

High Acidity Of Soil In Many Cases Is Due To Cheap Fertilizers

Continued Increase In Acidity Means Disturbance Of Economic Balance

By H. F. COOPER, Agronomist, South Carolina Experiment Station

High acidity of soil is one of the most important factors in the economical utilization of agricultural land in the southeastern states. Most of the virgin soils of these states are naturally acid and are best adapted to crops which are tolerant of relatively high soil acidity.

The recent trend in the use of cheap nitrogenous fertilizer materials has increased the acidity of some of our soil to the point where it is not possible to produce crops economically until the soil is limed. Previous to 1905, mixed fertilizers were non-acid, the average base equivalent was equal to 10 to 40 pounds of limestone per ton. At the present time the average equivalent acidity of mixed fertilizers is about 150 pounds of limestone per ton. The continued use of fertilizers with a high equivalent acidity has rendered much of our soil totally unfit for the economical production of many of our important crops.

Since a large proportion of the mixed commercial fertilizers is used in the southeastern states, the Southern farmer should be most concerned about this consistent increase in the acidity of our soil by the use of acid-forming fertilizer materials. This increase in soil acidity has been one of the significant factors in the economical breaking down of many farm units which were once the basis of prosperous and happy homesteads. If the increase in acidity of our soil, due to the use of acid fertilizers, is not corrected it will be impossible to prevent the economical breakdown of a large proportion of our once prosperous farm units.

Acid Soils Abandoned

Many of our acid soil areas are being abandoned because it is impossible for the farmer to maintain an adequate standard of living. Since many acid soils can be restored by the judicious use of lime to successful economic farm units, every effort should be made to assist every farmer to determine the condition of the land he is farming.

Realizing the serious condition facing the agricultural resources of the state, the South Carolina Experiment Station in cooperation with the Federal Emergency Relief Administration organized a project to determine the soil acidity on every important soil type on each farm in the state. Around 850 people have been employed on the project. The work was begun in November, 1933, and completed in the summer of 1935.

Soil acidity determines on 2,320,001 soil samples from 87,059 farms have been made, and liming and fertilizer recommendations for various crops at different pH values of the soil have also been made.

Two Typical Counties

The soil acidity determinations from a typical Piedmont county, Spartanburg, and from a typical Coastal Plains county, Williamsburg, show that a large proportion of our soil is too acid for the economical production of crops.

Spartanburg is one of the best agricultural counties in the state and several years ago was selected, along with Anderson county, as one of the 50 best agricultural counties in the United States. According to our findings, 23 per cent of the soils in Spartanburg county are strongly to extremely acid and are not suitable for the economical production of many of our important crops. Only 15 per cent of the soils are slightly acid, which is the optimum reaction for the most economical production of crops.

The soils of Williamsburg county are typical of what occurs in the Coastal Plains section of the state. Around 20 per cent of the soils are classified as strongly to extremely acid, which is an unfavorable reaction for the production of most important crops. Only five per cent of the soils are slightly acid, which is the optimum reaction for the most economical production of many crops. Since this condition exists in two of our best agricultural counties a very much worse situation exists in many of the counties of the state.

In general, high acidity in the gray Coastal Plains soils is not as serious as in the red Piedmont and Upper Coastal Plains soils. The possibility of successful growth of crops on gray Piedmont or Coastal Plains soil with a relatively high degree of acidity is very probably related to the relatively low content of manganese and iron which may become soluble in toxic amounts in highly acid, red or chocolate soils that contain relatively large amounts of these materials. Toxicity is often a very serious factor in the Piedmont area.

Must Study Liming Needs

In making liming and fertilizer recommendations for various soils, the probability of the presence of toxic amounts of such materials as manganese and iron in chocolate and red soils should be taken into consideration. Soil acidity as such may not be an important factor in the growth of crops over a relatively wide range of acidity, but it is the differential in the nutritional complexes in various soils which determines the growth of plants. On gray soil, crops may be grown successfully at a relatively high degree of acidity on account of the very low content of such materials as manganese and iron to become soluble in toxic amounts.

It is highly probable that 90 to 95 per cent of the agricultural soil of the state would respond to a ton broadcast application of limestone. Since heavy broadcast applications of limestone are expensive, it is often desirable to add 200 to 300 pounds of limestone per acre in the row with the fertilizer in addition to using a non-acid forming fertilizer which contains limestone.

Where limestone is added in the row, a maxi-

FRUIT CROPS

Grading And Sizing Apples In Henderson County



One of the first automatic apple sizing machines in operation near Hendersonville, North Carolina.

Peach Production Is Stabilized As Money Crop In S. Carolina

By A. M. GRIST, Editor, Yorkville Enquirer

Peach growing as an industry, a money crop, is being rapidly developed in the central Piedmont counties of South Carolina and especially so in the counties of Spartanburg and York, both of which border North Carolina. Development of this industry has been rather slow for a number of years, and is taking on speed the last two or three years, with every promise of faster development the next few years, as farmers appreciate the possibilities of the peach as a money crop, and the increasing demand for the luscious fruit.

The first commercial peach orchard set out in York county was tried by the late W. B. Metts, in the early eighties. The orchard included several acres, the trees perhaps were seedlings.

After about three years the first crop was harvested, three or four carloads of not very superior fruit—which were shipped to Charleston, that was long before the days of Siberia, Georgia Belle, Hales and other choice peaches of today. Likewise it was before the days of "spraying," scientific fertilization and cultivation. The fruit was inferior, small in size, defective in shape, color, often "wormy." After a year or two the project was abandoned—a failure.

It was not until perhaps some 15 years ago that intelligent steps were taken toward commercial fruit growing in York county. Pioneers in the industry were Cameron Johnson and his sons, David and John; the Messers, Land Brothers, Barnford Garrison, Captain Elliott White Springs, of world war aviation fame, and Rev. G. C. Kops, in Fort Mill township.

Conditions Ideal
Mr. Johnson believed that soil and climatic

response may be secured from a small application.

Every farmer should buy non-acid forming fertilizer unless he has previously limed his soil and is satisfied that the soil would not respond to the limestone included in a non-acid forming fertilizer. A non-acid fertilizer which contains limestone, instead of sand or other inert filler, costs more per ton, but it will produce more crop and is the most economical fertilizer to buy.

Survey Data Valuable
Many farmers have made excellent use of the data secured in the Land Use Survey and have prevented a number of crop failures.

Under present conditions it is necessary for a farmer to get a successful yield of each crop he produces.

Every farmer should preserve the Land Use Survey report which has been sent to him. This report can be of value to the operator of the farm for a long period.

The liming of our acid soil is one of the most significant factors in the economical production of crops. Much of our land is too acid to produce a successful legume hay crop without the addition of lime or fertilizer. Where sufficient lime is applied, legumes in a rotation with cotton can be produced without the addition of fertilizer. Where lime is not used it is often necessary to use fertilizer to get a satisfactory yield.

Since cotton, tobacco, and vegetables are the only important annual crops which return sufficient revenue per acre to purchase fertilizer, it is necessary to depend upon lime and legumes in the production of our grain and hay crops.

It is estimated that the use of non-acid fertilizer alone will add six to eight million dollars to the value of South Carolina farm products.

conditions in York county along what is known as the "Ridge," running from the North Carolina line near Kings Mountain to the Chester county line—along the watershed between Catawba and Broad rivers, east and west—had all the qualities necessary for peach growing. He had visited the peach orchards of Georgia and the Sand Hills of North and South Carolina and from his observation and study was of opinion that York county conditions were ideal.

He started with a few budded trees, patiently tended them until they began to produce what he believed was perfect fruit. He took samples with him and visited the big Georgia orchards and compared his product with the best of that state—flavor, color, size, and shape being considered. He found his fruit in every way equal to the Georgia product; he believed it to be better. Can't he put samples of his fruit with the fruit of the orchards where he worked as a grader and packer and then had the experts pass judgement on the York county product. In every case it was judged equal or superior to the Georgia product, though the judges in Georgia didn't know they were passing on South Carolina fruit.

Satisfied with his experiment Mr. Johnson at once began setting out peach trees on his lands south of York, S. C. He added to his orchards year after year; his sons seeing what the elder man was doing, followed his lead. Mr. Garrison, a near neighbor also early began growing peaches, perhaps starting about the time as did the elder Johnson. As did the Land Brothers, their orchard being on the Chester county line on the same ridge. Success from the first. The fruit produced was superior in quality, color, shape, size and flavor.

All of these growers of peaches, as well as others set out larger and larger numbers of trees, and each year they have found a ready market for their products. The Land Brothers and Camerons have greatly increased the number of their trees the past two years. Several thousand young trees are now rapidly growing, but will not come to bearing state for a year and two years. Inspired by what the pioneers have done, other farmers have set out orchards the past few years, notably the Smith Brothers, Grady Adams and the late E. H. Flaxco. Information now is to the effect that farmers and land owners of York county will this fall and winter set out additional orchards totalling hundred thousand budded trees and perhaps more.

Ready Cash Crop

It is a crop that brings ready cash at a season when other crops are not in the way for handling; the peach crop must be handled quickly, the season lasting hardly more than six weeks from the earliest varieties to the last of the latest to ripen.

I am reliably informed that York county peach growers have this season received as much as 15 cents per bushel more for their fruit than was being paid for like varieties in other peach growing areas. The difference in the price was in the color, size and flavor. I am told that York county grown peaches placed alongside the fruit of other areas, will sell the quickest. Why? I cannot explain, nor can the fruit growers explain, other than the surmise that there is something of peculiar character in the York county soil and climate that perhaps help to make a superior quality of peaches.

The pioneer days of peach growing in York county, is past. From now on the development of orchards will be along lines of assurance that the fruit can be successfully grown, with a better than even chance of making a crop each year, and with an ever-widening market. York county peaches have been trucked to Maryland, Virginia, West Virginia, Tennessee and North Carolina this season, now about closed, while many carloads have been shipped to New York, where the highest prices were received for the fruit.

The next development in the peach growing industry, as orchards increase in number and size, will be the establishment of canneries for the saving of the fruit in all the many ways that peaches can be preserved and canned.

Export Demands Have Much Influence On Large Apple Crops

Export demands will have a big influence on the apple crop in materially larger quantities than the corn crop is materially larger than the season and a good export demand is needed to sustain the market.

Fortunately, the European apple crop is light this season and especially so in England, which is our heaviest buyer. The British apple crop is light and already there has been an unusual movement of early fruit to London and Liverpool. This export demand has been helpful in moving some of the early varieties which were in excess of domestic needs.

Because of the heavy supply of early apples in practically all sections, most markets have been getting about as many as they could from local sources and commercial concerns have had a hard task to find a market for their fruit. Prices thus far have averaged low and to late August practically all Eastern and Middle Western cities were quoting from 25 to 35 cents per bushel with only a little of the best large fruit at \$1.

This season's crop is heavy to early varieties and after they begin to clean up the market should do better. Fruit has made good progress in most parts of the country in recent weeks, particularly in the Northwest where the big apple producing sections expect to have a crop of exceptional quality and color.

The shorter crop of citrus fruit this season should react favorably on apples and may tend to pull up apple prices later in the season.

Cigar Type Tobaccos Below 5 Year Average

Production of cigar type tobacco will be greater this season than it was last year but still much below the five average for these types.

According to the latest available estimates of the U. S. Department of Agriculture, the crop of cigar filler tobacco is 38,570,000 pounds compared with 34,387,000 pounds last year. This compares with a five year average of 74,963,000 pounds.

The crop of cigar binder type is considerably larger than in 1934 but much below the five year average. The production is now estimated at 31,389,000 pounds compared with 24,322,000 pounds last year and a five year average of 23,887,000 pounds.

Cigar wrapper production also gained this season and is estimated at 8,153,000 pounds compared with 7,049,000 pounds last year and a five year average of 10,853,000 pounds.

Production of cigar types of tobacco has declined more than the other types.

Tobacco Futures

Closing prices on tobacco futures on the New York Produce Exchange were as follows as of August 28: Flue-Cured Bright: September, 25.50; October, 27.00; November, 28.00; December, 24.50; January, 24.50; February, 25.50; March, 26.00; April, 26.50.

Closing prices on burley were: September, 17.00; October, 17.50; November, 17.50; December, 18.00; January, 18.10; February, 18.20; March, 18.30; April, 18.50.

Cotton Credits Available
Secretary Wallace recently stated that "adequate credit facilities" would be made available to cotton farmers for the orderly marketing of the 1935 crop. Commenting on his report, that Secretary said that if world consumption maintained present levels, foreign and domestic mills could be expected to require considerably in excess of eleven million bales of American cotton.

Veldese farmers in Burke County, are now harvesting grapes by the ton—more than 80 varieties in the vineyards.

It Pays To Advertise

Does it pay to advertise, Our Certlands, Macs and Northern Spies? Can we hope to multiply Their use for sauce, dessert and pie?

'Tis said that orange, peach and raisin Are used because of costly protein; So why can't we increase our sales By publishing appropriate tales Of how our apples cure what ails?

Tobacco ads tell us how handy We'll find a gag in place of candy, Gum merchants coyly raise the question "Why not chew gum for indigestion?"

And yet, we know a juicy apple Can nullify the rheum from apple, And apple baked and served with cream May save us from some horrid dream.

A crisp and tasty apple salad Can prove our claims for health are valid, And apple pies baked in crisp crusts Can satisfy our whiskey aches.

An apple munched in confidence, May aid the cause of temperance, And save the ladies from offense Of reeking smoke and pepped up sense.

Then all you men who apples raise, Don't hesitate to sing their praise, I'm sure that advertising pays, So pen your slogans true and true, And tell the world—it's up to you! —K. Stuart Hubbard, chairman, apple advertising committee of the New York and New England Apple Institute.