasture with only a little grain.

The large poultry man has an old goose to raise the little ones, it will be more satisfactory than any other method. They are not only on guard every moment of the day and night, but they also find just the food which the goslings need and will raise them on almost nothing in the way of grain. Strange to relate they will take them in the wet grass or on the water and feed them the coarsest feed while the little ones grow more rapidly than with the best of care.

The goose can cover twelve or fifteen eggs and will hatch in about four weeks so it is well to let them lay until the end of the season, probably the middle or last of June. When the goslings begin to hatch, take them away as soon as dry or the goose may leave the remaining eggs. When all the eggs are hatched, shut the mother in a coop for a few days until the legs are strong enough to carry the fat bodies, for the old goose will lead them long distances. Even after she is let out, a shelter should be provided for nights and wet weather. It is sometimes necessary to drive her into this as she is quite independent about caring for the little birds. I always feed several times a day as they will grow faster than if left to pick for themselves.

Attacking the Gopher.

How to reduce the number of gophers is a problem that seems near solution in Saskatchewan. The Department of Agriculture of that province, in 1920, conducted a gopher contest in the schools, with the result that 1,798 schools entered, and 2,019,233 gophers were destroyed, at a cost to the department of \$3,159.75, or .156 cent each. What this reduction in the number of gophers means in the saving of foodstuffs is hard to estimate, but it would be very great, as an analysis of the pouches of one pocket gopher showed 357 kernels of whole oats.

An average acre of garden has been estimated to contain 55,000 worms.

supplies, and feeding may under such conditions be a decided advantage.

Even then it is better to give each colony just what it needs at one feeding rather than to extend it over a period of days, or even weeks. The best plan is to give it to the colonies in an overhead feeder right over the brood nest, packing paper or other warm material about the feeder so that there will be no loss of warmth from the hive, as bees that are chilled will be in no condition to carry the syrup down.

When spring feeding is necessary, use equal parts of pure granulated sugar and hot water, mixed with a quart of extracted honey. This makes an ideal feed. It should be given to the colonies while the syrup is warm, and preferably toward evening.

The time of removal of bees from winter quarters must depend upon local conditions. Generally speaking, the time is favorable when the maples are just beginning to bloom.

When the colonies are removed from their winter quarters, care should be taken to guard against spring dwindling, because of the change of temperature from indoors to outdoors.

Big cities are more or less worked overtime by the larger honey producers, or by firms that buy and bottle and sell to the stores. For this reason the beekeeper should cultivate his near-by towns as the best outlet. Here he will get the best prices and avoid needless debates, to say nothing of the commission merchants in the cities.

Lime as a Soil Builder

Fertile soils contain sufficiency of the three most essential elements for growing plants, nitrogen, phosphorus and potash. Should any of these be lacking plants cannot grow satisfactorily. The two latter elements are found in the mineral soil particles and also in the vegetable matter that is in the soil. The former, nitrogen, is found in the vegetable matter only. Thus, it will be seen that a soil deficient in vegetable matter is lacking in nitrogen.

Nitrogen, we find, when buying commercial fertilizers, is the most

is between walking and riding in an automobile.

Although the use of electricity is a wonderful aid to the laundry, it is quite as valuable as a help in food preparation. There are, of course, electric ranges which are marvels of beauty. As yet, they are somewhat slow and quite expensive. But there are numberless small accessories which will help much in cooking. An electric toaster and an electric percolator are not only efficient, but add a hospitable air to the breakfast table.

A light breakfast may consist of fruit, cereal which has been placed in the favor of the limed areas and the yield of hay the following year averaged 4,560 pounds per acre from the four limed plots, and 2,480 pounds per acre from the two plots not limed, a difference in favor of liming amounting to 2,080 pounds of clover hay per acre. When this land was plowed there was a decidedly marked difference in the amount of root development in favor of the limed areas, thus greatly increasing the store of vegetable matter and nitrogen-carrying materials.

Lime, therefore, is most valuable as a soil builder because it produces a suitable environment for the clover plant through which farm soils can be built up most economically.

The electric fan is not only a fine thing on hot summer days and nights but in the winter time it is a great aid in circulating warm air over the room and refreshing it by stirring it. The use of the electric fan also makes it possible during the summer to serve the meals in the kitchen when there are extra men to cook for and much canning to be done.

Running a sewing machine may mean tired muscles even though popular opinion sometimes classifies sewing as "light" work. An electric motor attached to the sewing machine removes all strain from the sewer, who can direct his entire attention to the garment she is making.

Electric lights make it possible for the family to enjoy the long winter evenings together. Kerosene lamps are hard to keep in good condition, and their light is, at the best, flickering and dim. Electricity affords a flood of light in every part of a room. The dooryard, the barn and barnyards and outbuildings can have bulbs ready for instant use at any hour of the day or night.

The electric vacuum-cleaner saves carrying heavy rugs to the yard to be cleaned, and there is no raising of dust as when a broom is used. Curtains, heavy coats, hats, robes, couch covers and upholstered chairs may also be easily and thoroughly cleaned by this electric friend.

If the water for the use of the household can be pumped into a supply tank by an electric motor, much labor is saved. The same motor can be used for turning the churn and the ice cream freezer.

Electricity even promises to do our dishwashing for us. The dishes are scraped and put into racks which are placed in a cylinder containing soap and water, the lid fastened and the current turned on. This current causes the water to become heated and to circulate freely. When the dishes are clean, the soapy water is run out to the fireless cooker and clear water poured over the dishes. The current is again turned on and the dishes run in clear, hot water. They are then taken out of the cylinder and allowed to drain until dry.

Electricity furnishes heat and cold and power and light, and all of these can be obtained from the same innocent light or wall socket.

expensive plant food element, costing at least 25 cents per pound. If the fertilizer contains 4 per cent. of nitrogen the cost for this element in one ton would be \$20.

The legumes when fully established have the power to obtain nitrogen from the air through a soil organism which forms nodules on the roots of plants belonging to this order. The principal leguminous plants are the common red clover, alsike clover, alfalfa, sweet clover, vetch and peas, and of these the common red clover is probably of greatest importance.

There are approximately 70 pounds of nitrogen in 1½ tons of clover hay and the production of this amount of top growth leaves a root system containing at least 1,200 pounds of vegetable matter—furnishing say, 30 pounds of nitrogen in the soil. Of this 105 pounds of nitrogen in the entire plant, it has been estimated that about 70 pounds comes from the air and 35 pounds from the soil, provided that conditions favorable to the activities of the bacteria exist. It will be seen, therefore, that the 70 pounds of nitrogen at the lowest market value is worth \$17.50, or nearly as much as that one ton of high grade fertilizer. It is hard to realize that 1½ tons of clover extracts from the air nitrogen equal to that contained in one ton of our best fertilizer. True, some of this may be lost by careless handling of the manure from stock, but for the most part it should ultimately go back to the soil, if the hay crop is not sold.

It has been found that the soil organism which furnishes the clover with nitrogen from the air does not thrive in an acid soil or on one lacking in lime, consequently if we wish to build up a soil through the clover plant, it is necessary, where soil acidity is found, to correct this condition by an application of lime in some form.

Ground limestone is the most popular and effective form of lime. If applied at the rate of 2 tons per acre when seeding to grain, at which time the clover is usually sown, best results will be obtained. Subsequent applications of one ton every three years usually suffices to maintain freedom from acidity.

Among the many tests conducted at the Experimental Station, Kentucky, U.S.A., the one carried on in half-acre plots is of particular interest. There was little apparent difference in the crop of grain on the plots and the average of four half-acre plots which were limed when seeding down at the rate of 2 tons per acre was 42 bushels and 15 pounds of oats, and on the two half-acre plots not limed, 39 bushels and 31 pounds per acre. After the oats were cut there was a noticeable difference in the clover growth in favor of the limed areas and the yield of hay the following year averaged 4,560 pounds per acre from the four limed plots, and 2,480 pounds per acre from the two plots not limed, a difference in favor of liming amounting to 2,080 pounds of clover hay per acre. When this land was plowed there was a decidedly marked difference in the amount of root development in favor of the limed areas, thus greatly increasing the store of vegetable matter and nitrogen-carrying materials.

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Canada's subscriptions to six war loans and one Victory loan totalled \$3,017,292,069, or about \$350 per capita. Few countries reached this figure.

What the Glass Shows

The smoothest looking axle is rough and pitted under the microscope. The powdered mica in Imperial Mica Axle Grease fills in this roughness and makes every rubbing surface smooth. Grease can then lubricate properly and will last twice as long as it ordinarily would.

Imperial Mica Axle Grease is the best and most economical grease you can buy for your wagons and trucks.

Leather is honeycombed with pores—thousands of them to every square inch. To prevent these tiny openings from absorbing dust, sweat and moisture use Imperial Eureka Harness Oil.

It closes up the pores of leather and keeps it strong, flexible and new-looking. It contains no acids and it will not turn rancid. Farmers, teamsters and livemen use and recommend it.

Don't compel the women-folk to open and close two or three big gates through the cattle yards every time they go out to look up eggs.

When we consider ourselves as farmers for life, and make farming a practical study, then we will take pride in our farms and live stock.

HIDES-WOOL-FURS

DEACON SKINS—The handling of these skins is our specialty. It will pay you to ship to us if you have three or more skins but on a less number the freight charges are too heavy.

WILLIAM STONE SONS LIMITED WOODSTOCK, ONTARIO ESTABLISHED 1870

Our Supplies of Roughage.

Have you ever tried to winter cattle or sheep on cornstalks and straw, and if you have, haven't you found it a sort of uphill business? I have seen the thing tried, in the belief that it is a cheap or economical plan of wintering the animals. On most of our farms there is a vast amount of both these roughages which we must plan to utilize as far as possible, but as for making either one or both of them sustaining feeds, especially during the winter months, it is not at all advisable.

It has been estimated that on a farm having a rotation of corn, small grains, and clover there is about two tons of roughages produced for every ton of grain. This would mean over one ton of roughage produced, and every one of us would consider that a very low figure when our grain yields are fairly substantial or well above the average.

Of course, we cannot use all these roughages as feed except where a very intensive system of farming is followed; we must husk a part of our corn from the standing stalk and a portion of our straw must be used for bedding of farm stock. But even with all of the roughage that is made available through silking or shredding the corn fodder and threshing of the small grain there is too little of it used as feed for our live stock.

The silo has been the means of making much of our commonest roughages useable as feed. While silage has been classed as a roughage itself, it is superior to the other roughages because it is more succulent and contains a fair proportion of grain when made of corn. Live stock fed on silage is far thriftier than that fed on stalks and straw. But when feeding silage our stock creates an appetite for some dry roughages, such as straw, shredded fodder, or hay, and in this way we are able to utilize such dry feeds to good advantage and secure a value for them that it would not be possible to obtain otherwise and get the roughage converted into manure to help conserve our soil fertility. In following such a system of feeding our efforts are directed largely toward keeping the soil in a state of high productivity, which is one of the foremost problems of to-day.

I have a friend who each winter goes into the stock yards and takes home a bunch of very thin steers. His chief object is to feed the steers all the roughages he has put away during the summer and fall, and by the time these are all gone, which is along after corn planting sometime he takes them back to the stock yards where he expects to sell them for about two cents more per pound than he paid. They are not fat cattle but have grown into good flesh and are suitable for butchers or feeders for some farmer who wants to finish them. All he plans on is getting a good price for his silage and roughages and the privilege of putting many loads of manure back on his sandy soil.

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A Chautauqua Course in One Evening

When the young people's society of our church decided to give an entertainment that was to be different from any given before, the young people felt that one point of difference must lie in the use they would make of the members. Too often entertainments afford opportunity only to a favored few, who are either bored or flattered by being called upon so frequently. And all the while, latent talent is wasted and worthy people are overlooked.

Our town had lately had a ten days' Chautauqua and this probably suggested the Miniature Chautauqua which our young people eventually produced. The program was so arranged that each part represented one evening in the regular Chautauqua program. The various "evenings" were announced on the programs, the printing of which had been made possible by the advertising which we solicited.

The opening number was called "Thursday" and was entirely musical. We have some fine musicians in the community and their contribution included a piano duet, a vocal solo and a male quartette.

The next number, "Friday," was called a "Humorous Evening," and was presented in the form of a talk by one of our boys. The talk consisted, in part, of very funny, very good-natured hits and localisms, and received great applause.

"Saturday" was devoted to a short lecture on "The Farmers of the Future," presented by one of our married members, the happy father of a year-old boy.

A sacred concert occupied the time given to "Sunday" evening, the numbers including a quartette and several well-rendered choruses.

The boy who had attended the University prepared a scientific evening for "Monday," presenting simple experiments, some of them real and some faked, but all interesting to every one.

"Tuesday" evening meant a travelogue, prepared by one of our boys who had been in the service and who was able to tell in an interesting way of his experiences in foreign lands. Had we owned a lantern we could have obtained lantern slides showing pictures of most of the places described, but a lantern is one of the objects for which we are working.

The program wound up with "Wednesday," or in other words with a minstrel show in which all those who did not get into the other numbers were able to take part. The make-up and the costumes were all we could wish for, and the jokes presented by the interlocutor and the end men, and the combination of pantomime with well-known songs, made this part of the program a complete success.

A parody on "John Brown's Body" was the first of the minstrel songs. We used the words "John Brown's baby has a cold upon its chest" for the first three lines, "and they rubbed it with camphorated oil" for the last line. The minstrel sang it through the first time; in the second stanza they omitted the word "baby" and went through the motions of rocking a baby instead. In the third stanza they omitted the word "cold" and coughed or sneezed instead. In the fourth stanza the word "chest" was left out, and the singers slapped themselves upon the chest. In the last stanza the word "rubbed" was left out and the singers rubbed their chests. For an encore they sang the song called "Smiles," leaving out the word "smiles" whenever it occurred and smiling ludicrously instead.

We mean to follow this entertainment with others of a similar nature, using our local talent along other lines, but ever remembering that young people must be kept busy and interested if they are not to think that their town is a dead one.

Heavy curtains, thick carpets, wallpaper and other draperies all tend to spoil the breathable air of a room.

The co-operative spirit must grow slowly. It is, in fact, a point of view, and the farmer acquires it as a permanent conviction only when it comes to him, step by step, out of the abundance of his own experience.—Powell.

This animal called the cattalo is a cross breed between the buffalo and the ordinary cow. The product is an animal between the two in weight, able to "hustle" for itself on the plains. It promises to be a good beef animal.

Ducklings need no feed until they are from twenty-four to thirty-six hours old. For the first week they should be fed five times a day; after that the number of times may be decreased to three times until they are two to three weeks old. A good ration to begin with consists of a mixture of equal parts, by measure, of oats and bread crumbs, with 1 per cent. of sharp sand mixed in as feed, gradually changing from less of the bread to more of the oats, and adding bran and later cornmeal. This feed should be made quite moist, either with milk or water, and it is also desirable to cut up green feed, such as lettuce, clover, alfalfa or lawn grass, adding to the above mash the amount of fifteen per cent. If milk is not available for use in fixing the mash, after the first week add a small amount of beef scrap.