

# Soils and Crops

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## The Cow's Udder in Health and Disease

The cow's udder is divided into four quarters, two on each side, with a well marked line of separation between the two sides. Each quarter is separate or independent of the others, but the dividing wall of tissue can scarcely be seen. Fluid containing coloring matter injected into one quarter has been found not to pass to another quarter. A test connects with each quarter. Each test has one opening, contains folds of mucous membrane, has muscular fibres strengthening its walls, and also acting as drawstrings to keep the opening shut.

The upper end of each test enters a milk cistern into which open numerous large tubes. The large tubes lead into many smaller tubes and myriads of tiny ones which enter the true gland tissue of each quarter, each of which ends in a little reservoir or space where milk is manufactured.

### Congestion of the Udder.

When the udder becomes engorged with arterial blood at milking time, or just prior to calving, the condition is normal; it is not a symptom of disease. If such a condition should continue, however, and were not relieved by escape of venous blood through the veins to the heart, inflammation would ensue. That is what happens in garget, which means inflammation of the mammary gland.

Considerable enlargement of the udder before calving, especially in heifers, is indicative of milk producing capacity. Usually it is accompanied by escape of blood into the surrounding tissues and this causes a doughy swelling which extends to or beyond the navel and upwards between the hind legs, sometimes as far as the vulva.

Overfeeding and lack of exercise tend to induce an aggravated congestion of the udder. Better management usually will obviate this. Should it occur, the heifer or cow should receive much less feed, have her bowels opened with one or more four to six-ounce doses of Glauber's salts in warm water. She should be well exercised daily and have her udder well massaged several times a day. If the congestion then persists or seems alarming, a little of the milk or serum may be stripped away twice daily and the udder may be given a thorough rubbing with equal quantities of compound soap liniment, alcohol and extract of witch hazel. Blood may be present, but subsides under the treatment advised.

### Simple Mammitis or Garget.

When congestion lapses into inflammation, the mucous membrane lining of the large ducts in the teats and quarters, or of one teat and its quarter, swells, reddens and discharges mucus, just as happens when one has a cold in the head evidenced by running of the nose and redness and irritation of the membranes. If the inflammation spreads to the small tubes and tubules, a condition similar to bronchitis is caused. When the reservoirs become involved the trouble is like severe bronchitis; and when all of the tissues surrounding the reservoirs are affected and the numerous tubules fill up and the gland solidifies, the condition approximates that of pneumonia. Fever rarely is present in simple mammitis, while the appetite may be unimpaired and the cow may show little discomfort.

Common causes of simple mammitis are chill, bruising, incomplete, rough or irregular milking, coming in heat, indigestion, excessive feeding of protein-rich feed, injury. Unprotected concrete floors tend to induce slight chronic garget. Running of cows in summer followed by standing in cold water, or bruising of the distended udder between the thighs, when the cow is made to run before milking, are other causes.

Treatment consists in giving one pound of more of Glauber's or Epsom salts, along with one-half cupful each of salt and molasses in three pints of warm water, slowly and carefully from a long-necked bottle. This may be followed once or twice daily, according to severity of attack, with one-half ounce each of powdered pokeroor and saltpeter in soft feed or water. Local treatment consists in milking clean every two or three hours, bathing the udder at such times for fifteen minutes with hot water, and once or twice daily rubbing in a mixture of one part each of turpentine, and fluid extracts of pokeroor and belladonna.

### Acute and Contagious Mammitis.

Germ infection is the common cause of severe or acute mammitis which causes a rise in temperature, loss of appetite, lameness, stiffness and pain. The milk curdles, they form, the milk is brown in color and after a time may contain pus. Abscesses may form and discharge. The cow becomes weak and thin and rarely makes a perfect recovery. Usually the quarter of the udder attacked either continues to discharge thin, pus-like or bad-smelling brownish fluid, or all secretion ceases and the quarter hardens and loses its function. The discharge from the udder, or the milk secreted, contains the infective germs and may cause the same disease in another milker's hands or be contracted from contaminated floors.

The causes are those of simple mammitis when infection follows, or infection may be the cause from the start; usually it is. Another diseased cow in the stable may be to blame, but the disease may be brought in by a new milker and be carried by his hands or by the cups of a milking machine not properly cleaned and sterilized.

Milking tubes, not sterilized before insertion in the teats, commonly lead to the worst forms of mammitis. When the disease spreads from cow to cow and remains in a stable month after month, the disease is termed contagious mammitis. In this form the udder may become gangrenous and the affected parts slough off, if the cow does not die of poisoning, shock and exhaustion.

Treatment consists in instantly isolating the affected cow and keeping her separate until perfectly well. This should be made the invariable rule when anything goes wrong with a cow's udder. Such practice would prevent a host of troubles in the dairy stable. Internal treatment is the same as for simple mammitis, but tincture of acetone is used to abate the fever and belladonna is used to ease the pain and reduce inflammation of mucous membranes. Doses of pokeroor also are larger and more frequently given. The udder may be kept in hot poultices of antipholistine, spent hops or oatmeal porridge, or may be covered with clean cotton waste to be kept saturated with hot water. Milking should be done often, accompanied by massage of the udder. Twice daily from the first, the veterinarian—for one should always be employed in such serious cases—rubs in some favorite preparation which he has found effective. We like a mixture of equal quantities of carbolized oil, camphorated oil and compound soap liniment at first; if not effective, use one part of mercurial ointment and three of lard, lanolin or soft soap. Later full strength mercurial ointment may be used, or campho-phenique, while iodine ointment often is helpful. Iodine of potash also is given after the first symptoms pass off, and in all cases of contagious mammitis a trained veterinarian will give hypodermic treatment with serum or bacterins against pus. The stable should be thoroughly cleaned, disinfected and whitewashed, under direction of the veterinarian. Affected cows should be milked last or by one who does not attend to the other cows.

### Teat Troubles and Treatment.

Filth and germ infection cause most teat troubles. Cleanse teats and udder each time before milking. Keep floors clean and disinfected. Supply plenty of clean bedding. Milk with clean, dry hands. Keep the finger nails trimmed short. Sterilize milking tubes if they have to be used. Often these instruments are a chief cause of ruinous mammitis. A large, clean clove, on which carbolized vaseline or benzoated oxide of zinc ointment has been applied often serves well as a test plug, between milking; or a lead dibble, or a plug made of the disinfectant. When sores form on the tips of the teats immerse the teats twice daily for five minutes or so in hot water containing all the boric acid of the water will dissolve; then apply iodine ointment to all sores of the teats that are obstinate in healing. Benzoated oxide of zinc ointment is excellent for chaps and slight sores; so is carbolized vaseline.

To sores of more severe character apply glycerine of tannin, after the boric acid solution bath, or use a three per cent. solution of tannin of Peru and alcohol, or carbolized acid and glycerine.

False openings or fistulae of the teats require an operation by a veterinarian when the cow is dry; meanwhile, coat them with flexible collodion or cover with a surgeons' plaster. This treatment sometimes helps; often it fails.

Lesky teats sometimes stop leaking if immersed in strong alum solution twice daily, or if coated with melted wax or paraffin, or collodion. Closes are sometimes used as plugs in such cases.

### Put an old horse-collar on the neck of the self-sucking cow.

## Poultry

I have found that fresh milk helps to keep down digestive disorders in young turkeys for the first three weeks. After that it pays to keep sour milk before them at all times. Toasted bread and milk is a good starting feed. The poulters are seed eaters, and sloppy cornmeal mash sometimes causes serious losses.

After the first few days I feed cracked wheat and corn, and a little fine dry oatmeal. The poulters must not be stuffed, but fed frequently on light rations, which is the way they eat when following the turkey mother on the range. Green food is essential in their diet. Fine grit and fresh water must be available at all times. Sanitation is very important, and it pays to scald the feed dishes frequently. The turkey is naturally a wild bird, used to a wide range. When raised on the farm every effort must be made to keep the feed dishes and the roosting places clean and free from pests.

# Sheep Notes

When docking lambs I hold the four feet together, and tightly against my body. There are two methods of docking—one is by cutting off with a sharp knife, and the other is by burning with a hot iron. The latter is preferable, especially if the lamb has a large tail. The hot iron sears over the wound and prevents bleeding. If the lambs are old, it is well to tie a string around the stump to help stop the flow of blood.

I have practiced shearing sheep early for a number of years, and I believe it the best plan. I figure that I cannot afford to cause the flock a month or six weeks' discomfort for the sake of an ounce or two of wool or an extra one-eighth inch in the length of the wool.

My experience has been that early-shorn sheep are no more subject to cold than if the wool is on. The reason for spring colds is usually exposure to cold rains, and sheep shorn or kept out of such rains, whether shorn or not. I always shear my own sheep. Not being able to get the work done when I wanted it, caused me to undertake the job, and now I do not depend on someone else doing it for me. I shear whenever the weather becomes warm enough to cause the sheep discomfort.

To shear, I set the sheep up on its rump on a clean platform or floor. I begin at the head, splitting the wool down the throat, breast, and belly. I shear the entire head and neck first, with the sheep resting against me. In this way, if the sheep does not kick too much, the wool comes off in one unbroken fleece. At no time during the operation must the sheep get its feet on the floor. If it does, trouble is sure to start. As long as all four feet are off the floor the sheep will make no effort to get away.

To tie the wool I use the old wool board, as it leaves the fleece in better shape than tying by hand. In the absence of this I use a half bushel and, with very large fleeces, a bushel measure. I place three strings of wool (wine across this measure. Working the fleeces into a little ball, flesh side out, I start it into the measure with the back of the fleece down. When it is in the measure the belly will be well worked in toward the centre. The twine is then worked up and tied on top, and when taken out the fleece will be in a neat, compact bundle, flesh side out, and the work will be almost as well done as by the use of the wool boards.

When I do not wish to sell the wool as soon as shorn, I select a large box, as free from holes and cracks as possible, large enough to hold the wool. I line the box with one or more blankets, and start packing the wool in the bottom as tightly as possible. When the wool is all in, I place another blanket over the top and put on a lid tightly.

This box should be placed on blocks at least a foot off the floor, to lessen the chances of mice working in' it. When handled in this way wool will stay in prime condition a long time, and I have never had any loss from rotting the customer, as the goods are delivered at the door, but even then it is good business to promptly acknowledge and inform the buyer concerning the time of shipment.

When hatching eggs are shipped by parcel post it is not necessary to protect the customer, as the goods are delivered at the door, but even then it is good business to promptly acknowledge and inform the buyer concerning the time of shipment.

There are three parties to a farm lease: the tenant, the landlord and the land. But the land usually has to go unrepresented.

# NO FARM IS COMPLETE WITHOUT A VEGETABLE GARDEN

If the old statement, that a penny saved is a penny earned, holds good anywhere, I find that it holds good on what I get out of a garden. The vegetable crops you grow for your own use can rightly be credited on your books at just what it would cost you to buy the meat or canned goods they take the place of—that is why it pays me handsomely to grow my own vegetables for my own table, even when it might not pay me to grow them for market.

First of all, let me say, I have my garden near the house. That may seem, first off, like a fool sort of thing to do when I have half a dozen spots on other parts of the farm where the soil is as good or better, and which could be prepared for planting more conveniently, but I only have to prepare the garden for planting once in the entire season, and I have to plant and cultivate and keep careful watch of it week in and week out for many months.

Furthermore, as the chief object of the garden is to help out with the table, I want it handy, where the women-folk can call out and get a mess of vegetables without having to upset the whole morning's work, let the fire go out, and run a chance of the baby's falling down the well while the trip is being made over into the field beyond the pasture to pick a basket of peas or string beans or get a couple of squashes.

Incidentally, too, many of the troubles which I would experience with rabbits and other pests which are not likely to be serious unless they get an uninterrupted start, I don't have with a garden that is right near the house.

In the second place, I realize at the start that my garden spot is capable of yielding me more profit in proportion to the space it occupies than any other crop I grow on the farm and fertilizer accordingly.

### Fertilize Generously.

I am not stingy with the manure, but pick out the best there is for this purpose—the old, well-rotted, powerful stuff from the heart of the heap, and even after I have given it a good dressing of manure I'm not afraid to use some fertilizer I have got, to a half-acre patch. That, of course, costs a few dollars in real cash money, but it is a good investment. When manure is well rotted and fine enough, I prefer to put it on and harrow it in after plowing, otherwise plow it under. The fertilizer I always harrow in.

I get the garden patch plowed just as early as I can work the soil—I don't keep putting it off until after I get the farm crops in. I plow it all and harrow it thoroughly, even though I can plant only part of it right off. The part I do not plant will sprout some weeds, but they can be killed with another harrowing, or by raking, in one tenth of the time it would take me to hoe them out of a growing crop. Moreover, by getting the entire patch plowed and harrowed thoroughly the first thing in the season, I am saving all the moisture possible against the dry weather that's pretty sure to come sometime during the summer.

But getting enough plant food into the soil is only half the story. The first two or three years I tried to have a real garden, a good many of the things I planted failed to come up satisfactorily. Of course, I blamed the seedsmen. I got the seed from. I was several years before I came to realize just how important it is to prepare the

ground, before planting, with absolute thoroughness.

The kind of a seed bed that answers every purpose for oats or field corn, or a potato planter, isn't ready for garden seeds, such as lettuce or carrots or onions.

When I learned better, I harrowed my vegetable garden until it could be made no finer with the harrow, and then raked it over with an iron rake, before planting. Small seeds that are to be covered only one-fourth to one-half inch deep, if they are to have any fair show toward coming up evenly, must have a smooth, raked-over surface for planting.

After I found this out, I didn't have trouble in getting good "starts" of the different vegetables I planted.

### Pays to Plan Garden.

I have found from experience that it pays to plan the garden in advance of planting. An hour or two of an evening is ample to lay down on a piece of paper the plan of the garden just as soon as the ground is dry enough to devote to my garden, and just how to use it. How many rows of beans and peas, how many tomato plants, how many rows of beets and carrots, etc.

I have found that the advantage of making a plan is that it enables you to have things in the right proportions, instead of all together—too much of one thing and not enough of another. The plan should show also what things to plant a second and third time in order to keep the supply.

One reason why farm gardeners often do not succeed, is that the planting is delayed until most of the field crops have been put in. Early planting is one of the chief factors of success. As a matter of fact, the early things can be planted in the garden just as soon as the ground is dry enough to be worked—long before it is safe to plant potatoes or corn.

Plow the garden just as early as it is fit to turn over, and then get in your onion sets, smooth peas, spinach, radish, beets and carrots as soon as you can—cabbage and other plants can go in a week or so later, also wrinkled peas.

Much of the success with early cabbage, and other things of which growing plants are set out, will depend on the character of the plants. Most fellows look for the biggest plants they can get; I know, because I've sold many thousands of plants. Size, however, is of only secondary consideration. It's more important to have them stocky and well hardened. Soft, green plants, direct from a warm greenhouse, will be put back so much when set out that it takes them weeks to get over the check, even if they survive.

In setting out plants, I use bone meal, or a mixture of bone and tankage, in the hills. This mixture will give them a quick start and that dark green color every gardener likes to see, without any danger of burning the roots, which there is sometimes when mixed chemical fertilizers are used.

If the larger leaves are cut back a half at time of planting, especially if the weather is dry and warm, they will be set back less. Cut out a good ball of roots and soil with each plant. Of course the plants should be set in very firmly and deep enough to bring the lower leaves well down to the ground.

If the soil is so dry as to make the use of water necessary, put it in the bottom of the hole when setting the plants, not on the surface after setting.

# Welfare of the Home

## Let Us Eat More Intelligently.

By a more intelligent method of eating we can materially decrease our food budget in these days of inflated prices. There can be no doubt that the ever-increasing high cost of living or decreasing purchasing power of the dollar has been the greatest single factor in bringing about industrial, social and labor unrest inasmuch as even with the materially increased revenue of the wage earner, he finds that at the end of the month he is no better off than in pre-war times when he was only receiving about one-half the amount that he receives now. It must be apparent then that we require more accurate knowledge as regards intelligent eating.

By this we mean from 3 to 4 ounces of proteins or muscle-building material, such as meat, eggs, milk, cheese, peas and beans, and approximately the same amount of fats, such as butter, fat meats, etc., and about 1 pound of carbohydrates, such as cereals, bread, vegetables, sugar, and certain fruits. To this must be added, however, the ingredients essential for supplying all the needs of the body in addition to those already mentioned, such as the various salts and so-called vitamins, and these are found plentifully in the various kinds of green vegetables, such as spinach, Swiss chard, beet tops, cabbage, carrots, etc. Hence the great necessity of growing these vegetables abundantly in our back yards and on our vacant lots, where they can be indulged in unsparingly all through the summer months at least.

We no longer look upon fruit and vegetables as luxuries, but as absolute necessities. They are requisite for health, and, consequently, for efficient labor. If we are going to maintain our bodies in a fit condition and with proper development, we must use fruits and vegetables freely and give them to the children in an appetizing and healthful form. If our children are not fond of vegetables, we must put forth every effort to cultivate in them the taste for them.

It is estimated by food experts that we should use at the very least one pound a day of fruit and vegetables for each member of the family. To this end it is advised by these same experts that we do not spend more

for meat and eggs together than for vegetables and fruit. There is little danger of eating too much vegetables. Most people do not eat enough. We can materially save on our meat bill by using more potatoes, more beans and peas, and more fruit. An excellent substitute for meat is macaroni and cheese. Portions of vegetables that seem to be inedible as such for the table may be used to advantage for seasoning soups. The water that vegetables are boiled in should be used as far as possible in the making of soups, as it contains much of the salts which are essential for proper nutrition.

Other valuable substitutes for meat are beans, peas and the various kinds of nuts.

I wonder how many of the consumers of the banana have any idea of its food value? The banana constitutes the chief carbohydrate food, in fact, the principal food of enormous numbers of people in many parts of the tropics, taking the place of cereals and tubers, such as wheat, rye, barley and potatoes.

Furthermore, the fruit is surrounded by a thick envelope, which effectively protects it against dust, dirt and fly contamination, and, therefore, when the skin is not broken, it constitutes one of the most hygienic articles of diet we have.

Of all the substitutes for meat, milk and eggs and the various milk products constitute by all means the most valuable. In fact, milk is the only food that contains all the requisites for muscle and bone building, and for energy producing, and in addition to that, it contains other constituents which are absolutely essential for the efficient development of the child. For instance, lime is indispensable in the development of the child, and in fact is an essential constituent in the food of the adult. Everybody needs lime, and milk is by all means the most efficient and the most economical way by which this can be supplied to our bodies. Children need lime to build bones. Adults require it to keep their bones in good condition. Everyone requires it in order to keep the blood in a proper condition.

# Twenty-One Things Every Farmer Should Know.

To be a good farmer a man:

Must have good knowledge of soils.

Must have knowledge of proper soil drainage.

Must have knowledge of location and contour.

Must have knowledge of crops in relation to soil and climate.

Must have knowledge of crops in relation to each other (rotation).

Must have knowledge of needs in the way of fertilizers, etc.

Must have knowledge of the best way to handle the crops he grows.

Must have knowledge of care, feed and attention of livestock.

Must have knowledge of livestock in relation to climate and type of land.

Must have knowledge of manures, fertilizers, and their proper handling.

Must be a good mechanic on general farm machinery.

Must not only be a good mechanic but must be ingenious, so that temporary repairs can be made with halving wire, binder twine, pieces of wood, etc., till time is available for better repairs to be made.

Must have good knowledge of gas engines, trucks, tractors, and automobiles—their uses, handling, and care.

Must be a good carpenter.

Should be a good blacksmith, plumber, and have some knowledge of electricity.

Besides all this he must be a good buyer and a good salesman.

He must be enough of a manager to lay out his crops—not only in relation to soil and climate, but also in relation to salability and the greatest possible financial return; that is, a crop not so eminently suited to his farm may pay better, due to local or peculiar conditions, than one that can be grown to perfection.

Should be enough of a bookkeeper so that he can tell what his products are costing and he can change his methods, if they are costing too much.

# Dark Walls Waste Light.

The color selected for walls and ceilings has a decided effect upon the lighting of rooms and upon our light bills. Even where the darker shades are used for artistic or other reasons, information as to the exact value of each color to reflect light is useful. The illumination required in a room depends largely upon the amount of light absorbed by the walls and other surfaces. Dark surfaces absorb light, while light surfaces reflect a good proportion of the light back into a room. If the source of light is not changed, the effective illumination will vary with the reflection factors of the surfaces in the room. If, on the other hand, it is desired to maintain a fixed intensity of illumination, then the amount of light reflected by the walls on which the different colors are used will be in the following percentages of the light used: Enameloid, white, 80; flat tone, white, 79; flat tone, ivory white, 76; flat tone, cream, 71; enameloid, ivory, 64; flat tone, buff, 59; enameloid, pink, 51; flat tone, tan, 37; enameloid, tan, 27; enameloid, sky blue, 31; enameloid, cardinal red, 27; flat tone, forest green, 21; enameloid, wine, 12; enameloid, grass green, 10.

# What Manure is Worth to You.

If you saw a neighbor throwing five dollar bills around his barnyard, or using them to light his pipe, you would say he was crazy; and probably you would be right.

And yet, whenever a ton of manure is left out in the weather until the spring has all leached out, a five dollar bill is slipping out of your fingers. That is the value determined in a series of trials, or various experiments made, by the University of Missouri College of Agriculture.

To be exact, the average application of eight tons of manure to the acre, once in four years, has increased the yield of corn 10.5 bushels, oats 5.7 bushels, wheat 5.24 bushels, and clover hay 937 pounds. At prices which prevailed early in 1919, this increase would be worth \$182, and at pre-war prices \$224, for each ton of manure applied. This leaves a net profit of \$2.82 at present prices, or \$1.34 at pre-war prices for each ton of manure applied.

The full value of the manure is usually not obtained during the first four years, for the soil is left in better condition, and the effect on later crops is often quite significant.

As about 35 per cent. of the nitrogen and 55 per cent. of the potassium is to be found in the liquid material, it pays to use plenty of absorbent materials, and to get the manure in the fields before this has had a chance to leach away.

Liberality with the use of bedding and the use of concrete-lined manure pits, will do much to conserve this most valuable part of the manure. Furthermore, it should be remembered that nitrogen is lost in ammonia gas when manure is allowed to lie and ferment. Whenever manure gets heated up, you may be sure that ammonia is being lost, and very often it can be detected by its unusually pungent odor.

The total solid and liquid manure produced in a year by a well-fed, mature horse is about eight tons, with a plant-food value of more than \$30. In the case of a well-fed steer weighing from 1,000 to 1,400 pounds the production is nine to eleven tons, with a slightly greater value than the manure from the horse.

The Missouri College points out that from three to five months' exposure to the weather, in any open lot, may cause the loss of approximately one third of a plant food.

A Chicago business firm has a bonus of \$100 to any employee who announces a new baby in his family.

# Make Heavy Hauling Safe & Easy

**Imperial Eureka Harness Oil**  
penetrates the pores of the leather—makes it weather proof. Unlike vegetable oils, it will not become rancid. It prevents drying and cracking and keeps straps and traces pliable and strong. Imparts a rich, black, lasting finish and makes harness look like new.

**Imperial Mica Axle Grease**  
—is the most widely used axle lubricant on the market. Its mica flakes work their way into the pores of the axle, making it smooth and frictionless. Imperial Mica Axle Grease lubricates thoroughly under the most strenuous conditions. Makes loads easier to haul. Reduces the strain on harness and horses.

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