

BEST USE OF STABLE MANURE IN THE PROPER ROTATION OF CROPS

The Common Practice Is To Manure the Corn First—Manure Without the Reinforcement of Mineral Fertilizers Must Be Considered Chiefly As a Carrier of Nitrogen and Vegetable Matter

(By J. C. McAmis, University of Tennessee.)

One of the foremost advantages of a well-planned rotation of crops is that it provides a suitable place for the application of stable manure and renders possible its most efficient use. Since it is impracticable to attempt to spread the manure over the entire farm during any single year, and since it is desirable that each field should receive its share during the rotation, it seems to be the best plan to apply it always to that crop which makes the best use of it.

The question naturally arises: "To which of the farm crops shall manure be applied, how, and when?" While all crops ordinarily grown on the farm would be benefited by appropriate applications, there are some to which it is better adapted than others, and should have the preference, if there is not a sufficient supply for all.

The common practice is to manure the corn first. The reason has been that this crop holds first place as a food producer and as an economical user of plant food. Manure without the reinforcement of mineral fertilizers must be considered chiefly as a carrier of nitrogen and vegetable matter. Corn has greater power to utilize immense quantities of nitrogen, even in the form of coarse organic matter, than any other crop. It recovers a higher percentage of any plant food placed in the soil.

There are other considerations, however, in the use of stable manure. Its residual or permanent effect, aside from its plant food content, must not be ignored. Its great value in getting and maintaining stands of clover and grass stands out unquestioned in the light of actual farm experience. Moreover, this is of first importance in the improvement of soils which have gone down in crop production. How to grow clover successfully is the fundamental question of Tennessee agriculture.

For the present at least the Experiment Station is recommending that manure be applied to the grain crop with which clovers and grasses are usually sown. The only exceptions to this practice are made in limited areas where the natural fertility of the soil is such that there is danger of the manure causing the grain crop to lodge (here clover can usually be grown without manure), and where clover is being grown successfully because of liberal applications of lime and phosphate. When this condition is true on the average farm, the practice of applying manure should be changed, but until clover is grown successfully, it should continue to have the preference.

It is not always possible to get onto the grain fields in winter. The alternative would be, in the case of fattening cattle or sheep, to leave it under the feet of the animals on the concrete

floors of a shallow pit, which insures the exclusion of air and prevents fermentation, as the silo does with the ensilage. In the case of horses and dairy cattle, it is best to manure shed with floors and of concrete, to which stock (excepting hogs and chickens) should have access in order to keep the manure well packed. Water should be added if the manure is dry.

It may remain under the shed temporarily, but even with a shed it should be hauled to the field as quickly as possible, because the soil is the best place for manure.

As soon as stock are removed from the stall or manure shed, the manure should be spread immediately upon the fields. Otherwise it dries and as a result air is admitted and fermentation begins. Whenever heating takes place in manure it results in a serious loss of plant food.

Wherever it is impracticable to apply manure to the grain and clover, the next best place is to a winter cover crop or winter pasture that is to be turned under for corn. It is always desirable to disc the crop and manure thoroughly before breaking, especially if the manure is coarse and not well rotted. Where manure is held in the stalls until spring, to be applied to corn, it is usually well rotted, and it should be applied after breaking and before discing. If it is not well rotted, it should be disced into the land previous to breaking. Some mixing with the soil is desirable, and should be done immediately, except when it is applied to winter grain and clover as a top dressing.

Manure must not be expected to replace lime and phosphate in building soils. Its highest efficiency is obtained on lands well supplied with these materials. The plant food which it contains is chiefly nitrogen.

It has been found that all plants belonging to the legume family, by the aid of bacteria growing upon their roots, will appropriate the free nitrogen of the air. If the soil is well supplied with this element in a readily available form, the bacteria prefer to use the soil nitrogen instead of fixing it from the air.

Nitrogen in a soluble form is readily leached by exposure to rain and snow and easily lost as a gas in fermentation. Above all, this process can and should be prevented by spreading directly on the field or by keeping it wet and compacted on air and water-tight floors.

Notes the losses from exposure to weather for six months:

Pounds in Each Original Ton.
Before Exposure—Nitrogen, 10.2; Phosphorus, 1.84; Potassium, 5.8; Value, 1.98.
After Exposure—Nitrogen, 6.5; Phosphorus, .92; Potassium, 3.6; Value, 1.12.
Percentage Loss—Nitrogen, 35%; Phosphorus, 50%; Potassium, 60%; Value, 43%.

THE MANAGEMENT OF WINTER PASTURES

Probably a larger acreage of small grain and clover has been sown this fall, for the sole purpose of grazing throughout the winter season, than ever before in Tennessee. Moreover, the usually high prices of all kinds of live stock, and the extreme scarcity of roughage available for winter feeding will invite many stockmen to turn stock on both the area sown for that purpose and also the fields that are to be harvested for grain. Both practices seem to be wise. In the former case, if a clover is sown with the grain, fertility will be added to the soil, at the same time it is furnishing one of the most economical feeds in the South. In the case of the crop intended for grain, grazing may often be practiced on rich lands without decreasing the grain yield. It is occasionally beneficial. On poorer lands, a decrease in the grain yield is likely to result, but at present prices, the profit from the stock will more than overbalance the decrease in grain, and at the same time keep the fertility on the land. It is important, therefore, that the winter pasture should be managed so that the maximum amount of green forage will be obtained, and in the case of the grain crop, the decrease in yield will be reduced to a minimum.

The key to success with cereal crops and legumes sown entirely for pasture purposes lies in thick seeding in late August or early September, on a seed bed that has been well prepared. The crops should then be allowed to attain a height of three or four inches before the stock are allowed upon them. Too often pastures are injured, and their possibilities are wasted, for the sake of a few days' pasture in the early fall, whereas their efficiency might be greatly increased for winter and spring use by waiting a short time.

The greater the number of stock to be used on a given area, the longer should the grazing period be delayed. Climatic and soil conditions must also be considered. Under ordinary conditions, an August-sown pasture on land of medium fertility should carry six fifty-pound steers, or one yearling calf, or four sheep per acre, through-

out the season, provided, of course, that they are given some grain, as they always should be.

Since cereals intended for grain primarily are sown later and at smaller rate of seeding, they can not be relied upon for as high production as those seeded for winter pasture only. The grazing period must be much shorter by beginning later in the fall and stopping earlier in the spring. They should seldom be pastured later than March first. Horses and heavy cattle should be removed even earlier, while sheep and hogs may remain with less damage.

Wherever practicable, crops should be grazed at successive stages by changing the stock at intervals of several days or a few weeks. This practice requires the division of the field into at least two areas, but pastures are made more productive than they would be under constant use.

Rye will stand closer grazing than any of the other grains. The closer grazing should be done in the spring rather than in the fall on fields where a grain crop is not expected.

The aim should be never to allow stock on these pastures while the land is wet or the crop covered with frost. The injury to the physical condition of the land, especially clay soils, from tramping while wet, may far exceed the profit obtained with the growth of the stock. Even with thick, early seeding, this difficulty will remain and must not be lost sight of. However, the more abundant the covering, the smaller will be the damage.

To overcome this difficulty, rye may be seeded into a red clover or Japan clover sod by discing lightly, and then seeding the rye with a disc drill during the first days of October. The land remains firm and there is little damage from treading of stock.

We can not emphasize too strongly the importance of providing ample winter pastures for all classes of stock, and especially hogs and sheep. They can not be raised at a good profit without it. It is equally important that both the pastures and the land upon which they grow be used judiciously.—J. C. McAmis, University of Tennessee.

MACEDONIA

Gathering corn is the order of the Argo and Chargo Barnes are building a crib and buck pen.

Several of the Macedonia boys attended church at Rocky Point Saturday night and report a nice time.

I wonder if Garfield and Virgil Stamps have ever gone 'possum hunting any more.

Mr. and Mrs. Johnnie Bohannon and daughter visited their daughter on the Calif Killer Sunday.

Miss Pearl King visited at James Barnes' one day last week.

Sallie Lee and Lillie May Walker visited J. V. Walker Saturday night and Sunday.

Violet Stamys says she likes Pleasant Ridge just fine as there are some of the prettiest boys there she ever saw anywhere.

Chargo and Casto Barnes and Jimmie Walker attended church at Mt. Pleasant Sunday.

Homer Ledbetter and Argo Barnes attended church at Rocky Point Saturday night and Sunday.

H. D. Rockwell says he likes the name of Sallie, but likes the road that leads to J. B. Walker's best.

Seven Chums.

ELMWOOD, OKLA.

Dear Editor: If you will allow me space in your paper I will jot down a few lines. Health is very good here at this writing. Everybody is gathering their crops now.

We like the country fine, except the high winds and sand storms, but that is everywhere in the western country. Everybody has fine crops here.

Wake up you Flynn's Lick folks, and give the Herald the news.

Our school began the first Monday in September. We are going now, but I don't like to go much.

Aunt Getrude how are you? Are the children going to school.

Buddie, how do you like to go to school at Cookeville. When are you going to Georgia to get your girl.

Ersie Whitefield.

ARGYLE, TEXAS

Nov. 7 was a happy day to the old as well as the young while we all engaged in a rabbit hunt. The hunt took place on John Raines' 4,000 acre pasture, where trees do not grow. The guests of the hunting party were Mrs. Toney Kimes of Monticello, Ky., who was young again when we got the first one up, in her eagerness for the dogs to catch it; Mrs. Pearl Griffith and her three sweet babies; Mrs. G. F. Vaughn of Argyle and family, and Mrs. J. T. Robinson. J. T. Robinson, accompanied by Tom Dudley and his famous greyhounds made up the happy party.

It was a great scene for our dear friends and loved ones as they had never seen a jack rabbit. They think it the greatest sport they have seen in the west. We also went out among the long horn western steers. Some went in bugles and some horseback. The following horseback riders were present and did some nice riding after the rabbits: Tom Dudley and Hobart Vaughn, who is an expert on horseback and with a rope. He is a first class cowboy. Also Veaco Vaughn, who could be pleased no better than to be hunting. Each one present had a jolly good time.

We all wished for our good old Tennessee friends to be with us to learn the customs of the west. We returned from our hunt and went to church at night. We captured seven rabbits.

Grandma and my aunt said to tell Tennessee friends they would be there soon. If this makes anybody want to go rabbit hunting just come to Texas and I will go with you. Will answer any questions concerning the west. Veaco Vaughn.

HELPFUL WORDS

From a Cookeville Citizen
Is your back lame and painful?
Does it ache especially after exertion?

Is there a soreness in the kidney region?
These symptoms suggest weak kidneys.

If so there is danger in delay.
Weak kidneys get fast weaker.
Give your trouble prompt attention
Doan's Kidney Pills are for weak kidneys.

Your neighbors use and recommend them.
Read this Cookeville testimony.

W. L. Isbell, grocer, Cookeville, Tenn., says: "I had attacks of backache and my kidneys were weak. Doan's Kidney Pills gave me relief in a short time. I recommend this remedy highly, for I know what it will do."

Mr. Isbell is only one of many Cookeville people who have gratefully endorsed Doan's Kidney Pills. If your back aches—if your kidneys bother you, don't simply ask for a kidney remedy—ask distinctly for Doan's Kidney Pills, the same that Mr. Isbell had—the remedy backed by home testimony. 50c all stores. Foster-McBurn Co. Props., Buffalo, N. Y. "When Your Back is Lame—Remember the Name."

HARVESTING OF WINTER APPLES

FRUIT SHOULD BE PICKED WHEN THE SEED IS WELL COLORED —INTERESTING FACTS.

PICKING AND IN HANDLING

Great Care Should Be Used in Handling of Winter Apples—Varieties Differ Greatly in Their Attachment To Tree—Learn "Knack" of Picking.

(Charles A. Keffer, University of Tennessee.)

Winter apples should be picked when the seed is well colored. Often this will occur before the characteristic color of the variety has developed, and always the seed is ripe while the flesh of the apple is yet hard.

Cut open a few fruits from the inner branches of the trees where they receive the least light, and from the more exposed limbs. If the seed shows less than half its ripe color—a very light brown, for instance—the fruit is not mature enough; it will be apt to shrivel in storage and its full flavor will not develop; but if the color is fairly well developed, a medium brown, the variety is ready for picking. If permitted to remain on the tree longer, the fruit will not keep as well as when picked at this stage.

Great care should be exercised in picking and in handling. The stem must not be pulled from the fruit. Varieties differ greatly in their attachment to the tree. The picker must learn the "knack" of picking; usually a slight twist and quick bend will separate the stem from its supporting spur. When the stem breaks from the apples, decay is apt to develop.

Never let go an apple until it rests on something. If it is the first fruit picked, do not drop it an inch, but lay it on the bottom of the basket; and be as careful in handling apples as if they were thin-shelled eggs.

When the picking basket is full, lower it to the bottom of the barrel and gently tip the barrel so the fruit will pass from basket to barrel without bruising. The slightest bruise in the orchard means a rotten spot in the cellar.

Of course, the best way of saving apples for winter use is by cold storage; but they can be kept quite well in a cool cellar. Have shelves arranged as for sweet potatoes, with slatted bottoms and six-inch sides. The cellar must be provided with openings on at least two sides, to afford perfect ventilation. Spread the fruit carefully in layers six to eight inches deep on the shelves, leave the cellar windows open at night and closed in the day time, until cool weather comes. During the winter go over the bins occasionally, removing the ripest fruit.

The best temperature for apples in storage is about forty degrees above zero. While this low temperature can not be maintained during the fall months in Tennessee, such varieties as Wine Sap and Ben Davis can be kept until February and March with little difficulty, if care is taken to pick the fruit early, avoid bruising, store in shallow bins, in a cool, dry cellar, which is ventilated at night and kept closed during the day until the warm days are passed.

Of course, it is understood that only sound fruit should be stored, and no one can hope to keep fruit that is fully ripe when placed in storage.

SHORTAGE IS EXPECTED

When Spring Comes, It Promises To Bring Shortage of Hay and Roughage.

(By J. C. McAmis, University of Tennessee.)

When spring comes, it promises to bring with it an unusual shortage of hay and roughage. In most parts of the state clover stands are poor and in many cases a total failure, so that the situation will not be improved very much by the clover crop next spring.

It is not yet too late to insure the supply of early hay for summer by the use of wheat and vetch. This is the hay crop that seldom suffers from drought, produces abundantly if vetch is inoculated and phosphate is applied, is ready for hay in May, a season which is favorable for making hay, is palatable and nutritious, and comes at a time when the barns are empty.

If the weather permits, one could hardly find more profitable employment than to continue the preparation of land from which has been taken corn, sorghum, beans or peas, and even cotton, for seeding to a crop for hay. The land may be disc'd thoroughly and wheat and vetch sown at the rate of one and a half bushels, and fifteen pounds, respectively. It is true that vetch makes little growth in winter, but it will make a rapid growth in spring and will be ready for hay with the wheat.

STATE EGG LAYING CONTEST.

Tennessee poultry breeders will have an opportunity to demonstrate the egg laying ability of their hens in the big egg laying contest which begins December 1, 1914, and ends November 30, 1915, on the Tennessee State Fair Grounds, Nashville, Tennessee. No entry fee is required. Reports will be published weekly in papers over the State. Address, Manager of Contest, Tennessee State Fair Grounds, for details.

Be Clean! Inside and Outside

If you would be healthy, strong and happy. Baths keep the skin clean and in good condition. But what about the inside of the body? You can no more afford to neglect it than the outside. It is just as important that the system be cleansed of the poisonous impurities caused by weakness of the digestive organs or by inactivity of the liver.

DR. PIERCE'S Golden Medical Discovery (In Tablet or Liquid Form)

Cleanses the system—and more. It puts the liver in such a condition of health that it purifies the blood—as it should. It helps the stomach digest food so that it makes good blood—rich, red blood to nourish and strengthen all the organs.

You may avail yourself of its tonic, revivifying influence by getting a bottle or a box of tablets from your medicine dealer—or send 50c for a trial box. Address as below.

FREE "Dr. Pierce's Common Sense Medical Adviser"—a French cloth bound book of 108 pages on receipt of 31 one-cent stamps to cover mailing charges. Address Dr. R. V. Pierce, Buffalo, N. Y.

Low Rates to NASHVILLE and Return

Via Tennessee Central Railroad

ACCOUNT

Vanderbilt-Sewanee Foot Ball Game

Tickets on sale November 25, and for trains scheduled to reach Nashville on or before 2:00 p. m., November 26, with return limit November 27, 1914.

For full information see your ticket agent or write

J. E. SHIPLEY

Assistant General Passenger Agent
Nashville, Tenn.

BAXTER SEMINARY

Baxter, Tenn.

Invites Comparison with the Best

Under New Management

Strengthened Curriculum

Courses Especially Adapted to Teachers

Write for Catalogue

Address, The President

Designed and Patented 1867



The Standard Ever Since



Twenty-seven Years Ago the first Cortright Metal Shingles were put on.

CORTRIGHT METAL SHINGLES

They're still on—still in good condition, and the only attention they've had is an occasional coat of paint.

In addition to the lasting qualities, they're fireproof, stormproof and inexpensive.

For Sale by W. M. SMOOT, Cookeville, Tenn.

STOMACH TROUBLE FOR FIVE YEARS

Majority of Friends Thought Mr.

Hughes Would Die, But

One Helped Him to

Recovery.

Pomeroyton, Ky.—Is interesting ad-

vicees from this place, Mr. A. J. Hughes

writes as follows: "I was down with

stomach trouble for five (5) years, and

would have sick headache so bad, at

times, that I thought surely I would die.

I tried different treatments, but they

did not seem to do me any good.

I got so bad, I could not eat or sleep,

and all my friends, except one, thought I

would die. He advised me to try

Thedford's Black-Draught, and quit

taking other medicines. I decided to take his advice, although I did not have any confidence in it.

I have now been taking Black-Draught for three months, and it has cured me—haven't had those awful sick headaches since I began using it.

I am so thankful for what Black-

Draught has done for me."

Thedford's Black-Draught has been found a very valuable medicine for dis-

arrangements of the stomach and liver. It is composed of pure, vegetable herbs,

contains no dangerous ingredients, and acts gently, yet surely. It can be freely

used by young and old, and should be kept in every family chest.

Get a package today.

Only a quarter.

to sell the most remarkable bargain in the magazine world this year.

Men and Women Wanted

EVERYBODY'S \$1.50
DELINEATOR 1.50
Total \$3.00

BOTH \$2 To one person

A monthly salary and a liberal commission on each order. Salaries run up to \$250.00 per month depending on the number of orders. This work can be done in your spare time, and need not conflict with your present duties. No investment or previous experience. We furnish full equipment free.

Write for particulars to The Butterick Publishing Company 326 Hudson St. New York