

PROGRESSIVE FARMER

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

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Agriculture

HOW MUCH SEED WHEAT TO THE ACRE?

Correspondence of The Progressive Farmer.

In the fall of 1877 an experiment was begun on the farm of the Ohio State University in seeding wheat at different rates per acre. The experiment was made on rich bottom land, and although a yield of 34 bushels of wheat was harvested from five pecks of seed, the yield for seven pecks was 37 bushels. The next year the experiment was repeated with great care, five duplicate plots of one-sixth acre each being sown with each quantity of seed, with the result again that the seven-peck rate of seeding gave enough more wheat than any smaller quantity to abundantly compensate the extra cost of seed.

In 1882 this question was taken up by the Ohio Experiment Station, then located on the same farm, and was repeated nearly every year until the Station was removed to its present location. The final summing up of these experiments, made in 1891, included a maximum average yield on that soil for quantities of seed ranging from five to seven pecks.

In 1892 the Station was removed to its present location, the soil of which is naturally far less productive than that upon which it was first located, and after a few years the investigation of this problem was again undertaken, with the result that the most profitable harvests have been reaped from eight pecks of seed and upward, the nine and ten peck rates having given the best returns in unfavorable seasons.

CHAS. E. THORNE, Director,
Ohio Experiment Station.

GOING INTO WINTER QUARTERS.

Correspondence of The Progressive Farmer.

The active well-to-do farmer going into winter quarters with the family stock of all kinds and the fowls and all of his machinery and smaller tools, gives the matter much thought. The health and comfort of the family is the greatest of all cares and sometimes it is the thing of little care until afflictions come. It is often the case when a farmer is through with his heavy work that he drops off the feed and strict attention of his horses. Really this is the time to rub and fatten the horse and let him come into the spring young and sprightly, with clean limbs and bright, well-kept hair.

Machinery should be well rubbed and oiled to prevent rust, and all repairs well adjusted so things will move off in spring with short notice. It is said that most people know better than they do; this may be a mistake. If a man thinks that he knows all about farming, it may be his greatest mistake, and so he ceases to learn. The man who really knows much about the details of profitable farming is a constant student. When a man knows a thing well it acts as a tonic to stimulate him to the proper action. A thorough knowledge is apt to wake a man to care and attention. When loss and gain is well up in the mind it surely acts as a spur to motion.

We are now passing the fourth grand division of the year, and as the thrifty farmer has gathered plentiful of the bountiful grasses, the next thing is to know how to bring out the best results—of fat and manure. Good stock is of great value on the farm. Poor stock, poor tools, poor lands, and a poor farmer are very much in line. Now for improvement. Decide by real calculation how much corn, wheat, oats, and the vegetable crop is wanted. Take your best corn land and half the number of acres that you usually tend and begin to prepare manure for the acreage. Arrange to plow your land well at least twice or three times before planting.

Do not take more than five pigs to make the thousand or fifteen hundred pounds of good pork begin with the pigs now for next pork season. So with your wheat land this season—five acres of land for one hundred bushels. After all that may be said, the man on the farm must be master of the situation. Our lands are so diversified that no rule will suit all places or lands.

R. R. MOORE,
Guilford Co., N. C.

MAMMOTH REAPERS FROM CALIFORNIA.

How Wheat is Harvested in the Land of Mammoth Things—One Machine Will Cut And Thrash Crop From 40 Acres in a Day.

California is noted as the State wherein large things prosper. California is represented at the Pan-American Exposition by counties; the counties are large and the exhibits are large and important. The State Legislature having failed in its opportunities to make an appropriation, the business men of certain sections of the State came into the breach with money and material sufficient to make an elaborate showing in agriculture—especially the horticultural end of it. In the Horticulture Building Los Angeles county is represented by a fine exhibit of fruits, nuts and other productions of the soil. Fresno county is equally well represented in the fruit line, while San Joaquin county shows some very elaborate agricultural machinery. The model of a harvester is here shown that has attracted perhaps more general interest than any other one machine at the Exposition. The model represents a machine that cuts a swath 40 feet in width and requires 38 horses to pull it. This machine will cut, thresh, clean, reclean and sack grain from 25 to 45 acres per day besides doing the work better, cleaner and with less waste than any method heretofore devised. Let the reader should think that this is a visionary scheme it is well to note the fact that this has become the method of harvesting on the Pacific Coast, and there are known to be more than 1,600 of these machines in use. It is a sight to be remembered to see one of these harvesters run by a platoon of horses or a traction engine, reaping the standing grain and leaving it cleaned, graded and sacked ready for market. Mr. Frank A. Guernsey, who represents San Joaquin county, is courteously showing this model to Exposition visitors, one of whom asked if it was a rug machine. The big 40 footer works well on level ground, but the hilly sections of the country are by no means neglected, as what is called a small machine is made for sidehill work. It is so built that the body of the machine hangs on self-adjusting chains which allows the wheels to adapt themselves to any angle while the body of the machine remains level. These machines will do excellent work where the slopes are so steep that following it in a wagon makes the experience very unpleasant. The sidehill machines cut a swath only 16 feet in width or about twice the width of our eastern harvesters, which illustrated the difference between Eastern and Western methods of securing a grain crop after it has been grown and properly ripened.

In the United States Government exhibit the history of harvesting may be followed through models that give a very interesting account of the efforts made by American inventors to facilitate this work on the farm. Improvements in this direction were probably never before so graphically illustrated, but in order to reach the climax of the story it is necessary to leave the government exhibit and pay a visit to San Joaquin county in the Horticulture Building, where this elaborate model explains the process of cutting, threshing, cleaning and sacking the wheat ready for market.

Why not? Our Western brethren have simply built a new edition of the reaper, marked the cutter bar "to be extended indefinitely" and hitched it to the side of a separator. Then they went to the barn and got the fanning mill and fastened it to the other side, and borrowed a pair of their neighbors' horses to draw the outfit across the field.

The first attempts at running this colossal aggregation of farm machinery by means of a traction engine resulted disastrously. Sparks from the smoke stack set fire to the standing grain and a harvester was not needed that year. Crude oil has, however, taken the place of coal for fuel and the underwriters are less superstitious. It is still noticeable, though, that conservative farmers prefer horsemen that don't use tobacco in any form.

HERBERT SHEARER.

A PECULIAR BUT POPULAR FRENCH PLOW.

Noticing in the Consular Reports a few weeks ago, the following report from the American Consul at Nantes, France, containing a brief description of the leading French plow and an illustration of the same, it occurred to us that these would be of interest to PROGRESSIVE FARMER readers. After some weeks' delay we have succeeded in securing a cut and print herewith Mr. Brittain's report in full with an exact reproduction of his picture of the plow. He says:

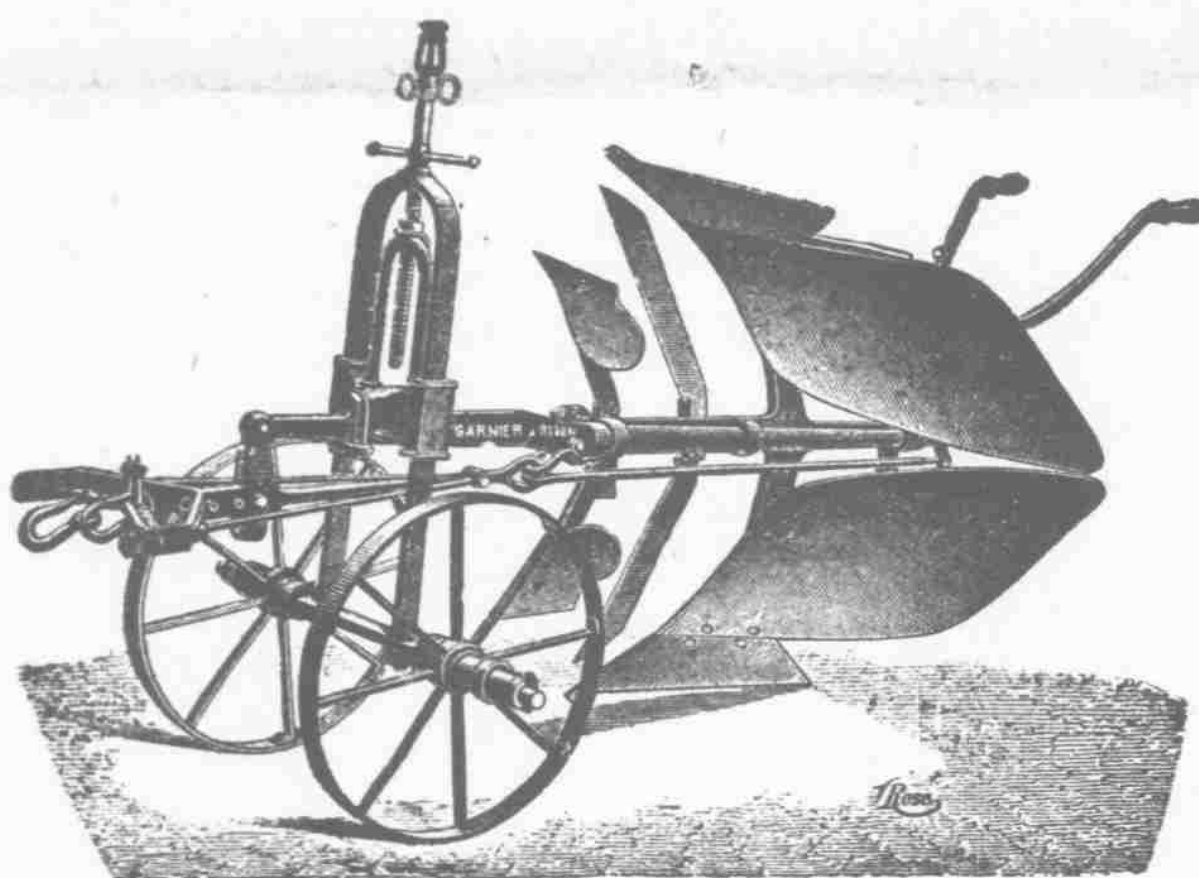
AGRICULTURAL EXPOSITION IN NANTES.
An interesting agricultural exposition was recently held in Nantes. From twenty to thirty departments assisted in making it a success. There were exhibits of machinery, wines, cattle, and swine, as well as horses. The following manufacturers of farm machinery in the United States were represented by good displays: John Harvester Company, D. M. Osborne & Co., McCormick & Co., the Plano Company, Wardner Bushnell & Co., Walter A. Wood & Co., Adriance Reaper and Binder Company, Deering Harvester Company, Bueher Gibbs Plow Works, and the Oliver Chilled Plow Works. There were also fine displays of agricultural machinery made by the Massey Harris Company and the Mann Harvesting Company, of Canada. There was an extensive display of steam threshers and separators, but with the exception of one or two English firms, exhibitors in this line were all French.

The ordinary French thresher does not do as complete work as the American machine, and requires more men to operate it.

The dairy machinery was from Switzerland and France, none being from the United States.

American mowers are coming into general use in this part of France. Between seven and eight hundred were received at Nantes within the past year, as well as a number of reapers and horse hay-rakes. Farmers combine and purchase reapers and binders, one machine doing the work on several small farms. American plows are but little used in this part of France, one reason being the disposition of our manufacturers to force the French farmer to use plows made according to patterns used in the United States, instead of ascertaining what models are desired here. The

LEADING FRENCH PLOW
exhibited was one with a double moldboard and share. While the farmer plows with one share, the other share and the moldboard rest directly above the ones in use; one being left and the other right handed. When the end of the furrow is reached, the farmer turns down the other share. This style of plow is very common, because of the fact that grain and vegetables are planted in ridges, instead of on a level surface. These ridges are from 18 to 20 inches in width and about 12 to 14 inches apart, with a rounded surface. The peasant women pass between the ridges of growing grain and pull out the weeds. The cut represents the style of plow to which I refer.



These agricultural exhibitions would be excellent places for the display of all sorts of American agricultural machinery and tools, as well as labor-saving inventions, such as meat cutters or grinders, feed mills, dairy machinery, washing machines, wringers, and kitchen novelties. Thirty-five thousand persons attended the exhibition on the last Sunday.
JOSEPH I. BRITTAI, Consul.

FALL PLOWING.

Correspondence of The Progressive Farmer.

The deeper we plow in the fall of the year, the better will the soil be for the crops of the following season. Shallow plowing has its advantages, and its place, but we need to get way down to the subsoil some time. Although most of the fertility and plant food stay near the surface, there is much good material that gradually sinks down below the soil that is usually turned over with the plow. We must get at this to obtain the best results. Soil and subsoil may be turned over, pulverized, and broken up. That is the object of plowing. It will save the roots of plants from using up their vitality and strength in pushing their way through the tough, inelastic soil.

Take some lands and examine the soil below the first few inches. It will be found so hard and compact that you cannot wonder that plants refuse to send their roots down through it. It is almost a physical impossibility. Consequently we have surface roots supporting the plants, and when drought comes they wither up and die. What we need are crops with their feet buried far down in the soil, so deep in fact that they will never suffer from the lack of moisture. This can be accomplished only by making the mechanical conditions of the soil congenial far below the surface. This is easy of accomplishment if one will plow thoroughly, plow deeply, plow until the

soil is thoroughly smashed up and broken to pieces, and plow when near fall and winter. Do not be afraid of subsoil plowing. It will do the best of lands good. It will tear up soil that has not been touched, it may be, for centuries. It will some times reveal unexpected storehouses of fertility.

Proper plowing is one of the marks of advanced agriculture. No people ever plowed their land better than Americans, largely because we have the best plows in the world. The ancients merely scratched the top of their land with wooden plows, and the Chinese and Russian farmers do the same to-day; but American deep subsoil plows cut far down into the soil, and turn and pulverize the earth so that its tilth is improved a hundred fold. We do not have to go over our land so many times, simply because we have better mechanical instruments to do the work for us the first time. Set the plow deep, and let it bring up the subsoil so it can be used for increasing the productivity of the crops. With good plowing we are prepared to raise better crops with less worry and labor during dry summers than if we neglect or slight this all important work.
J. C. BILLINGS.

The average amount of water contained in American butter has been calculated as about 12 per cent. The quantity of this constituent, however, is quite variable, depending upon a number of conditions.

Live Stock.

SHEEP IN THE SOUTH.

XX.

Southern Grasses Abundant for Pasture, Soiling, Silage or Hay—Bermuda Grows all the Time—Has Been Hated; it Spreads Itself—Its Tenacity, Virtues, Culture—Is Hard to Cure—Good for Silage—Renewed Pasture or Meadow Easy and Sure—Analysis of Bermuda Grass.

Correspondence of The Progressive Farmer.

It has been urged that the character of the grasses of the cotton States is such that they are not at all suitable for sheep. I must contradict such statements. If it were true that sheep could not live and thrive on other grass than June grass, blue grass, timothy, red clover, etc., or grass that form heavy turfs, then it might be true.

I have seen sheep fat and full on the wild, uncultivated pastures of the South, and on worn out land and pine lands where they had beard grass, Bermuda, Japan clover, crab, comb, muskit, awn, rice, bent, reed, these in varieties and others numbering over a hundred that I have seen.

Of the cultivated grasses they may get Bermuda, timothy, red top, fox tail, rye grass, orchard, blue, and June grass, clovers, oat, fescue and meadow grass, in varieties for pastures and peas, beans, millets, sorghums, rape and corns in great abundance for soiling feed or silage or fodder.

The summers are long and there is not one in which winter feed cannot be amply provided either in early, late or mid-summer, especially where silos are used.

The blue grass of Kentucky, Missouri, the Virginias, Tennessee, etc., is the "old reliable" for that region, but for the better cotton States South it will not do to rely on for sheep husbandry.

These States can rely upon growing either early or late every season by sowing and cultivating the last mentioned grasses and foddere abundantly, and for all winter feeding, and for summer feeding, too, when necessary.

Time and space will not permit that I write of alfalfa, rape, vetch, kaffir corn, soy bean and other improvements as sheep food. The wide awake husbandman will try to adopt such things as he shall find better than what I have written about. Besides this, I should in most part be writing about things of which I personally and practically know but little.

One thing I do know is that any or all of these that prove to be of high value in the North and West will surely find a congenial home of usefulness in extensive portions of the Southern States. I have aimed at showing that there is abundant foundation for sheep husbandry in the South without these; but with them the business is still greater.

However, there is one grass in the South I must write of specially. It is Bermuda (*Cynodon dactylon*). I have not had experience with it except temporarily, but have been greatly interested in observing it and on inquiries.

It seems to be native to the West Indies and I have thought that if the rich hills and mountains of Cuba had no other grass than Bermuda and had plenty of that, it would be the best pastoral section for sheep in either of the Americas. When it gets well set it never ceases to grow except in the northern part of the Gulf States, where freezing checks it and hard freezing kills it out.

I first noticed it in Mississippi in 1886, and to me it seemed more like miniature sugar cane because its appearance and habit of growth are rather similar and both evidently tropical. I saw a bunch of sheep eating it with seeming relish and was told they grew fat on it. From that time on I took notes of it and have seen it growing in Texas, Louisiana, Mississippi, Georgia, South and North Carolina, Eastern Virginia and Tennessee.

It has a smooth jointed stem, partly sheathed with leaf that is long in proportion to joints, but slim and pointed rather hairy or rough

on edges. The stems incline to grow out laterally or "run on ground," take root at each joint and again throw out laterals, most of which in turn will run out and root again until the ground is completely matted and the stems must shoot upward in a thick mass 8 to 18 inches high if conditions are favorable. One joint when set in favorably clear ground may in six weeks completely mat over a yard square quite thick enough for pasture or meadow. It is this habit of the grass that makes it so hated by the cotton hoer.

"Why it am was dan de crab grass, spreadin' itse'f out ebby whar." So it is, and I was thinking of the other side of it, that is, its uses, and if these industrious workers would, they could see that by chopping out the cotton and feeding the fertilizer to the Bermuda it would throw up at least six tons of green feed to the acre in a season, which when fed to good sheep would produce wool and mutton enough to buy two crops of cotton as now raised.

This tenacious spreading and growing habit under the hot sun, constitutes its first great virtue to the South and the intrinsic fat, meat and wool-producing elements of the grass form its second great virtue to Southern planters and farmers.

Horses, cattle, hogs and especially sheep seem to love it. Have seen them come off other parts of a field and graze on it and have been told they would grow very fat on it, and I know they would.

I have never seen an elementary analysis of it so as to compare with other grasses, nor have I had the opportunity to feed it with them extensively, nor have I seen reliable experiments so as to test its value thoroughly at any of the agricultural stations. Still I have tested and proved to my own satisfaction its great value. I know that it possesses the elements that will fatten sheep and keep them in as healthy condition as any other single grass will.

Since writing the foregoing, I have received the following analysis from Prof. B. W. Kilgore, State Chemist, Raleigh, N. C., viz.:

"The hay contains about 1 1/2 per cent. of nitrogen; an average feed stuff analysis of it would be as follows:

Water.....	14.30 per cent
Ash.....	8.49 "
Protein.....	9.16 "
Fiber.....	20.16 "
Nitrogen—free ext'ct.....	46.06 "
Fat.....	1.83 "
	100.00

I give here another analysis sent to me, the author of which I cannot quite make out, but believe it is Collier, viz.:

Phosphoric acid.....	.45 per cent.
Nitrogen.....	1.7 "
Potash—pure.....	3.1 "

The same authority gives a money valuation of different grasses per ton, dry, viz. "Bermuda grass \$8 70, blue grass \$6 75, timothy \$5, clover \$8 50, pea vines \$11, soja bean, \$9.34."

It should be understood that hay cut at different degrees of ripeness and of success in curing will also differ in analysis and the same kind of grass grown on different soils will also differ in analysis; so that after all the value of grass or hay depends very much upon how the soil is fertilized. The above shows that Bermuda rates in value up among the best.

The great question with me has been, to what extent can it be grown and improved? I answer myself: To almost any reasonable extent. In this country it has by no means reached the highest plane of improvement which it is capable of attaining and maintaining. It can be improved both on leaf and stem, and I believe made to ripen its seed perfectly in the Southern States.

I have seen it growing luxuriantly on the sand bars of rivers and along the beach at the ocean side; upon the highest and driest sand banks and sandy ridges; on the stiff as well as sandy soils of the cotton regions

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