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THE PROGRESSIVE FARMER.

Has the largest circulation of any family agricultural or political paper published between Richmond and Atlanta.

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

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Agriculture.

EDITED BY BENJ IRBY, RALEIGH, N. C.

Prof. Benj. Irby, late Professor of Agriculture, Agricultural and Mechanical College, Raleigh, N. C., has become a regular contributor to this paper. All questions relating to the farm, garden or orchard will be answered by Prof. Irby.

CONCENTRATED FEED STUFFS.

More Facts Regarding Them Boiled Down for Our Readers.

The various products known as gluten meals, gluten feeds, germ feeds and the like are what is left of corn after starch and glucose have been manufactured from it. The corn is first soaked in weak, warm sulphurous acid water. It is then ground and the starch washed out and the germ or heart of the kernel is removed by machinery. These hearts or germs are then ground and their oil is pressed out. This germ cake is one kind of feed. The hulls or bran and broken feed are dried and form what is called chop feed. The starch then passes into very long troughs of water, in which the starch settles to the bottom like lime and the hard flinty portions or gluten float off into receivers and are dried by steam. This is called gluten meal. A mixture of the gluten meal and crop feed is called gluten feed.

Atlas gluten meal, so called, is very different from the ordinary gluten products. The germ is first removed from the Indian corn, and the remainder of the corn kernels are mixed and ground together with rye, barley, wheat, juniper, etc. This product is then heated with a solution of malt, which converts a considerable portion of the starch into sugar. Yeast is then added, the alcohol, etc., resulting distilled, and the refuse remaining in the still is pressed, dried, and placed upon the market under the above name.

Dried brewers' grain is the kiln dried residue from beer manufacture. It consists of some of the starch, together with the hulls, germ and gluten of the barley. A small portion of the gluten and the larger part of the starch are removed from the barley by the action of diastase and yeast.

Malt used in beer manufacture is prepared by moistening barley and allowing it to sprout. The sprouting produces a ferment called diastase, which changes starch into sugar. After the formation of the diastase, which requires a certain number of days, the barley is dried, and the sprouts removed by machinery and sold for cattle feed, called malt sprouts. The barley is now termed malt.

The natural divisions of the feed resulting from grinding wheat are bran, middlings and red dog flour.

Bran is the exterior covering and is first removed. Middlings are removed next after the bran.

Red dog is a very low grade flour, and represents the dividing line between the feed and high grade flour.

Flour middlings is a mixture of middlings and red dog flour.

Mixed feed is generally a mixture of bran, middlings and red dog flour.

H. O. dairy feed consists of oat feed on a basis, mixed with feeds high in protein, such as cotton seed and gluten meals.

Cerealine feed comprises the hull and some of the starch of the corn. It is by product resulting in the manufacture of the breakfast preparation known as cerealine flakes. It is very coarse. It possesses a feeding value slightly inferior to corn meal.

Hominy feed or chop: Hominy is the hard part of the corn kernel. The operation of the hull, germ and some of the starch which constitutes the feed is said to be brought about solely by the aid of machinery and steam.

Oat feed is the refuse from factories engaged in the preparation of oat meal and other cereals for human consumption. It consists of poor oats, hulls, and some of the bran and starch removed in the process of manufacture. It is sometimes mixed with corn, as bran and oat chop.

A great variety of oat refuse is now finding its way into our markets. It has been found to contain from 35 to nearly 50 per cent of hulls. In some cases it is mixed with corn and with wheat; it is then quite difficult to ascertain the percentage of hulls the mixture contains. Oat refuse is low in protein, and high in carbohydrates, and of the same nature as corn meal.

Material of this kind unquestionably has considerable feeding value. Those articles having a special brand containing the manufacturer's name, are to be preferred. In case the farmer is in doubt as to its value he should send a fair sample to the experiment station for examination. Farmers are cautioned against paying excessive prices for material of this kind.

The poultry feeds prepared by the American Cereal Company and H. O. Company are mixtures of oat feeds, corn and some nitrogenous feed stuff to increase the percentage of protein to about 17 per cent. Materials of this kind certainly possess considerable feeding value.

It is probable, however, that the poultryman can secure the nutritive value cheaper by purchasing the unmixed grains.

H. O. horse feed is a mixture of oat feed and corn. Chop or germ feed looks very much like gluten feed, but has considerably less feeding value.

Taking corn meal as a standard and supposing it to be worth \$16 per ton, analyses and feeding tests prove these various other feeding stuffs to be of the following values per ton: Hominy meal or chop, \$16; cerealine feed, \$16; chop feed, \$18.60; Quaker oat feed, \$18.60; oat feeds (contain more hulls), \$12; Victor corn and oat feed, \$15.20; H. O. horse feed, \$15.20; wheat bran, \$18.60; wheat middlings, \$17.60; mixed feed, \$16; dried brewers' grain, \$16; malt sprouts, \$16; Buffalo gluten feed, \$20; Golden gluten feed, \$20; other gluten feeds, \$19.20; gluten meals, \$24.32; Cleveland flax meal, \$29.08; old process linseed meal, \$21.60; cotton meal, \$24.32.

The bulletin recommends the following eight mixtures of these feeds to produce a well balanced and economical general ration:

1. One hundred pounds of corn meal or of hominy meal; 100 pounds of wheat bran or of mixed feed or of chop feed; 75 pounds of cotton seed meal or of gluten meal or of linseed meal, mix and feed 8 to 9 quarts per day to a 1,000 pound animal.
2. One hundred pounds of oat feed; 100 pounds of Buffalo gluten feed or of Golden gluten feed, mix and feed 8 quarts daily.
3. Any one of the gluten feeds is a fairly well balanced ration itself. Feed 5 to 8 quarts daily.
4. Fifty pounds of linseed meal, 50 pounds of cotton seed meal, 100 pounds of oat feed or of chop feed; mix and feed 7 to 8 quarts daily.
5. Two hundred pounds of chop feed or of cerealine feed; 75 pounds of cotton seed meal or of gluten meal, or of linseed meal; mix and feed 7 to 8 quarts daily.
6. H. O. dairy feed is itself a balanced ration. Feed 6 to 8 quarts daily.
7. One hundred pounds of fine middlings; 100 pounds of brewers' grain or of malt sprouts. Mix and feed 7 to 8 quarts daily.
8. One hundred pounds of corn meal, 50 pounds of bran, 50 pounds of cotton seed meal. Mix and feed 7 quarts daily.

WISCONSIN INSTITUTES.

Correspondence of the Progressive Farmer. W. H. Morrison, Esq., Superintendent of the Wisconsin Farmers' Institutes, writes us from Madison, Wis., as follows:

I send you by mail Bulletin No. 3, Wisconsin Farmers' Institutes. The edition consists of 31,000 copies and although the same number was issued of No. 1 and 2, they are nearly exhausted. I shall take pleasure in sending No. 3 to any of your readers who will send me his name and postoffice with 10 cents to pay postage.

We are holding sixty four two day institutes this winter. They are well attended and I know they are enlarging the horizon of our farmers. I am more and more convinced that the most practical and successful method of reaching the farmer is through the Farmers' Institute and meetings of a like character. The three hundred two day meetings held by the Wisconsin Farmers' Institutes have done more to reach the great mass of unreached farmers in the State in the last four years than all other agencies combined. These meetings have aroused and implanted a hunger for better intelligence in thousands where but little hope existed. The farmer can be reached only by the practical, successful ways and methods of a brother in whom he has confidence. The professional man with fine spun theories, who will talk an hour about nothing,

will let no daylight into the intricate problem that the average farmer has to solve—that of less price and less productive power of his land; but it is the successful farmer who can say "I have done it" that will liberate the unsuccessful one and make him an intelligent man. The agricultural paper, the agricultural book, the experiment station and the Farmers' Institutes are for the farmers who read, study and think. Success to them."

The above is a clipping from an old newspaper. Mr. Morrison has been dead several years now, but the Institute system first successfully managed by him has become a leading feature of interest among farming communities.

Every State and farming community which desires to keep "up to date," and holds its own against the competition of to-day, adopt and use this means of counselling together and spreading intelligence abroad within its own territory. Peace be to Mr. Morrison and ad continued success to this system of helping our fellow farmers.

F. E. EMERY.

CARD FROM JACKSON.

Correspondence of the Progressive Farmer. Farmers in this part of the State have had adverse conditions to contend with during this spring. Early in May we had snow and frost, after which a drouth set in which is still prevailing in the vicinity of Webster to date; in some parts of the county they have had some rain. Oats and clover are an almost entire failure. Corn has been well worked, but is small for middle of June. Wheat is very good and we are now beginning to harvest. Most of wheat will be cut next week.

There is not much political excitement among us; all seem to devote their time to reading and talking about the war. Hope something will happen that will terminate the war soon.

A. J. LONG, Sr.
Webster, N. C., June 14, '98.

FEWER ACRES, MORE TILLAGE.

A contemporary says: Only a short time ago a farmer gravely told us that he believed a farmer would starve to death on 40 acres of land. And he meant what he said. He had 80 acres of land and according to his own statement the average yield of his crops was: Wheat 15 bushels to the acre; corn, 30; oats, 20; hay, three fourths of a ton. A mile distant from him lived a farmer whose land is almost an exact counterpart of his, and his crops average: Wheat, 30 bushels to the acre; corn, 65; oats, 50; hay, 2 tons. It is not the quantity of land that a man farms that counts, but the quality of his farming. The fact that a man can grow six tons of first class timothy hay on an acre shows the possibilities of an acre that is thoroughly tilled. Nineteenth of the land that is sown into wheat is not more than half prepared for the seed, simply because the farmer believes in acres rather than tillage.

FARMING IN EASTERN NORTH CAROLINA.

Correspondence of the Progressive Farmer. Seeing an article in THE PROGRESSIVE FARMER, I wish to add my practical experience in using the cow pea, as a contribution to your highly appreciated journal. Being born and raised on a farm, the son of a gentleman who was known as one of the best farmers in Eastern Carolina, I will say that from a practical test I have found that under no circumstances should more than one peck of peas (the field varieties known as cow peas) be planted or sown on an acre of land. That is, if a man wants peas instead of vines.

I recently talked to a prominent farmer in Pamlico county on the subject of pea culture. He said: "Why, Robt., I can't raise any peas. I can raise plenty of vines, but no peas." "The trouble is," I said, "you raise too many vines." Then I told him of my experience, which I have given in a former article in THE PROGRESSIVE FARMER, and he at once said he reckoned I was right; "for," said he, "I have frequently noticed that when one comes up off to itself, isolated from the others, it's always full of peas."

In fact, my experience has taught me that almost everything we plant is left too thick. What is more ridiculous than to see a farmer plant a piece of land in corn and leave enough stalks on it to make 10 or 15 barrels per acre if each stalk were to bear a good ear, when he knows that with the very best culture the land will not produce more

than 3 or 4 barrels. A neighbor of mine who is also a practical farmer (and has never quit the Alliance "on account of politics") told me he dug last year one hill of sweet potatoes (Haymon) that was 3 or 4 feet from other hills and it looked so large that he decided to weigh it. It weighed 25 pounds. He is as reliable a man as North Carolina holds, and he would never have told how much it weighed had he not had witnesses who saw him weigh it, just as it came from the ground, with the potatoes hanging to the stem.

THE FARM VALUE OF THE CROW.

He Does More Good Than Harm. C. E. Waterloo, N. H.—Will you give the best way to poison crows, and the best way to protect young growing corn from them? In your formula for poisoning them please bear in mind the safety of the lives of farm animals that may chance to feed on the grass where the poisoned bodies of the crows may fall and decay.

Answered by M. V. Slingerland, in Rural New Yorker.

The common crow is a much abused bird.—But few farmers realize that the crow should be classed among our beneficial birds. However, this fact was scientifically demonstrated several years ago by our government employes, but it will be a long time before scare-crows cease to be a familiar sight in American corn fields. The charges against the crow are that it pulls sprouting corn; that it injures corn in the milk; that it destroys cultivated fruit, and that it feeds on the eggs and young of poultry and wild birds. The stomachs of over 900 crows have been carefully examined by experts; these crows were shot at various seasons of the year, and in different parts of the country. All of the above charges were sustained by the stomach examinations, so far as the simple fact that crows feed upon the substances named. But the extent of the injury is a very different matter. The total quantity of corn eaten during the entire year amounts to 25 per cent. of the food of adult crows, and only about nine per cent. of the food of young crows. Leaving the young out of consideration, it may be said that, in agricultural districts, about one quarter of the food of crows consists of corn. But less than 14 per cent. of this corn, and only three per cent. of the total food of the crow, consists of sprouting corn and corn in the milk; the remaining 80 per cent. of the corn is chiefly waste grain picked up here and there, mainly in winter, and of no economic value.

In the case of cultivated fruits, the loss is trivial. The same is true of the eggs and young of poultry and wild birds, the total for the year amounting to only one per cent. of the food.

As an offset to his bad habits, the crow is to be credited with the good in destroying noxious insects and other injurious animals. Insects form 26 per cent. of the entire food, and the great majority of these are grasshoppers, May beetles, cutworms and other injurious kinds. In May and June, during the May beetle season, these beetles form the principal insect food of the crow. Only a few stomachs do not contain them, and stomachs are often filled with them. The fact that the May beetle season coincides with the breeding season of the crow is of special importance, the principal insect food of nesting crows consisting of these beetles. Grasshoppers occur in the stomachs throughout the year; in August and through the fall, they constitute by the greater part of the insect food, often occurring in astonishing numbers, and forming the only insect food. To the same side of this scale must be added the destruction of mice, rabbits, and other injurious rodents, by the crow.

Thus, in summing up the benefits and losses resulting from the food habits of this bird, it is clear that the good exceeds the bad, and that the crow is a friend rather than an enemy of the farmer; he gets only three per cent. of his food from your corn field, and in return, eats nine times as much of your injurious insects during the year. We must, also, not forget the good work the crow does as a scavenger.

Some intelligent farmers who realize the money value of the services of the crows, either feed them old corn during the time when the growing corn is in the milk, or else tar the corn before planting, in both cases protecting

themselves from the injury the birds may do, and at the same time, insuring their help in destroying the pests that will surely menace the maturing crop. One man states that it costs him but one half bushel of corn and the time required to scatter a little around his 10 acre corn field, to protect this field from the crows; the crows are very numerous, but no corn is pulled.

Therefore, I would advise C. E. not to attempt to kill the crows, but rather to encourage them to frequent his farm.

RATS!

Prof. W. F. Massey says: There is no doubt that most of the trouble from rats and mice comes from the faulty construction of farm buildings and the slovenly habits of many farmers in allowing accumulations of rubbish under which the rats can harbor. We live in a house which was built with especial pains to exclude all chances for rats getting into it. Have been in it seven years, and though there are rats all around the neighborhood, we have never seen nor heard one here. Now and then a few mice get in, but they are easily disposed of by choker traps and cats. On the farm the first thing should be to build or renew the outbuildings so that there will be no place for the rats to hide and no way for them to get into the corn crib and granaries. Then keep some good cats and do not have them stay anywhere but about the barn. Never feed them in the dwelling, but always let them have milk at the barn, and they will stay there. The Maltese we have found to be the best of all barn cats. They are large and strong enough to fight the largest rat, and are generally good hunters. Keep mainly female cats to raise new broods, for they hunt more vigorously when they have young to feed. I have seen a cat lug in a rabbit as large as herself for her young to feast upon, and I had as lief see them get the rabbits as the rats. Do not monkey with the white rats, just as well have grey ones. Cannot see any benefit from swapping colors. Do not try to poison rats, as you will be sure to make a nuisance about the place, and as one of our correspondents says, "one dead rat is worse on the place than a dozen live ones." If constant watchfulness and cleanliness are observed the rats will never increase to a dangerous degree, and the cats will be able to keep them in check. We have seen a wire trap here that will catch them wonderfully fast at first, but they soon learn to avoid any trap. Traps seldom catch the old rats. We once had a cellar badly infested by rats which had burrowed under the earthen floor in all directions coming down outside along the brick wall. We were near a tin can factory and noticed a wonderful pile of scrap tin of all degrees of sharpness. The proprietor readily gave us the pile. We dug around the wall on the outside and rammed the trench full of the tin scraps and grouted them with cement. Then the floor of the cellar was dug out and a number of rats killed while doing it. A layer a foot thick of the tin scraps was pounded down solid and then the cement grouting poured over the whole. When well set a good coat of smooth cement was placed over the whole to make a solid floor. No rat was ever known in that cellar afterwards, though we killed 36 in digging up the earthen floor. In a frame house we once built we placed on the sills between the weatherboarding and the plastering for two feet above the sills small screened gravel of water rounded sort, making it all perfectly clean of earth that could bind it and all of the uniform size of a marble. Rats could not get up through this and make holes as the loose gravel rolled in on them as fast as moved, and we never had any rats there. This we believe to be the best plan for the protection of a frame house. Then make the flooring run flush and tight against the weatherboarding so as to give no chance to get behind it. We thank our correspondents for the full discussion to day, and hope that in the busy season now on hand they will not forget the Pool.

A prosperous and intelligent yeomanry is a country's greatest pride.

Greatness may mature in the metropolis, but it must begin in the country.

When times are hard with the farmer the business community is in distress.

HORTICULTURE.

ONIONS.

There is no more wholesome vegetable grown than the odorless and much despised onion. No one who eats freely of onions will ever be troubled with sleeplessness nor serious blood troubles. They clear the blood of those poisons which produce rheumatism and muddy complexions, and those nations that eat of onions with the greatest freedom are the ones most free from ill of this kind.

Onions when grown from seed should be planted within a few days in order to have time to mature a full crop, but where sets are used they may be put out at any time while the sets are in the market.

The rows should be fifteen inches apart and the onions three inches in the rows. The land cannot be made too rich or too fine before planting. Put in fine manure or ashes, if you have them, work the soil over and over until they are fine as dust, and sow the seed or put in the sets.

The cultivation should never be deep, and the soil should never be disturbed below one inch from the surface at any time during the season. The onion throws out roots near the surface, and as they are not very long the soil should be rich and the cultivation shallow. Never ridge the soil up the rows. The ideal onion bed is one where the bulbs grow above the ground for more than half their size.

It is a common remark that onions agree with but few people. Anyone who eats them regularly will soon find any trouble of this kind gone as well as other and more serious ones very often.

Those who do not eat them because of the odor they leave on the breath are more nice than wise.—Southern Cultivator.

LIME.

Perhaps a great many of the truck and fruit growers do not place any confidence in lime, to be mixed in the soil or to be thrown on the land under the bearing trees. I will give you a little experience of mine: February 15th, 1897, I had about a hundred seedling peach trees, that had been formerly planted or healed in, given to me. I had them dug up and brought to our place; on looking at the foliage I saw something was wrong and I began to investigate. I looked at the root first, and I found the trouble to be a disease. They were literally covered with root-knots (memetodes), a species of eel worms. What to do with them I hardly knew, but I dug a trench away from my garden, and other trees, and used them for experimental work. I could not find any remedy for their cure and I tried the following:

I gave the bottom of the trench a coating of slack lime, and set in the trees, and threw lime on the roots, then partially filled in with dirt and gave another lot of lime, and filled the trench and firmed the soil with my feet, and left the trees to live or die. "They lived." This spring I dug up the trees and made an examination of the roots, and they were as free and perfect roots as I ever saw, no disease or knots to be seen, and while borers were at work on some of the other trees, these were free from them. That convinced me of this: Lime, if properly placed on diseased roots, will cure. If the readers of Truck Grower will correspond with the Alabama Experimental Station, at Auburn, Ala., and ask for Bulletin No. 92, they will get some information as to lime on coast soils, the work of Prof. F. S. Earle and myself. I was talking with Mr. Pillman, of Pillman Bros., commission merchants, of St. Louis, Mo., in regard to peaches for their market. He stated to me that one man shipped to them whose fruit was the best, and brought fancy prices, while others from the same locality would hardly bring enough to pay freights. One day Mr. Pillman asked him what he did to his trees in order to have such fine fruit. He said, "Come to my place and I will show you." So Mr. Pillman called on the grower, and found that he cultivated the land and used slack lime sown broadcast under his trees. Thus another fact. I would not advise a strong application, but take a few trees and give them a trial, and note the results.—A. W. Orr, in Southern Fruit and Truck Grower.

A wise man is never less alone than when he is alone.—Swift.