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PLANT FOODS.

Farmer's Opportunity to Save on the Fertilizer Bill.

By R. J. DAVIDSON, Virginia experiment station.

The elements necessary to the growth of plants may be divided into the following groups:

First.—Those that are furnished in abundance from air and water.

Second.—Those which are furnished in abundance from the soil.

Third.—Those which are not usually furnished in abundance in an available form from air, water or soil, as nitrogen, phosphorus and potassium.

Nitrogen is found in large quantities, chiefly in the uncombined or free state. It constitutes about four-fifths of our atmosphere. In this form it is only available to leguminous plants, such as peas, beans, clover, alfalfa, etc., through the influence of micro-organisms found in soils and living in nodules on the roots of plants of this family. In the case of all other plants the nitrogen is taken in only in combination with other elements. Combined with hydrogen it forms ammonia, which may be taken up in small quantities. With oxygen it forms nitric acid, and this combined with some elements in the soil forms nitrates. These are readily taken up by plants and form the principal source of the plant's nitrogen.

Expensive to Purchase.

Nitrogen is the most expensive element the farmer has to purchase. It costs at least three times as much as the phosphorus or potassium. It is also the element most likely to be deficient in the soil, as it is readily converted into soluble nitrates and in addition to being used up by plants is sometimes leached out of the soil. There is a large quantity of free nitrogen in the air. By growing leguminous crops we can obtain a portion of this nitrogen and store it up in the soil in fixed and available forms in the roots and stubble or in the whole crop turned under. We can thus repair in large measure the loss to the soil of this element without any cost and in addition obtain an excellent food for stock in the form of clover hay, alfalfa hay, etc. It will thus be seen how important it is for the farmer to grow one of more of these nitrogen gathering crops on his land as often as his system of rotation will permit and thus save purchasing this most expensive element of plant food. It is poor economy to buy what we can have for the taking, especially when the taking costs nothing.

SEEDLESS TOMATOES.

A Medium Small Variety With Flesh of Particularly Fine Flavor.

The production of any vegetable novelty always arouses interest among seed growers and gardeners. More or less of this work has been done by the experiment stations. For a number of years breeding experiments with vegetables have been carried on by Professor Halsted and his associates at the New Jersey experiment stations. Among the distinct and valuable productions secured in this work is a nearly seedless tomato. As is well known, each fruit of the ordinary tomato contains hundreds of seeds, while the form which Professor Halsted has developed seldom contains more than fifty seeds, and frequently there are not more than five or six and often none.

This variety has become pretty well established now and has been called Giant because of the very large size that the plant attains. It originated five or six years ago as a result of a cross of Golden Sunrise upon Dwarf Champion.

The flower clusters are small; flowers cup shaped, light lemon yellow, and the fruits few, medium small, light yellow and nearly seedless.

The flesh is particularly fine flavored. The plants flowered up to the killing frosts.

The type appears to be well fixed. Attempts to cross other sorts upon it have uniformly failed. Seedless fruits have also been produced by Professor Halsted on several varieties and crosses of tomatoes, due probably primarily to nonpollination with other conditions favorable to the stimulation of fruit production.

These crosses were quite uniformly dwarfed in size, many in a cluster being not larger than peas, but solid fleshed and often of good quality. In one instance the fruit had the flavor of the strawberry. Currant crossed upon Stone produced such fruit; likewise Crimson Cushion upon Sumatra. When Crimson Cushion was crossed upon Giant and Magnus many seedless fruits were produced, some of which were large enough for table use.

The work with seedless tomatoes is being continued and promises to result in the establishment of varieties with far less seeds than the sorts commonly grown.

Rotting of Potatoes.

The rotting of potatoes in storage is often a source of serious loss. The infection of the potatoes with the fungus occurs chiefly if not entirely in the field before digging. The infection is usually the result of diseased vines. The disease is transmitted in the majority of cases not directly through the vine, but indirectly through the soil. Potatoes may be infected directly in the field from spores introduced in the manure or from rotten potatoes spread upon or left in the land the preceding year.—C. D. Woods.

Productive Potatoes.

In a comparison of twenty-five varieties of potatoes Climax, Chenango White, Hammond Wonderful and Simmon Model ranked first in productiveness with yields in excess of 200 bushels of merchantable tubers per acre.—Massachusetts.

BLOCK AND BLANKET.

There Was Nothing Dainty About This English Squire's Bed.

An old highland chief, finding his youngest son, a mere boy, sleeping on the battlefield with a huge snowball under his head, kicked it away, exclaiming: "What do ye want wi' a pillow? I'll nae such efeeminacy in my family!" A similar aversion to "efeeminacy" marked Charles Waterson, an English squire, who in early life had wandered through many lands as a naturalist, intent on making collections of birds, reptiles, insects and wild beasts.

The bedroom where the squire slept and also prepared the specimens in his natural history collection was in the roof and open to the rafters. Across a stretched rope were thrown a striped blanket and his working clothes. The furniture was rough, coarse and scanty—an old deal table, three crazy chairs, a deal clothespress and a chest of drawers. The floor, deal boards, was uncarpeted.

Mrs. Byrne, who narrates the incident in her volume, "Social Hours With Celebrities," on surveying it remarked on the anomaly of a bedroom lacking a bed.

"I've long learned that a bed is a useless luxury," said the squire, drawing from a corner an oblong block of oak two feet long, ten inches wide, eight inches deep, hollowed and polished in the middle. Then he pulled down the striped blanket, rolled it around him and lay down on the bare boards, resting his head on the block.

"There, that's my bed! It's soon made, and I'll answer for it none of you sleep more soundly than I."

For thirty years the block and blanket had been the squire's bed, summer and winter, in health and sickness. When traveling, as he couldn't carry about his timber pillow, he used the best substitute he could devise. Once he was Mrs. Byrne's guest in London and, as usual, retired to rest at 9 o'clock. The German maid, not supposing that he had retired at so early an hour, went into the bedroom to take in the can of hot water. She gave a scream and rushed out. The next morning her mistress asked for an explanation.

"Ach, vell may you ask! I vent into de room, and vat did I see? A long body roll up in a blanket on de floor and a cray head on a portmanteau."

Treating Warts.

Children's hands are often disfigured by warts, and they can be cured in a simple way. Get hartshorn and sweet oil of equal mixture and paint the warts with this each day. It is slow, yet thoroughly satisfactory. Acetic acid touched to the most tenacious warts will in time kill them, and they can be easily removed. Most children, however, object to your cutting even the dead part away, since they have a fear of its hurting. After removing warts wash the parts with a weak solution of carbolic acid. A drop of peroxide of hydrogen in the cavity will cleanse all impurities. Do not believe in such absurd things as superstitious persons entertain for the removal of warts, for warts are almost as difficult to remove as teeth, and the foolish notion which has ever prevailed of causing them to disappear through some magic is not to be thought of in this enlightened age.—Exchange.

The Protection of the Forests.

Few that fell trees plant them, nor would planting avail much toward getting back anything like the noble primeval forests. During a man's life only saplings can be grown in the place of the old trees—tens of centuries old—that have been destroyed. It took more than 3,000 years to make some of the trees in the western woods—trees that are still standing in perfect strength and beauty, waving and singing in the mighty forests of the Sierra. God has cared for these trees, saved them from drought, disease, avalanches and a thousand straining, leveling tempests and floods. But he cannot save them from fools—only Uncle Sam can do that.—John Muir.

He Surrendered.

"Did I ever say all that?" he asked despondently as she replaced the phonograph on the corner of the mantelpiece.

"You did."

"And you can grind it out of that machine whenever you choose?"

"Certainly!"

"And your father is a lawyer?"

"Yes."

"Mabel, when can I place the ring on your finger and call you my wife?"—London Answers.

A Puzzle.

"There's wan thing," said Cassidy in the restaurant, "that's always puzzled me."

"Only wan thing?" piped Casey sarcastically. "An' w'at's that?"

"Is turtle soup fish whin 'tis made out o' veal?"—New York Globe.

ON A BUSINESS BASIS.

Very Practical Details In Profitable Dairying.

By JOHN MICHELS, Clemson College, S. C.

Under average conditions a cow yielding twenty-two pounds of milk should have a ration composed of about two-thirds roughage and one-third concentrates. By a number of trial calculations we find that the required nutrients are approximately obtained by selecting six pounds of wheat bran, four pounds of cottonseed meal, eight pounds of corn stover and forty pounds of corn silage. For greater yields it is best, as a rule, to increase only the concentrates to meet the requirements of the additional flow of milk, thus making the proportion of concentrate to roughage greater the larger the yield of milk.

The main part of the ration should be supplied in two feeds, one in the morning and the other in the late afternoon. It is desirable to feed some dry roughage at noon, especially when the roughage in the morning and evening consists of silage. The cow, on account of her large storeroom, the paunch, is capable of storing up a large quantity of feed and therefore does not require as many feeds as some other farm animals.

Concentrates and Roughage.

As a rule, it is best to feed the concentrates just previous to milking and the roughage immediately thereafter. The grain helps to attract the cows to their stalls, and by feeding the roughage after milking we avoid tainting the milk with undesirable odors when the roughage contains these. When corn silage, for example, is fed immediately before or during milking its odor is always perceptible in the milk. When fed after milking the odor is never detected. It is believed also that feeding the concentrates by themselves will result in a more thorough mixing of the saliva with them and thus increase their digestibility. Furthermore, a great deal of dust can be avoided by feeding the roughage after milking, particularly when the roughage consists of hay or dry fodder.

A prevailing opinion that heavy concentrates will form an injurious, pasty mass in the cow's stomach does not seem to be well founded. When the concentrates are fed directly before milking and the roughage directly after there will be sufficient mixing in the paunch before the contents pass into the stomach proper. The writer for several years has successfully followed the practice of feeding concentrates and roughage separately when the former consisted of as much as five pounds of cottonseed meal per day.

An average cow in full flow of milk will consume forty pounds of corn silage to good advantage. This amount of silage, combined with eight or ten pounds of dry fodder or hay, makes a good combination of roughage for a dairy cow.

Successful Feeding.

In the economical production of milk it is absolutely essential to feed cows according to their capacity. Just what this productive capacity is can be determined only by keeping a careful account of the feed consumed and the milk and butter fat yielded by each cow individually.

About half the nutrients called for in a ration for an average milker are used to sustain the body, so that it will neither gain nor lose weight, the other half being used to form milk. Returns for feed can therefore be expected only from about 50 per cent of the total nutrients required.

This means that a cow on a full ration will yield practically twice as much milk as she would on three-fourths of a ration. Yet there are thousands of dairymen who fail to supply the last quarter of a ration and thus bring ruin upon themselves and their business.

Battle of the Bullocks.

When the senior calver (grades) were sifted of their trash, some real beauties stood before the judge. Here was uncovered the champion of the grades and eventually the grand champion of the show. This was the handsome grade Shorthorn calf Roan King,

GRADE CALF ROAN KING.

[Champion of the grades and grand champion of the show at the late international.]

shown by James Leask of Ontario. He is a son of Gloster's Choice, and his dam was by Royal Banner, a bull which came to this side. He is a grand calf, with remarkable arch of rib, a finely finished front, light lower lines and little waste as a killer, and he is smoothly covered on back and ribs. The chief criticism lies in his tendency toward softness of flesh.

As a type of a Shorthorn show steer, with a weight of 1,090 pounds at about thirteen months old, Roan King fills a high ideal. He is quite mature, although in the calf class.—Breeder's Gazette.

Dairy Byproducts.

The effect of dairy byproducts on the carcass is one of the most important results of feeding them to hogs. It is generally admitted that, while excellent hams and bacon may be produced without dairy byproducts, the use of these byproducts will result in pork of a more nearly uniform high quality.

BLACKLEG.

Notes on a Destructive Disease and Its Prevention.

Every stock owner who lives in a district where blackleg occurs knows that it is the young animals, especially those between the ages of six and eighteen months, which are most liable to become affected.

As to the class of cattle most frequently affected by blackleg, the majority of reports agree that full blood or high grade stock is more subject to the disease than the common or low grade range cattle.

The spring and the fall seem to be the seasons most favorable for the development of blackleg. The disease is,

VACCINATING OUTFIT.

however, not confined to these seasons, but appears at all times of the year with more or less frequency.

The general symptoms of blackleg are high fever, loss of appetite and suspension of rumination, followed by great depression. Respiration becomes accelerated, the animal moves around with difficulty, frequently lies down and when water is near at hand drinks at short intervals and but a little at a time.

The most important diagnostic feature is the development of a tumor or swelling under the skin. The swelling may appear on any part of the body and limbs except below the knee or hock joint or on the tail. It is frequently seen on the thigh or shoulder, and owing to the extensive discoloration of the swollen parts as observed after the animal has been skinned the disease has been popularly named "blackleg," or "black quarter."

Most stock owners agree that when the disease has broken out there is nothing short of a hypodermic syringe and vaccine or the immediate removal of the affected herd to another pasture that will check the disease.

The bureau of animal industry of the United States department of agriculture considers prevention the principal recourse against this disease. It prepares and distributes a blackleg vaccine and reports that the effect of this vaccine in preventing outbreaks already in progress has been highly satisfactory. A lately issued circular (No. 31) of the bureau gives much information about blackleg and tells how to obtain this vaccine. Applications for it should be addressed to the chief of the bureau at Washington.

To prepare the vaccine in such a way that it may be injected hypodermically it is necessary to obtain certain implements, which, together with the hypodermic syringe, are known as a vaccinating outfit. This consists of a porcelain mortar with pestle, a small glass funnel and a measuring glass. The accompanying cut shows a vaccinating outfit, with the exception of the mortar and pestle.

All of the utensils, including the hypodermic syringe and a package of absorbent cotton, are fitted in a strong polished oak box, which by means of an adjustable wire loop serves also as a support for the funnel when the vaccine is filtering. The syringe, two hypodermic needles and an extra glass barrel are packed in a separate metal box, which is inclosed in the oak box.

THE STOCKMAN.

Full husking has developed a poorer quality of corn even than was reported a month ago. The estimate of rate of yield is practically the same as reported in November, the crop aggregating 2,550,000,000 bushels, but the percentage of corn fit for commercial purposes is the lowest ever raised. In general character the crop is soft, damp and immature grain, and the quality is so low that it dried out slowly and is keeping badly. It is particularly poor in Ohio, Michigan, Indiana, Illinois, Iowa and Nebraska.

The proportion of the crop which will be fed on the farm is far larger than usual, the reasons assigned being its unmerchantable quality, the scarcity of other grains, increased cattle and hog supplies and the inferior feeding value, necessitating the use of greater bulk to accomplish the same result. The crop is disappearing rapidly, and an unusually small part of it will appear in commercial channels.—Crop Report.

Character of Silage.

The feeding value of silage is in a large measure due to its comparative richness in nutrients especially suited for the nourishment of cattle, its ease of digestion as compared with dry foods, its palatability due to its aroma and succulence and the fact that it aids in cooling the system and keeping it free of effete material and keeping the circulation active.

Stall Feeding Versus Grass.

In some Virginia tests it cost nearly twice as much to make a pound of gain on cattle in the stall as where the animals were finished on grass.

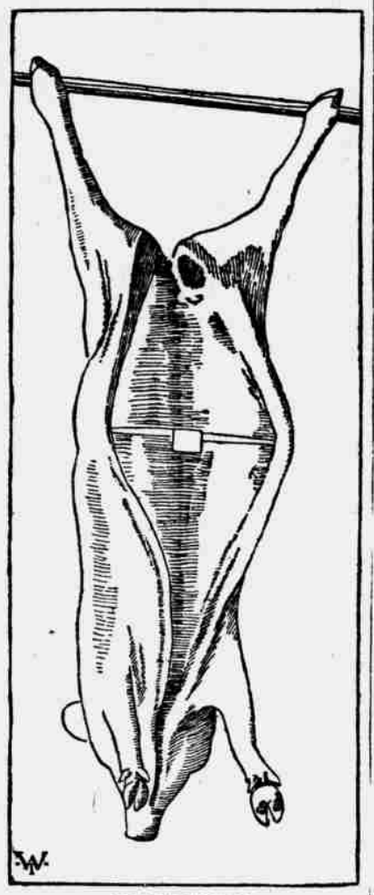
Farm, Field and Garden

SLAUGHTERING HOGS.

A Few Things That Aid In Doing Good, Clean Work.

A pen of hogs ready for killing should not be fed within twelve to twenty-four hours previous to slaughtering, but should have a chance to clean and cool out. On many large farms where from thirty to fifty hogs are to be killed the work begins about 2 o'clock in the morning. The first preparations are made the day before. A sufficient supply of wood is on hand to keep the great pot "b'ilin'," and all other needed paraphernalia is got ready.

A whisky or vinegar barrel is the best to scald the hogs in. Care should be taken to ascertain that the tempera-



THE RIGHT WAY.

ture of the water is exactly right before the hog is dipped; otherwise the hair will be set, and it will be a hard matter to have the carcass well cleaned.

The hair from feet, ears and head should be got off as clean as possible as soon as the hog is dipped in order to avoid so much scraping with a knife afterward. After the hog has been scraped clean hang him up to cool and insert a corncob or chip in his mouth.

If the hogpen is far from the house, haul the carcasses up in wagons or carts, putting clean fresh straw in the bottom. It is best not to pile the hogs in indiscriminately on top of each other, as the carcasses will get soiled from the blood that drips from their mouths or from the gashes in their throats where they were stuck. Each carcass should be thoroughly rinsed off with cold water after being scraped and then hung up.

Be most careful in opening the carcasses not to cut into the entrails. Whoever has charge of the work should be familiar with it and have a steady hand. Let the entrails drop into a clean tub and remove the liver and heart. Drench the abdominal cavity, now emptied, with one or more buckets of cold water. Then leave out of doors to cool out well, advises a writer in American Cultivator.

Take down the carcass at night and place on the floor of the smokehouse, seeing that the floor has been properly cleaned. When all the animal heat has left it, which will be by the following morning if weather conditions are right, begin the work of cutting up and salting down.

Too Much Acid In Cheese.

Some interesting results in cold storage were obtained with lots of cheese which had been allowed to develop too much acid in the process of making. Such cheese held in the factory for two weeks and then placed in storage at 40 degrees was much deteriorated, while that placed directly in storage at 32 degrees was pronounced very good. Contrary to the belief generally held by dealers, the results therefore indicate that cheese with too much acid should be placed in cold storage as quickly as possible, and the colder the room the better. The results of these experiments are therefore favorable to the putting of cheese into cold storage at an earlier age even than the one to two weeks now customary and show that this method is valuable in preventing taints and the bad effects usually following the development of excessive acid.—Bureau of Animal Industry.

Bacteria In Cream.

Careful experiments in testing cream at the Oklahoma experiment station have shown that the bacteria were found to increase in cream for a period of three days in summer and four days in winter, after which there was a steady decrease, but it is not to be assumed that old cream is better than fresh cream because it has fewer bacteria, for samples of eight day cream had an old, unpleasant odor.

Registration of Land Title.

In the Circuit Court of the State of Oregon for Benton County.

Delila Read, Plaintiff,
vs.
Hannah Rowland, Polly Mitchell, heirs-at-law of Lucretia Hallock deceased Sara H. Strahan Claude Strahan, Fayne Lewis, heirs-at-law R S. Strahan deceased and Henry Lewis and "All whom it may concern," Defendants.

In the matter of the application of Delila Read to register the title to the following: The celestial D L C of Heman S. Hallock and Lucretia Hallock, his wife, it being Claim No. 50, being part of Secs 4 and 9, in Township 11, South, Range 6 West of the Willamette Meridian, Benton county, Oregon, described as follows, towit: Beg. at the S. E. corner of said section 4, and running th. north 88 minutes east 45 chains, thence west 8° chains and 50 links, thence south 44 chains and 60 links, thence north 89 deg and 24 minutes west 22 chains and 57 links, thence south 26 chains and 93 links, thence east 60 chains and 93 links and thence north 25 chains to the place of beginning in the district of lands subject to sale at Oregon City, Oregon, and containing 320 acres and 96-100 of an acre.

To Hannah Rowland, Polly Mitchell, Sara H. Strahan, Claude Strahan, Fayne Lewis, Henry Lewis, and "All whom it may concern," Defendants.

TAKE NOTICE

That on the 4th day of January, 1908, an application was filed by the said Delila Read in the Circuit Court of the State of Oregon for Benton county, Oregon, for initial registration of the title to the land above described.

Now, unless you appear on or before the 31st day of February A. D. 1908, and show cause why such application should not be granted, the same will be taken as confessed and a decree will be entered according to the prayer of the application and complaint you will be forever barred from disputing the same.

Dated at Corvallis, Oregon, this 6th day of January, 1908.

[SEAL] T. T. VINCENT
Clerk Circuit Court of the State of Oregon for Benton County.

NOTICE FOR PUBLICATION.

DEPARTMENT OF THE INTERIOR.
Land Office at Roseburg, Or., Jan. 8, 1908.

Notice is hereby given that Ebba I. Wilson, of Monroe, Benton Co., Or., has filed notice of his intention to make final five year proof in support of his claim, viz:

Homestead Entry No. 11619, made October 1, 1901, for the N ½ of SE ¼, Section 8, Township 14 South, Range 6 West W. M., and that said proof will be made before County Clerk and Clerk of County Court at Corvallis, Oregon, on Friday, March 6, 1908.

He names the following witnesses to prove his continuous residence upon, and cultivation of, the land, viz:

Walter J. Sisson, Welberry Wilson, Albert Oakes, and James Oakes, all of Monroe, Oregon.

BENJAMIN L. EDDY, Register.

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