

Farmers' Co-operative Demonstration Work and Its Results

AN ADDRESS

*at the Ninth Conference for Education in the South,
at Lexington, Ky., May 4, 1906*

By SEAMAN A. KNAPP

Director of the Bureau of Plant Industry, of the
United States Department of Agriculture,
at Lake Charles, Louisiana

Farmers' Co-operative Demonstration Work and Its Results.

By Dr. SEAMAN A. KNAPP.

As I have listened to the able addresses of this body of educators two points have been impressed upon me: First, the importance of a thorough and broad education for the youth of the land; second, the necessity of increased taxation for more liberal equipment and for salaries to instructors that approximate compensation. Let us broaden the inquiry. Why not extend the domain of education to the toiling masses who pay the taxes and thus improve human society, turn the forces of environment to the betterment of the race and everywhere apply forces for the uplifting of mankind?

The topic assigned me is Agricultural Education. I will limit my remarks to one line—education necessary for the toilers upon American farms. As we look at the United States from one view-point we are amazed at its marvelous growth, the wonderful additions to its wealth and power, the rapid increase of its cities, its manufactures, its commerce, and the phenomenal development of all its resources, until we are ready to cry wonderful! wonderful! wonderful! Let us change our view-point and we note that some of its prosperity is more seeming than real; that our harvests have been made at the expense of the wealth of the soil; that our lands are becoming impoverished; that there has been a general lowering of the civilization of the country by the removal of the most intelligent and progressive classes to the city, and especially of the more ambitious young men, and their places filled by foreign-born people from the south of Europe.

Thinking people note with alarm the rapid growth of cities, as compared with the country; the concentration of wealth in the cities, and the gradual transfer of political influence from the country to the city.

From 1890 till 1900 the total gain in population in the United States was 13,110,872, of which the cities made 7,643,817, or 58.3

per cent., and the country gained 5,467,055 or 41.7 per cent. Farms, including improvements and stock, now furnish only one-fifth of the total value of the property of the United States.

While rural conditions are actually no worse than they were thirty years ago, relatively they are worse. The cities of the United States have moved forward by leaps and bounds. They have the most improved public buildings and residences, excellent libraries, schools and churches, paved highways, rapid transit, telephones, telegraph and the news of the world left every morning at the door. The toiler in the city receives wages to correspond to his luxurious environment. I use the word toiler in the broad sense, including all laborers.

Rural conditions in many of the States, and especially in the Southern States, have changed but little in thirty years. The houses are a little more dilapidated; the fences give evidence of more decay; the highways carry more water in the wet season, and are somewhat less easily traveled in the dry; but the environments are about the same; no paint, and slight evidence of thrift. The same old mule stands at the door with his rope line on the ground, hitched to a plow that Adam rejected as not up-to-date; the same old bushes are in the fields, and the same old weeds in the fence corners; no strange sights disturb the serenity of Rip Van Winkle; wages are about the same, and the conditions of farm life are almost exactly as they were thirty years ago.

The Southern States are not the only sufferers from this failure of the agricultural forces to keep step with the progress of the world.

From 1890 to 1900 there was a marked decline in the value of farm property in New York, Pennsylvania, New Jersey, Delaware, and all the New England States, except Massachusetts. It was \$2,000,000 in Delaware and \$168,000,000 in New York.

This is attributable solely to a relative decline in productive capacity of the rural portions of these States, and to the strong competition of the manufacturing interests. The manufacturers of the United States, with \$10,000,000,000 of invested capital, as against \$20,000,000,000 in agriculture; with 5,250,000 laborers, as against 10,500,000 in agriculture; with 11,000,000 horse power, as against 18,000,000 in agriculture, produce \$5,750,000,000 net of manufactures, while the net income of all the farms of the United States, including live stock, is only \$4,250,000,000. In manufactures one-half the workers, with one-half the capital invested and two-thirds the horse power, produce 35 per cent. more annually than the total products of the farms.

If the value of the products of the manufactures of the United States, less the amounts paid for raw material, be divided by the total number of wage earners, it gives a productive power of \$1,078.11 for each laborer employed.

The productive power of farm workers differs widely in different States. For the sake of comparison, we will take Vermont, Iowa, North Carolina, South Carolina and Alabama. Each farm laborer in Vermont produces an average of \$327.37 annually in farm crops; adding \$90.00, the average income from stock per laborer, and we have a total earning power of \$417.37 for each person employed upon the farms of that state. Each farm worker in Iowa produces \$611.11 annually in farm crops; adding the income from stock, \$477.00, and each working person shows productive power of \$1,088.11 annually.

Estimated in the same way, the total annual productive power of each worker on the farms of South Carolina is \$147.46; in North Carolina, \$149.75; in Alabama, \$150.98.

Of the States mentioned, Iowa alone shows a productive power of the farmer equal to that of the mechanic.

The young man meets this problem: Shall he stay on the farm, accept the wages offered, and live the comfortless life such wages can provide, or shall he go to the city, where he can earn three to five times as much and have what his ambition aspires to? If that is the whole of the proposition, and he is a man of judgment and energy, he will go to the city. The number that make this choice will increase in geometrical ratio as long as rural conditions remain as they are.

Who takes the place of these thrifty young Americans who abandon the farms? In the main, the foreigner; and as long as the foreigner came from the north of Europe that exchange was not especially detrimental; for the thrifty German and Scandinavian soon became excellent Americans.

Later their places have been taken by thousands from the south of Europe, to the end that rural conditions are worse in many districts than formerly.

It is simply an industrial invasion of the Goths and Vandals, and, unless arrested, we shall awaken one day to the fact that the rural districts of this great commonwealth are foreign and only semi-civilized.

Good men have seen for many years what must be the ultimate effect of this lowering of country life and in their various ways have tried to hold the best country element to the farm. Some have

attempted to stay the hosts of highbred youth seeking the city by the cry of patriotism. The average American boy thinks he can be more patriotic and aid his country more on an income of one thousand per year than on two hundred.

Another plan is to give better educational facilities to the country. Education is a great source of power and can not be prized too highly. Instead, however, of its being a remedy for desertion of the country, it promotes it and always will, so long as the earning capacity in the country is so much lower than that of the city. The only way the young farmer under present conditions can be held in the country is to keep him ignorant.

Another class of patriotic men think the remedy lies in teaching agriculture in the rural schools. Low earning capacity in the country is a matter of practice and not of theory, and can never be corrected by books.

Others advocate an improvement of rural conditions, better highways, better schools, free rural delivery, country telephones, more newspapers; all very good and worthy of commendation. Still others call for more Farmers' Institutes and additional agricultural colleges. Excellent suggestions; but every highway may be as good as a Roman road, with a free rural delivery mail box and a telephone at every crossing, and the box stuffed with newspapers; you may hold a Farmers' Institute at every third house and establish an agricultural college on every section of land in the United States, and the flow of young men from the country to the city will not be arrested in the least, so long as the earning capacity of the average city laborer, or clerk, or professional man, is at least fivefold of what the same talent can command in the country.

These are not new suggestions. Most of them have been in operation forty years or more, with what result? Upon the whole, rural conditions are just as unfavorable today as ever. There is only one effective remedy: Increase the earning capacity of country toilers.

The question arises, can it be done, or must the conditions continue till the final overthrow of free institutions? How can we increase the earnings of the farm toiler? Principally in seven ways:

- 1st. By a more thorough tillage of the soil. In the South by deeper and more frequent plowing; by rotation of crops and the filling of the soil with humus, by the planting of legumes and turning under the green crop. This course will easily double the average

yield of cotton, corn, oats and wheat, overcome excessive drought, or moisture, and insure the harvest in adverse seasons.

2d. Better farm drainage. Drainage will remedy the excess of moisture in wet weather and the lack of moisture in dry weather, both so deleterious to the growing vegetation. It renders possible soil cultivation at all times and prevents the accumulation of hydrostatic water to the injury of the crops. It increases and deepens the effect of the forces that make plant food in the soil and gives a vitality and power to the soil action scarcely possible without it.

3d. The selection and planting of better seed is one of the grand teachings of progressive agriculture. Wonderful possibilities are folded within the covering of a seed. It transmits to the future plant the likeness, the vital forces, the natural and the acquired habits of its immediate parent, and a long line of ancestors.

The future plant may be modified and improved by intensive cultivation, but no nursing can entirely overcome the inherent vitality or weakness which it may have inherited. The value of good seed can scarcely be estimated.

4th. The use of economic plants, better suited to our particular soil than those we are at present cultivating, can be made a great aid. For example: Our people persistently plant corn and oats for their work stock, when a ration of cowpeas and sorghum, equally nutritious, could be produced at less than half the expense. We feed our stock as we provide food for our families, without regard to nutritive value or cost of production. One of the large planters of Louisiana saved \$31,000.00 in one year by substituting leguminous crops, with other cheap foods, for corn and oats, and the animals were equally well nourished.

5th. In the reform movement commercial fertilizers, judiciously used, have an important part. Almost as much damage, however, is done by their indiscriminate use as by their entire neglect. Properly used, they are a great aid to production.

6th. The sixth item of reform, and the one from which the greatest net gain will be realized, at the least cost, is the use of more power and improved machinery upon the farm. A careful inquiry into the causes for the farm workers in different states varying so widely in the values produced will demonstrate that it was mainly due to the ratio of horses or mules employed to the number of workers upon the farms. In Iowa, where each farm worker produces \$611.11 annually, exclusive of stock, nearly four horses per worker were used. In Vermont, with an earning capacity of \$327.37, two horses per worker were used, and in South Carolina,

where each farm worker produced \$144.46, one mule for two laborers was the average farm power. An analysis of the Southern States shows a much smaller use of power on the farm, and, consequently, less use of good machinery than in the Northern States, and a correspondingly lower earning capacity. Where the South Carolina farmer uses one mule, weighing 800 to 900 pounds, and one man to plow, accomplishing less than an acre per day from 3 to 4 inches deep, the Iowa farmer uses at least three horses, weighing from 1,400 to 1,500 pounds each, and plows four acres per day, 6 to 8 inches deep. He uses five and one-half times the power and accomplishes about eight times the work in a day, if depth of plowing be considered. What is true of plowing is equally true of other lines of farm work. There has been considerable instruction along the line of how to produce larger crops per acre, but they have not taught the importance of working more acres in a day.

This is the key to agricultural reform: More power and better machinery on the farm, and more accomplished in a day, heavier mules and more of them. Away with the half-a-mule farmer and convert the one-mule farmer into a four-mule farmer. What revolutionized manufacturing in the United States and made us the first of productive nations? More power and less hand work. What will hold the boys on the farm and multiply the wealth of our farmers? More power and less hand work.

The next important item in this agricultural uplifting is the raising of more farm stock. It is noted that in Iowa the value of farm stock annually marketed is \$477.00 for each worker, while in South Carolina the value is \$4.00. The value of stock of all kinds per farm in Iowa is \$1,214. In South Carolina \$134.00; Alabama, \$162.00; Vermont, \$742.69. These amounts represent the total live stock, and include teams, cows, swine, etc.

Comparing South Carolina and Alabama farms with those of Vermont and Iowa:

Resident owners, per cent	33.7	38.3	68.5	60.5
Per cent not owned by residents ...	66.3	63.7	21.5	49.5
Per cent improved	41.3	41.8	45.0	86.5
Value of buildings	\$174.00	\$154.00	\$1,125.00	\$1,053.00
Value of implem'ts and machinery	43.00	39.00	228.00	253.00
Fertilizers per farm	29.00	15.50	13.50	.00
Yield per acre	4.47	3.93	8.16	7.62
Sales of live stock, 1899, per farm.	5.73	8.79	48.67	503.25
Number of milch cows per farm ...	$4\frac{1}{2}$	$1\frac{1}{2}$	8.6	$6\frac{1}{2}$
Swine	$4\frac{1}{2}$	$6\frac{1}{2}$	3	$43\frac{1}{2}$
Horses and mules	$1\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$5\frac{1}{2}$
Hens, including Guinea	12	21	$22\frac{1}{2}$	$84\frac{1}{2}$
Value of poultry produced	10.72	10.14	21.90	42.20
Number of eggs, dozen	63	$84\frac{1}{2}$	200	443

This array of figures tells a sad story of small earnings, poor environment, scant living, and general poverty. Where the value of the buildings on the farms in a State averages only \$154.00 a large per cent. of them must be below this amount. They have neither cows, pigs nor sheep. They toil with a horse or mule for two or three laborers, with a total annual productive capacity of \$148.00 gross earnings for each toiler. Where a large per cent. of the farms are worked upon the shares, and one-half goes to the proprietor, it leaves about \$74.00 to each toiler for a year's work.

It is with intense pain and regret that I call attention to the impoverished condition of the average farmer in at least seven of the Southern States, a condition entirely unnecessary and easily remedied. I have outlined the methods by which this can be done, and I estimate that there is a possible 800 per cent. increase in the productive power of the farm laborers of the average Southern States, and I distribute the gain as follows: 100 per cent. to a rotation of crops and better tillage; 50 per cent. to better drainage; 50 per cent. to seed of higher vitality, thorough bred and carefully selected; 50 per cent. to the use of more economic plans for feeding stock, and the abundant use of legumes; 200 per cent. to the use of more and better mules and farm machinery, and 200 per cent. to the production of more and better stock.

This would require that the idle lands be used for stock, and the value of grasses and legumes be understood; that the soil be deepened, strengthened and made more active by deep plowing, intensive cultivation and the turning under of green crops. In a word, it can be accomplished by the universal practice of good farming. But allowing for shortage and failures, my estimate is a gain of 500 per cent. in ten years, if the proper methods be used for working out the reforms. How can it be wrought out? In the same way that the revolution in our mechanical industries was accomplished. Fifty years since the mechanical industries were hand crafts, slow, cumbersome, non-remunerative. The transformation was not made by placing books on the value of steam and electricity in the common schools, but by building factories all over the country and absorbing the business. The machine harnessed to power showed that it could do better and cheaper work than done by hand methods. Old methods were swept away, and lo! we are leading the world in mechanism. The sewing machine, the mower and the reaper have come into general use, not by writing books about them, but by placing them in the hands of the people for trial.

There is only one effective way to reach and influence the farm-

ing classes, and that is by object lessons. The following is an outline of a successful plan of influencing Southern farmers by object lessons:

1st. The demonstration must be limited at first to two or three standard crops, and must include the principal cash crop, a general food crop and a well known renovating crop. In the South, cotton, corn and cowpeas meet these requirements. Any attempt to introduce new crops or to try a great variety is wasted energy. The farmers know cotton, corn and cowpeas. Now if it can be shown that a change of methods or a change of seed will greatly increase the crop, the first important step has been taken. They are then ready to believe in more; but a failure here is fatal. Even in dealing with these plants the instructions must be simple and appeal to the farmer's judgment. Advice should be given along thoroughly tested lines, inclining always to the safe side.

2d. The demonstration must be simple, and, at first, confined to a small area. Two or three acres will give just as good a test as a larger tract, and at the commencement the farmer is more likely to successfully carry out a demonstration on a few acres than on his entire farm. When he sees the advantage of the better methods he will increase the area as rapidly as possible. Generally the farmer has neither machinery nor teams to inaugurate the plan on a large scale at first.

3d. The question of successfully interesting the farmers is a personal equation. First, they must have some knowledge of the men who are managing the movement and make out the instructions. Second, the men who act as field agents must be practical farmers; no use in sending a carpenter to tell a tailor how to make a coat, even if he is pretty well read up on coats. The tailor won't follow. The farmer must be a recognized leader, progressive, influential and able to carry public opinion with him. Public opinion is brought into harmony and made forceful by the support of the press and the co-operation of the best farmers and the leading merchants and bankers. Generally a committee is organized of three of the best progressive farmers and three merchants and bankers of standing, who hold monthly meetings at the call of the traveling agent, and greatly assist in carrying out the reforms. It is a good policy to insist that a small demonstration be taken by the most noted dry goods box whittler in the village, if he does any farming; and, if he has a garden, induce him to make a test on a few feet or rods square; if he succeeds, he is one of the best advertising mediums known, and will take more pains to show his success than ten

business men. About the poorest co-operator for our purpose is the stock man with a very large farm. He has too much to do and does not generally give the demonstration personal attention. The intelligent small farmer is the best co-operator.

Instructions to agents. Sometimes farmers have peculiar views about agriculture. They farm by the moon. Never try to disillusion them. Let them believe in farming by the moon or the stars, if they will faithfully try our methods. It does not pay to waste good breath on such matters. Avoid discussing politics or churches. Never put on airs. Be a plain man, with an abundance of good practical sense. Put your arguments in a sensible, practical way. Secure the country village influence and induce the citizens to give active aid. When the tide of local opinion has set in favor of better methods of farming it will be found easy to maintain interest. In the monthly rounds of inspecting farms, never fail to notify eight or ten of the prominent men in advance and have as large a company as possible visit the demonstration farm with you.

This attempt to reconstruct farm methods is not such a single-handed contest as might be supposed. There are many aids.

The State Experiment Stations have done a vast amount of valuable and practical work, and they have issued bulletins fully setting forth what they have done. They are great helps.

There are many farmers who are well informed on agricultural subjects; they have been well educated; they are intelligent, progressive and thrifty; but they are widely scattered and not sufficiently aggressive for the public good. They must be sought out, organized, and their influence used to the limit. It simply requires leadership.

There are other helpers. Convince the owners of farms who reside in town that there is a way to get more rent; drive home the thought to the merchant that low earning capacity limits purchasing power, circumscribes trade, and casts the constant shadow of uncertainty upon the day of settlement; awaken the banker to the fact that it is unwise to loan to men who farm the best land on a fourth of a possible crop, and poor lands on a tenth; it is banking on unthrift and discounting doubtful paper with poverty endorsement; convince and arouse this land proprietor, this merchant and this banker, and they will not only give their influence, but will insist that all their tenants adopt the new methods. Country papers want something to talk about and they will open their columns to the gospel of agriculture.

After the first year there will be no trouble. The farmers who

try the new system and succeed find that their success has made them noted; their neighbors attribute it to the seed they used, instead of the hard work they did, and they are offered double price for all their seed. This has been the result in almost every case. They sell their cotton seed and seed corn at two and three times the ordinary price, and from weak advocates they become strong, zealous and aggressive. The most influential friend of the new dispensation in agriculture is the boll weevil. It is amazing with what tenacity men who have been trained to depend upon cotton as a cash crop adhere to it and refuse to believe that there is a value in anything else the soil can produce. When lands have been worn until they do not raise a paying crop of cotton, the true Southern farmer sells his farm for what he can get and moves on to a virgin tract. This has been the policy in the South for two hundred years.

As an illustration of how this revolution in agriculture is aided by influences we have named: Last winter the Tyler, Texas, Board of Trade issued a bulletin to the farmers of Smith county and Northeastern Texas, strongly urging the farmers to adopt our co-operative methods. One letter in this bulletin to the farmers put the case thus: "You have given your way of raising cotton and corn a fair test—the test of years—and it has proven a failure. You are raising five to ten bushels of nubbins per acre instead of twenty to fifty bushels of good corn. You are producing one-eighth of a bale of inferior cotton per acre, instead of one-half to one bale of the fleecy staple. Won't you now try the government plan of raising cotton for the year 1906, if only as an experiment?"

If you will do precisely according to its directions (which are here given) and do not find it an improvement over the old—as judged by the result—then I shall not advise you to pursue it farther. But I know it will give you a larger yield than the present methods, for I have seen it proven. In 1898 I traveled for hundreds of miles through the boll weevil districts of southern Texas. The weevil had been there for several years. I saw hundreds of farms lying out; I saw a wretched people facing starvation; I saw whole towns deserted; I saw hundreds of farmers walk up and draw government rations, which were given to them to keep them from want. Their rich lands dropped in price from forty dollars to five dollars per acre. The government did not stop with giving out food to those in distress. Its department of agriculture at Washington put its experts to work to find out ways of checking this pest. I am glad to say that Smith county is going to have five

demonstration farms this year, located in different parts of the county, so that every farmer who will take the trouble to go and look may see for himself what can be done in raising cotton and corn with new seed and by improved methods.

The pages of this bulletin abound in statistics showing the value of better tillage. One farmer followed the instructions of the Department of Agriculture and made seven large bales from twelve acres, and his neighbor followed the old plan and made two bales on fifteen acres. One writer states: "But there is no sense in our farmers going through with what the farmers south of us did. We should profit by their experience. Where will you find the most cotton raised this year (1905)? Why, right down in south Texas, where a few years ago I saw the farms deserted. They finally took the government's advice because they had to and they are now raising one-half to one bale per acre, and the boll weevil just as thick as they ever were." Can agricultural conditions be changed by simply talking? No. By demonstration? Yes.

Human society in its organization presents this peculiar phase: some of the primary groups appear to be attached to no system of influence, and, hence, cannot be reached influentially except by direct contact. Rural society in the south is largely upon this plan. There is a public opinion emanating from and moulded by the limited number in the canton, but rarely reached or moved by the larger public opinion of the state or the nation, and then only by personal contact. The general viewpoint is one of doubt and suspicion. If, however, one of their number can be induced to plant a trial field, all will watch it closely, and if he succeeds, the people will at once swing from a stubborn doubt to an unreasoning faith, and they become the most zealous of converts. After you have proven your work for two or three seasons some way it is noised abroad among these people, and they are ready to accept at the first opportunity.

Last December I located a demonstration farm in Central Texas where there was a colony of eighty families of poor, white farmers from South Carolina and Georgia. Conditions were as unpropitious as could often be found. Every farmer as far as I could learn, wanted to sell out. The overseer of our demonstration farm commenced to put it in order and plant the crops. Nothing was said. Special effort was made not to tell our plans, and let curiosity have full scope. Last week I visited that farm and the overseer said "Can't you come and talk to these people some time? If they knew you were here to-night, this yard (and it was large) would not hold

the farmers that would come out to see you and hear you talk about farming." Within these limited circles is considerable local rivalry. If John Smith takes a Department demonstration, Sam Jones thinks he can beat it, and quietly informs his neighbors that he intends to do so. Others join in the competition. Finally the whole neighborhood is arrayed on one side or the other, with the result that all produce better crops. It is an easy proposition to enlist the masses in the army of reform, if wisely managed; but impossible, if undertaken along the lines usually pursued. Frequently the first farmer in a community where a demonstration is to be made, is secured by furnishing some improved seed and showing how to plant and work it so as to maintain its vigor and enable him to sell seed to his neighbors. With success in his first trial he becomes an earnest advocate of the co-operative plan. Thus the influences gather force and soon the reform has attained mighty proportions and a state has been revolutionized.

In the main, the average farmer receives our work kindly and adopts it readily. There are some sections that object to our efforts to make the average farmer independent, fearing he will soon have farms of his own. These want poor whites and more of them. Such conditions are mainly confined to the Delta islands. Over there time will change public opinion in regard to our system, for the boll weevil will appear, profits will vanish, and new conditions must be accepted.

The question may arise, "How can such large territories be successfully handled and be held under control by the central office?" Easily. While there are thousands of farms they are all classified under a few general divisions, depending upon the nature, mechanical conditions, and relative exhaustion of the soil, the temperature, rainfall, and standard crops to be planted. With these carefully booked, it is comparatively easy to give instructions that are applicable. The field work is managed by traveling agents, who make daily reports. In the central office it is the work of one man to attend to the business and correspondence. There is a large amount of personality about the work. The central office must keep in touch with each co-operator and impress him with a personal interest in his success. This is done by monthly letters to each, with instructions or inquiry. The records of the office show the condition and progress of every farm.

I have outlined the cause for the low average condition of agriculture in the south, and the remedy that has been effective.

It is a peculiarity of our humanity that there is an undercurrent

of belief, nebulous but assured, that somehow the people will be helped. Some have turned the eye of hope to religion, as the saving power that will change conditions and bring relief. Some look expectantly towards universal education, and assume that knowledge will accomplish all things, will build fences, plow the soil and insure the harvest, while the husbandman lies in the shade and builds his dream castles. Others have placed great faith in science. Science loudly boasted its power to unfold the mysteries of the soil; it grandly pointed to the water, the atmosphere and the sunbeams and claimed the power to harness these to the chariot of agriculture, and bring to the earth a wealth of production, fabulous and inconceivable; but science in its relation to agriculture has, as yet, been mainly a beautiful dream and a gilded vision. So far as the masses are concerned, it is a failure of application and not of merit. Relief came, but in a way never anticipated by the people. The people expected relief by some miracle of finance, a relief without toil, the bounty of the nation or the gift of God. But when told that permanent help could only come by human effort, that they must work out their own salvation, just as prosperity, liberty and civilization can never be donated to anyone, but must be wrought out, fought out and lived out, till they are part of the being of the people who possess them, they were amazed.

In January, 1904, I went to Texas to take charge of the campaign against the boll weevil. I called a meeting of prominent men to discuss the situation; upon explaining the plan of the Department, every face showed astonishment, one bolder than the rest explained his views thus: "Do you mean to tell us that you have come empty handed to Texas to relieve the distress of our people, and restore confidence, and that you know of no way of destroying the boll weevil? And further, that you furnish no seed nor fertilizers, and do you intend to tell our people, 'Your remedy is to get out and hustle,' if this be true, we are to receive one of the greatest of disappointments." I explained our plan. That people were rarely benefitted by gifts; that our system of tillage insured a crop, that while they were waiting for the Government to give them a few thousand, they could increase their income twenty-five to thirty millions, add to their manhood and become independent.

They accepted the explanation and heroically followed our instructions; they won. In the fall of 1904 the farmers of the boll weevil districts of Texas found themselves better off, than for many years; fewer debts, and more money in the bank.

This demonstration was no new theory with me. We used it in

Iowa from 1870 to 1889 when that state was transformed from a wheat growing to a stock producing commonwealth.

In 1886 a movement was made to settle a tract of land in Southwestern Louisiana, as large as the State of Connecticut with sturdy immigrants from the Northwestern states. Thousands of circulars were issued and hundreds of prospective settlers came. The natives of the country were stock men. They were not farmers, and without exception they did not believe those lands were productive, or could be made so, and they took pains to tell this to every inquirer.

The immigrants supposed, of course, that the natives knew, and we suddenly found that settlement was impossible. I recall a carload that cost me considerable trouble to secure. They arrived in the afternoon, heard the natives talk and left before I could see them in the morning. In this emergency we resorted to demonstration. By making large concessions, a thrifty and energetic western farmer was located in nearly every township, under an agreement to do his best. As soon as they were fairly established, and able to prove anything, immigrants were taken to their homes where they could see things. From that time our immigration movement was a complete success, and today twenty-five thousand settlers are ready to tell you that it is the most prosperous portion of the South. We then learned the philosophy and the power of agricultural demonstration. Many of the poor Acadian natives, who had not tilled the soil, had never attended school and could not speak a word of English, were converted by demonstration and are today wealthy farmers. More than 1,000 farmers are depositors in the banks of Lake Charles, La. Of this number over 600 are natives and some are accounted among the best farmers and the most wealthy citizens of our section. Such are the possibilities of demonstration.

We have located the disease and found the remedy. Shall we apply it? We shall if we fully realize what this evolution in agriculture signifies to the individual and to the nation. In the South Atlantic and the South Central states, there are eleven that border on the Atlantic and the Gulf of Mexico, adding Arkansas, and we have twelve states which contain about one fourth of the population of the United States. The gross products of the farms in these twelve states amount to slightly over one billion annually. If this could be increased two fold it would pay the national debt and all the expenses of the Federal Government in one year. Our whole civilization would respond to the influence, as if touched by the prophet's rod. Better homes, highways, clothing, schools, churches and means of communication—a general uplifting, such as could

not occur without it. How are these things to be procured without such reform? By reading about it? By better schools? By more taxation? It is impossible to raise much revenue by doubling the assessment of a cipher or depending upon the voluntary contributions of poverty. The widow's mite went a long way in intention; but fell infinitely short in actual cash. From a national standpoint it is our patriotic duty to carry out these reforms. The defense of a nation, as well as its commerce, is a problem of vast equipment. The ocean and the commerce of the world belong to four nations, simply because there are only four nations with sufficient wealth to build and maintain vast navies. War has become a problem of finance. The wars of the future must largely become economic wars, and the invading force will be an army of industry. The nation of the greatest and the most economic production will win. But to-day I am not viewing this campaign for increased production in the country from the national standpoint. I am thinking of the people, of rose covered cottages in the country, of the strong, glad father and his contented, cheerful wife, of the whistling boy and the dancing girl, with school-books under their arms, so that knowledge may soak into them as they go. I am thinking of the orchards and the vineyards, of the flocks and the herds, of the waving woodlands, of the hills carpeted with luxuriant verdure and the valley inviting to the golden harvest. What can bring these transformations to the South—greater earning capacity of the people?

I realize that to accomplish all of this the domain of knowledge must be broadened, soils must be deepened, aerated and fertilized, excessive moisture removed and protracted drouths obviated, so that the harvest may be luxuriant and reliable. In conjunction with greater production must go greater economy. In the waste of the farm are fortunes for the farmer. If the insects and harmful seeds could be converted into poultry and eggs; if the unused grasses could be transformed into beef, mutton and wool; if the waste of the forest could add its contribution to the general good; if the apple, the peach, the pear, the plum, the cherry and the grape could be substituted for the briar patches, the roadside thickets and the worthless brush, covering millions of acres, it would be the inauguration of an era of reform worthy of a great people.

For this greatest of economic reforms Congress has allowed \$40,000 per annum—about \$60.00 per county, or three cents for each farm in the territory assigned me. We are annually expending about seven hundred millions in the United States for the

benefit of the nation, or nearly nine dollars per capita. For this industrial reform in the country, the sum granted divided by the population amounts to one dollar for two thousand people. Even that sum has increased the wealth of the nation more than fifty millions in two years and the work is going forward.

The time is opportune for this great work. Friends will rise up to aid it. Providence, destiny cannot be thwarted. The revolution must continue until the problems of poverty are solved, the measure of human happiness full and the reproach that has hung over our rural domain, by reason of unthrift, ignorance and poverty shall be wiped out and America shall possess a yeomanry worthy of a great nation. In advocating a campaign of demonstration for increasing the earning power of the people on the farms, I would not detract from any line of spiritual or intellectual uplifting. Churches must be established, schools and colleges maintained, science taught and country betterments promoted, but they must keep step with increasing productive power. I am simply calling in question the possibility of obtaining all these grand results of a high civilization without any money to pay the cost and without earning power to sustain them.