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

PRACTICAL FARM NOTES.

Written for The Progressive Farmer by the Editors and Guy E. Mitchell.

The renowned German economic writer, Carl Simon, in his book "Export of Products of Agriculture from the United States; Agriculture in Germany," pays high tribute (though himself an agrarian) to American agriculture and allied industries. He says among other things: "It would be of great economic advantage to Germany if our agricultural class could increase its cultivation of grain and other products, such as fruit, meat, etc., in order that we might become independent of other nations and save the many millions that now go abroad. Agricultural products from the United States compete severely with those of native growth. The competition of the United States does not, like that of other grain exporting exporting countries, confine itself to cereals alone, but is a dangerous rival in all fields, as the country exports all kinds of agricultural machines, etc.

The competition of other countries is, further, not as hurtful as that of the great Republic, because their methods of production and commercial handing of the products are primitive and our agriculturists can more easily compete with them. The methods of the Americans, on the other hand, are perfect.

Exports of horses to Germany continue to attract attention both at home and abroad. Regarding American horses in Germany, the Hamburger Nachtrichten, in a recent article, says:

"Importations from America have caused the horse raisers of Holstein to suffer much of late. A stock company has just been formed in Berlin for the express purpose of importing horses from the United States. The Americans have succeeded in breeding a horse which compares very favorably in every way with the Holstein animal, especially in those points so highly prized in a work horse, namely, broad hips and large build generally. The best markets for Holstein horses has always been the provinces of Saxony, Thuringia, and Brunswick. The demand is created by the large sugar factories. This market has been decreasing of late, owing to American horses being purchased in Berlin. A few days ago, this Berlin company shipped a drove of eighty through Hamburg en route for Milan, Italy, where they are to be used on the tram ways. Almost every week, a long freight train filled with American horses leaves the Berliner Bahnoof for various parts of Germany. In spite of expensive freight and a tariff of $7 per head, the Americans have built up a very respectable competition in the German market."

The Ohio Experiment Station has issued a bulletin describing in detail a very successful benzine treatment of stomach worms in lambs. The treatment was conducted by Mr. J. E. Wing at Wooster, Ohio, as follows:

About August first (98) a car load of lambs was received from the Chicago market. They were thin and some beginning to scour. Soon after their arrival they became worse and the scouring and emaciation progressed rapidly. About 45 died before any attention was called to them. A post mortem examination proved them affected with stomach worms, the worms being present in the fourth stomach in thousands. It was simply a writhing mass of worms, some even twined together in balls as large as marbles. The lamb was apparently free from other parasites.

The treatment began immediately, gasoline being administered to the entire lot, whether seeming sick or well. It took about one minute to dose each lamb, three men working. The dose given was two teaspoonfuls of common gasoline with four ounces of sweet milk well shaken together to form an emulsion.

Of the 240 lambs treated one died, apparently from the effect of the medicine. Most of them seemed to mind it very little and soon began to eat. They were treated three times at intervals of 24 hours; after the first dose they seemed to improve, the scouring checked and the movements became more lively and the eyes brighter. After four days two of the worst cases were selected for killing and careful post mortem examination of them made. Not one stomach worm was found in the usual lodging place of the pest; only a few were found in the colon, many feet away from their natural living place and not apparently in good health. It is probable that they were driven there by the fumes of the gasoline and would eventually have passed out and perished.

The testimony of the men who care fos the lambs is that since having the gasoline they seem like a different lot of sheep entirely. They eat hungrily, are lively in their movements, do not scour, and have all the appearance of beginning to thrive. The cost of such treatment is almost nothing.

The U. S. Department of Agriculture has in press and will soon issue Bulletin No. 24 Division of Forestry. This bulletin is the first part of a paper entitled "A Primer of Forestry," and was prepared by Mr. Gifford Pinchot, Forester of the Department. It deals with the units which compose the forest, with its character as an organic whole, and with its enemies. It is divided into four chapters.

The first chapter treats of the life of the tree. It describes its three parts—the roots, trunk and crown—its food, composition of wood, breathing, transpiration, growth, structure of wood, annual rings, and heartwood and sapwood.

The second chapter is devoted to a discussion of the various requirements of trees—heat, moisture, and light—their rate of growth and reproductive power, pure and mixed forests, and reproduction by sprouts.

The third chapter gives the life history of a forest showing the help and harm which the trees receive from one another. The history embraces the life of a community of trees, the life of a forest crop, the seven ages of a tree, the beginning of a forest crop, the forest cover established, the beginning of the struggle, growth in height, the struggle continued, natural pruning, the culmination of growth, the end of the struggle, and death from weakness and decay.

The last chapter deals with the enemies of the forest, of which fires and reckless lumbering are classed as the worst. In the United States wind and sheep grazing come next. Cattle and horses do much less damage than sheep and snow break is less costly than windfall. Landslides, floods, insects, and fungi are sometimes very harmful. In certain sections numbers of trees are killed by lightning, which has also been known to set woods on fire, and the forest is attacked in many other ways.

The bulletin is illustrated with 47 plates and 83 text figures.

FARM AFFAIRS.

OF INTEREST TO COTTON GROWERS.

The indications are that the Cotton Growers' Convention to be held in Raleigh, Wednesday of Fair week will be largely attended.

The following is the letter issued by Commissioner Patterson to the farmers of the State:

"As you have probably seen in the papers, a meeting has been called of the cotton growers of the State, to be held in Raleigh on Wednesday of Fair week, the time and place of meeting to be announced in the city papers that day.

The object of the convention is not to pass resolutions to curtail the cotton acreage, as has been suggested in a daily paper, which has been done in the past, and which do not curtail, but is rather for a conference upon various suggestions affecting the common good.

"I quote from a letter on the subject written by a large and successful planter. He says: 'We have learned years ago how to make cotton, but have never learned how to market it. We need organization and system as to placing our crops on the markets of the world. Under our present unorganized system of marketing the cotton crop, to cotton brokers know for a certainty that three fourths of the crop must be thrown upon the market during the months of September, October and November, and they make their price, to suit, not the demand, but the supply, during these months.'

"He then discusses a remedy which would distribute the marketing of the crop over at least seven months of the year. He promises to attend the meeting and to bring a good delegation from his county.

"There are many matters of common interest to the cotton planters which might probably come before the convention.

"I trust you will be present and use your influence to promote a large attendance on the meeting.

"Very respectfully,
"S. L. PATTERSON,
"Commissioner."

It will be remembered that in the Alliance address this matter of organizing to effect a better system of marketing crops, especially cotton, was referred to. Wake County Alliance has already made arrangements of this kind. The following calls describe the method and manner:

FARMERS MAY STORE AND HOLD THEIR COTTON.

"*To the Farmers of Wake and Adjoining Counties:*

"At an adjourned meeting of Wake county Farmers' Alliance, held at the A. & M. College, August 17, 1899 the undersigned were appointed a committee and instructed to ascertain the best arrangements that could be made by which the farmers could store and hold their cotton, and at the same time secure advances on same if they desired.

"We beg to report that we have performed that duty, and are authorized to say to you that the People's Storage and Mercantile Company, 313, 315 and 317 Wilmington street, Raleigh, N. C., are prepared to store and insure your cotton in any quantity from one bale up for any length of time at the following rates:

One to three months, 20 cents per bale per month; three to six bales, 18 cents per bale per month; six months and longer, 16⅔ cents per bale per month.

"Liberal cash advances will be made on cotton stored with this company, and interest charged on such advances only on time the cash is held by the farmer.

"The above charges include all expenses.

"We will also state in this connection that we have every reason to believe that cotton will surely advance, as is the case with almost if not quite every other product.

'For any further particulars see or address Capt. J. J. Thomas, President People's Storage and Mercantile Company, Raleigh, N. C., or either of us.

"W. H. WORTH,
'Raleigh, N. C.
"W. B. UPCHURCH,
"Morrisville, N. C.
"C. E. McCULLERS,
"Lemay, N. C.

"Raleigh, N. C., Sept. 25, 1899."

COTTON PLANTERS' CONVENTION CALLED

"*To the Cotton Planters of Wake and Adjoining Counties:*

"The undersigned were appointed a committee by the late meeting of Wake county Farmers' Alliance to investigate and arrange if possible, and report the conditions, etc., which could be secured in Raleigh whereby the farmer might store and hold his cotton and secure needed advances on the same, etc.

"Our investigations, consultations with others and counsels in meeting of the committee have thoroughly convinced us that a convention of the cotton planters of this territory should be held at once to consider matters pertaining to their welfare, and we do earnestly recommend the holding of such a conference of cotton planters of Wake and adjoining counties in the city of Raleigh on Wednesday, October 11th, 1899, at 11 o'clock, to consult and elect delegates to the State Cotton Growers' Convention, to be held in Raleigh during the week of the State Fair.

"Trusting this may be deemed call enough, and assuring our cotton planters that we have convincing evidence that this is the proper thing for us to do, we are,

Respectfully,
"W. H. WORTH,
"W. B. UPCHURCH,
"C. E. McCULLERS,
"Committee.

"Raleigh, N. C., Sept. 25, 1899."

We hope that our readers in other counties than Wake will consider the matters referred to and act in a manner calculated to promote the best interests of the cotton growers. County Alliances in cotton growing sections should give proper attention to the question. It is indeed one of much importance. The Manufacturers' Record, of Baltimore, in its issue of last week notices the warehouse system of Charlotte and says:

"The bonded warehouse business is already in active operation in Columbia and Charlotte, and has proved a very great help to the farmers and to cotton manufacturers. If the West could not store its grain in elevators and get receipts therefor and use them with banks as gilt edge collateral its wheat would always be rushed to market at the beginning of the season and depress prices to the lowest point, just as it is the case with cotton. The general establishment of bonded cotton warehouses throughout the South working on the basis of those at Charlotte and Columbia would be—

"The cheapening of the rate for money, as these warehouse receipts would be accepted as good collateral in New York, Baltimore and elsewhere, all money needed for handling and carrying cotton could be secured at from 4 to 6 per cent according to current rates in New York.

"The farmers, thus being able to store cotton and carry it at a very low rate of interest, would not be forced to sell as soon as picked. Cotton would not be crowded on the market in the fall, thus breaking prices.

"Farmers and cotton buyers would then have the same advantages in handling their cotton which the West has had for many years through its elevator system.

"Buyers for Northern and foreign mills, being able to store cotton in bonded warehouses, could carry it in the South and ship it out from month to month as needed, thus benefiting the railroads and securing the lowest ocean freight rates.

"Cotton warehouse receipts would become recognized in all money centers as first class collateral, and the whole cotton crop would then be a bankable asset, revolutionizing the business to the benefit of the entire South."

We shall be glad to hear from our readers on this subject. A full discussion would do much good.

TO IMPROVE OUR TOBACCO.

A group of scientific men attached to the Department of Agriculture at Washington are industriously studying the question of how to improve the grade of American tobacco. Each has his special branch of the investigation, which has two objects in view. First and most important to the consumer, they desire to improve the grade of the home grown tobacco so that it will be possible to furnish smoking material at a reasonable price which shall be equal to the expensive foreign brands; and, secondly, which is of more importance to the producer, they desire to ascertain definitely just what it is, climate, soil, or process of curing, that produces so much better tobacco in foreign countries than that produced in the United States. If they can discover wherein the subtle distinction lies and teach to the American producer the secret of toning and flavoring his tobacco they will confer upon the consumer an inestimable blessing and at the same time put millions of dollars into the pockets of American farmers which are now spent in other countries.

A brief description of their work, which has already been alluded to in previous issues of The Progressive Farmer, is given in a recent issue of the Tobacco Journal. It says:

The work now being carried on at the Department of Agriculture is divided between the divisions of vegetable physiology and pathology and of soils. In the first division Mr. Oscar Loew, whose work in bacteria and yeasts has already attracted widespread attention, is the moving spirit, and in divisions of soils Messrs Milton Whitney and Thomas H. Means have made valuable researches. Emile Mulser and others have also contributed largely to the experiments and observations now in progress. The following will give some idea of their work and its results:

A tariff of $1 85 per pound on wrappers and 35 cents per pound on filler leaf has served to raise the price of home-grown tobacco but very slightly. Sumatra wrappers bring $2 50 to $5 per pound, while Connecticut wrappers are worth 25 cents only. The preference for the Sumatra leaf can be ascribed to but one thing, its superior excellence. Care in handling has something to do with the difference in price. The Sumatra wrapper is smooth and fine and looks well in a case. It is well assorted as to length, color and shade, and a pound will cover four or five times as many cigars as the domestic product. Exasticity, pliability, size, shape, color, size of the veins, the fineness and peculiar vein of the Havana wrapper, and silkiness of the Sumatra wrapper are all to be considered. To compete with these leaves the American must produce first a leaf which will resemble the others in appearance, and then one which will be equal, if not superior in flavor and aroma. The first can be secured by careful cultivation and handling perhaps, but the essence of flavor and aroma is so subtle as to have so far eluded all efforts to discover its source. On the soil of Connecticut and Florida it is hoped a tobacco can be produced, which will equal that of Havana and Cuba. Whatever is deficient in soil or climate must be supplied, but how? That is what is puzzling the scientific men. Little is known of the chemical proportions of the leaf, particularly those which contribute to the flavor and aroma. It is probable that the actual amount of nicotine is relatively unimportant, and it is certain that the excellence of the leaf and its adaptation to market demands are not dependent, except in a general way, upon the amount of nicotine.

It has long been known that certain of the potassium salts, especially potassium chloride, cannot be used at all for the production of cigar tobacco, as they give the leaf a poor burn. It is furthermore an old experience that excessive nitrogenous manuring tends to produce a large leaf of inferior quality, containing an increased quantity of nicotine. Investigations by the division of soils have shown that the light sandy soils of the Connecticut Valley are similar in their physical properties to the tobacco lands of Florida, and the Vuelta Abajo district of Cuba and to the tobacco districts of Sumatra. There is, further, no difference in the meteorological data from these places that would seem to explain the difference in the character of the leaf produced. It is therefore important to ascertain, if possible, why, under similar circumstances, a superior leaf is produced to that of the Connecticut Valley. It is clearly recognized that the flavor and aroma of the cigar tobacco leaf are developed during the fermentation, although the fermentation changes are dependent on a certain quality of the leaf which has been properly cured. Experiments have therefore been directed toward the improvement of the methods of fermenting the tobacco of Connecticut with a view of making it as good as that of Cuba or Florida, and failing by this means, it is hoped that the result can be attained through hybridization and breeding.

It is not to be supposed that for many years the idea of producing by artificial means tobacco equal to that of the natural tobacco regions had never occurred to any one before the scientists of the Department of Agriculture took it up. On the contrary, many men have studied the question exhaustively, but the solution has always eluded them. Their observations, however, gave Dr. Loew something on which to work, and, after going into them thoroughly, he decided that no one had yet discovered the true secret of the flavor and aroma of the tobacco. He agrees with Suchland and others that the flavor is due to oxidation, but dissents from theory that this oxidation is due to the presence of bacteria. Dr. Loew ascribes it to the presence of an oxidizing enzym. To prove the existence of the enzym, Dr. Loew conducted a large number of experiments with tobacco in all stages of curing or fermentation. He has found that there exists on Florida leaf two kinds of oxidizing enzyms, distinguished as tobacco oxidase and tobacco peroxidase. Comparison with the Connecticut leaf has demonstrated to his satisfaction that it is on the difference in these enzyms and on their presence or absence that the difference in flavor and aroma depends. The question is still, however, far from settled.

Having demonstrated to his satisfaction the presence of these enzyms, and their effect on tobacco, Dr. Loew is now engaged in classifying them, with a view of combining them so as to produce on the Connecticut leaf the same enzym which gives the Florida leaf its flavor. There may exist great differences in the amount of tobacco oxidase ond tobacco peroxidase produced in different varieties of the tobacco plant and under different conditions. The quantity of each may even differ on the upper leaves fully exposed to the sun and the lower leaves growing mostly in the shade. There may also be formed compounds in certain varieties of tobacco that will produce more quickly the enzyms during curing or termination than in other varieties. A considerable difference was noticed in comparing a sample of tobacco from Connecticut with one from Florida. In the fermentation of the former the tobacco peroxidase was almost completely destroyed, while in that of the latter a considerable part was still intact. Moreover, neither the fermented nor the cured Connecticut leaf contained any tobacco oxidase, although it was found in a greenhouse specimen of a fresh leaf. The best example of how the oxidizing enzyms are brought to the fullest action possible is in the preparation of perique tobacco. The rolls of twists are subjected to a pressure of about 67 000 pounds to the foot to bring the juice from the interior to the surface. After twenty four hours the tobacco is taken out and aired a few minutes, which causes a darkening process to set in. The juice is reabsorbed into the tissue and the pressure is again applied. This process continues every day for ten days or more, and then at intervals for several weeks, until a very dark product is obtained. The tobacco is not, however, very strong, as the oxidation of the nicotine has been carried very far.

The action of oxidizing enzyms has also been noted in the preparation of Japanese lac, in the manufacture of natural indigo and in the fermentation of the olive, practiced in certain parts of Italy.

FARMERS' QUESTION BOX.

Under this head The Progressive Farmer will answer each week such questions regarding farming in any of its aspects as may be sent us. Having secured the services of Prof. Benjamin Irby, Agriculturist of the North Carolina Experiment Station, and of Prof. F. E Emery, who has also held this position and is throughout the country recognized as authority upon all farming matters,—two men who have all their lives studied the business of practical and scientific farming, we expect to make this department of great value to our readers, worth of itself $1 a year to any farmer. Send on your queries. This department begins properly in our next issue.

BUYING FEEDS RICH IN PROTEIN

Correspondence of the Progressive Farmer.

Bulletin No. 131 of New Jersey Station, by Prof. Voorhees, the Director of that Station, is full of good thoughts, the result of inspection, analysis and study.

The purchase of feeds, either to supplement home grown produce or to provide the entire amount of concentrates needed, requires that care should be exercised in order to obtain the most economical results. It is now fully recognized that feeds rich in protein should be added to the home-grown products, if they are to be utilized to the best advantage, since, under average conditions, the crops grown of both grain and straw contain so great an excess of the carbo hydrates, or starchy substances, as to make their exclusive use wasteful. The feeds that are best adapted to this end, viz., those rich in protein, as a rule, consist of residues from the manufacture of some

[CONTINUED ON PAGE 8.]