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THE PROGRESSIVE FARMER.

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THE INDUSTRIAL AND EDUCATIONAL INTERESTS OF OUR PEOPLE PARAMOUNT TO ALL OTHER CONSIDERATIONS OF STATE POLICY.

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THE NATIONAL FARMERS' ALLIANCE AND INDUSTRIAL UNION.

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PAPERS.

Progressive Farmer, State Organ, Raleigh, N. C.
Junction, Raleigh, N. C.
Democracy, Hickory, N. C.
Sattler, Whitakers, N. C.
The Home, Beaver Dam, N. C.
The Journal, Lumberton, N. C.
The People's Paper, Charlotte, N. C.
The Vestibule, Concord, N. C.
The Plow-Boy, Wadesboro, N. C.
Carolina Watchman, Salisbury, N. C.

Each of the above-named papers are requested to keep the list standing on its first page and add others, provided they are duly elected. Any paper failing to do so will be dropped from the list promptly. Our agents can now see what papers are published in their interest.

AGRICULTURE.

THE PROGRESSIVE FARMER is always glad to receive letters on agricultural topics from practical farmers. Write us your experiences. Your younger brethren will appreciate your suggestions and experiences.

Wheat is wheat once more, and there is a sufficient quantity of it to be worth while. The best estimates now place the yield—winter and spring combined—at \$500,000,000 bushels, and it is much above the average in quality.

We presume that South Dakota farmers are tired of grasshoppers. The grasshoppers go in great armies and look like huge gray blankets as they move across the roads. A bounty of 50 cents a bushel is paid by the State authorities. They are destroyed by using crude petroleum.

No one can pursue the business of agriculture with all the powers of his mind and yet make his avocation a failure. Farming is at present rather discouraging, the prevailing low prices and the sharp competition make it less profitable than formerly, but we should not despair. If a spider breaks his web over and over, he will mend it again. Let us not fall behind the very insect on the wall.

Every who is, or wishes to become an active, thorough going dairyman in North Carolina, should join the N. C. Dairyman's Association and help and be helped by the general effort to make this deserving institution one of greater importance in our State. This Association has issued one report which is well spoken of. It is at work this year as never before on new lines. You will find also that the State Agricultural Society is this year offering special inducements in its premium lists for dairy exhibits, and thus there are encouraging helps already at hand for dairy progress in the Old North State. Catalogues of the State Fair Premium Lists can be had by applying to Hon. John Nichols, Raleigh, N. C.

WEEKLY DIGEST

Of Experiment Station Bulletins No. 83.

STEER FEEDING

No state produces so many cattle as Texas, and the importance of ascertaining some means of economically preparing them for market on Texas soil, instead of having them shipped into other states by the hundred thousand every year to be fed for market, has induced the Texas experiment station to make elaborate tests in steer feeding every year from 1887 to the present time. Five bulletins have been issued, from time to time, giving the details and results of these tests, the last one, No. 41, having just come to hand.

Previous tests having shown that cotton seed meal mixed with cotton seed hulls make a very well balanced ration of special economy in Texas, by far the most extensive cotton growing state in the Union, these tests of 1896 were to determine, 1st, what proportion of meal to hulls produce the cheapest gain for both long and short feeding periods; 2d, what proportion produces the most rapid gain; 3d, can meal and hulls be so proportioned as to produce blindness, or "fat sickness" in good cattle with healthful surroundings.

The steers used were good blocky short horn grades raised in Leon county, and were three or four years old, and had been running on the same range before being put into the feeding pens. They were so assorted as to give all pens as nearly as possible bunches of steers of equal weight, form, age, and appetite. All lots received regular feeding, watering and weighing under like conditions.

The short period of feeding was 70 days, the long period 120 days, and to determine the "fat sickness" problem, 180 days.

As low as 1 lb meal to 6 1/2 lb hulls was fed with good results and as high as 1 lb meal to 1 2/3 lb of hulls was fed without injuring the health or impairing the appetite.

The general conclusions drawn from these tests and corroborated by similar tests in a previous year, cotton seed meal being rated at \$15 per ton and hulls at \$3 50, are as follows:

In answer to the question, "In what proportions should cotton seed meal and hulls be fed for cheapest gain in flesh for long and short fattening periods?" the answer given by both experiments seem clear: At current or probable prices of meal and hulls, it pays best to feed some 5 or 6 pounds of hulls to every pound of meal eaten.

The largest daily gain in live weight can be secured by feeding meal and hulls in a very common proportion of 3 pounds of hulls to 1 pound of meal. The quicker gain, secured by increasing the amount of meal fed daily from some 4 pounds to 6 pounds, increase the cost of feeding each steer \$1.25 or \$1.50 for every 100 days.

Changing the amount of cotton seed meal from a light feed of meal for first 50 days to heavy meal feed for last 70 days gave results of no marked value, although the change of ration clearly added to the cost of maintenance.

We were totally unable to cause "fat sickness" in steers fed on sound, dry cotton seed meal and hulls when combined in various proportions and fed for 180 days, continuing into hot weather.

When less than 2 1/2 pounds of hulls is fed to 1 pound cotton seed meal the appetite is disturbed and indigestion is produced, resulting in light feeding and slow gains.

From the trials here reported, we may safely conclude that when the price of a ton of cotton seed meal as compared with a ton of hulls is 5 to 1, then a pound of meal fed should be accompanied by at least 5 pounds of hulls, should be corresponding increased. Thus, if meal be worth \$15 per ton and hulls \$3, at least 5 pounds of hulls should be fed to each pound of meal; if meal be worth \$15 and hulls \$2 per ton, 7 1/2 pounds of hulls should be fed to every pound of meal—provided the steers eat freely of the foods mixed in this proportion.

Referring back to bulletin 27, of the same station, giving an account of steer feeding tests in which cotton seed was compared with other rations, we find that the following conclusions were drawn:

Roasted cotton seed do not have the laxative qualities of raw seed, and are more palatable.
Faster gains are made by feeding the

boiled seed, but at a greater cost per pound gained.

The advantages to be gained in the use of roasted seed hardly justifies its general use.

Boiled seed are more palatable than raw seed, less laxative and make faster gains. May continue to be used with profit.

Steers fed on raw seed, eating a less quantity of seed, ate slightly more hay in consequence.

Cotton seed at usual prices, is a good and cheap addition to a corn and hay ration.

The best beef ration found by previous experiments—cotton seed, meal, hulls and silage is now proven the best, when calculated at former prices—raw seed, corn and hay being better. (See table 3, page 320.)

When value of raw seed is raised to near market present prices, \$10 per ton, the meal, hulls and silage is again the best ration (see bulletin 10, page 28) raw seed, corn and hay being next best.

The average cost of gain per pound in all lots at present price of food was 3 64 cents.

The cheapest seed per pound gained for all steers fed, when raw cotton seed is valued as \$10 per ton, was raw seed, corn and hay.

MEAT INSPECTION.

This is the subject of bulletin 81, of Alabama station, a pamphlet of some 66 pages illustrated by charts showing the appearance of some parasites that infest the flesh of animals and the appearance of diseased meats, of various kinds.

Since the discovery of the bacterial origin of many, if not all diseases, it is known that many parasitic and bacterial diseases are common to man and his domestic animals, and that such awful maladies as consumption, glanders and anthrax, or charbon, may be communicated to man by his animals, or vice versa. And even in case the disease is not communicable to man, the flesh of an animal which has—hog cholera for instance, is not considered wholesome, and it is certainly not appetizing food.

The above considerations, taken in connection with the fact that many of these diseases are more or less widespread and that the flesh of animals so afflicted may be knowingly offered for sale by unscrupulous persons, or unwittingly offered by those who did not know that the slaughtered animal was diseased, call for the systematic and scientific inspection of all meats offered to the public, more especially in the cities and larger towns. Meat inspection is entitled to a place along side of quarantine regulations, as a means of preventing the spread of diseases.

Meat inspection will not only cut off one way of spreading the germs of disease among men, but it will eliminate from his food many of the poisonous chemical compounds that develop in the bodies of diseased animals. These compounds are known to scientists as ptomaines, leucamines, and organic ferments and many of them are very poisonous and they cannot always be destroyed by cooking, as can the germs of disease. For instance, in the disease known as lockjaw, the disease germ called tetanus bacillus in some way produces a chemical substance called tetanin which is such a powerful poison that a very small quantity injected into the veins of a horse or a man will produce death in a short time.

The writer of the bulletin states that in a prominent city of the United States he saw the meat inspector sitting in a chair, scrutinizing the live animals as they passed in, and found that he gave the butcher a certificate of health without making any inspection of the internal organs at the time of slaughter or any microscopic examination of the carcasses after slaughter. Of course such inspection is little better than no inspection. Beyond detecting lump-jaw, and a few maladies having visible exterior symptoms, it is of no value.

The city of Montgomery (Ala) is said to have the most perfect meat inspection law of any city in the Union, and this bulletin gives that law in full, together with directions for detecting the presence of such diseases as hog cholera, swine plague, anthrax, rabies, epizootic catarrh, blood poison, mange, inflammation, Texas fever, tuberculosis, cancer, tumor, etc.

The Alabama station manufactures tuberculin and mallein and will furnish them free to citizens of that State who wish to use them to detect the presence of disease and will agree to report results to the Station.

HORTICULTURAL

Bulletin 50, of Louth Dakota station, is devoted to fruit culture. Many residents of that State have looked upon fruit raising as uncertain and unprofitable, while others have regarded it as impossible. But the horticulturists of the Experiment Station of the State, after a careful study, is positive that her people can easily raise enough of apples, plums and most small fruits to supply the home demand and some to sell.

Enough is already known to make out a small list of varieties that may be safely recommended for extensive planting, and this list will probably grow from year to year. The heavy fruit crop borne by the few trees in the State in 1896, has given new courage to many planters.

To save much loss and discouragement from unwise planting and faulty treatment, this bulletin is intended as a general guide.

While apples no less hardy than Duchess can be safely planted in the north half of the State, old orchards along the Missouri river near the south border of the State contain in flourishing condition, Haas, Plum's Cider, Fameus, Perry Russet, Uter's Red, Willow Twig, Tallman's Sweet, Rawle's Jalet and Ben Davis.

Apples of the first degree of hardiness are Duchess, Hibernial and Charlamoff. Of second degree, Wealthy, Longfield, Tetofsky, Melinda, Fortrial, Patten's Greening, Okabena, Peerless, Repka Malenka, Yellow Sweet, Gilbert Breet, Christmas, Blushed Collville, Cross 413, White Pigeon.

Of crabs, Virginia, Martha, Whitney, Early Strawberry, Minnesota, Sweet Russet, Gideon's No. 6, Briar Sweet, Tonka and Powers are recommended.

Apple trees budded or grafted in the ordinary way on common seedling stocks will not stand the winters of the northwest. But one seedling in a thousand is sufficiently hardy. The hardy root must be at least 6 or 8 inches long and must be grafted on a short root piece and then set down so deep that only the top bud will show above ground. The scion will then soon throw out a system of roots of its own which will be as hardy as the scion itself.

In Russia apple trees intended for severe climates are budded on the hardiest Siberian crabs. This dwarfs the tree somewhat, but they are hardy and bear two years earlier than those on apply roots.

The station is yearly planting apple seeds in large quantities with the hope of getting a few seedlings of iron clad hardiness that will bear an abundance of good fruit and are crossing with Russian varieties. Fruit growers of the State are urged to plant seeds from the hardiest varieties, as a few excellent results may follow.

The best location for the orchard in Dakota is the highest land on the place and a north or east slope is best, without any shelter belt. One year old trees are better for planting than those that are older, and early spring is the best time. Lean the stems southwest, and protect from the 2 o'clock sun by a board driven into the ground. Low heading is best.

Give clean cultivation and never grow any crop in the orchard in a dry country, as the crop robs the trees of needed moisture. Prune very little and that in June. Train with a central stem through the top, as high winds split forks. Protect from mice and rabbits. Wire screen is good for this purpose. A woven wire fence of small mesh is the best protection against rabbits. Fight borers and insects in the usual ways.

The best plums for South Dakota are Wyant, DeSoto, Wolf, Rolling stone, Stoddard, Hawkeye, Rockford and Forest Garden, and these are worthless unless budded on the hardy northern wild plum, raised from wild seed. Intermingle a few of the best wild trees among the budded ones and there will be more fruit. Head low and give clean culture.

The station is growing a lot of seedling cherries from pits obtained from Russian Mennonites in Minnesota, and hopes to obtain some good varieties that will be hardy in the northwest.

Of raspberries, Turner, Marlboro and Outhbert, of reds, and Older, Nemaha, and Ohio, of the black caps, will not winter kill if laid down and covered with soil.

Currants, gooseberries and strawberries are hardy and easily grown throughout the State.

"THE SOUTHERN COW PEA AS A NITROGEN GATHERER."

Correspondence of The Progressive Farmer.

In your issue of July 20th Mr. G. H. Turner, of Burgess, Miss., under the above heading, delivers himself as follows:

We have learned, amongst other things, that the Southern field pea, or cowpea good it may be as a "nitrogen gatherer," is by no means equal (as a source of nitrogen, or as a means of furnishing a hungry plant with nitrogen in a quick acting and readily available form) to any of the nitrogenous fertilizers that are to be found on the ordinary farm or purchased in the market, and more especially is this the case with all light, loose, sandy soils.

That nitrogenous manures will generally act more speedily is admitted, but it is claimed that in the end the growing and turning of pea vines, as a "nitrogen gatherer" will be found more economical.

As an illustration, select a piece of land and treat it sufficiently liberally with acid phosphate and kainit to cause a rank growth of pea vines. After the vines have matured properly divide into two parcels. Mow and remove the vines from one; the other turn under. Then seed both parcels to wheat. The parcel from which the vines were removed will invariably produce the better wheat.

After the wheat has been cut, turn the stubble before weeds spring up and reseed to wheat. The parcel on which the pea vines had been turned will then be the better wheat, for the reason that the vines did not have time to properly decompose for the first crop.

During the period of decomposition the oxygen of the air, or of rain water, unites with the carbon of the pea vines and forms carbonic acid gas. This gas is soon converted into carbonic acid, which acts on various rebellious elements in the soil, reducing them to plant food.

Much of the potash in the soil, sometimes as much as 95 per cent, is in a rebellious condition. The carbonic acid acts on this, reducing it to plant food. It is therefore apparent why the pea vines do not act as speedily as could be desired; they have too much to perform, but they are at work all the same.

One party turned three crops of pea vines and raised the yield from seven to twenty-one bushels per acre, a gain of fourteen bushels. No fertilizer was used.

It can be stated without the fear of successful contradiction, that of all known peas for renovating worn lands that of growing and turning plants of the legume family, such as clover, pea vines, &c., (nitrogen gatherers), proper stimulants having been applied, appears to be the most economical and practical.

Long Leaf, N. C.

BUILDING UP THE LAND FOR COTTON.

A valued correspondent in one of the best counties in an agricultural way in South Carolina asks some questions in regard to the manuring of the cotton crop. He says that they have gotten into the practice in his section, of using 700 pounds broadcast of a mixture of 500 pounds of cotton seed meal, 1,250 pounds of acid phosphate and 250 pounds kainit to make a ton. While this is heavy fertilizing so far as mere quantity goes, it is defective we think in the proportions of the ingredients used. If the potash was in the form of the muriate it would be better far, as in that case each acre would get nearly 50 pounds of actual potash, while with the kainit there would be only about one fourth that much, a quantity which is not sufficient for the amount of phosphoric acid applied. Then, too, we doubt the profit in such a heavy application directly to the cotton crop. It would be far more profitable to use half of the mixture of acid phosphate and kainit on the pea crop preceding the cotton crop, and to vary the proportion so as to make, if kainit is used, the mixture of equal parts of kainit and acid phosphate, and to apply it to the land sometime before sowing the peas, so that it may be diffused in the soil and not be a retarding influence in the germination of the seed. Then apply the remainder of the mixture of acid phosphate and kainit to the land in the fall after the pea crop has been taken off, and on the cotton use only the cotton seed meal. I advise this course because it has been found that the mixture of kainit and acid phosphate will injure the germi-

nation of the seed when in direct contact. If applied the fall before, there need be no fear of the materials being lost, for the absorptive power of the soil is such that it will hold on to these matters while the nitrogen may leach away. Experience has proved that there is much more in the previous preparation of the land and the building up of the fertility of the soil by means of legumes than in the direct fertilization of the cotton crop. On a soil from which the greater part of the humus or vegetable matter has been removed no commercial fertilizer will have as good an effect as on a soil that has been stocked with organic matter. And there is no way in which we can get this organic matter as economically as by the cultivation of the cow pea. The greater growth than of the peas we can get on the land the more of this organic matter they will furnish and the more nitrates they will fix in the soil. So we have the double advantage of getting the soil in condition for the complete fertilizer to act efficiently, and at the same time get the greater nitrifying effect from the increased growth of the legumes. It is getting to be a common practice with our market gardeners who use large quantities of potash and phosphoric acid, to apply it all in the fall of the year. The sodium or common salt which forms so large a part of crude kainit is then allowed to leach away, and in the leaching renders soluble certain other matters of value in the soil, while the potash and phosphoric acid remain in the soil and get so completely diffused that no possible harm can result from the heavy quantity used, which would occur if the same amount was applied at the time of planting the crops. In this way the truckers are enabled to use kainit as a source of potash without damage from the excess of sodium chloride associated with it. But away from the seaboard the kainit soon becomes the more costly source of potash, for in transporting it the farmer must pay freight on the large percentage of salt it contains. Farmers are apt to look at the price per ton as the measure of real value, forgetting that it is the actual potash that they are after, and that the concentrated muriate, while the higher priced per ton is soon with a little transportation from the seaboard added to both far cheaper than the kainit that is four times as bulky. In buying a ton of muriate of potash the farmer gets from 50 to 52 per cent. of actual potash while in the kainit he gets but about 12 per cent. of potash. But with the purchase of the more concentrated form there is increased reason for the application being made sometime before the planting of the crop, as we have found in our experiments with fertilizers what it seriously interferes with the germination of the seed when applied direct just before or at the time of planting. It has also been shown by actual experiment that the stable manure like the organic matter from the pea crop is of more value in the building up of the land previous to the cotton crop than as a fertilizer direct for the cotton. Hence, we always advise the use of the home-made manures on the corn crop the previous year, and this to be followed by the crop of winter oats, which in its turn is followed by the pea crop the same season, on which the mineral fertilizers are to be used. The most profitable use that can be made of the pea crop is to cure it for hay and use the resulting manure from the feeding of the hay on the corn crop broadcast. The complete diffusion of the manure in the soil by the cultivation of the corn crop will bring it into just the condition best adapted to the use of the oats crop following and then if the peas following the oats are fertilized with potash and phosphoric acid there will be a preparation of the land for the cotton crop that cannot be improved upon, provided the proper attention is paid to the mechanical preparation and pulverizing of the soil. Thorough tillage repeated plowing and harrowing in connection with renovating crops is the key of success in the improvement of the lands of the South.

W. F. MASSEY,
N. C. College and Experiment Station.

Too many farmers allow shrewd, slick tongued agents to persuade them against their judgment to buy the agents' wares. It is best to consider well and even sleep a night upon the majority of their propositions, in spite of their cry of "last chance." Above all, never sign a contract without reading it carefully.