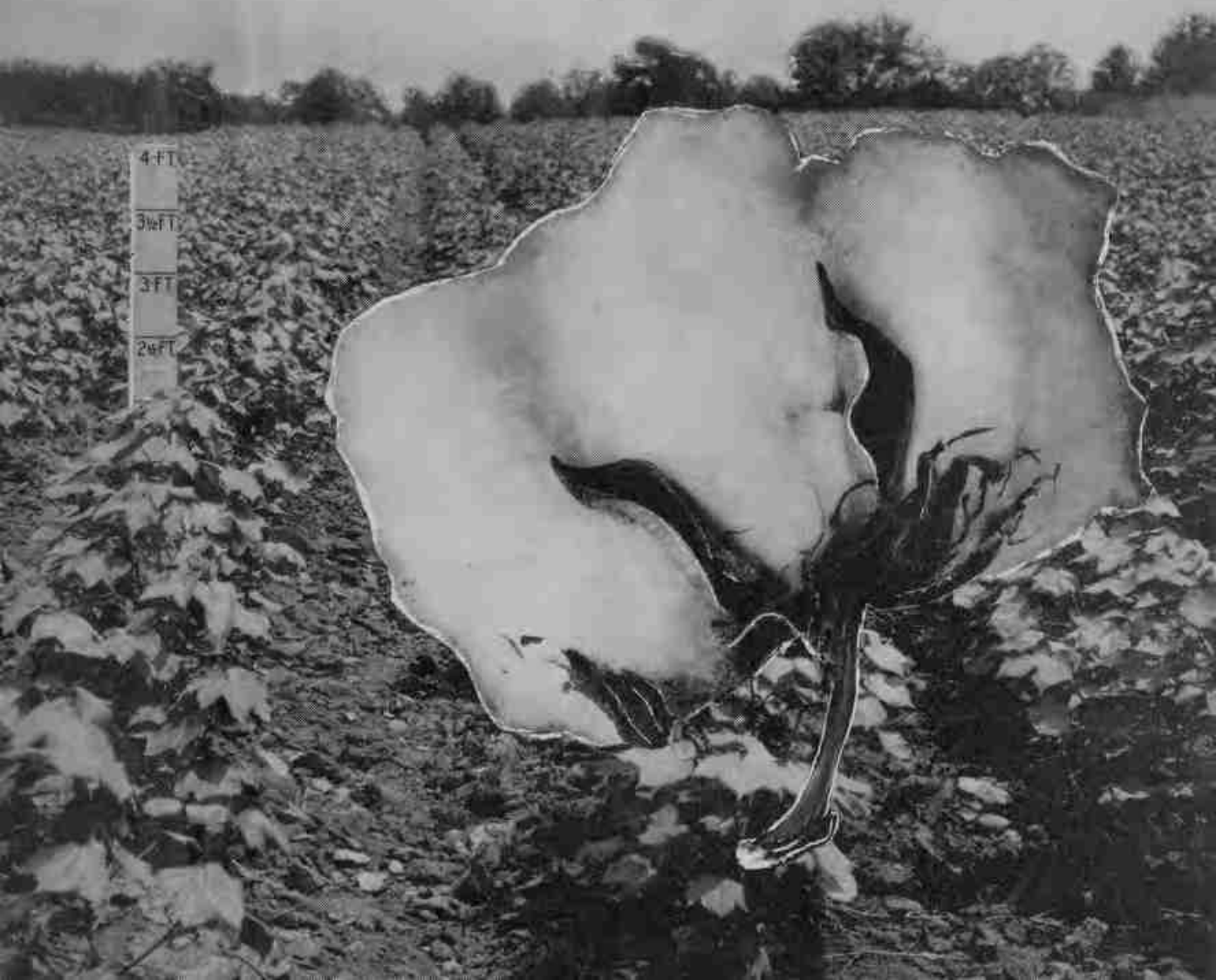
APRIL, 1942

EXTENSION CIRCULAR NO. 258

COTTON GROWING IN NORTH CAROLINA



Cotton Growing In North Carolina*

INTRODUCTION

There has been an increased demand for strong yarns needed in the manufacture of various materials. The 1⅛ to 1¼ inch staples are used where extra strong fabrics are required. The better grades of the medium staple lengths (1 to 1 3/32 inch) having good strength will also be needed in increased volume for the manufacture of high grade fabrics. There is an increased consumption of all lengths except very short cotton (less than 15/16 inch staple) of which there is an increasing carryover each year. Every effort should be made to produce the better grades of inch and longer cottons having good spinning quality.

Suggestions are given in this circular for producing better staple and quality through improved production methods.

I. **One Variety Cotton Improvement Program:** It has been shown that farmers in any given area who are producing the same variety of cotton are benefitted in a great many ways by following this program.

A. *Advantages:*

1. Farmers are able to work out a seed-increase procedure that assures a supply of pure seed stocks for community needs.
2. They have seed stocks available at reasonable prices for all farmers in the area.
3. They may have satisfactory arrangements with local ginners for special gin days to prevent the mixing of seed and lint.
4. Farmers growing cotton under a one-variety cotton improvement program are eligible to receive free government classification on cotton produced.
5. Program creates a reputation for community cotton that can be sold at a premium.
6. Assures production of uniform high quality cotton that is in greatest demand by the manufacturer.
7. Farmers are organized and are in a position to put into effect all improvement practices.

B. *Seed Certification:*

Seed certification is recommended to producers in organized communities with the aim of assuring a supply of pure seed stocks at all times at a minimum of cost to all cotton producers.

* This circular was prepared by a committee representing the North Carolina Agricultural Experiment Station, the North Carolina Extension Service and the North Carolina Department of Agriculture.

II. **Varieties:**

A. *1 to 1 3/32 inch cotton:*

1. Non-wilt resistant: Coker 100, strains 3 and 5; Coker 200, strains 1 and 2; Deltapine, strains 12 and 14; Mexican 87-8B; Maretts, 1 A and 2 A.

2. Wilt resistant: Coker 4 in 1; Coker 100 wilt resistant; Clevewilt and Dixie Triumph.

B. *1⅛ to 1¼ inch* (long staple upland): Coker wilds, Strains 13, 12 and 11, providing the seed stocks have been kept pure.

III. **Seed Treatment:**

All seed should be treated to insure good stands.

A. Treat *thoroughly* with ethyl mercury phosphate dust (5% New Improved Ceresan) at the rate of 1 to 1½ ounces per bushel, or with ethyl mercury chloride (2% ceresan) at the rate of 3 oz. per bushel.

B. The treatment may be made any time in advance of planting, but is somewhat more effective if made at least one day prior to planting.

C. *The chemicals are poisonous and treated seed should only be used for planting purposes.*

D. The chemicals are irritating and can best be applied when a slight wind is blowing away from the person making the treatment. The operator should wear a mask if the treatment is done in a closed building.

E. Reginned or delinted seed frequently give a more uniform and better stand particularly in dry seasons where soil moisture is a limiting factor.
(For further information, see or write County Agent or write the Botany Department, N. C. Experiment Station, for Circular on Seed Treatment.)

IV. **Soils:**

A. Well drained, moderately fertile, sandy loams and fine sandy loams are usually best suited for cotton production.

V. **Rotations and Erosion Control:** (Contour cultivation should be practiced on sloping soil.)

Following are a few of the suggested rotations:

Coastal Plain:

1. Cotton; peanuts; corn and soybeans interplanted (3 yrs.)

2. Cotton; peanuts; soybeans (3 yrs.)

3. Cotton; peanuts; corn (3 yrs.)
4. Cotton; small grain and lespedeza; corn (3 yrs.)
5. Cotton; tobacco (cowpeas at last cultivation); small grain (lespedeza); corn (4 yrs.)
6. Cotton; tobacco; corn.
7. Cotton and peanuts.

Piedmont:

1. Cotton; small grain and lespedeza; lespedeza; corn (4 yrs.)
2. Cotton; tobacco; small grain and lespedeza; corn (4 yrs.)
3. Cotton; small grain and lespedeza; corn (3 yrs.)
4. Cotton; small grain and lespedeza (2 yrs.)

Although on some farms cotton is successfully grown continuously on the same land, experimental evidence has shown that higher yields are obtained when grown in a rotation. Soil losses are also considerably reduced in the Piedmont area.

VI. **Fertilizers:** (Study table below for recommendations)

Cotton fertilization will vary depending on (1) the general level of fertility, (2) organic matter content of the soil, (3) the amount of fertilizer applied to previous crops, (4) the kind of crops grown in the rotation, and (5) the acidity of the soil.

The fertilizers used in North Carolina average 450 pounds of make weight material or filler per ton. It costs approximately 50 cents to deliver 100 pounds of filler to the farm in a fertilizer bag. Therefore, the plant food in the average fertilizer used in North Carolina cost the farmer $2.25 per ton more than it would if purchased in a higher analyses fertilizer.

Example:

300 pounds of 4-10-4 is equivalent to 400 pounds of 3-8-3

400 pounds of 5-10-5 is equivalent to 500 pounds of 4-8-4

It is recommended that a higher analysis fertilizer be used at a lower rate, so as to supply the same amount of plant food previously used in recognized practices.

Peanuts, soybeans, clovers and lespedeza are particularly soil depleting with respect to potash if the hay is removed. When these crops are harvested for seed, they leave considerable nitrogen residue in the soil. Corn is usually fertilized at a low rate and leaves little residual fertilizer for the next crop. Tobacco and cotton when fertilized according to recommended practice do not remove all the phosphoric acid applied and with high potash applications leave some potash for the next crop. An acid soil fixes the applied phosphates and makes them partially unavailable to the crop. The above factors should all be considered in choosing a fertilizer for cotton.

ROTATION	Coastal Plain				Piedmont			
	Rate lbs.	Grade	Sidedressing		Rate lbs.	Grade	Sidedressing	
			Rate lbs.	Grade			Rate lbs.	Grade
1. Continuous cotton or following corn or tobacco in a rotation	500	4-8-4	100	16-0-0[1]	500	4-10-4	100	16-0-0[1]
On potash deficient soils[2]	500	4-8-4	150	10-0-10	500	4-10-4	150	10-0-10
2. Cotton following peanuts, soybeans, clovers, or lespedeza in the rotation.								
A. Where hay is removed	500	4-8-8	150	10-0-10	500	4-10-6	150	10-0-10
B. When only seed removed	500	2-8-10	100	16-0-0[1]	500	2-10-6	100	.....

[1]Nitrate of soda or its equivalent.

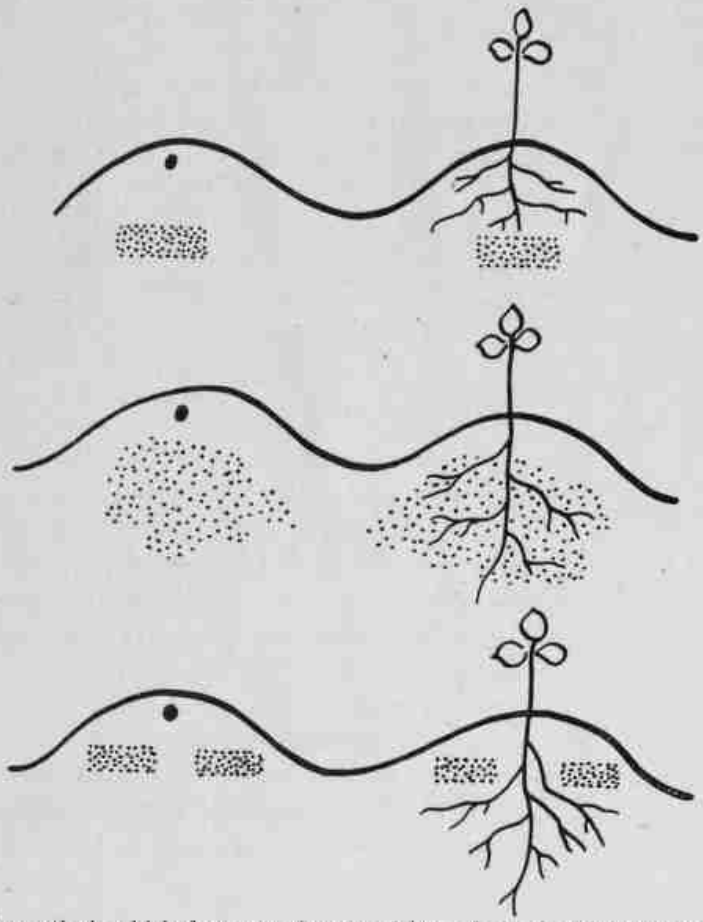
[2]Potash deficient symptoms are shown by the leaves of the plants first turning brown around the edges, finally dying and falling off early in the season.

METHOD OF PLACEMENT

Fertilizer band under seed results in poor stand and yield due to the concentration of fertilizer injuring the tap root of the plant.

Fertilizer mixed with the soil under the seed at planting or preferably 10 days before planting decreases seedling injury.

[1]Fertilizer placed in bands 2 to 3 inches on each side of seed and 1 to 2 inches below seed is highly recommended.



[1]Suitable equipment for this method, which decreases danger of loss of stand and increases yield, will be manufactured if demanded by the growers. Tractor and two-mule combination planters and distributors are now available. One mule equipment for placing the fertilizer to one side of the seed is sold by one manufacturer. Several so-called side placement distributors are on the market. Be sure that they will place the fertilizer as recommended before you buy any of these machines.

VII. **Cultural Practices:**

A. *Preparation of land:*

1. Break the land in late winter or early spring in the Coastal Plain and in the fall or winter in the Piedmont area.
2. Plant in 3 to 3½ foot rows, slightly above the level of the land. The latter facilitates drainage and permits the land to warm up earlier in the spring.
3. Cultivate shallow and sufficiently often to keep down the grass and weeds.

VIII. **Lime:**

A. When fertilizers are purchased which are guaranteed non-acid forming, neutral or basic, there is usually sufficient lime for the cotton crop. This does not mean that the land should not be limed for legumes.

IX. **Insect Control:**

A. *If Overwintered Boll Weevils are numerous* (an average of one weevil to each 500 plants, determined by actual count) *on young plants*, make from 1 to 3 presquare poison applications at 5- to 7-day intervals, employing the dust or liquid treatment (referred to in B and C), starting just after squares begin to form. Rapid weevil counts may be made in several separated locations in each field by walking astride the row and stooping slightly to examine the tops of the young plants. The weevils are easily seen. About 500 plants should be examined in each location in the field.

There are many areas in the Upper Piedmont of North Carolina where the boll weevil is not a real factor in growing cotton. In most of the rest of the State, boll weevils are severe only every 4 or 5 years on the average. The North Carolina cotton farmer must decide for himself, therefore, if he will apply the presquare poison every year or wait until weevils are present in injurious numbers and then employ the standard postsquare dust treatment. It should be remembered always that presquare poisoning is recommended only as a preliminary step in boll weevil control, and that there is no experimental proof to show that presquare poisoning can be relied upon exclusively for control of boll weevils.

B. As a presquare dust, use 3 to 4 pounds of the calcium arsenate-hydrated lime mixture (equal parts of calcium arsenate and hydrated lime, thoroughly mixed) per acre per application. Apply the dust when the air is calm to the tops of the plants,

using some type of hand-operated or machine duster. If rain occurs within 24 hours after a treatment, repeat application.

C. If the liquid treatment is preferred, the material may be prepared by adding one pound of calcium arsenate to a gallon of water and stirring, and then adding one gallon of cheap molasses and stirring until the ingredients are thoroughly mixed. This quantity, which is slightly more than two gallons, is sufficient for one application on one acre. Mix only the amount to be used each day and stir frequently while applying. Apply the poison with either a commercial or home-made mop. If rain occurs within 24 hours after an application, repeat the treatment as soon as weather will permit.

D. After squares form, begin dusting when 10 per cent of the developing squares show boll weevil egg punctures. The per cent damage is determined by counting 100 squares at each of several points in the cotton field. Squares should be examined at points in the four corners and center of each field. In walking through the area to be checked, pull off and retain 100 squares. These squares, of a size large enough for the weevils to lay eggs in, may be removed at random from any part of the cotton plant. When 100 of the squares have been removed, stop and examine the collection for weevil egg punctures. If as many as 10 squares have been punctured for each 100 examined, it is time to begin dusting in that area of the cotton field. Should these square counts reveal area or "spot" infestations, it is practical to treat only the infested areas and withhold dusting of the weevil-free areas until later checks show a 10% or higher infestation.

E. Use from 6 to 8 pounds of the "half and half" calcium arsenate-hydrated lime mixture per acre per application. Repeat treatment every 4 or 5 days until the number of weevil-punctured squares is reduced to less than 10 per cent.

F. Where weevil populations increase very rapidly, substitute undiluted calcium arsenate dust for the "half and half" mixture, and use from 4 to 6 pounds per acre per application.

G. Should weevils become numerous and damage continue after crop is set, one or two calcium arsenate dust applications should be made to protect the bolls.

H. Cut, uproot, or plow under all stalks as soon as the last cotton can be picked in the fall.

I. When red spider infestations are found, apply dusting sulphur at the rate of 10 pounds per acre to the infested plants. Repeat the treatment in one week. To be effective, the dusting sulphur must reach the underside of the leaves.

J. If cotton plant lice (aphid) infestations develop, make one application (6 to 9 pounds per acre) of a dust prepared by thoroughly mixing one pint of commercial 40 per cent nicotine

sulphate with each 20 pounds of the boll weevil dust. Better aphid control will result if treatment is made when the cotton foliage is dry and the temperature high.

K. If cotton leaf hoppers should appear in injurious proportions, control can be obtained by substituting dusting sulphur for hydrated lime in the "half and half" dust mixture used in boll weevil control.

If additional information is desired, see or write County Agent.

X. **Harvesting, Handling and Ginning Cotton:**

A. Ginning is the final farm operation in the production of cotton and may affect values as much as 20 per cent.

B. Cotton grades are determined by the ginning process and the condition of the seed cotton.

C. Excess moisture, trash and dirt; insect and disease damage; undue field exposure are grade factors in each cotton sample, regardless of the conditioning machinery in the gin outfit.

D. Proper ginning preserves all value of the seed cotton the farmer delivers to the gin.

E. Confer with your ginner to determine whether or not his ginning facilities are adequate for the condition of your seed cotton.

F. Have official classification of your cotton in order to appraise the ginning, even if your marketing plans do not require it.

G. Pick cotton as often and as clean as practicable and store in shallow layers in well ventilated, dry building, if there is evidence of excess moisture.

H. Store baled cotton in a dry building immediately after ginning.

I. Store planting seed in a dry building and in small lots to avoid heating. Grade, delint and treat before planting time.

(See or write county agent for U.S.D.A. Leaflet No. 211 [Cotton from Boll to Bale].)

XI. **Classing:**

Farmers producing cotton under the one-variety cotton improvement program are eligible to receive free classification on their crop, and are urged to consult their county agent as to procedure in securing this service. This classification is acceptable to the Commodity Credit Corporation in making Government loans on cotton.

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
OF THE
UNIVERSITY OF NORTH CAROLINA
AND
U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING
N. C. AGRICULTURAL EXTENSION SERVICE
I. O. SCHAUB, DIRECTOR
STATE COLLEGE STATION
RALEIGH

DISTRIBUTED IN FURTHERANCE OF THE ACTS OF CONGRESS OF MAY 8 AND JUNE 30, 1914