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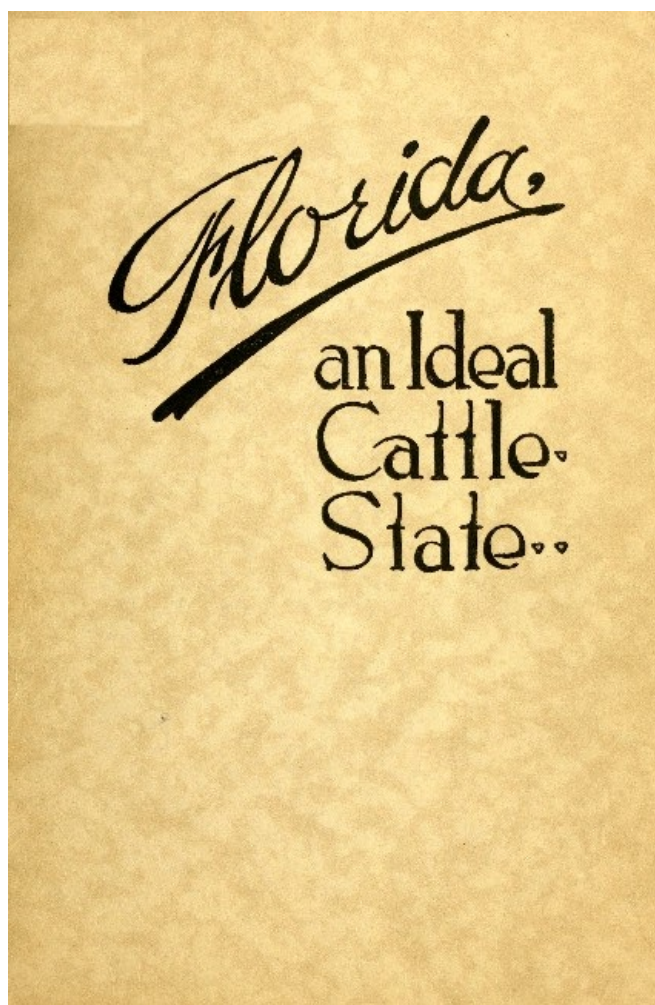
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FLORIDA An Ideal Cattle State

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P. O. Box 1181
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Foreword

By W. F. Blackman, Ph. D., LL. D.

President of the Florida State Live Stock Association, Member of the Florida State Live Stock Sanitary Board.

Requests for authentic information as to the advantages and possibilities of Florida for the growing of live stock, and in particular of beef cattle, have been coming of late, and in constantly increasing numbers, from all parts of the country.

This booklet has been compiled for the purpose of providing this information.

The gentlemen who have contributed to the volume are men of ability, long and successful experience in the live stock and kindred industries, and the most trustworthy character. Several of them have been engaged for many years in the growing and marketing of cattle on a very large scale in Texas, and have recently made a prolonged and close study of Florida conditions. The report of their findings is of the utmost interest.

Prof. C. V. Piper, agrostologist of the Bureau of Plant Industry, Department of Agriculture, Washington, is recognized as the foremost authority on Southern grasses and forage crops. We are indebted to him for permission to make use of the valuable address on this important subject which was made by him at the recent annual meeting of the Florida State Live Stock Association.

A study of these papers will make it evident, I believe, that Florida possesses a number of advantages for the profitable growing of live stock greater than those to be found elsewhere; among these are a mild, equable and healthful climate, comparative freedom from animal diseases, a long grazing season, vast areas of cheap lands, a soil adapted to the growing of numerous improved grasses and forage crops (especially such legumes as the velvet bean, the cow pea, the soy bean, the vetches, the indigenous beggar-weed, the peanut, and certain clovers), a copious and well-distributed rainfall, and countless springs, streams and lakes, providing almost everywhere an abundant and unfailing supply of pure water.

There can be no doubt, I believe, that Florida will take a leading place in the near future among the important live stock states of the Union. What she needs is additional thousands of intelligent, energetic, thrifty and experienced farmers, who will take advantage of the opportunities she offers and develop to the full her immense and latent resources.

Lake Monroe, February, 1918.

POSSIBILITIES OF BEEF PRODUCTION IN FLORIDA.

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By Frank S. Hastings, Manager of the S. M. S. Ranch, Stamford, Texas, who spent two weeks studying conditions in Florida just previous to the Sixth Annual Convention of the Florida State Live Stock Association, at which he was one of the speakers. These impressions have been prepared by Mr. Hastings for the benefit of the cattle men of Florida.

Before coming to the State I asked that I might see as many classes of cattle as possible and in as many different parts of the State as possible.

My first trip was through the Everglades. I then made a trip near Gainesville, and visited the registered Hereford herd owned by Mr. N. A. Callison; also the grade herd of both Herefords and Shorthorns owned by Mr. A. L. Jackson of Gainesville, and the pure-bred and graded Shorthorn herd owned by Mr. S. H. Gaitskill of McIntosh. Then followed a four days' careful trip over the properties and herd of the Kissimmee Island Cattle Company, where I saw Brahma cattle, Hereford cattle and Shorthorn cattle in various grades, and their herd of Florida cattle bought last year. Then over the Indian Prairie country, the Osceola prairie country, including Halpatorioka Flats, the marsh country of Okeechobee, with an unusually good opportunity for seeing the cattle scattered over the open range and to observe conditions on the open range.

Incident to this great expanse, comprehending over six hundred miles in actual auto driving, I did not see a single windmill, or other artificial means of furnishing water, although I am told that on not a single acre of that entire property is there any difficulty in finding water at a depth of from ten to fifty feet. I shall come back to this item, only pausing here to call your especial attention to the fact that over this vast area of undeveloped water conditions, water can be supplied at a very small cost sufficient to increase the carrying capacity of the range at least several hundred per cent, and as against developing a similar water supply over the average Texas pasture country, it can be done at twenty-five per cent of the cost in Florida as against the Texas cost.

Probably the most important thing that I saw in Florida was the registered Hereford herd of Mr. Callison. I recall that he boasted that in eight years they had never been given any winter help, and there were no evidences on his property that the cattle were in any way pampered.

He had about thirty or forty of last spring's calves, which he was just weaning, and they were as

good, on the average, as any bunch of calves I have ever seen in the great registered Hereford producing districts. I saw his yearlings and twos and his cows, and the entire herd shows in general development and quality a very favorable comparison with anything in the great breeding districts outside of distinct show herds.

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If the climate of Florida can produce these registered cattle without help and have them make a favorable comparison with cattle in the great registered breeding grounds of other parts of America, there is no reason why beef cattle can not be produced which, in turn, will form a favorable comparison with those of the great pasture breeding grounds, which, in turn, are furnishing the feeder cattle for the corn belt.

On Mr. Jackson's place we found both graded Herefords and Shorthorns in the third generation, with splendid development and quality, and we found in his registered or pure-bred herd of Shorthorns good quality and development.

At the home of Mr. Gaitskill we found both pure breeds and grades of good development, and a splendid object lesson in a half-bred cow known as "Old Blue," her dam one of the primitive Florida cows and her sire a pure-bred Shorthorn bull. She is what might be called a blue roan, with the blue almost black. Then we saw her daughters and their daughters, and I think we saw a fourth generation, but either in this third or fourth generation, I remarked to Mr. Gaitskill that he could lie a little about that heifer, as she had absolutely every appearance and all development of an absolutely pure-bred Shorthorn.

In this same district we learned from Mr. Jackson that graded cattle all the way from half-breeds up to seven-eighths and in the mixed threes and fours ages, all by registered bulls, weighed 900 pounds off grass last fall. As near as I can obtain information, the same ages in the native Florida steers and under most favorable conditions would probably not weigh to exceed 600 pounds.

On this same trip Mr. Edwards of McIntosh told me that he got about half the gain on the native steers that he does from three-quarter-bred grades, on the same feed.

The foregoing is a practical demonstration that as far as climate, general feeds and ordinary normal conditions are concerned, graded cattle thrive in Florida.

It is important that I should have seen them, because I am working on well defined and demonstrated general principles of breeding and beef production, and they respond in every way to the foregoing.

From this time on we must reckon with the world's supply of live stock. Without attempting to go into details, there has been a very material decrease in it during the past ten years. We know that Europe must be re-stocked after the war, and that the American supply is freer from disease than that of any other country.

We know that under normal conditions the beef production of America has not kept pace with the population, and that even without the influence of war values of beef, stock cattle values have shown a steady increase for the past ten years. There is, therefore, every reason to believe that for a very long period in the future, even taking into consideration reduced beef consumption as the result of substitutes or every other influence, there is a reasonable expectation for strong values and a profit on production under normal expense. I think that we may go beyond the favorable general market and say that there will be a better market in proportion for the intermediate grades of beef, for grass produced beef, than for the very extreme corn-fed finish, and that in the evolution of the Florida beef problem, the grades produced will at least be in as great demand, and probably greater demand, than the ultra finished class.

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It is, therefore, fair to argue that the market is with the producer.

You are singularly fortunate in having a Legislature which seems in every way disposed toward doing everything in its power to help develop the resources of the State.

The Government believes that live stock production is its second greatest problem, and in every possible way that it can give co-operation is pledged to do so. In fact, I do not think that I would have been here at all unless a high official in the Bureau of Animal Industry had not urged me to come, in line with their work of general development throughout the South.

Another thing, I find that Florida is very much in the public eye, and that all the live stock journals are anxious to have anything which touches upon increased beef production anywhere, but in the South particularly.

With the knowledge that I might be here some time this winter, I talked to two of the great packers about the development of the beef industry in the South, and they both said that they thought the South was going to come to the front very rapidly, and that either they or some one else would undoubtedly keep pace with the development by enlarging their present facilities or building new packing houses.

In that connection a packer loves a hog country to work in conjunction with cattle. Without giving the topic any more than this general statement, I can see where hog production is going to be one of the great things in Florida, and that while in Texas we do not attempt to produce any hogs along with our cattle, that hogs will be to some extent a part of the great pasture problems.

In a general way, conditions are very similar in Florida now to those of some thirty-five years ago

in Texas, at which time that State was an open range proposition. Today, with the exception of a very small strip along the Gulf Coast, the entire State of Texas is under fence, and in a general way has been under fence for nearly twenty years.

There has never been a time in the State of Texas in the past twenty years when practically all of the grazing area of the State has not been occupied, and as against the cattle carried on the open range with practically no water development, the pastures of Texas, which are known as the range (but the word range in Texas means large bodies of inclosed land), are carrying several hundred per cent more cattle than at that time.

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The thing which in Texas led to great hardships alike to the large pasture owner and to the settler himself was the fact that so much of the land did not lie in solid bodies. I judge that in the main there is much less of this in Florida than in Texas, and that either by partition, or purchase, or auxiliary lease, the great bulk of that complication can be handled.

And that brings me to the principle of fencing, which I think may be covered under the general heading of Control. First, it means defined ownership, which is always recognized. It means fire control, because it eliminates the wantonness which we now find all over your open range, each man working out his problem and firing the range for various causes.

Fencing means that an area may be developed to its capacity. For instance, on your ranges fire kills the various varieties of the carpet or blanket grass and kills the little blue cane, as well as any number of other grasses, all of which, however, come back where an area is protected, and as they are among your very best feeds, the carrying capacity of a pasture is materially increased.

Water may be developed through the windmill process directly in proportion with the needs of the cattle and concentrated to them as against any water development on the open range.

It is a scientific fact that eradication of the tick may be accomplished by resting a pasture for a certain time. Fencing means the concentration of that area to the best bulls as against not only their mixture with the scrub bulls on the open range, but the fact that the old Spanish fighting blood in the scrub bull materially reduces the effectiveness of the higher class bull. Fencing means that if on any favorable areas you wish to introduce any of the wonderful grasses which the Department of Agriculture is showing can be spread very rapidly, it can be done concentrating to ownership.

Fencing means that lands which are now being occupied by some one else without revenue, but at an expense, may be made to either pay a fair interest on the investment of land, improvements and cattle, or at least a rental revenue which will take care of taxes, interest on improvements and become a net economy, as against the open range.

I believe, too, that the principle will stand that a property defined by fences immediately takes on increased value; that the buyer would pay more for it per acre defined than looking at it in the abstract as part of the open range.

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I do not think that in the whole State of Texas you will find a single land owner, who has fenced his ranches, who does not know that it has been done at a splendid profit.

You begin your problem with a tick-wide eradication law, which Texas has only had a very short time. You begin it at a time when the Government and most of the tick-infested states are releasing thousands of square miles every year, and at a time when both science and every practical observer understands it as an economic measure, which may be pursued with practically no detriment or danger to the cattle. I think that we probably dipped in the neighborhood of a million cattle, considering the number of times that they were dipped, and we did not lose a total of fifty head from all causes.

Eradication means larger cattle in better condition on the same feeds and a less mortality. It means that they can go anywhere in America without restriction; or, in other words, a broader market and no punishment just before shipment. I do not think that the perpetuity of the tick can be defended from any economic standpoint.

I want to take up the breeding section, first with reference to what your cattle represent and a comparison with primitive cattle in other countries. I am advised on reliable authority that forty years ago the only ready money in this country came from the cattle men who either topped their bulls and took them to Cuba, or the Cubans came here and topped them, taking the very best sires that you produced for sport and slaughter. You have, therefore, for forty years been grading down, as far as the sire is concerned.

In the matter of the cows, there has been no culling, added to which there has been in-breeding, and on both the sire and dam side following out the law that evil qualities intensify in posterity, the tendency has been down instead of up in the breeding of native cattle for forty years, to which the only relief has been a very limited introduction of the beef strains.

In addition to this, the cattle have been infested with ticks, and every evil influence that could arrest their development seems to have had a good chance at them, and yet in spite of all this I find them on the whole much better than I had expected.

I have been trying to make a comparison between them and the primitive cattle of Texas, which I have known for fifty years, as they were pastured next to my father's farm in great quantities

when I was only seven years old and long before there was any process of improvement. I think the Texas cattle had greater scale, but from all I can learn I do not believe they had any greater vitality. I think, on the whole, though, that in evolving a race of cattle you have a little further to go than Texas had.

Mr. Alvin Sanders, Editor of the Breeders' Gazette, in his book, "The Story of the Herefords," traces very carefully the first introduction of blooded bulls to the Texas and Western ranges, and forty years, certainly forty-five, is as far back as that influence began. My own people began on primitive Texas cattle in 1882, but from that time used only full-blooded sires, about ninety per cent Hereford and about ten per cent Shorthorn, and only about three years after I went with them sixteen years ago, I took selected calves from their herd to Chicago and won grand sweepstakes for feeder cattle with them against all competition from all sections of the United States. When I went to the S. M. S. herd I found a wonderful lot of breeding cows, the bulk of them at least fifteen-sixteenths and only requiring a vigorous culling process to bring them to a remarkably high standard.

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I was identified with Mr. Kirk Armour during the great progress in grading up Texas herds in the '90's, and it was noticeable in the stock yards that in a short space of about six years there was an absolute change in the general run of cattle from the ranges to the yards from primitive cattle to cattle showing very appreciable improvement, and in twelve years the longhorn had become a scarcity; he was practically extinct in 1900.

Argentina during the same period evolved from a primitive race of cattle one which will compare very favorably to that of America in its up-grading. The other South American Republics have been slower, but between Argentina and America two demonstrations have been given within my own lifetime of a race of cattle absolutely redeemed from the primitive to practically full-bloods, and that the first twelve years of that work has resulted in animals showing fifty per cent increase in weight under the same conditions, a much higher degree of meat in the rib and loin and round, with an immense improvement in their instinct for putting on weight on the same feed over the primitive cattle.

I am simply taking these generally demonstrated laws of breeding to apply to your conditions. I am sure that by using good sires you will find an immense improvement in three years; that in six years it will be a revelation, and that in twelve years you will have a race of cattle for which the world will make a path to your door.

To arrive at this process I must first disclaim any thought of urging any particular breed upon you. On the other hand, I could not be fair to the problem without calling your attention to the fact that the Hereford has been the redeemer of the great Western ranges. I am sure, however, that the greater the degree of purity that you use in him, up to at least a seven-eighths, will be shown in the result.

I find that there is some prejudice against the Hereford in Florida, but as far as I can follow it they apparently got a very low grade of bulls—I am inclined to think not over half-breeds, and then, too, they found they didn't get any more at that time for the better grades than they did for the others.

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The limitation of the Hereford is that in the first cross between a pure-bred and any of the primitive cattle ninety per cent will show white faces or dominant characteristics, and just so in the use of bulls, the animal may not have the intensification of blood that he should have simply because he has a white face, and the bull peddler has, as a proposition, bought something that he could sell at a profit, rather than in following out any visions of cattle improvement.

I can not urge you too strongly to know absolutely the breeding strength of anything you buy, and that means in a general way that you must buy known cattle. I realize, too, that there is a great shortage of bulls, and probably the only way that you can get what you want, because it goes without saying that you can not afford to pay the price for registered bulls in all your work, is to work in some way through a central community of interests, go to Texas and buy the bull calf crop of some herd of cattle that will show fifteen-sixteenths or better breeding. I urge this freely, because you must go below the line and none of our own cattle are available. I believe that if you bring these calves over here, say in November at weaning time, at the age of about six months, and give them some good winter help, that they will acclimate quickly, and will give you very fair returns in the yearling period, although, of course, you can not expect from them a real usefulness until the two-year-old period.

While the Hereford has been the redeemer of the ranges, practically every ranch man in Texas has felt that an undercurrent of Shorthorn is of the greatest advantage. We have used it persistently in our own work, and feel that it has given a most appreciable contribution to the weight and general quality of our cattle.

In the last few years the Brahma cattle have come into prominence, and every investigation that I have made shows that they will undoubtedly prove a great factor in the evolution of Florida cattle. They seem to be immune to most of the pests and do not require as much in the way of acclimatization. They show a wonderful growth in yearlings and they mark their progeny with size and distinct characteristics in a most decided way. The packers seem to like them; they kill out a large per cent of beef, and while I have never had any experience with them, all my observation has been in their favor, and I urge you to go as far as you can in utilizing them in Florida.

I am, however, convinced that you are going to need both the Shorthorn and the Hereford to combine with them. I am also convinced that both the Shorthorns and the Black cattle are going to prove very valuable adjuncts in your eventual work in the State, particularly as applied to small areas where the cattle are not asked to live as much upon their own resources. The experience, however, in Texas has been that the calf crop is not as great from either of these breeds as from the Herefords.

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For your information, on the S. M. S. Ranch we have averaged better than eighty percent calf crop for the last ten years. I think that perhaps you will find the Brahma cattle even more prolific than the Herefords. I think, too, that in every possible way you should encourage the breeders of full-blood cattle in all of these breeds, and that you give them every encouragement in purchasing their progeny.

The introduction of good bulls is a comparatively simple matter, because they can be purchased, but a great cow herd can only be produced by accumulation, probably by a culling of at least ten per cent of all females every year during the process of up-grading. The yearling heifers should not be bred. We always cull them when about eighteen months old, cutting them ten per cent. Culling should be done both from an individual standpoint and from the standpoint of "Get." The culling process is the most important element in beef evolution.

The process of culling will not be extravagant, because looking to the next few years it would seem that canner cattle will probably be as strong as any other branch of the industry, and these culls are usually not only splendid canners, but furnish quite an element of cutters, which means cattle producing very fair meat for regular consumption. I believe, too, that on any range of appreciable dimensions you will find it an economy to produce your own bulls, and in starting any good sized property I urge that you keep that in mind. Get your cows just as good as you can get them; of course pure-breds will be better, and then use only the best registered sires in that herd.

I think advisable, too, in your branding, to put the year brand on all heifers, as it will be of material assistance to you in the matter of knowing the intensification of blood during the early process. It will not be so important later on when the cattle are all very high grade.

The use of the scrub bull is an economic crime; therefore no matter what you use in the way of a sire you are pointed upward, but I feel that it will be a distinct economy to try to get seven-eighths, or at least fifteen-sixteenths sires.

Another thing which offers a great economy in your country is the possibility of dropping calves an average of about two months earlier than they do in Texas. We do not like to have a calf come before the 1st of April. I believe that you can drop yours during January and February without any trouble, judging from the average condition of your cattle in a winter said to be from early October, the most severe you have ever had. Dropping a calf at that time will have him old enough to eat your young grasses when they begin to come. He will have a two months' pull over the Texas calf; will have at least two months longer to combine nursing and grazing to deliver him the first of November.

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As a summary of your breeding problem, I regard it as the simplest thing you have to deal with. There seems to be a sure result by comparison with other countries; there can be little argument as to its economic value, and it is simply a matter of disposition and making the proper investment in inclosures, in bulls and water development to accomplish a good business result.

I only want to add this fragment as to breeding. Since dictating this section I chanced to meet at lunch today Mr. Will Goodwin, for thirty years one of the officers and managers of the Breeders' Gazette and one of the best authorities in the world on cattle. His winter home is near Ocala, Florida, and he has seen enough of your ranges to convince him of their great utility in beef production. He agrees with me that the evolution of your cattle is simply a matter of disposition. I find, however, that he has no use for the Brahma bull, although he joins me in the belief that you can not do anything to hurt the present breeding process, and he rather grudgingly admits that the Brahma bull may have a place in scale. I reviewed with him at some length what has preceded and asked him what he thought about my comparison with the Texas primitive cattle as to having more scale. He thinks I am right in that connection, but says that he believes the Florida cow is more shapely; that she has a better hindquarter than the old Texan cattle, and is, in a sense, a miniature Shorthorn, and that he believes that a cross between a Shorthorn and a primitive Florida cow will give you the best basis.

I called his attention to the fact that in range experience neither the Blacks nor the Shorthorns seem to be able to make their own living as well as the Herefords and do not get the calf crop, and he was quite free to say that it had a little force. On the other hand, he confirms fully my belief that where a better class of protection can be offered than the vast ranges, the Shorthorn cross and the cross with the Blacks either on primitive cows or their cross will have splendid results.

He also called my attention to the prominence that Blacks are getting in Florida.

There is, therefore, a very wide range of possibilities in your breeding problem, all of it pointed upward, and there may be something in your experience here which will show that the Shorthorn and Black have a greater mission on the open range than they had in Texas. There certainly can be no question about the value of the blood.

And here I might add that the Government is not asking any one to increase beef production from

a patriotic standpoint, but rather that it offers a splendid investment. And perhaps I might add that when our boys who have gone into the army come back again they will practically all be trained athletes; men seasoned to the out-of-doors and loving it; men who have obtained an earnestness in life and a new vision as to usefulness, and when you stop to reflect that we have been sending the flower of the world to the front, when it comes back to us we will not only have the attributes I have described, but the flower of the world to apply them, and I look for an increased interest in all of the out-of-door lines of business such as America has never seen before.

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I thought I knew something of my own country and something of the possibilities of land available for cattle production, but seeing your ranges has been a revelation. They are off the track of the tourist. There is sparse settlement, and they are known to very few. In fact, they might be, in a sense, called a hidden country, but the whole of America is interested in everything that offers a good agricultural or stock-raising possibility, and when our boys come back, not only the boys of the South, but the boys of America are going to investigate your properties.

I promised to come back to water development. Practically every question that I have asked in the main about water has been covered by the reply, "Water everywhere." Much of your area is watered by rivers and lakes, and where good surface water is not easily available for stock, your well water is so easily obtainable and at such small investment you can afford to have it every two miles over the entire country.

I am told that the windmill will furnish ample production, and at that narrow depth the light mills, which go well in a light wind, are available. We have found it very valuable, however, to use the one and a half horsepower gasoline engines, and from that pumping supply as our live stock demanded, because you must keep water constantly before the cattle. Cattle become accustomed to watering at one place, and if there is no water they will stand around and wait for the mill to pump.

Without attempting to go into details, you should have a proper water storage at each mill. It is small expense, and with a storage tank and a windmill it would be cheaper than a gasoline engine.

It is always customary in our country to put salt around the water holes. I find, as a proposition, your cattle do not have salt at all, and it is very much needed in their development. Over some areas there is no lime, and there it would probably be wise to combine salt and lime, which can be very easily done by using a compressed cake, not rock salt. It may take these primitive cattle some time to learn how to lick the salt, but the next generation will be there all right, and it will have its influence in their development.

It is my observation that under a proper development of water, a fenced area and proper subdivision fences permitting the protection of one pasture for winter purposes, forcing the cattle out in summer upon areas best adapted to that season, that Florida lands will carry from two to three times the number of cattle that the average Texas range does.

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I find, too, that a great deal of the range offers a splendid hog feed from the cabbage palm, the seed of the palmetto and from the mast found in the shinnery. It would seem, therefore, that an appreciable number of hogs may be produced without extra cost on most Florida ranges. While they will not sell for the top prices unless fattened on some concentrate, they bring a very fair figure as against combined result and overhead charges, and should be a big factor in revenue and one that we do not have in Texas.

Your lands are singularly free from pests. To illustrate, it cost us something over \$75,000 to kill prairie dogs on about 450,000 acres of Texas lands, and outside of the shinnery lands the great bulk of Texas lands have been populated with prairie dogs, which in bad times take at least one-third of the grass. You do not seem to have the screw worm, which bothers us a great deal in very wet weather.

You can own your posts at a comparatively small cost and with normal prices of wire I should say could construct your fences for three-fourths of what it costs us. You have no very long drives for your cattle when shipping them, and in the matter of winter help to your cattle it will cost very little as compared with what we have to spend in Texas. To give you an idea, we are buying \$50,000 worth of feed to winter a herd of 25,000 head of cattle. While your season here will permit you to get through with very little extra cost, if any, I think that you should make a provision for some concentrate, so as to have it. In Texas, when the grass is all gone, the use of cotton seed cake is limited when not taken in conjunction with a good filler, and there is never a time when you at least don't have a good filler. It is simply a matter of getting a little concentrate on it and cutting out the weak cattle and concentrating them to such winter help.

You are right where we were in '82—large areas of land, in which our problem was to make them carry themselves without cost, or pay a small interest until such time as they would sell at good value. We had very low values on cattle, long distances from the railroads—in fact, every possible disadvantage, but these lands have always paid for taxes and overhead expenses and have always given us a little something in addition, and are at a point now where they pay us a very good net interest on \$10.00 land and \$70.00 cows. We probably could sell every acre that we own at a price which would give us more net money than we get from the cattle business, but our people consider it a mighty good back-log to have lands which were almost without value brought up to that value and to their earning capacity.

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I think that if you go into the cattle business you should study very carefully the possibility of disposing of the calf at weaning time. That is something you will have to grow to. The Government is authority for the statement that the economical production of beef is the calf, taken at weaning time, not allowed to go back, but kept coming in the matter of feeding, and if this calf is to be taken at that age, you can run twenty per cent more cows on your range, producing an average of fifteen per cent more calves, as against developing a steer to the three or four year old period, in which his individual gain is your revenue in the matter of a carrying charge. I believe, too, you will find it an economy to dehorn these calves at branding time. It can be done with practically no loss of blood. The animal is well in a very short time. I think he develops better and he certainly sells quicker.

Packers have immense contracts, and if the war continues they must have lots of tinned beef. On the other hand, if the war stops the world must stock up again with tinned beef. We know that they expected to pay an average of at least one cent per pound more for their canners the past year, but that the great drought has forced so many cattle in, the owners were very thankful to take what they got and the packers were forced to their capacity to attempt to handle them in such quantities. We know that the calf crop of Texas next year will probably show a decrease of twenty-five per cent, and that if rain comes in time to give good spring grass that a farmer will pay anywhere from ten to twenty-five per cent more in Texas than any other part of America. It would not surprise me at all to see your Florida cattle shipped over to Texas. We know, too, that next year, instead of the normal number of cows coming in in the culling process, which find their average market as canners, it will be the disposition of every ranchman to hold back cows which would ordinarily go into the culls in order that his ranch may be brought up sooner to restocking.

I would urge all of you to get your fences up and buy as many cattle as you can handle, because the she-stuff is going to be higher. This is particularly true of the she-stuff which has been selling at the values of Florida primitive cattle.

FORAGE CROPS FOR FLORIDA.

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(Address delivered before the Florida State Live Stock Association, January 9, 1918, by Prof. C. V. Piper, Agrostologist, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C.)

For many years I have been interested in the problem of more and better forage for the South, because it has long been evident to students of agriculture that sooner or later there would be an important live stock industry developed in the South. The present greatly increased interest of Florida, and, indeed, of the entire South, marks, I believe, the beginning of this epoch. Several economic incentives have conspired to bring about the present active interest and development. Chief among them, perhaps, were: First, changes necessitated by the spread of the cotton boll weevil; and, second, the present high range of prices for live stock—prices that in all probability will be little, if any, reduced for many years to come.

Another incentive that must, however, be recognized was the desire of enterprising men to develop the latent resources of the South, not only as an attest of their economic faith, but also from the patriotic motive of helping the nation in this period of stress.

As an indication of the extent of this movement I may state that within the past two years over thirty extensive live stock enterprises have been launched, all in the piney woods region of the Southern States. Most of these companies have ample capital, and most of them are proceeding along conservative lines.

The future development and prosperity of this industry must rest upon a thorough knowledge and proper utilization of the forage crops adapted to the region. In very large measure these forages are quite different from those used in the portions of the United States where animal husbandry is most developed. From a practical standpoint we cannot use in the South the forages of the North and West, with the important exception of corn. The other great forages—timothy, red clover, alfalfa, blue grass and white clover—can never become important in Florida. This fact needs emphasis, because the newcomer in Florida is often carried away with the idea that these forages may be made to succeed.

In the beginning of this active live stock development it is unfortunate that there is not a larger body of exact data concerning both the culture and feeding value of the more important forages available. There is a large amount of such information concerning corn, timothy, red clover, alfalfa, blue grass and white clover, not only in America, but also in Europe. Furthermore, countless live stock farms exist where the practical utilization of these forages has been worked out in detail. In comparison, our stock of knowledge concerning Southern forages, both from experimental investigations and from practical experience, is relatively small. This is not surprising, because the experiment stations have very properly been compelled to devote their energies mainly to assisting agricultural industries in proportion to their existing importance, rather than to industries in which there was relatively little interest. In this matter of Southern forages I have long advocated much more generous support on the part of the State and Federal agricultural agencies, because I have great faith in the future possibilities.

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With the magnificent start that has now been made in live stock farming in the South, we may hope for much more generous support to live stock and forage investigations, but this hope will be realized only if we are insistent in our demands. The knowledge thus to be obtained is fundamental, and the progress that is made in live stock raising will be conditioned in an important measure on the accurate investigations that can be conducted only at properly equipped experiment stations.

One other angle of these general considerations must not be overlooked. The northern or western man who may be considering developing a live stock ranch in the South naturally wants to see developed ranches in which the practical problems have been worked out. In all the South there are very few cattle ranches which have reached a finished state of development—where the concrete demonstration exists of a type of management that can be duplicated.

Now, of course, I am fully aware that Florida and all the South has long had an extensive cattle industry based on the natural grasses of the prairies and of the piney woods. In general, this has been a profitable industry, especially on free range. Without hurting anyone's feelings, we will, I think, agree that this has not been a very high grade of live stock ranching. Indeed, the ordinary Northern or Western man, who is, of course, a superficial observer, has gotten the idea from the scrub cattle and razorback hogs that he saw, that there is something in the South that is inimical to good live stock. Usually he has decided it is the climate. Fortunately we know from the work of every Southern experiment station, as well as of a few good live stock ranches, that the South can raise just as good cattle and hogs as the North. It isn't a matter of climate, at all, but purely one of *breed* and *feed*.

I have spoken thus candidly because I feel that I am a friend among friends, and because I have very much faith in the industry you represent. If I were not so optimistic as to the future of the live stock industry in Florida I should be afraid to lay bare any weak factors that exist. I believe with Huxley in the wisdom of facing things as they are, rather than indulging in make believe.

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Perhaps it will be most helpful in discussing the forages adapted to Florida to proceed from the viewpoint of the man starting a cattle ranch. The basis, of course, of any profitable cattle ranch is permanent pasturage, the cheapest of all feeds, and, to supplement this, a supply of feed, which may be hay, ensilage, or in Southern Florida, green feed, to bridge over the season of short pastures. If one is to produce highly finished beef, grain feeds and other concentrates must be raised or purchased.

In discussing pasturage it will be convenient to recognize three types of lands, namely, piney woods, prairie, and mucks, realizing, of course, that this is a very rough classification.

Piney Woods Lands.

In the piney woods the natural pasturage is composed mainly of broom sedge and wire grasses. During the growing season, from spring till late fall, these grasses furnish fair pasturage, but through the rest of the year they merely enable animals to exist. What can be done towards converting these poor native pastures into good permanent pastures? There are three possibilities in the light of our present knowledge. On better soils good Bermuda pastures can be developed, or where the lands are moist, as on most flatwood areas, carpet grass may be used. On the drier and poorer soils, Natal grass is the only one that has given much success.

How can Bermuda or carpet grass pasture best be established? The sure method is to stump your land and plow it, and then plant the Bermuda by the vegetative method in spring, or any time thereafter in summer, during the rainy season. At the McNeill station in Mississippi, located on land much like that of the northern tier of counties in Florida, they have developed the following method: Plow furrows about ten feet apart between the stumps in spring, and stick in a root or sprig of Bermuda about every ten feet. At McNeill it is found necessary to use a little fertilizer to insure the growth of these Bermuda plants. During the following winter the stumps are removed, and then in spring the land is plowed and Lespedeza seed sown. Enough Bermuda has grown in the furrows to insure a stand of Bermuda, and this is supplemented by the Lespedeza. Indeed, the first season the Lespedeza will furnish more pasturage than the Bermuda. Lespedeza is rather a tricky plant in Florida and is hardly worth consideration except in the northern part of the State.

On most of the Florida flatwood soils carpet grass is much more aggressive than Bermuda, and in time will, if left alone, completely replace the Bermuda. To a large extent this can be obviated by plowing the pastures whenever the carpet grass seems to be obtaining the upper hand. Unfortunately, we do not know the relative values of equal areas of Bermuda grass and of carpet grass where the latter is most aggressive. Carpet grass does not grow so tall, but is green for a longer period. It may, indeed, be found more economical not to try to save the Bermuda after the carpet grass crowds it. From observations, I am inclined to believe that neither the carrying capacity nor the feed values per acre of the two grasses is greatly different on most flatwood soils. If this be true, it would not be economy to go to any particular trouble to retain the Bermuda instead of the carpet grass.

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At McNeill the pasturage on areas that have long been closely grazed is carpet grass. Unfortunately, no experiments have been conducted to compare these two grasses as to ease of establishment and as to carrying capacity. Carpet grass produces abundant good seed, and therefore spreads much more rapidly than Bermuda, which rarely produces seed in humid

regions.

It is found necessary to remove the stumps at McNeill, because for the first year or two on the plowed ground, weeds, especially "fennel" or "Yankee weed," appear abundantly, and must be mowed or they will kill the grasses by shading. Mowing with the stumps on the land is impracticable, as the weeds conceal many of the stumps.

Whether it is practicable to establish good permanent pastures without stumping and plowing the land is yet an unsolved problem. About every Florida settlement where the town cattle graze, there is good pasture, commonly carpet grass. You will find just this on the outskirts of Jacksonville. Such pasturage has been established by heavy continuous grazing, under which conditions the broom sedge and wire grass are exterminated, while the creeping carpet grass comes in and persists. It may be that the manure of the animals is also a factor, and there can scarcely be a question that the trampling helps. As an example of this kind occurs about nearly every Florida town, it would seem as if it could be duplicated on cattle ranches. I have suggested to several cattlemen that it is worth trying on a scale by three methods: (1) Simply burning the native grass in winter; (2) burning, followed by disking or harrowing; and (3) plowing among the stumps.

If possible, carpet grass seed should be scattered on each area, and in all cases close grazing should be practiced. Unfortunately, carpet grass seed cannot be secured commercially, except in small quantities at high prices, but it is easy to cut the mature carpet grass in fall from a pasture and cure the hay. The carpet grass can then be sown simply by scattering the hay. Whether any of these schemes will work out satisfactorily still remains to be determined.

As to Natal grass, I have already mentioned that this succeeds better on the poorer and drier pine lands than any other grass yet introduced. Thus far it has been exploited purely as a grass for market hay. On this basis many hundred acres were planted in Lake County and elsewhere. Grass culture purely for market hay is a very precarious proposition. The proper agricultural economy is grass for live stock, selling only the surplus to the market. Notwithstanding the very large acreage planted to Natal, I have been quite unable to secure satisfactory data as to its value for pasturage, measured in carrying capacity and satisfactory gains. It seems to me, from the slender data I have been able to secure, fairly probable that Natal will prove a valuable grass for combined hay and pasture on the soils to which it is so well adapted, but of course it can hardly be expected to yield enough to justify the extravagant prices paid for land planted to Natal.

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Prairie Lands.

On the prairies of Florida there is much better natural pasturage than in the piney woods, and, indeed, it is on the prairies that the old type of cattle industry reached its highest development. The prairies are in reality wet meadows. Their grass cover is due to water relations, most of them being periodically overflowed—conditions that are inimical to pines and palmettos. On the other hand, the period of overflow is too brief to meet the conditions necessary for cypress and other swamp trees. These prairies stretch from the border of the pine woods and palmettos on relatively high ground to permanently wet swamps. The best natural pasturage consists of various species of paspalum and related flat-leaved grasses on the soils fairly moist during a large part of the year; and maiden cane on still moister land, or even in shallow water. Generally speaking, the moisture relations of the more extensive prairies are nearly ideal for continuous pasturage in the varying seasons. There is grave danger in any extensive drainage operations, as palmettos and pines will quickly invade such drained land, and thus destroy the grass.

For improved pasture on these lands, particularly on those reasonably moist, Para grass offers great possibilities. The remarkably rapid growth and high yield of this grass, combined with its palatability and nutritiousness, make it of prime importance in connection with better live stock. Para succeeds well also on the better uplands, but, generally speaking, it is a grass for moist lands. The farther south, the more valuable it is, as after frost it is of little value.

Another grass that is likely to be very valuable on the prairies, and, indeed, on the flatwoods and better uplands, is *paspalum dilatatum*, native to Argentina. This is perhaps the best of the paspalums, and it is now widespread in the Southern States. Unfortunately, with us the seeds are largely destroyed by a fungus, but good commercial seed is obtainable in quantity from Australia.

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Muck Lands.

On the muck lands the problem of pasturage is easy. At least four grasses, namely, Para, Carib, Rhodes and Bermuda, especially Giant Bermuda, yield wonderfully. The enormous area of muck lands in Florida, especially in the Everglades, can, it would seem, be utilized only with the aid of livestock. While there may be some fairly difficult problems to solve in handling live stock on muck soils, especially in the wet season, there can be little doubt that grass and live stock will insure the permanency of these lands. Under continuous cultivation there is a constant shrinkage in muck soils, but with grass and live stock this is nearly, if not quite, counterbalanced.

Carib grass on muck soils is, from limited data, superior to Para grass both in yield and quality. On other types of soil Para will outyield Carib. Rhodes grass does wonderfully on muck soil, and, indeed, on most rich soils. Giant Bermuda is far coarser and more vigorous than ordinary Bermuda. It will succeed wherever ordinary Bermuda will grow, and, in addition, seems much

better able to withstand flooding.

Temporary or annual pasture crops are mainly important in connection with swine raising. Various systems of such crops have been devised to furnish successive pastures. Florida has a long list of such crops that can be utilized. Among them are oats, rye, rape, sorghum, peanuts, cow peas, chufas, sweet potatoes, corn and velvet beans. Under certain conditions the cattleman may have to utilize one or more of these crops, but corn and velvet beans is the one that is the most important.

The story of the velvet bean is really one of the romances of agriculture. Introduced into Florida about 1875 from some unknown source, it first attracted attention as a forage about 1890. Until 1914 it was but little grown outside of Florida. In 1915 the crop was certainly less than 1,000,000 acres. In 1916 it had increased to 2,500,000, and in 1917 to about 6,000,000 acres. The explanation of this remarkable increase was the finding of earlier "sports." Three of these appeared independently—one in Alabama, two in Georgia. These early varieties immensely increased the area over which the velvet bean can be grown, so that now it embraces practically all of the cotton belt. These early sports of the old Florida are most grown, but the Chinese velvet bean, introduced by the Department, and the hybrids developed by the Florida Experiment Station, are important. In spite of vigorous search, the native home of the Florida velvet bean yet remains unknown, but it is probably in the Indo-Malayan region of Southern Asia.

The importance of the velvet bean to the live stock industry now developing in the South can scarcely be over-estimated. Grown with corn, it increases the corn crop year after year, and besides furnishes a large amount of nutritious feed to be eaten by the animals when the grass pasture season is over. It reduces greatly the cost of finishing of beef animals for market. This year the velvet bean has been no small factor in helping out the great shortage of foodstuffs, quantities of them having been shipped to Texas. Finally, it has resulted in a new industry for the South, namely, the manufacture of velvet bean meal, which has already won for itself a large demand.

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Hay Plants.

The problem of producing hay in Florida is made particularly difficult by frequent rains, except in the fall of the year. The bulk of the hay now produced is from the crab grass that volunteers in cultivated fields. In recent years much Natal hay has been grown for market. Para grass hay is of good quality, and Rhodes grass of very fine quality. Other hays are made from cow peas, cow peas and sorghum mixed, Mexican clover, beggar-weed, oats, millet, etc.

The subject of hay, however, is vital only to the city market. To the live stock man it is of minor importance, as silage furnishes so satisfactory a substitute.

Ensilage Crops.

Corn is, of course, the standard crop for ensilage, and its relative importance in Florida is not far different from that in other States.

Under certain conditions sorghums will yield greater tonnage than corn, and the resulting silage is but slightly inferior.

Florida possesses, in addition, a unique silage plant in Japanese sugar cane. The perennial nature of this plant and its high yielding capacity make it a cheap fodder to grow. It may be utilized as green feed, as silage, as dry fodder, or for pasture. Your own experiment station has published the best information we have on this forage. As a feed for dairy cows there can be no question of its high value, either green or as silage. There still seems to be question, however, as to the relative value of Japanese cane silage as compared with corn silage. In Southern Florida the cane stays green all winter, as a rule, so that there is no necessity for ensiling it for winter feed. It may well prove, however, that a supply of Japanese cane silage will prove good insurance against periods of shortage even in South Florida.

You may have noted that all the pasture plants I have mentioned are grasses. Very unfortunately we have not as yet any good perennial pasture legume adapted to Florida. I say "unfortunately" because, as is well known, the true grasses are nutritious in proportion to the fertility of the land. That is, the better the land the more nutritious the pasture. But with legumes no such relations exist, because legumes are not dependent on the soil for their nitrogen supply.

While we have no satisfactory perennial pasture legume, we have one summer annual, lespedeza, that helps to some extent in North Florida. There are also two winter annuals that reproduce themselves in which I have considerable confidence, namely, burr clover and narrow-leaf vetch. I believe that on many of the better pasture soils, especially in North Florida, that these legumes can be established and that they will re-seed themselves year after year. Of course due care must be taken to secure inoculation, preferably by the soil method.

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The Outlook for New Forages.

What the future may hold in store for us in the way of new forages does not assist at the present time, but it is worth considering. It is well to bear in mind that the agriculture of the North, with the single important exception of corn, is mainly a direct inheritance from European agriculture.

Substitute root crops for corn and you have in essence the European practice. Southern agriculture, on the contrary, is almost purely an American development—cotton, corn, tobacco, sweet potatoes, from the American Indian; cow peas, Rhodes grass, Natal grass and sorghum from South Africa; soy beans, lespedeza, Japanese cane from Japan; carpet grass and Para grass from the West Indies; Bermuda from India; velvet beans from Southern Asia.

Northern forage plants have been pretty thoroughly studied both in Europe and America, because European conditions are fairly like those of our Northern States. But there yet remains hosts of grasses and legumes adapted to sub-tropical climates concerning which we know practically nothing.

Out of very numerous grasses and legumes at present under test are several that possess promise, and these I shall discuss briefly.

Kudzu.

Kudzu is not particularly new, but it seems to me destined to a much greater importance than at present. It is the only perennial forage legume that has in any sense made good in Florida. It is much better adapted to clayey soils than to sandy soils, but it also succeeds remarkably well on the limestone soils about Miami. On the better sandy soils it would also seem to be valuable, but on the poorer sandy soils and poorly drained lands it is doubtful if it has a place. On clay soils at Arlington Farm, Va., we have consistently gotten two cuttings, totaling five tons of hay per acre—double what we can get from cow peas or soy beans. I believe kudzu is entitled to a fair trial by every Florida cattleman.

Napier Grass.

You have doubtless seen some of the numerous references recently in Florida papers to "Japanese bamboo grass" or "Carter's grass" as grown about Arcadia. These names rest upon a misconception. The grass is a native of South Africa, properly known as Napier grass, or *Pennisetum macrostachyum*, introduced by the Department in 1913. This is a perennial much like Japanese cane, and in our tests is found hardy as far north as Charleston. It does well on rather poor soil and yields heavy crops. In chemical analysis it is richer than corn in protein and carbohydrates, but also contains three times as much fiber. It is this high fiber content or woody character that makes me dubious about its silage value, in which opinion Professor Rolfs concurs. When two or three feet high it is greedily eaten by animals, and so may be a pasturage possibility. As a green feed crop it could be cut three or more times each season, when three or four feet high, and I am sure will prove a very valuable forage for the man with one or two cows. Whether it is a crop for the stockman is still doubtful.

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In 1916 we introduced a very similar species, *Pennisetum merkeri*, which is perhaps a little superior, though it is hard to tell the two apart.

Metake.

The name "Japanese bamboo grass" leads me to mention a true Japanese bamboo, the *metake*. This is a bamboo that spreads by rootstocks and forms dense thickets ten to fifteen feet high, much like cane brake, and, like our native cane, a valuable winter pasture plant. Mr. P. K. Yonge has grown it with marked success about twenty miles north of Pensacola. It seems to me a valuable plant to furnish a supply of pasturage in winter, when pasturage is practically gone. It is worthy of careful trial on all well-drained Florida soils.

Tripsacum Laxum.

Last year we secured from Guatemala a new perennial grass which, if it proves winter hardy, will, I am certain, be of enormous value to South Florida. This grass grows much like teosinte, but is stouter and very much more leafy. The stem is tender, sweet and juicy, and all the leaves remain green. It is an ideal silage plant. So far as I am aware, our trial at Miami is the first time this grass has ever been cultivated. The few live stock men who have seen it went into ecstasies. It may prove valuable, however, only for frostless regions.

Creeping Pasture Grasses.

At the present time we have under trial five creeping pasture grasses, more or less like Bermuda in a general way. You are, of course, aware that a pasture grass to be valuable should be able to spread naturally and must be able to hold the ground. Naturally it takes time to determine all these facts. The five grasses I refer to are as follows:

Blue Couch (*Digitaria didactyla*). This is much like Bermuda, but produces abundant good seed. For lawns and pastures it promises to be about equally as valuable as Bermuda.

Manilla Grass (*Osterdamia matrella*). This is especially adapted to rather moist sandy lands. It grows very dense, and where it thrives should be valuable.

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Lovi-lovi (*Chrysopogon aciculatus*). This furnishes much pasturage in India, the Philippines, and South China. The seeds are very abundant, and each sticks into the clothing like a pin. But about

Hongkong it is used generally as a lawn grass. It is well adapted to dry sandy soils. If it proves well adapted to Florida we can, I think, chance its becoming a nuisance, because if it does thrive it will give much pasture.

Nilghiri Grass (*Andropogon emersus*). This is the only creeping grass of the genus *Andropogon* (which includes our broom sedges) that we have yet found. I secured it in the Nilghiri Hills of South India. It looks promising.

Kikuyu Grass (*Pennisetum sp.*). This is native to the highlands of Uganda, in British East Africa, and in South Africa has created great interest. It looks much like St. Augustine grass. At Biloxi, Miss., it has succeeded well. It looked very fine at Arlington, Va., but could not stand the winter. This grass is said to be very nutritious, and I believe that on the better soils of Florida it will prove a real acquisition.

I mention these new things to give you some idea of what we are doing. I might mention several others that look good to us, but it will be time to speak when we have tried them further. In brief, we are scouring the earth to find grasses and legumes to meet Florida's needs. We have faith that the grasses and legumes exist, if we only can find them.

Gentlemen, in closing I must say one thing more. Our country is at war—a war that will tax our energies and resources to the uttermost. No more dangerous idea can be entertained than to minimize the task, or to delude ourselves with the prospect of an early peace.

One important factor is food, especially meat and wheat. Only an unusually favorable season can produce for us as much wheat as last year. Our meat and forage supplies are low, because in times of food scarcity, grass crops are necessarily sacrificed. Gentlemen, you can do much to help increase the meat supply. In developing your ranches to increase your output, I want to urge as a patriotic duty that you increase your good pasturage and your winter feed supply as rapidly as you can. I could not urge this in peace times, because rapid development is never the most economical. But in this time of stress you cattlemen can help the nation most by increasing your output to the maximum. There is no other way for you to give to the nation that will count so much. I therefore urge that you brush aside all questions as to the economically best method of increasing pasturage and forage, and to devote all your capital and all your energy to doing this along any lines that are sure.

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FLORIDA AS SEEN FROM A TEXAS STANDPOINT.

Address by W. N. Waddell of Fort Worth, Texas, before the Florida State Live Stock Association, January 9, 1918.

Mr. Waddell started to working cattle on the Texas ranges in 1875, and has been in the cattle business for himself since 1881.

He was chairman of the Live Stock Sanitary Commission of Texas for four years, and for a number of years has been the Texas representative of the Live Stock Exchange National Bank of Chicago, and of the Chicago Cattle Loan Company.

After spending a week in Florida during August of 1917, Mr. Waddell returned to the State in November and spent considerable time investigating the opportunities for raising cattle. This address gives his views on the advantages Florida possesses as a cattle-producing state.

In order to understand or to be able to appreciate a proposition of almost any character it is necessary to approach it by comparison, and in making comparisons touching Florida I wish to state that I have traveled over the range of the five northern states of old Mexico; I have traveled over the southern part of the range belt of Arizona; I have traveled over about half of the state of New Mexico and virtually all of Texas, and I find in Florida conditions favorable to the production of live stock that do not exist in any of the states I have named, which constitute the great range belt of the Southwest. In Mexico there is very little water, and water is very hard to get by digging, the wells averaging from 150 to 1,000 feet deep, and in a great many instances no water at all. In Mexico they also have a great many animals that prey on the live stock, such as panthers, lobo wolves, bears, as well as the common, ordinary coyote. None of these have to be contended with here.

In Arizona and New Mexico about the same conditions prevail as do in northern Old Mexico. In Texas we have bears and sundry pests to prey on our live stock. The prairie dog infests a great many of our ranches, destroying the grass, digging holes in the ground, and making it dangerous for the cowboy to ride over in the pursuit of his range endeavors. We have wolves of all species. In Texas we have also the screw worms that are a tax on the live stock producer to the extent of from two to five per cent of the calves born on his ranch, and I am sorry to say that worst of all we have periodical droughts. None of these adverse conditions I find prevail in Florida.

Here I find the country covered with a thick, heavy coat of grass, streams running with plenty of water and I understand where natural water is not available that it is only about from twenty to one hundred feet to an abundant supply of water under the ground, making the proposition of watering the ranches in Florida, where artificial water is necessary, a very simple matter. The climate in Florida is temperate and mild, rainfall is regular and abundant, and, so far as the

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production of forage for live stock on the range is concerned, your rainfall and your soils all seem to combine in favor of the producer of live stock.

I never was more amazed in my life than I was last summer, when, in company with a committee of other cattle men from Texas, I visited this state. At that time I was shown over the southern middle part of Florida; was shown a great domain of country lying out of doors, as it were and as we term it in Texas, furnishing free range for hundreds of thousands of cattle. I did not believe my ears when I was told those conditions existed here, and I can't understand yet why a state as old as Florida, with as many surface indications of possibilities for the production of live stock, should remain unfenced, unoccupied, and non-revenue producing to the men who own the land.

Another surprise that met us when we came to Florida in the summer was the absolute lack of any improvement in the live stock that we found here. In fact, it is my judgment that the cattle in Florida today, from what I have read of the history of Florida, are not as good as they were thirty years ago, and I am surprised, when I think of the facilities furnished the cattle men of Florida by the land owners for the grazing of their cattle, that they haven't taken any more interest in their cattle than they have and tried to improve them.

Florida today, as never before, is attracting national attention as a possible beef-producing state. The eyes of the investing public are turned toward Florida, and it is my judgment that within the next five years Florida will make greater strides in the development of the live stock industry than it has ever made before. And I want here and now to issue a warning to you gentlemen who are running your cattle on the open ranges of Florida that you had better get busy and get control of what land you expect to use as a cattle ranch, for if I mistake not, outsiders are coming into this state who will buy or lease these lands, put them under fence and inaugurate a system of live stock production on an improved basis as compared to the present methods being pursued in this state.

And in this connection I wish to state that I have discussed this open range proposition with some of the largest land owners in Florida. They tell me that they want to see Florida developed; they tell me they are in line to lend their energies, their time and their money to anything that will develop the State of Florida. After listening to them talk this line of earnest progressiveness, I have put the proposition to them just like it was put to us in Texas, and that is, formulate an equitable leasing proposition, one that will safeguard the interests of the land owner, and at the same time lend protection to the vested rights of the lessee, and advertise that to the world. Let the people not only of Florida, but the people outside of the State of Florida, know that they can come to Florida and at a small rental cost, lease as many acres of good grazing land as they have money to get cattle with which to stock it, assuring the prospective lessee that they will fence the land according to his desires and will build him a ranch house to live in; that they will fence him a horse pasture to keep his saddle horses in; will build him a dipping vat on the land, and where necessary will bore wells and equip them with windmill and pump sufficient to furnish plenty of water for the live stock on the land so leased.

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There was never any marked development or marked improvement in the live stock industry in the State of Texas as long as the cattle ranged on the free grass, but in 1884 the Legislature passed what was known as a Lease Law. Then it was, gentlemen, that the fencing up of the State of Texas began in earnest. No man was willing to pay lease on land and let somebody else's cattle graze on it. And that is the first step needed to be taken in the evolution of better cattle in Florida. The land owners should fence up their lands, cut them up in pastures to suit the men who want to run their cattle on them, making the lands of Florida revenue-producing, instead of being a liability, and put the cattle of Florida under fence and under control wherein individual effort may develop in a desire to excel. I can not stress this proposition too strongly. I haven't the language to express the importance of putting the lands of Florida under fence and the cattle under control in order that better cattle and more cattle may be raised. The most important step looking to better cattle in Florida has already been taken in the creation of a Live Stock Sanitary Board and the work incident thereto of tick eradication. This work and the efforts of the Florida State Live Stock Sanitary Board will be much more effective and easier of accomplishment when you get the ranges of Florida fenced and the cattle under control.

It seems to me that Florida has been overlooked. I am led to the belief that the Florida cowmen have been lulled to sleep, as it were, by the fact that they haven't been bothered by any outside influences. In discussing the breeding up or improving of the cattle with a good many breeders whom I have met in this State, I find that all voice the sentiment that they would like to raise better cattle; that the State ought to produce better cattle; and that it is a good cattle country.

Florida is wasting approximately enough good pasture to produce a meat supply sufficient to feed several states by confining the quality of the herds to the little native cattle we saw on the ranges. True, we saw lots of cattle, more than I supposed existed in the entire State, but the opportunity before the cattle men is to breed up the quality and size. That this can be done was demonstrated by some herds we visited, and the reports on those herds show that this is a better cattle breeding country than Texas, for your owners are branding a larger proportion of calves to breeding cows in herds than we are able to get.

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I am sure that good cattle can be raised in Florida because I have seen them. I am sure that good hogs can be raised in Florida because I have seen them, and on the question of the hog, I wish to state that on the open range country of Florida, especially the southern part in the prairie country, where there are hard wood and cabbage hammocks, is the ideal country in which to grow hogs. I made the statement when I was here in the summer that I believed a man could

fence up a range of ten or twenty or thirty thousand acres in Florida, stock it with cattle and stock it with hogs, and that I believed the hogs would pay the overhead charges of running the ranch, and my observations here for the past thirty days traveling over the State have convinced me that that statement was not very much exaggerated.

There is no reason why cattle men should not make dividends on investments while breeding up the quality of their herds, for this is a great cattle country.

I am very much surprised to find that sheep are not more generally handled on the ranges with the cattle. The absence of coyotes make sheep raising particularly attractive, and they will not injure the cattle pasturage if properly proportioned. There ought to be several hundred thousand sheep on the Kissimmee River Valley ranges. We handle large numbers of sheep and cattle together, although our ranges are not nearly so good as those in Florida.

In conclusion, I will state that I think Florida offers the best field for live stock production along improved lines of any State in America. That is, cattle can be raised here cheaper and with less uncertainty than any place I know.

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A GLANCE BACKWARD AND FORWARD.

*Annual Address before the Florida State Live Stock Association, January 8, 1918,
by Dr. W. F. Blackman, President of the Association.*

Never before have we met in circumstances so extraordinary and under the stress of thoughts and emotions so many, so various, so conflicting and perplexing as today. Our minds are engrossed and appalled by the world catastrophe into which we have been plunged. Since our last meeting, life for every man and woman of us has been changed in all its major aspects and fallen into disorder. All the peaceful routine of our thoughts and habits has been upset. Our sons and neighbors are on their way to the hideous and heroic and bloody work abroad to which they have been summoned. * * *

But disquieting as are the times, the business of the stock raiser in America, and particularly in Florida, was never on so sound a basis as today, never so full of promise. The exhaustion of domestic animals throughout Europe and the increasing shortage in our own country are creating a demand which will insure for many years to come a profitable market for all the beef, pork, mutton and dairy products which we can supply.

Definitely, I think it can be said that there can be no danger of overproduction in these lines for a long time to come. And for this industry, which we may perhaps properly call the most ancient, fundamental, necessary, stable, wholesome, honorable and delightful of all the occupations in which men are engaged, Florida has advantages of soil, climate, rainfall and location greater, on the whole, than those enjoyed by any other state of the American union. This is being recognized in increasing measure, far and wide. The eyes of discerning and experienced men are being turned this way as never before. Inquiries by mail and visits of exploration from the North, the West and the Southwest have never before been so numerous as during the year which we are reviewing, and our own people are awakening to the opportunities which lie all about them, unused and inviting.

There are vast areas of cheap and hitherto waste lands in every part of the State, lying open the year round to the genial and fructifying rays of a semi-tropical and sub-tropical sun, which need only the expenditure upon them of money and labor to fit them for the support of herds and flocks greater than any other region can maintain. We have every reason, as we face the new year, to take courage and to gird ourselves for the task of turning into reality these gracious possibilities which nature has spread about us with a lavish hand.

The past year has been signalized by one great achievement, carrying two others in its train. The great achievement to which I refer, the greatest by all odds ever accomplished in this State, is the creation by the Legislature of a State Live Stock Sanitary Board and the appropriation of public monies for the carrying on of its work; and the two consequent achievements are the beginning of definite, determined, statewide, co-operative and adequately supported efforts to eradicate the pestilent cattle tick from all our borders and to control hog cholera. * * *

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And I venture now to say—and I say it with pardonable pride and great pleasure—that no state in the Union has a more carefully considered, better balanced and guarded, and more rigid and effective law, covering the matter of live stock sanitation, than has Florida. Perhaps a detail here and there needs to be amended and strengthened, but, on the whole, the measure was a good one and is working well. * * *

I may add, finally, that the State Live Stock Sanitary Board, in the two great undertakings to which, for the present and the immediate future, it will, of necessity, chiefly devote its energies, the eradication of the cattle tick and the control of hog cholera, we are leaning heavily on two co-operative agencies. The first of these is the Federal Government, through its Bureau of Animal

Industry, and the States Relations Service.

In Dr. E. M. Nighbert, inspector in charge of the work of tick eradication; Dr. A. H. Logan, inspector in charge for hog cholera control; Dean P. H. Rolfs of the University, director of the Experiment Station, in charge of the work in Florida of the States Relations Service, and the numerous assistants placed by the Federal Government, under the direction of these three gentlemen, we have a large body of capable, trained and energetic experts, whose co-operation with our Board is of inestimable value to the State, and whose maintenance costs us nothing.

The members of the State Live Stock Sanitary Board serve without remuneration, so that we have in Florida approximately thirty men who are engaged in promoting the work of live stock sanitation without expense to the taxpayers of the State. It is fitting, I think, that this Association should be reminded of this very great and very costly, but nevertheless wholly gratuitous, service which is being rendered to the interests which we represent. * * *

So much for the past year; now for a glance forward.

What I have just been saying indicates clearly the special work to which we ought, in my judgment, to devote ourselves in the immediate future—I mean the complete and final eradication of the tick in every county in Florida and the largest possible measure of control of hog cholera. If we see clearly, we see that these tasks are preliminary to all others. * * *

Fortunately the tick is a very weak and vulnerable enemy, though so mischievous. Put all the cattle of Florida through the dipping vat once a fortnight for five or six months, and there would be no more ticks left in this State than there are snakes in Ireland. Let us consecrate ourselves here in this meeting to the doing of this thing, and doing it *soon*.

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Hog cholera is not so simple and manageable an affair. In the micro-organism which causes this disease, we face an enemy far subtler, more cunning, more elusive, more persistent and more swiftly fatal than is the tick. It escapes observation by the most powerful microscope; it laughs at quarantine lines; it flows in the stream; it lurks in the pool; it rides upon the foot of beast and bird, the shoe of man, the wagon's wheel; it soars aloft on the buzzard's wing; you can not catch and dip it.

I earnestly advise the formation of local live stock associations throughout the State, at least one in each county affiliated with the State Association, and having special committees on Tick Eradication and Hog Cholera Control, composed of the ablest, the most energetic and the most influential men in the various communities. Let these associations hold meetings at regular intervals for the free exchange of views and experiences; let expert and interesting speakers from abroad bring to these meetings fresh information and impetus; let there be added such social and entertaining features as may be available—music, barbecues, moving pictures, boat excursions, what-not—to attract the multitude, relieve the monotony of farm life, and increase neighborliness and good community feeling. Let the co-operation of the banks of the region be secured, for the generous financing of pig clubs and corn clubs. * * *

There is one other matter of prime importance to which I invite your attention. If the live stock industry of Florida is to be put on the most stable basis and developed with reasonable rapidity, immense sums of money will be required. Fences must be built; drainage canals and ditches must be dug; improved and more nourishing grasses must be introduced over vast areas; other great areas must be planted with forage crops; silos must be built; plows, harrows and other expensive implements must be purchased; horses, mules and tractors, herdsmen, farmers and laborers must be secured and put to work in great numbers; a multitude of pure-bred bulls and cows, boars and sows, rams and ewes, stallions, jacks and mares must be imported for the improvement of our native stock.

Where are the necessary funds coming from for the financing of those enterprises? Perhaps the large ranch owners can take care of themselves, but what our State needs above all things else is thrifty farmers by the thousand, now on the ground or drawn from other states by our surpassing advantages of soil and climate; where shall these secure the funds necessary for the development of their more modest holdings?

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Florida is a relatively new and scantily populated State; there are here no great reserves of cash and securities, accumulated and bequeathed by generations of toiling and thrifty ancestors, as in some parts of the country. Many of the banks are doing their best to care for our live stock interests, but the ability of our local banks—and I speak now as a banker—is strictly limited in this direction.

What we need in Florida, in my judgment, as the very next step to be taken, is one or more strong cattle loan companies, such as flourish in the West, whose sole business it will be to provide the funds necessary for the developments which I have mentioned, so far as cattle are concerned. This is a matter which will occupy us during one entire session of this meeting, and I need not, therefore, deal with it further now, except to say that the present time seems especially propitious for the securing of such funds as we need for this business.

Men are asking how they may make safe investment of their savings in these troubled times; the future of the railways, now under Government control, is uncertain; industrial enterprises have been largely thrown into abnormal condition by the war; stocks, bonds and other similar securities have in them today a considerable speculative element which gives pause to conservative investors. But amid all this flux and uncertainty, here lies the land, as from of old,

unchanging, peaceful, fruitful, a mother's full breast, and upon the land feed and grow, enriching and renewing it forever even as they feed upon it, the friendly animals, whose flesh and milk support our life from the cradle to the grave.

There is nothing speculative here, and I am confident that investors, perplexed now by the unheard of aspect of the world's affairs, will be disposed to put their funds more and more into the soil and its products, if they are shown the way; and the cattle-loan company, organized and administered by experienced and careful men, can show them the way and lead them safely in it.

And now, gentlemen, we will proceed to the program our Executive Committee has provided. I hope that our meeting together, the messages which will be brought us from abroad, and the various discussions in which we ourselves shall engage, will serve to hearten us for our work and help us to feel, amid the toil and perplexities of our daily task, that in providing a more copious supply of food for the world, in causing two blades of grass to grow where one grew before, and in transforming these blades of grass by the mysterious and wonderful processes of nature into the thoughts and loves of men and women, the orator's speech, the poet's song, the statesman's wisdom, the soldier's fierce energy, the mother's brooding care, and the babe's new life, we are doing our part to support and render more rich and worthy this wondrous human drama and are partners with God in the work of his earthly kingdom.

FLORIDA SUITED TO EXTENSIVE CATTLE RAISING.

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Texas Ranchmen Declare Conditions Ideal for Cattle, Sheep and Goats.

The impression made upon a prominent Texas ranch owner who recently visited the great cattle ranges of Florida was that Nature has been too good to the cattle industry in this State to encourage improvement in the crude methods of breeding and handling stock which have been in vogue for years, for the cattle owners have made money without trying.

Among those who spent a week during the latter part of August inspecting range conditions were M. Sansom of Fort Worth, president of the Cassidy-Southwestern Commission Co., director of the Federal Reserve Bank and owner of large cattle ranch interests. * * *

Mr. Sansom expressed his impression of Florida's opportunity for raising cattle in these words:

"The only trouble you have in Florida, Nature has been too good to you. If it had done half as much for Texas the Government officials would not now be worrying about the future meat supply for the United States and our Allies. I have seen Texas when the cattle were no better than the grade I have seen on this trip. We started twenty-five years ago to improve our herds and stayed with it, until today we furnish some of the best breeding and feeding cattle for the Northern States.

"Florida now has very great advantage over pioneer Texas, as you can get some of our good breeding stock and make rapid progress breeding up your herds. The Osceola Cattle Co., in Osceola County, has started along right lines, and the manager gave me some figures on calf production which show that his herd are producing a larger percentage of calves than we get in Texas.

"But your luxuriant range grasses and abundance of stock water are almost unbelievable. Your range will carry from three to ten times as many cattle per section as the Texas land in a normal year. And when I say normal year I want you to remember that sometimes the rain clouds forget all about Texas for months at a time, and then our ranges suffer from drought, as large sections of them are doing at this time.

"You have a sheep country as good as exists, and a goat country better than any other. It is too bad that you do not raise more sheep on your ranges, for they do not hurt the cattle pastures, eating only the tender blades down under the more mature grass. We run thousands of sheep on our cattle ranges in Texas. The goats will be a distinct benefit to the Florida ranges, as they do not eat much grass when they can get underbrush, briars and weeds. By having those cleaned out of the pastures the grass will have a better chance to grow.

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"I am informed that Florida does not have to combat coyotes, which are our worst sheep enemies, so you really have no serious losses to anticipate on your sheep investments. And yet there are very few sheep on the ranges we have visited. It is to be hoped that your cattlemen will use more sheep on the ranges.

"The range country should become the calf incubator for the Southeastern States, the offspring being sold at weaning time or as yearlings. That will give your ranges a larger carrying capacity for breeding stock and let the grain-producing sections do the finishing."—*From the Manufacturers' Record, Sept. 13, 1917.*

CATTLE RAISING IN FLORIDA.

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By A. C. Williams.

Wasn't it Saul who went out in search of asses and found a kingdom? You men who are familiar with the Bible can answer that. But I can testify that I, while not in search of asses, duplicated Saul's experience during the past month, when, in company with M. Sansom, W. N. Waddell, Caesar Kleberg and Tom T. East of Texas, Dr. L. J. Allen of Oklahoma, Geo. M. Rommel of Washington, P. L. Sutherland, C. L. Gaines and J. G. Boyd of Florida, I had the pleasure of a thousand-mile trip through the central part of the State of Florida.

Nature has been very kind to Florida, providing delightful climate, fertile lands and adequate rainfall for farming purposes; broad prairies, carpeted with succulent grasses and watered by running streams for live stock raising; timber galore for sawmills, and countless beauty spots beckoning to tourists. But the citizens of that State have been slow to take advantage of their opportunities. Agriculture in many sections has been a neglected art. Practically all of the foodstuffs, including grain, meat, butter and eggs, have been produced outside the State. Colonization companies have devoted their energies to boosting orange orchards and truck gardens (the "poker game of agriculture"), and little organized effort has been made to attract farmers and stockmen of tireless energy—the backbone of any community.

Among the neglected industries, none stand out more conspicuously than stock raising. The native cattle, inbred, stunted specimens of doubtful origin, have been turned loose on the free, open range to rustle for themselves, and little effort has been made in most sections toward breed improvement. Due to the mild climate, good range, adequate water supply and absence of screw worms, coyotes and other pests, they have survived. And with open range and no expense they have been very profitable. In our entire trip we saw only two or three flocks of sheep and goats. They were of better quality than I had expected—fairly good for mutton, but light on wool.

A new era is dawning for the cattle business of Florida. The war has forced a reduction in the exports of turpentine and rosin, and the large land owners are turning their attention to improved stock raising. A packing house has been erected at Jacksonville. Systematic tick eradication is being carried on. Large tracts of land have been fenced and stocked. Hundreds of well-bred Texas cows and registered Hereford, Angus, Shorthorn and Brahma bulls are being purchased, and the work of breed improvement is growing in popularity.

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Good feed and forage crops can be grown in most sections, and with this new movement for improved live stock will come deeper interest in agriculture. The chief forage crops now produced in that State are corn, velvet beans, Japanese cane, sorghum, cow peas and beggar-weed. The first three perhaps take the lead. The corn and velvet beans are planted together, in rows from four to six feet apart. The beans grow very rank, producing an abundance of good hay, and beans which are high in feeding value. The beans may be left on the vines for pasturage, or gathered and ground into bean meal, which is excellent for cattle feeding. Japanese cane resembles our Texas ribbon cane. It makes good silage, keeps well and is highly relished by cattle. The Florida beggar-weed grows as a volunteer in old fields of a light sandy soil. If cut at the right time it makes good hay, and, while it is rather bulky for silage alone, it is said to add greatly to the fattening value of silage. Corn and cow peas need no introduction to our readers.

The most common grasses are several varieties of paspalum or carpet grass, switch grass, wire grass, little blue maiden cane and Bermuda. Crab and Natal grass are volunteers which follow crops on sandy soils. Both Guinea and Para grasses thrive in South Florida, where less liable to injury by frost. Fort Thompson grass, which resembles giant Bermuda, with larger joint, stem and leaf, is a native of Florida, which will some day be recognized as one of their very best pasture grasses.

With their open range and native cattle—a poorer grade than our old-time longhorn—the cattle business of Florida today may be compared to that of Texas twenty years ago. What they need is more bulls and experienced cattlemen who will apply the intelligence, energy and persistence that know not failure.

Leaving Kenansville at 8:15, we were soon out on the Kissimmee prairie of thousands and thousands of acres of open range. Here, where the grass was very luxuriant, resembling a hay meadow, we saw several hundred more of the small native cattle, followed by the common scrubby bulls. The fat four-year-old steers weighed around 550 pounds, and are valued at \$30 per head. The cows weighed around 500 pounds. The range herds of mixed ages and classes are valued at \$20 per head. We soon left the public highway, circling marshes and dodging palmettos. Our next stop was on Gum Slough Ranch, where we were told that on a pasture of 10,000 acres there were 6,000 cattle. The ground was well covered with carpet and a variety of other grasses, and did not show the effects of close grazing. The cattle were in good condition and of better quality than most of the others which we had inspected.—*From The Cattleman, September, 1917.*

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