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Agriculture.

SIZE OF EARS IN CORN YIELD.

In Our Issue of Dec. 20, Mr. Suffern Talked Talked on Size of Grain as a Factor; Jan. 1 on Size of Stalk—Now He Discusses Size of Ear.

Correspondence of The Progressive Farmer.

After an experience of 25 years as a corn breeder, the writer has concluded that the size of the ear in corn exerts a considerable influence on the amount of grain which it produces per acre. Furthermore, the experience of a large number of up-to-date farmers throughout the corn States, with whom I have been in extensive correspondence during these years, exactly coincides with my own.

According to the writer's observation, during more than a quarter of a century's experience in breeding the corn plant, the average corn grower throughout the corn belt, in selecting his annual supply of seed, always selects the largest ears that he can find in his crop, (no matter how large the variety.) By this mode of procedure he annually obtains a little larger consequently a later-maturing variety of corn. The craze of the present day in Uncle Sam's domains, is for things of the jumbo order.

After my experience in growing almost all of the new and old varieties of corn, from all points of the compass, I have concluded that there is a certain amount of corn-producing nutriment in any given soil and season. And that any equally well-bred varieties of corn, whether they have small or large, short, or long, thick or thin, or only one, or six or more ears per stalk, if their seed be properly planted, according to each particular variety, and equally cultivated, all other conditions being equal, they will produce about an equally valuable product.

A provision of nature seems to dictate, that of several equally well-bred varieties, which may be grown under like conditions, on any given soil, in any particular year, the yield of equally valuable shelled corn per acre must not greatly vary. But of a dozen supposedly equally well-bred varieties, which may be grown on any farm, most generally, some one or two varieties will be decidedly superior, and one or two, perhaps, will be decidedly inferior, as regards yield and quality. The remaining varieties will show graduated degrees of productiveness. The largest yielding variety of good quality, will be the highest bred—more free from barrenness and its attendant degeneracy. It will also be noticed that its stalk is not too large in proportion to size of its ear, and that its stalks seldom produce more than one ear each.

The writer has demonstrated to his own satisfaction, during a long series of years of actual field practice, that the capacity to produce more or less merchantable shelled corn per acre, is regulated by numerous checks of natural selection, and by the degree of general improvemens of the variety, or varieties grown. And that a variety of corn that does not scatter its producing powers in trying to produce more than one good ear per stalk, through the means of concentration of energy, always produces the largest yield of merchantable grain.

During the past five years there has been considerable discussion in the agricultural press, in relation to the comparative merits of large and small cobbed varieties of corn. Some writers advocating large cobs, and still others medium-sized cobs. The writer's experience in the center of the greatest corn belt on earth, agrees exactly with that of the Illinois Agricultural Experiment Station tests, near Urbana, Illinois. Our station, after exhaustive tests with a large number of varieties, during a series of years, has secured the largest average yield in merchantable shelled corn per acre, from medium-sized corn, with medium-sized cobs and long grains. I have in my possession two ears of white dent corn of about exactly the same length and circumference. One is of the Wisconsin white dent variety, the other of the Champion White Pearl. The former is about two weeks earlier in its maturing season, but requires about five of its kernels placed endwise to span its cob. While two kernels of the White Pearl variety will often span their cob. Some farmers contend that "it takes a lot of corn to go around a big cob." But after frequent personal visits to many localities in the corn States, and many years of personal tests, I have concluded that it does not necessarily require a large amount of corn to cover a large cob. And that it depends entirely on the length of the grain, as to the amount of corn that can be grown on a large cob.

I have personally grown large-cobbed varieties of corn which produced a large per cent. of grain to the bushel of ears. But the aforementioned checks of natural selection, which control the productive capacity, also controlled the length of the ear inasmuch as the length of the ear was shortened in proportion to the increase of per cent. of grain to the bushel of ears. I have also personally grown large-cobbed, long-eared deep-grained varieties of corn that produced a large per cent. of grain to the bushel of ears. But I was compelled to plant them much thinner on the ground than the smaller eared varieties. Their maturing season was also so long (about 150 days) that they rarely matured fully, even during our most favorable year.

If the breeder endeavors to continue the growing of such a corn, the many checks exerted through natural selection, by the means of correllated variation, interferes by reducing the length of the ear and grain to the extent that it will not contain any more weight of well matured grain than will our medium-sized, long-grained, medium-cobbed varieties of corn. The writer has been repeatedly defeated in endeavoring to breed up a very large deep-grained, long-eared variety of corn in this latitude, for the reason that the correlated checks of natural selection that control the natural limit yield, would not permit me to succeed. A few years ago certain experimenters claimed that when a variety of corn would produce a large ear at each joint of the stalk, was bred up, we would have then reached the millenium in maximum corn production. About ten years ago the writer came into possession of a new variety of pop corn of Iowa origin, that was claimed to produce an ear at each joint of its stalk. In the writer's fields very few stalks exhibited this tendency. And such stalks that did produce an ear at each joint (or say 14 ears) gave ears much below the normal in size, and very immature in quality. Prof. O. E. Blount, now of Colorado, endeavored (in Tennessee) through selection covering a long series of years, to revolutionize corn growing by breeding up a variety of corn that would produce a large ear at each joint of its stalk. But this same law of correlated variation prevented his doing so. During a year of long-growing season, the writer has succeeded in growing a stalk of Blount's Prolific corn which produced eight ears. But the ears were of insignificant size, and immature quality, and consumed about 150 days of growing season. In fact, a medium-sized white dent main crop corn which produced only one good ear to its stalk, produced shelled corn of more marketable value than the eight ears produced on one stalk of Prof. Blount's corn.

The writer's experience in corn breeding, and seed production, is that the concentration of the corn-producing capacity of the soil in the production of only one good ear, on a short, thick, whip-shaped stalk, such an ear producing 87 to 90 per cent. of shelled corn to the bushel of ears, consistent with its perfect maturity, in our average growing seasons (which in this latitude are about 120 days) will, all minor conditions being equal, yield the highest average value of grain per acre.

J. C. SUFFERN.

Platt Co., Ill.

WE MUST HAVE MORE AND BETTER SOIL.

Mr. J. B. Hunnicutt, of Georgia, who is known to Progressive Farmer readers as the author of a number of very practical farming articles which he has contributed to this paper, has in the last issue of the Southern Cultivator a strong article on "More and Better Soil." It is a good subject for our farmers to think over these winter nights, and we publish Mr. Hunnicutt's letter in full below:

The foundation of all and lasting success in farming must be laid in a better soil. The soil is the farmer's bank. Into this bank he must make constant deposits of active working capital if he expects success. Hence it is all important that every farmer should thoroughly understand what his soil is and how he can improve it.

For the past eighteen months we have been discussing this question in a more or less desultory manner and while this discussion has not been altogether vain yet we are painfully aware that a great many have not yet been fully awakened to its real meaning. Therefore at the risk of repeating we will discuss the question once more. "Line upon line, precept upon precept" is still demanded. Indeed our very effort to explain the nature and powers of soil has taught us much of real value. "Day unto day uttereth speech, night unto night showeth knowledge," and each setting sun has left us wiser than when the day begun; the same is true of each student of nature's wondrous ways.

WHAT IS SOIL.

Without undertaking to give an exact scientific answer we desire to say as it relates to farming, it is the top of the earth and its plant food contents. There is no specific line of demarcation between soil and subsoil. The depth of the soil at any particular place is not a fixed quantity, but may be increased or decreased at the will of the fnrmer by his methods of treatment.

When the top of the earth is loosened up the air and sunshine and water circulate through it and make soluble the mineral elements of plant life which everywhere abound. While there are fourteen of these elements found in all plants, there are only three of them that particularly concern the farmer. Nature will look after the others. The three are: Potash, phosphoric acid, and lime, and these are found in ample quantities, in all soils; indeed there is about nine thousand dollars worth of them in every average acre of land taken to the depth of three feet. But in their native condition they are insoluble, for plants cannot use solids, but only liquids, their food must be fed to them in solution in water.

RICH AND POOR SOIL.

What we call rich soil does not contain more of these essential elements of plant food than what we call poor soil. But they are in soluble condition in the poor soil. They are made soluble by pulverization; if the soil be made fine it becomes rich. It is a question of mechanical condition and not a question of mineral composition. The rich loam of bottom lands is made up from the fine particles taken from the poor hillsides and carried by the water and deposited on the bottom land. If we can make the hillsides as fine as these bottom lands the soil will be equally as rich. We mean to say that each farmer can make his soil deeper and richer simply by plowing deeper and pulverizing finer.

THE REAL CONDITION.

The actual present condition of the average farm is about as follows: First, three or four inches of more or less badly plowed so-called soil. The plowing has been done when the ground was too wet. The sunshine and the winds have dried the little lumps of earth into millions of what we may properly call sun-dried brick-bats.

The brick-bats are utterly incapable of furnishing any plant food to the growing crops. If you wish to know what part of your fields are composed of this material take a fine sifter and sift your soil. Only that part that goes through the sifter is fit to be called soil or is ready to furnish plant food. The rest is useless until pulverized so that the average crop only has about one inch of soil upon which to feed, a real soil from which to draw its food.

Below this three or four inches is found six or eight inches of compact eath which for convenience we call hard-pan. It has received this name because it is too hard for water to circulate freely through it either by gravity or capillarity. It is also too hard for the little feeding rootlets of growing plants to penetrate. Hence it is worth very little if anything to the growing crop. But this hard-pan is filled with phosphoric acid, potash and lime, the three great mineral elements of plant life. But though at present they are locked up so far as the plant is concerned and below this hard-pan the earth is sufficiently porous for the upward and downward circulation of water, and for the growth of plant roots.

WHAT WE CAN AND OUGHT TO DO.

Now a little study will make it clear that the first duty of every farmer is to quit plowing his land when it is wet and quit making sun-dried brick-bats and proceed at once to mash every one he has made by the repeated use of plows, harrows and rollers. Next he should proceed to break up this hard-pan and make possible the free circulation of the water, air and sunshine and the free growth of plant roots. By doing this he will almost indefinitely increase the depth of his soil, almost indefinitely increase the richness of his crop, almost indefinitely increase the profit of his farming.

What we mean to say is this: the Lord has made the earth rich. He has filled it with the necessary elements of plant food. He has wisely left it to us to make this food available or not, as we farm wisely or foolishly; we can make our soil deep and rich by simply plowing deep and often.

The hard-pan is a creature of our own manufacture made by our folly and ignorance. It is an interference with all good farming. Hence it is our first duty to proceed to remove it at once. No farmer should be satisfied with less than fifteen inches of well pulverized soil. This depth of soil will make possible such crops as we have not been accustomed to gathering.

What we call our poor upland farms with fifteen inches of soil can be made to produce from 50 to 100 bushels of corn per acre, from 30 to 50 bushels of wheat, from 60 to 100 bushels of oats, from 1 to 2 bales of cotton; and so on of other crops. If you doubt this, try to prove it false. Prepare any given number of acres with fifteen inches of soil and plant any crop you please upon them and make a fair test.

Of course you can use on soils thus prepared all the manure and fertilizers you may be able to raise or willing to buy. They will pay you a much larger clear per cent. of profit on these deep soils than when used upon the ordinary three or four inches of soil. But you can become independent of chemical preparations by this method of farming.

We have said nothing of nitrogen or ammonia, because it is not a mineral element of plant life. It is found in rich abundance in the atmosphere and carried by animal and vegetable matter and rain water into the earth in sufficient quantities wherever intelligent farming is pursued upon fifteen inches of soil.

A few years ago I used to see a farm upon which everything seemed to be going to ruin. The owner never made his farm pay. A young Swede who had gathered up a few hundred dollars by working as a "month hand" bought the place, and in a short time you would hardly have known it. He fixed up the buildings and fences, worked the land carefully, and soon brought it to a state of splendid culture. From which I conclude that it is more in the man than in the farm whether farming pays or not.—E. L. V.

HARRY FARMER'S TALKS.

IX.

Correspondence of The Progressive Farmer.

On every hand we hear of great preparations to supply farmers this year both with general merchandise and fertilizers. Brother farmer, are you going to tie yourself hard and fast so that you will be virtually a slave probably for two or three years? Count the cost. Base your figures on 8-cent cotton. Place the yield at the smallest crop you ever made your land. Then think about what it may cost you to gather it. Take three things into consideration in regard to the labor question: First, the negroes are leaving the State and many are going to the towns to live; second, most of the white people who have helped you to hoe and pick your cotton have gone to work in cotton factories; third, your neighbor is going to plant all the cotton he can possibly manage. Now, to what other source can you look for help? When you have to pay from 75 cents to $1.25 per 100 to have your cotton picked as is the case in some places now, your profits will be in some other man's pocket and you with a mortgage to lift. You ask if Harry Farmer is going to plant any cotton? Yes; he is going to plant some. He has planted cotton for 20 years. He needs the seed to feed cattle. He finds it a paying crop in his rotation. He will give his experience along that line at another time.

Meat is selling well, pork bringing 6 to 6½ cents per pound. At this price farmers can make money. Can't you raise a few pigs for your market? The kind most saleable are small size that will average about 50 pounds each. Smaller sizes were in demand a few years ago, but there is a change now, brought on by so many large families moving to town from the country.

We are glad to see that a large factory is going up near the mouth of Cape Fear river to manufacture fish scrap for fertilizer. Harry Farmer has often mentioned this enterprise as a paying investment. It will enable truckers in this and adjoining counties to get their fertilizers for growing early vegetables at lower freight rates.

Now is a good time to prune grape vines. Six weeks from now they will "bleed" too much, so do not delay this important work. This applies to bunch grapes. What is known as "Muskadines" do not need pruning. Such as the Scuppernong, Flowers, Thomas, etc.

We will give some items from the Western people who have settled in this county, mostly around Chadburn, in a future article.

HARRY FARMER.

Columbus Co., N. C.

TO KEEP TOOLS BRIGHT.

Take crude petroleum, which is sometimes sold as lubricating oil, and any cheap mineral paint that you get for about 4 cents per pound, and make a mixture. Apply this by means of a brush of some kind to the parts of the tools which it is desired to protect. This will keep them perfectly free from rust and they may be used the next spring without going to the trouble of scraping off the mixture with a brick or metal scraper of some kind. If tools are used shortly after the mixture is applied it of course should be applied again before they are put away.—L. H. Gallaway, Bethel, Ill.

The Roanoke-Chowan Times says: "Mr. Thomas C. Peele, of the Rich Square section, is a living example of the successful farmer. If his neighbors, for miles around, are in need of seed oats, wheat, corn, peanuts, cotton seed, or any product of the farm from a sitting of eggs from thoroughbred fowls to the finest milk cow their wants can generally be supplied by Mr. Peele. This week while in our office he informed us that during the year just closed he sold twelve hundred and fifty pounds of butter besides supplying his family of ten members with all they wished to use." The Times might have added that Mr. Peele, like most of the States' best farmers, reads and pays for the State's only farm newspaper, The Progressive Farmer.

CLODHOPPER'S TALKS.

III.

Correspondence of The Progressive Farmer.

I was in town this morning and saw an incident that set me to thinking. A gentleman had ordered a peck of apples from his grocer. Picking up two of them and wiping them off, he said to me, "Well, I know I am eating a North Carolina apple now.

'How?" I asked.

"Because," said he, "these apples are unwashed, slightly dirty, and while there are many fine ones among them, they are not carefully assorted. A Yankee would have carefully washed and assorted them, whereupon they would have commanded twice as much per bushel as our farmers get for theirs. In this State the farmers do not pay enough attention to putting their products in marketable condition and so lose much of the profit."

And really, now, wasn't there some food for thought in his remarks?

Now is a good time to order an incubator and prepare to make some money out of poultry this year.

Are you using up-to-date farm implements and machinery? If not, think about it and try to count up how much you are losing by your unprogressiveness. The best thing I have read on that subject in a long time is Prof. Irby's editorial in The Progressive Farmer of January 1st. Get it and read it. It will give you much to think about.

I always read Mr. F. J. Merriam's articles with a great deal of interest. One of the best he has ever written for The Progressive Farmer was that in this week's issue on "Cotton Cultivation."

Free rural delivery of mails is wonderfully successful here in Wake. We farmers feel now that we couldn't get along without it.

Now is a good time to get subscribers for The Progressive Farmer. And really I do not know how you can help your neighbor more than by getting him interested in good agricultural literature. If you have a friend who is reading a farm paper from New York, Kentucky, Pennsylvania or some other far-away place, and which must of course be unsuited to North Carolina conditions and people, get him to try a North Carolina farm paper where he can get the experiences of men who understand things as they are in our State. Our products are different, our soils are different, and papers printed for conditions in the North and West are not suited to us here.

Save the leaves that litter the yard and lawn. Dump them into a barrel or box for the hens to scratch over this winter. You will be surprised at the amount of exercise and entertainment a dozen hens will get out of a barrel of leaves thrown in the corner of a shed or in a warm nook. Just mix a few handfuls of wheat or other grain in the leaves and let them scratch for it.

It is none too soon to begin to think about and discuss the problem of home mixing of fertilizers. Hundreds of thousands of dollars can be saved to the farmers of North Carolina by intelligent home mixing, but I would not advise every farmer to try it. Only those who understand in some measure the value and properties of the three ingredients—potash, phosphoric acid and nitrogen—should attempt it. Undoubtedly the best treatise on the subject is Prof. E. B. Voorhees' book, "Fertilizers." At least authorities say so, and I have studied the book and believe it.

CLODHOPPER.

Wake Co., N. C.

Plaster renders crude materials available, and prevents the escape of ammonia till the plant roots can use it. Having done this there is nothing more for it to do. Add more material by the addition of stable manure or a green crop plowed under, and it will again do good. Its continued profitable use depends on adding new material.—J. C. Senger, Ore Banks, Va.

We want not time, but diligence, for great performances.—Samuel Johnson.