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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 PROGRESSIVE FARMER is the Official Organ of the North Carolina Farmers' State Alliance.

"I am standing now just behind the curtain, and in full glow of the coming sunset. Behind me are the shadows on the track, before me lies the dark valley and the river. When I mingle with its dark waters I want to cast one lingering look upon a country whose government is of the people, for the people, and by the people."—L. L. Polk, July 4th, 1890.

EDITORIAL NOTES.

We wish to call attention to the ad. of Catawba College, and also to the ads. of those excellent academies, Warrenton High School and Bingham School. Catalogues free.

Every farmer and dairyman should read Prof. Emery's article on the "Adaptations of the Southern States, and Especially North Carolina, for Dairy Farming," in our dairy columns last week.

Apropos of the yellow journal stories, an exchange remarks that "it will be well to take many of the stories sent home about the Cubans with many grains of salt." Yes, but all the salt on this terrestial globe cannot keep some of these truthless yarns from spoiling in a day.

There are several people in this world who do not want the truth. We don't care to do missionary work among these, but we do hope that friends of reform will put THE PROGRESSIVE FARMER into the hands of every voter who does not glory in the fact that his brainworks are run by the machine, and that he cannot think unless the bosses give the order.

We do not suppose that any of our readers wish to give any Democratic speaker the lock jaw, but we have a prescription which seldom fails to make one lock his jaws temporarily. Just ask him to explain where the $5,000 per month which should have been turned over to the State Treasurer from the Secretary of State's office in the days of the expiring ex pie ring went to?

Thus far we do not know that a single subscriber has condemned our course in the Clark Kilgo discussion. But there are doubtless some who differ with us, and we do not claim to be infallible. Marcus Aurelius said: "If any man is able to show me that I do not think right, I will gladly change; for I seek the truth by which no man was ever injured." These are our sentiments. Only those whose deeds are evil object to light, and only the prejudiced refuse to hear the truth. Therefore we shall be glad to have Dr. Kilgo or any of his friends give the other side of the case in our columns.

Murder will out. Here's another proof of the fact. We believe we have thus far failed to note the confirmation of the theory of American naval investigators that the bending inward and upward of the Maine's keel was a proof that the explosion was from the outside. It will be remembered that under the terrific fire of our fleet the magazines in the Spanish ships at Santiago exploded. Investigation proves that the effect was to blow up the decks while the hulls were not completely pulverized nor were the keels turned up as in the case of the Maine. Can it longer be doubted that the Maine was blown up by the Spaniards in revenge for American friendship for the Cubans?

We wish to call the attention of our farmer readers to the announcement of Farmers' Institutes in another column. All farmers, and citizens generally, are invited to attend these institutes. Ladies are given special invitation. The speakers are all practical agriculturists and will entertain and instruct upon all questions pertaining to agriculture, horticulture, dairy farming, poultry raising and other subjects of interest to farmers. Every farmer in the counties named should make it a point to attend and spend a pleasant and profitable day. Some persons at each appointment should take hold and form a committee of arrangements and see that the meetings are thoroughly advertised in the local papers and otherwise.

There is a division of the opinion as to the value of the Cubans in our present struggle with Spain. Some insist that they are entirely worthless, and our soldiers are said to dislike them. But perhaps after all they are fighting as bravely as ignorant men who know little of modern arms could be expected to fight. The charge of cruelty is brought against them, but we should remember that they are but human and to most humans revenge is sweet. Perhaps if the bodies of your father and mother had been found among those of the starved reconcentradoes, you, too, would be a little cruel in your treatment of captured Spaniards.

It may be a surprise to some to learn that evidences of the horrors of Spanish rule in Cuba are still seen daily. It was only last week that we read in the dailies the following pitiful appeal addressed by the starving people of Cienfuegos to Rear Admiral Sampson:

"Honorable Sir: The Cubans, old men, women and children, resident in the town of Cienfuegos and this neighborhood, are all dying of hunger. The young men are all in the field with the Cuban troops, have not shoes, neither food. All the provisions in this town are in the hands of the Spaniards. Cubans cannot obtain a piece of bread, as it is necessary to send everything to the field The Weyler system is in the way. The situation is terrible. If you, honorable sir, do not come quickly with your squadron and take possession of this town we shall be lost. We beg you to precipitate your operation. About 5 000 old men, women and children will die of hunger in this town Some of these old men have four or five sons fighting for their freedom. If the great people of the United States do not come quickly to our help we are lost. For God's sake come quickly.

(Signed) "SOME CUBANS."

It is hard for a human being to handle tenderly the men who murdered his father. Can we expect these sons to smother entirely their desire for revenge?

AGRICULTURE.

WHAT EXPERIENCE TEACHES.

In some digestion tests at our own Raleigh Station, it was found that timothy hay was less digestible when cottonseed meal was mixed with it than when fed alone, while cottonseed hulls and corn silage were more digessible when cottonseed meal was mixed with them than when fed without the meal. Why this is so is a conundrum. The hay is both coarse and has an excess of carbohydrates, and should be benefited by mixing with the finely ground and highly nitrogenous cottonseed meal as much as either the hulls or silage.

Bulletin 79 of Kansas Station is an illustrated pamphlet treating of bovine tuberculosis, or the disease of consumption among cattle. We have digested so many such bulletins that we pass this one over. Those interested can write the station for a copy at Manhattan, Kan.

From bulletin No. 40 of Pennsylvania station, on "The Sugar Beet in Pennsylvania," we take the following interesting extract:

"The first question which presents itself to the farmer is whether it will pay him to raise sugar beets for sale to a factory. The experiments here reported were made on the small scale and afford no reliable data as to the cost of raising a crop. The figures and estimates as to the cost of raising beets which are given by large growers in other States are quite variable, ranging all the way from $20 to $70 per acre. A conservative estimate, however, is from $30 to $40 per acre, although the cost will naturally depend upon local conditions and especially upon the experience and intelligence of the grower. The general experience in other States has been that the second year's crop has been produced much more cheaply than the first year's.

"The price paid for beets at the factory depends chiefly upon the market price of sugar and upon the richness of the beets, but also upon local conditions. Assuming $4 as an approximate average price for this country, the profits of the grower will depend largely upon the tonnage of good beets which he is able to produce. Ten tons per acre seems to be generally regarded as a fair crop, although good land and careful cultivation should produce 12 to 15 tons. According to these figures, the total value of the crop at the factory would range from $40 to $60 per ton.

"To the above estimates is to be added the feeding value of the diffusion residues, or pulps, from the manufacture of sugar. These constitute a palatable and nutritious food for stock and in all beet sugar growing countries the keeping of live stock is regarded as an important adjunct to the growing of beets. It is impossible to fix any money value upon these residues, but we are probably safe in assuming them as roughly equivalent in feeding value to half their weight of mangels. It is also estimated by good authorities at from one fourth to one fifth the value of the beets. The molasses, too, which is a by-product of the sugar manufacture, has a not inconsiderable feeding value, and the same is true of the leaves and crowns of the beets. Moreover, when these by products are returned to land there is little or no draft upon its fertility, since pure sugar contains neither nitrogen, phosphoric acid nor potash."

The beets grown in Pennsylvania were rather small in size, averaging less than a pound and a half, and more than half the experimenters report yields below ten tons per acre, though nearly one-third reported over fifteen tons per acre. About one third of them analyzed over 12 per cent. of sugar and 80 per cent. purity.

From bulletin 92 of Alabama Station we learn that applications of fresh lime to the sandy upland soils of that State proved injurious unless applied the fall before seeding. When so applied its caustic effects were leached out and it proved highly beneficial to radishes, lettuce and especially peas and tomatoes. Tomotoes blighted badly on the unlimed plats, while scarcely any blight was visible on the limed plats. On the other hand egg plant, which belongs to the same botanical family as the tomato, blighted much worse on the limed plats than on those unlimed. Corn, peanuts, tobacco and and Kaffir corn also did better on the limed plats. About twenty barrels per acre seemed to be the best quantity to apply.

After exhaustive experiments in many large orchards the Virginia Station recommends spraying with pure kerosene as the best treatment for San Jose scale. The conditions necessary to success are a bright, dry day, with a dry atmosphere and a strong blast to throw the oil in the finest possible spray, so that it will evaporate before having time to injure the trees. But every portion of the tree should be wet with it. For small trees, if but few in number, a hand atomizer, similar to a syringe, is better than a pump, but for extensive work is too slow. Pure kerosene kills the scale better and evaporates from the tree quicker and with less injury than when mixed with water. Winter treatment is better than when leaves are out. Virginia has a law requiring the experiment station to inspect nurseries and orchards and cause destruction of the scale.

Bulletin 147 of our North Carolina Station is entitled "A Study of Lettuces." Perhaps not all readers of THE PROGRESSIVE FARMER know that the growth of lettuce in cold frames in winter for Northern markets is an important industry in North Carolina Experiments by the station indicate that broad, low houses covered with glass and heated by steam would be more satisfactory and more profitable than the frames covered with oiled canvas. In that case finer heads would be secured and these should be shipped in handy boxes, instead of barrels, as at present, and would bring a much better price. In the test of varieties Black Seed Tennis Ball proved the best for all winter markets, and California Cream Butter the best for early spring market. Black Seed Simpson was inferior to above, but better than Grand Rapids, which is the kind almost universally grown in winter, both North and South.

SOME RECENT BULLETINS.

The North Dakota Station tested average samples from three carloads of wool and found that in each case more than 60 pounds out of every 100 pounds was lost in scouring. That is, 100 pounds of the wool weighed less than 40 pounds after being scoured.

This same station, in response to many complaints, has been making chemical tests of many samples of vinegar. Cider vinegar contains from 3 to 6 per cent. of acid, averaging about 4 per cent. Samples analyzed by the station chemist showed 11 per cent. acid and over, and were entirely destitute of the odor and taste of cider vinegar. These had been sold to retail merchants at fancy prices as pure cider vinegar, by eastern houses. Cider vinegar made from apples has a decidedly fragrant odor and is of a dark brown color and has a flavor characteristically its own. The ash of cider vinegar is largely potassium carbonates and phosphates and gives a strong potassium flame. Artificial vinegars, malt vinegars, etc, contain much less of solids. Seldom as much as 2 per cent, more frequently not to exceed ½ per cent. The coloring matter is due largely to caramel and is of a different shade from that of pure cider vinegar. The vinegar has little odor or flavor except that of the acid from which it is made.

Press bulletin No. 10 of Nebraska Station contains instructions for planting, cultivating and harvesting sugar beets, and also contains a blank for reporting to the station and transmitting sample beets for analysis.

Arkansas Station bulletin No. 51 gives general directions for stopping and preventing the spread of contagious animal diseases, such as hog cholera, charbon, etc. We have given all these in digests of special bulletins on each of these and other diseases.

COTTON AS A BY-PRODUCT.

J. F. Warlick, a mountain farmer of Lincoln county, N. C., sketches in the Practical Farmer a picture of the annual reduction of acreage fiasco enacted by the Southern cotton grower and recommends in hilly localities cotton cultivation as a by product. He observes in part:

"Cotton is King" perhaps was formerly truthfully said, but we seriously doubt it at 5 and 6 cents per pound. In the fall, when prices are low, all the farmers declare that they will reduce the acreage the next year, but when planting time comes, and the papers are full of reducing the acreage, they think that perhaps the other fellow will reduce his, and they will plant more heavily, to take advantage of the prospective short crop, without saying much about it. But there are many in the same notion and a large acreage is planted everywhere. As our hope for success lies not in planting more acres, but in producing more per acre, cotton with us is raised exclusively as a money crop, and I have grown it with success after small grain and after corn, but have found that the best place for it is after small grain. We should raise all our own supplies and have the cotton as surplus. To raise all cotton and buy corn, meat, flour, molasses, etc., will impoverish the soil and its owner.

HOW TO COMBINE FERTILIZERS

The following letter in Farmers' Voice from Gerald McCarthy, so well known in this State, will be of special interest to our North Carolina readers:

This is the era of intensive agriculture. Farmers in all but the remotest regions have ceased to place their main dependence for improving their lands on stable manure. The extensive employment of commercial fertilizer has become a leading factor in the production of money crops. Yet it is doubtful if the yearly increasing quantity of commercial fertilizer used has afforded farmers a parallel increase in net income.

The cause of this state of affairs is not difficult to discover. All good agricultural soils originally contained an abundant store of humus or vegetable matter in a semi-decomposed condition, which was mechanically mixed with the soil and held in it. Humus is to a cultivated soil what a fly wheel is to an engine. A fly-wheel saves waste of power and prevents sudden jolts which might prove destructive to the machinery. When soils have been cultivated for a generation or so and little or no vegetable matter retained, the humus becomes exhausted. Like an engine without a fly-wheel, the soil works fitfully, becoming very hot in warm weather and injuriously cold in cool weather. It suffers excessively from both drought and wet, and is liable to sudden fluctuations, which are very injurious to growing crops. The introduction and extensive employment of commercial fertilizer have hastened the consumption of humus in the soil.

While the humus lasts the soils respond well to the fertilizer, if the latter is properly compounded, but sooner or later, according to the original strength of the soil, the humus gives out, the soil loses its governing factor, and the crops fail to yield as much as formerly, even when the dose of fertilizer is increased.

As commercial fertilizer is always expensive, by attempting to grow crops with such stimulation on worn soils, the farmer is apt to lose money. A great deal of money is also lost by purchasing fertilizing material which, while necessary for securing a crop, can be made at home and on the same land at little cost.

The most expensive ingredient in all fertilizers is nitrogen, which costs from 15 to 18 cents per pound. All crops require nitrogen; but one fifth of the air we breathe consists of this substance, and there is no more need to buy it than to buy the light and heat also required by crops. It pays to buy even these for certain high-priced crops, as is the case when fruits, vegetables and flowers are grown in hot houses, but for staple market crops this would prove a ruinous practice.

By utilizing leguminous plants as green manure we can at once supply our soils with both humus and nitrogen. Moreover, we can, by selecting the most suitable green manurial crops, grow these between two successive money crops without missing any crop. The manurial crop can be grown at the season when the land would otherwise remain idle. Green crops do even more than this. Besides adding to the fertility in the soil, it prevents the washing away of much of the fertility already there. Unless the soil be frozen hard, an idle soil is a deteriorating one.

It must always be borne in mind, however, that while legumines can collect nitrogen from the atmosphere, they can find the other ingredients of plant food only in the soil. A complete plant food consists of nitrogen, phosphoric acid and potash, to which, for some soils, lime must be added. Phosphoric acid exists in soils in only very small quantities, and is as a rule the first to become exhausted. But plants consume very much less of this substance than they do of potash. Potash is always present in clay soils, but often in an insoluble form. Sandy soils are always deficient in potash as well as phosphosic acid. No cultivated soil has a surplus of nitrogen, except immediately following a leguminous crop that has been turned under. Nitrates are very soluble, and those not fixed in the tissues of growing plants are soon washed out of the soil in drainage water. Soils retain phosphoric acid and potash with more tenacity, especially when there is present a sufficient supply of humus.

In growing legumines to improve the soil it is always profitable to give these more phosphosic acid and potash than they can in any case consume. The more they consume, the faster they grow, and the greater the quantity of expensive nitrogen they absorb from the atmosphere. When the green crop is turned under, all the fertilizer given during its growth remains for the succeeding money crop. In this way we secure a double use for the fertilizer. Nitrogenous fertilizers, such as nitrate of soda and stable manure, should not be used on leguminous crops, except a little to start the growth of the seed, and on fair soils even this is not needed.

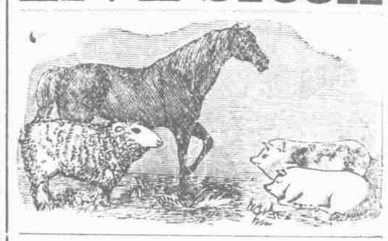
The following figures show the amount of fertilizer contained in one ton of hay made from the plants named:

Plant.	Nit'g'n, Lbs.	Phos. Acid, Lbs	Potash, Lbs.
Red clover	32 6	7.6	44 0
Crimson clover	41 0	8 0	26 2
Cow pea	39 0	10 4	29.4
Soja bean	46 4	13 4	21 6
Winter vetch	59 2	16 4	60 0
Lucerne	43 8	10 2	33 6
Lupines	40 8	8 8	12 0
Timothy hay	25 0	10 6	18 0

By figuring the nitrogen at 15 cents per pound and the phosphoric acid and potash each at 5 cents per pound, any one can easily calculate the fertilizing value of a ton of air dry forage from each of the above named legumines. In practical farming it is as a rule more profitable to pasture or otherwise feed the growth, returning the manure of the animals fed, rather than to turn under a growing crop. When carefully handled, four fifths of the fertilizer value of a ton of forage can be recovered in the manure. It is generally very bad policy to sell leguminous hay off the farm, as the market price for such is not as a rule more than the fertilizing value, and often much less. On the other hand, it may often pay to sell such forage as timothy hay, for which the markets of most large cities generally offer much more than its real feeding value. City horsemen have a deeply rooted but none the less mistaken belief that timothy hay is a strong and very nourishing food.

As we have before remarked, the value of a green crop, or vegetable matter turned under, lies partly in the nitrogen thus added to the soil, and partly in the humus into which the vegetable matter soon passes. In light soils the value of the humus is generally greater than that of the nitrogen. Such, too, is the case in old and much-worn soils, whether they be light or heavy. It is often advised to sell manurial crops and buy commercial fertilizer; but, for the reason just given—the value of humus—this is rarely profitable. Get as much humus as you can into the soil. Then buy as much fertilizer as you find profitable to use.

LIVE STOCK



PIGS AND WEEDS.

A few days ago, while on institute work in Minnesota, the editor of this department visited a pen containing a sow and five pigs. A glance showed that the animals were in good condition; that they were, in fact, in a fair way to demonstrate that the owner was a victim of bad luck(?) in his hog department. There were being fed corn and slops from the house, says the Farm, Stock and Home. Constipation, poor digestion and other disorders were indicated by a certain dull, spiritless appearance, a want of thrift, and other conditions. Growing hard by the pen was a mass of pig weed and rag weed. A liberal bunch of the first was gathered and thrown into the pen. Sow and pigs immediately tumbled over each other to get at it, and ate it ravenously. Some rag weed was then supplied, and that was rushed for with still greater haste and eaten with greater relish. The last is a bitter weed, but it is a tonic, an appetizer, something that the pigs demand to correct the vices of a purely artificial diet, such as they were getting. Nature had supplied the demand, but a fence kept the pigs from it, and ignorance of its value had kept it from the pigs. It was learned that no salt was given to these pigs, another bringer of "bad luck," for hogs demand salt as humans do. The owner of these pigs received a valuable object lesson, and may it not be a pointer to others? Confined pigs must have soft, green succulent food, if their owner expects to escape "bad luck."

WOOL FOR THE SOUTH.

The growth of the cotton manufacturing industry in the South has served to promote the industrial welfare of that section, as have the great iron and steel industries, but the woolen industry cannot be expected to gain any foothold without the development of wool growing beyond its present scale.

The consumption of woolen goods in the Southern States is increasing every year, and with such a favorable outlook there is no reason why woolen industries should not multiply and prosper the same as they do in the North.

The South cannot depend on cotton alone for its future industrial growth and development. The population of the South is growing every year, yet the acreage of cotton will be reduced about 7 per cent. this year as compared with 1897, according to official reports.

Southerners will naturally devote this 7 per cent. of land to other branches of farming. They are too prudent to let it remain idle on the remote prophecy of a revival of the cotton-growing industry. There is no other branch of farming that guarantees such large returns for the capital invested as wool growing. That sheep husbandry on a more extensive scale is contemplated

[CONTINUED ON PAGE 8]