

THE GROWING OF SEA ISLAND COTTON IN THE COASTAL PLAIN OF GEORGIA

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THE GROWING OF SEA ISLAND COTTON IN THE COASTAL PLAIN OF GEORGIA¹

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INTRODUCTION

Before the advent of the boll weevil practically all of the sea island cotton produced in the United States was grown in the northern half of Florida and in the Coastal Plain areas of Georgia and South Carolina. Prior to 1918 sea island was one of the principal money crops for this section.

From 1899 to 1918 the yearly production of sea island cotton in the United States ranged from 52,208 to 119,293 bales. The production for Georgia during this period ranged from 21,279 to 77,961 bales; Florida from 20,571 to 41,531 bales; and South Carolina from 3,486 to 14,573 bales. In 1917-1918 the boll weevil invaded the territory and production gradually declined. By 1922 it was practically abandoned in the United States. During the years that farmers found the growing of sea island unprofitable under weevil conditions and discontinued its growth, the United States Department of Agriculture continued small experimental plantings for the purpose of maintaining the seed and to study the possibilities of production under weevil conditions.

An attempt to revive the industry was made in Florida in 1934, the United States Department of Agriculture furnishing the seed for the initial plantings. Commerical plantings were made in Georgia in 1936. Since 1936, Georgia and Florida have been the principal producing states. Other states in the Cotton Belt, some of which did not produce sea island before the invasion of the weevils, are now experimenting and growing the crop to some extent. Because of restrictions on the acreage which may be planted in upland cotton, many farmers have become interested in sea island as a supplemental cash crop.

IMPORTANCE OF PLANTING PURE SEED

Sea island fiber is superior in quality to any other cotton produced and is being used by mills in the manufacture of sewing thread, lace yarns, fine dress fabrics such as lawns and broadcloth and fine mechanical fabrics such as airplane wing coverings, typewriter cloths, parachute cloth, dirigible outside coverings and gas cell fabrics. It is used in the making of barrage balloons for national defense.

In order to produce the strong, high quality fiber with the length and uniformity desired by manufacturers, the planting of pure seed is essential. A large percentage of the sea island grown in Georgia and in some other states is grown either adjacent to or only a short distance from short staple cotton. Under such conditions cross pollination by bees and other insects occurs and the seed becomes contaminated.

¹In cooperation with the United States Department of Agriculture, Bureau of Plant Industry; Georgia Experiment Station and the Georgia Agricultural Extension Service.

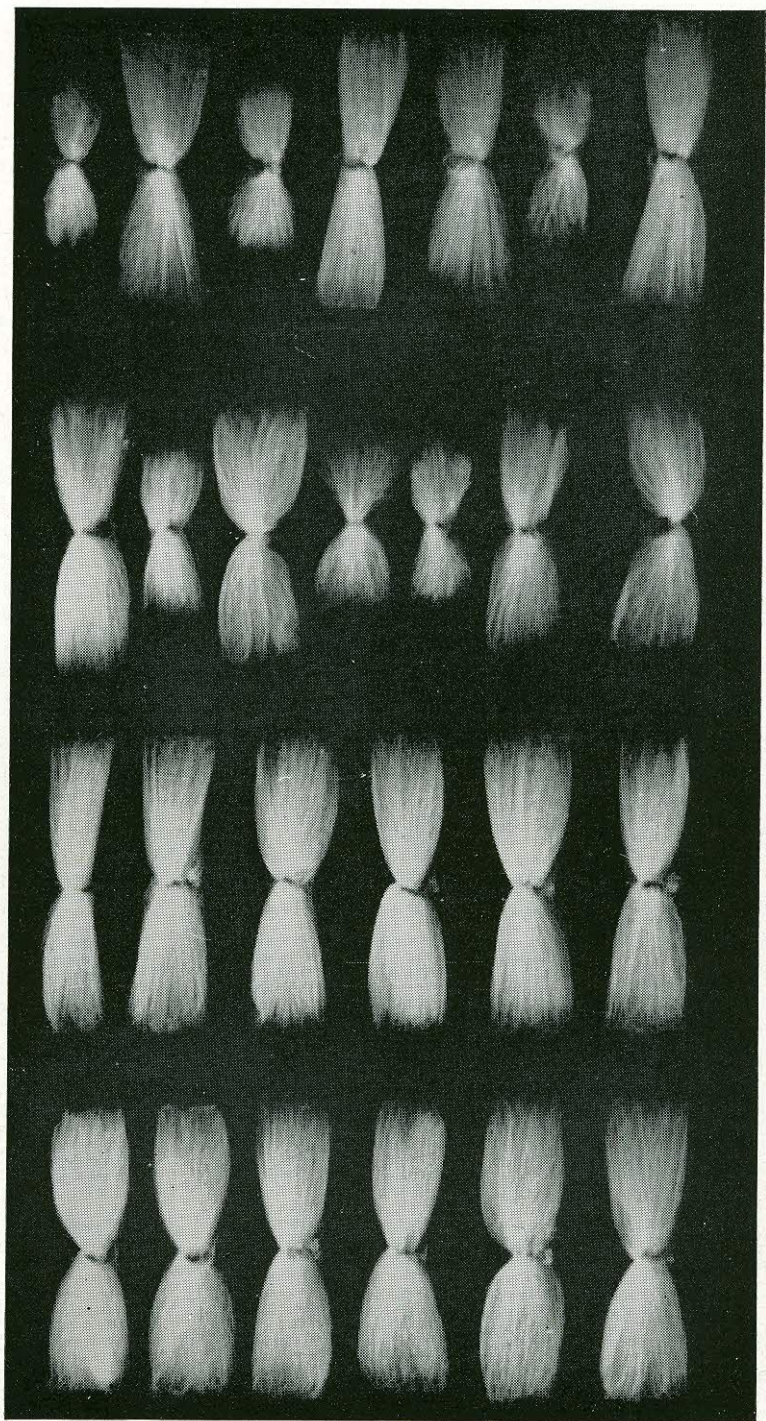


Fig. 1.— Uniform Sea Island Cotton Produced from Pure Seed.

Sea island crosses readily with upland cotton resulting in seriously mixed seed stocks as seen at right. When it is necessary to plant sea island near upland cotton fresh seed should be obtained each year. Variable staple is not wanted by mills.

Many farmers continue to plant the impure seed from year to year and produce inferior, short, irregular staple with low gin turn out. As a further result of this crossing, many sterile plants (known as "he plants" by farmers) appear in the fields. These plants are luxuriant in growth but bear no fruit, take up space in the field, and use their proportionate amount of fertilizer. Where sea island and upland cotton are planted in close proximity, growers should, therefore, secure fresh seed each year.

The appearance of the seed in a measure reflects its purity but this is not always a dependable indication of purity. Pure sea island seed is smooth on the sides with a small fuzzy tuft on each end. However, if it has been cross-pollinated with upland cotton it will produce mixed seed and lint. The number of off-type plants in a field is the only practical means of determining the purity of the seed. Seed from fields with more than 10 off-type plants per acre should not be saved for planting purposes. At ginning time many farmers take home seed which is badly mixed with fuzzy green and white seed and use this seed for planting or to sell to their neighbors. This practice should be discouraged by both ginners and farmers.

Many growers in Georgia have been penalized as much as 20 cents per pound because of short and irregular staple. This represents about \$80 per bale which might have been saved if pure seed had been planted. At a price of \$2.00 a bushel for pure seed or about \$1.00 per acre it is false economy to plant gin-run or contaminated seed and run the risk of lower

Fig. 2.—Buyers grading and stapling sea island cotton samples.



yields and price penalties at marketing time. In states which do not have a seed certification law, much "gin run" sea island seed has been sold for planting purposes at high prices. The only security for farmers under such conditions is to purchase seed from reliable sources.

REQUIREMENTS OF MILLS AS TO FIBER QUALITY

If a permanent market is to be established for sea island it will be through the regular production of quality cotton. Egyptian cotton is the nearest competitor to sea island and many thread mills which formerly used sea island are now using Egyptian. The sea island growers themselves, in large measure, will determine the future possibilities of sea island in the United States. A regular production of quality cotton is essential and each grower will need to do his proportionate share to develop a satisfactory market.

Most of the sea island is bought by mill representatives, brokers, and local buyers. The price paid by buyers does not always reflect its true value since it is difficult to determine the quality of a bale from a small sample. The true quality is not actually determined until the cotton reaches the mills and is in the process of spinning. Since the mills are the actual users of the cotton, their reaction to quality can not be overlooked.

Mills which use sea island desire uniform staple of $1\frac{5}{8}$ to $1\frac{3}{4}$ inches. They also desire clean, white cotton, free from trash and stain. In the process of spinning, the machines are set for a certain length staple. If the staple is irregular in length, the shorter length fibers are automatically thrown out as waste. A serious market reaction may result if the cotton is wasty and does not meet the mills' requirements. Mills may discontinue the use of sea island and may seek other varieties. In sections which have built a reputation for producing quality cotton, such cotton is in demand by mills at premium prices.

MAINTENANCE AND DISTRIBUTION OF PURE SEED

In order to eliminate cross pollination in the fields, sea island should be planted at least one mile from any cotton of a different variety. It is difficult to obtain adequate isolation in sections where upland cotton is grown extensively, as in most parts of Georgia. The growing of pure seed, therefore, should be confined to sections with small upland acreage and to large land owners who can provide the desired isolation.

During the former period of sea island production it was customary for farmers in Georgia and Florida to obtain pure seed from the Sea Islands of South Carolina as the seed "ran out" on the main land and it was necessary to periodically renew the stock. However, seed from the Carolina islands is no longer available and if the industry is to survive, production of pure seed must be established on the mainland.

In order to produce pure seed the grower should have adequate isolation and plant a pure strain which has been tested and recommended by the experiment stations, the extension service and the United States Department of Agriculture. The cotton from such plantings must be carefully handled so that it will not become mixed with other cotton which may have been

left in picking sacks, or in barns, wagons, etc. If other varieties of cotton are grown on the same farm the sea island should be stored in a separate barn to prevent the cotton being mixed by rats and other animals.

Special precautions also would be necessary to prevent seed mixture at the gins due to careless operators or to the fact that the gin is not equipped to prevent seed mixture. Gins equipped with screw seed conveyors and cotton elevators which can not be cleaned should be avoided. Extra precaution should be taken to see that the loading platform, gin house, gins, seed chutes, and seed house are thoroughly cleaned before the cotton is brought into the gin house.

If sufficient isolated acreage could be located in each principal sea island producing county to meet the demands of farmers in that county, pure seed could be made readily available at a price that growers are willing to pay. Ginners are usually the principal sources of seed and they are particularly interested in distributing the seed in their immediate gin territory. If the supply is limited, they are reluctant to furnish seed to other sections.

Centralizing of the planting seed, produced by selected growers in one county or community for general sale is a practical way to produce and distribute the seed in an orderly manner. If this procedure is followed a ginner or someone interested in promoting the production of quality cotton could either pay the seed growers a premium over the price of oil mill seed or could sell the seed and prorate the funds to the growers after the seed is sold. Or a group of growers in a community could organize into a seed association and pool their seed and sell it through their own association as is done in many of the upland cotton one-variety communities.

If the planting seed were centralized it would be possible to reclean and treat all of the seed, whereas, if each grower handled his own seed this might not be done and proper distribution would be difficult. If there were a surplus supply of seed in any community some growers might not be able to dispose of their seed. The practice of many farmers waiting until planting time to place orders or secure their planting seed makes distribution of seed from a central point difficult. If farmers would place their orders during the winter this would assure them of their planting seed and also would protect the seed distributors and seed growers. The seed requirements for a county or community could be supplied first and any surplus could be sold to other sections.

ADVANTAGES OF ONE-VARIETY COMMUNITIES IN MAINTAINING THE PURITY OF SEED AND IN MARKETING

In recent years thousands of upland cotton growers over the cotton belt have organized into one-variety cotton communities for the purpose of improving the quality of their cotton. In these communities the farmers agree to plant one of the leading varieties of cotton adapted to their locality. Pure seed is multiplied by grower members each year and that seed is pooled and sold at a reasonable rate to the members of the organization. Since all of the cotton grown in the community is of one variety there is no crossing in the fields with other varieties, and the seed maintains its purity. All of

the cotton produced in the community is ginned at a designated gin which gins only the one-variety cotton. The mixing of the seed with other varieties and the plating of the bales is thus prevented. After a quantity of cotton of the same length of staple is produced, the community is recognized by mills and cotton buyers for producing quality cotton and usually the growers are paid a premium for the better cotton.

The advantages of community organization in the production and marketing of sea island are even greater than with upland cotton. Although, the exclusive growing of sea island in a community in many upland cotton producing counties may not be practical, many of the advantages of community production may be obtained by organization of sea island growers for the production of pure seed and the restriction of all plantings to approved seed.

Some of the objectives of a sea island organization are: The exclusive planting of pure seed of an improved strain for the production of quality sea island; the selection of certain grower members to increase the seed stock for the community; obtaining free Government grade and staple service, eligible only to such organizations, as assistance in marketing to the best advantage; cooperative purchasing in bulk of essential farm materials such as fertilizer, poison, seed, etc.; and making available to growers information on fertilizing, cultivating, poisoning, improved varieties and proper methods of handling the crop. Such information could be more readily disseminated to growers as a group than to individual growers.

In some counties in certain states the soils are not adapted to the production of upland cotton but will produce profitable sea island crops. This condition exists in many Florida counties. The farmers in some counties in that state have been instrumental in having legislation passed forbidding the planting of upland cotton.

IMPORTANCE OF ROGUING THE SEA ISLAND SEED FIELDS

The removal of off-type and hybrid plants from seed fields is called "roguing" and is an essential requirement in maintaining the purity of cotton seed. Occasional off-type plants occur even in pure sea island and must be removed in order to prevent cross pollination between these plants and the pure sea island plants. The roguing should be done as soon as the off-type plants can be recognized, preferably before flowering time. Hybridization between sea island and upland cotton occurs at a considerable distance. The first generation hybrids are usually very prolific and if the cotton from these hybrid plants is harvested the seed becomes badly contaminated and unfit for planting purposes. If this impure seed is planted the next year, short variable staple with a low gin turn out will result. Even though the grower does not expect to save his seed for planting purposes, the roguing of sea island plantings is advisable so as to produce a more uniform staple.

Off-type and hybrid plants are readily recognized in a sea island field and in most cases may be detected prior to the flowering stage of growth.. In the case of first generation hybrids with upland cotton, the leaves are larger, darker green, and lobes are not as deeply indented as pure sea island plants. During the mid-summer they are easily recognized since they are

more luxuriant in growth and usually grow much taller than the typical sea island plant. In the case of second generation hybrids, the plants frequently resemble upland cotton in the appearance of the leaves. The appearance of the flowers indicates the purity of the variety. Pure sea island produces a yellow flower with a deep red petal spot at the base of the flower. Hybrid plants may have a faded yellow or white flower with a faint red or no petal spot. The bolls are larger than sea island and are generally smoother and shaped like upland. Roguing should be completed before the boll stage is reached. If the farmer is in doubt about the plants to be removed the hybrid plants usually have white or red spots known as nectaries on the outside base of the squares or bolls. There may be one to four of these spots on each square or boll. Other determining characteristics are often noticed between hybrid and pure sea island plants. Roguing is a means of maintaining the purity of seed by pulling out the off-type plants when there are only a few. But when the seed stock has become badly contaminated it is advisable to sell the impure seed to the oil mill and purchase pure seed.

SEED TREATMENT

The treating of planting seed with organic mercuric dust such as Ceresan has become of recognized importance over the cotton belt. Most of the cotton seed sold by the principal commercial seed dealers are so treated. This treatment controls, in a large measure, the seed-borne diseases which cause stunted and unhealthy plants and poor stands. The greatest benefit from seed treatment will be derived during cold wet spring weather.

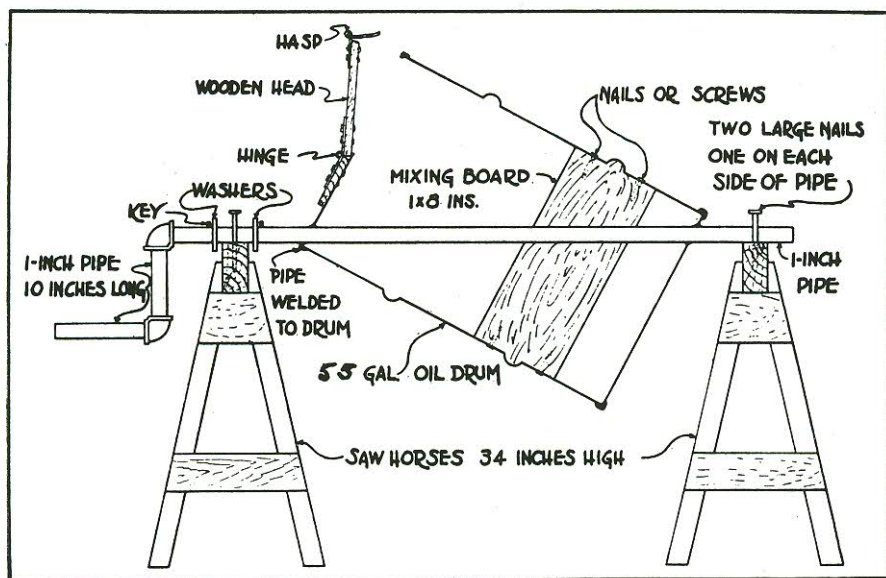


Fig. 3.—This inexpensive home-made treater will treat cottonseed effectively.

Cotton seed must be thoroughly matured and dry before treating. Treated seed may be kept in storage or planted immediately. The mercuric dust is

deadly poison and the seed should be treated in well ventilated buildings or in the open in order that the operators will not breathe an excessive amount of the dust. Treated seed should not be sold to oil mills or fed to cattle.

If Ceresan is used, the following dosage is recommended:

For 5% Ethyl mercury phosphate (New Improved Ceresan), $1\frac{1}{2}$ ounces to each bushel of sea island cotton seed.

For 2% Ethyl mercury chloride (2% Ceresan), 2 ounces to each bushel of sea island cotton seed.

In using the oil drum treater (fig. 3) the drum should be about one-half to two-thirds full of seed and the dust should be added as outlined above. The treater should be turned slowly for about five minutes or about 20 complete turns, then the seed removed and placed in sacks.

In many communities and counties, warehousemen, ginnermen and others have mechanical treating machines and treat cotton seed for farmers at minimum cost.

SELECTION OF FIELDS FOR PLANTING AND FERTILIZATION

Fields which are well drained and are under a good state of cultivation should be selected for planting sea island. Heavy, rich soil may produce rank late maturing plants with too much bush and few bolls, especially in wet years. Usually the soils which will satisfactorily produce upland cotton will produce sea island. However, sea island is believed to be best adapted to the Coastal Plain soils. The pebbly soils found in South Georgia have been found to be well adapted to sea island production.

The fertilization of sea island will depend on the location, soil types, and the fertility of the soil. Generally, sea island should be fertilized similar to upland cotton except that no nitrogen top dressing is generally recommended. When the plants appear stunted by cold weather or other causes, a top dressing of 100 pounds of a mixture of equal parts of nitrate of soda and kainit may be advisable. From 300 to 500 pounds per acre of a fertilizer analysis 3-8-8 (nitrogen-phosphorus-potash) is generally recommended for Georgia soils. When planting on new land or land which has been in cultivation only a few years, a 3-12-8 fertilizer is generally recommended. Most of the Coastal Plain soils where a large portion of the sea island is grown are deficient in potash. Since sea island requires about three weeks longer to mature than upland cotton a sufficient amount of this material is necessary to ripen and mature the late bolls and to prevent rust. When plants become defoliated due to potash hunger the staple of the cotton from the top bolls is likely to be inferior in length and quality and under some conditions the top bolls may fail to open. On land known to be severely deficient in potash, additional applications of muriate or kainit should be applied as a top dressing at appearance of first squares.

PLANTING, SPACING AND CULTIVATION

Plantings should be made as early as possible; in South Georgia during the last two weeks in March. Consider the location and weather conditions,

using about one-half bushel of seed per acre. The spacing of the rows and the plants in the rows should be governed by the type of soil and its fertility. In planting on fertile soils, under a high state of cultivation, where the plants will grow four feet in height, it is advisable to space the rows five feet apart and the hills from 15 to 20 inches apart. On medium fertile soils, the rows should be from 4 to 4½ feet apart and the hills about 12 to 15 inches.

As a precautionary measure, the seed should be tested for germination. Seed germinating 85 per cent or better should be planted at the normal rate per acre; 70 to 85 per cent at a slightly higher rate and from 60 to 70 per cent germination at about double the rate or about one bushel per acre. Seed germinating below 60 per cent should be considered as unfit for planting purposes.

The use of cotton planters having a narrow heavy wheel, leaving the seed in a depression, is apt to cause poor stands as the furrows may become filled by blowing sand and heavy rains which may cover the seed too deeply. Seedlings which emerge from seed planted too deeply usually are yellow and unhealthy and, as a rule, do not grow off as quickly as plants which come up promptly.

In preparing the land for sea island, the turning should be shallow and should be done in the late fall or early winter so that the land will have adequate time to settle. Frequent shallow cultivation is recommended for sea island, to induce normal plant development and fruiting and to help control the boll weevil. Deep plowing after the plants have developed will cut roots and cause shedding.

CONTROL OF BOLL WEEVILS

Upland cotton bolls become hard and are comparatively resistant to weevil attack when 10 or 15 days old. Sea island bolls remain soft and susceptible to weevil injury until the boll opens. For these reasons, sea island is a hazardous crop unless adequately protected from weevils. Upland cotton has a determinate habit of growth in that it sets and matures fruit in a relatively short period of time, whereas, the sea island continues to set fruit until the plant is killed by frost.

Many farmers who do not poison their upland cotton, in attempting to grow sea island without poison have made a failure and, therefore, become discouraged with the crop. A number of these farmers have analyzed the cause of their failure and having resorted to a poisoning program have been pleased with their results. Many farmers have poisoned the sea island a few times and have condemned the practice of poisoning. Unless the applications of poison are properly timed and continued until almost harvest time, poor results may be expected. In sections where upland cotton is extensively produced the weevil hazard is much greater as there is a "build up" of weevil population to a point where it comes to be a serious menace to the later maturing sea island. In such sections the weevils multiply in the earlier maturing upland cotton and, as a rule, do comparatively little damage to sea island early in the season. The heavy mid-summer migration of weevils occurs just when the upland cotton has ceased to set fruit and at that

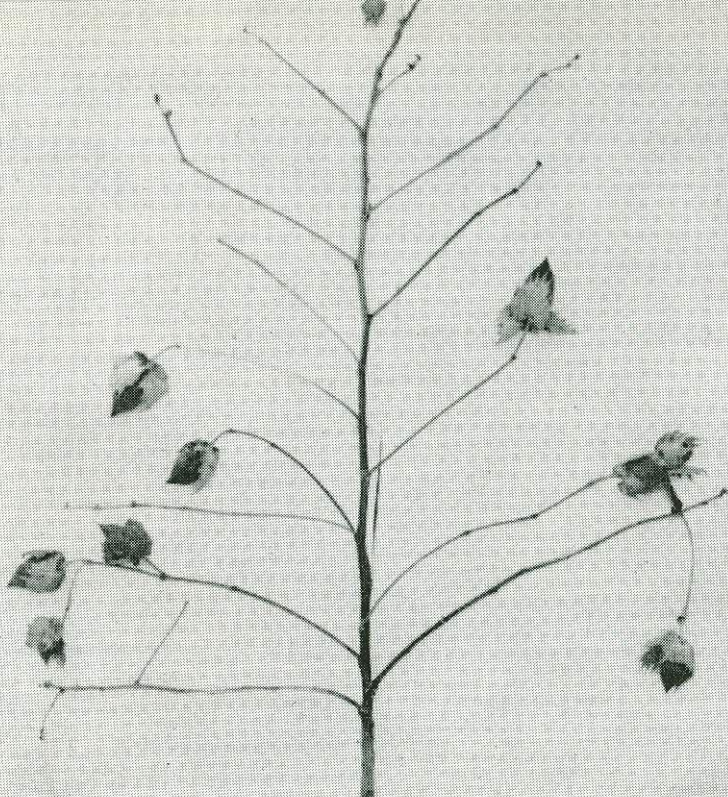


Fig. 4.—Sea island stalk taken from a field which received no poison. Weevils stripped the middle and top crop.

time large numbers of weevils move out of the upland into the sea island. In sections where upland cotton is grown extensively, from 75 to 90 per cent of the unpoisoned sea island crop may be destroyed by weevils after the mid-summer migration commences.

Many farmers make a few applications of poison early in the season but discontinue poisoning at the most critical time—after the migration commences. This is due to three causes: first, many farmers believe that when the sea island boll is well grown it is safe from weevil injury; second, they have no confidence that poison will kill the weevils since they have tried poisoning in a haphazard manner and obtained little or no results; third, sea island is extensively grown in the tobacco belt of some states. At about the time the heavy weevil migration commences and the need for systematic poisoning is greatest, farmers are busy marketing their tobacco. During the tobacco harvesting and curing season and, especially when the tobacco markets are open, other crops suffer from lack of attention.

Dusting with calcium arsenate has proven the most effective method of controlling weevils. (See fig. 6) Proper dusting machinery is necessary for effective control. Experiments have shown that dusting cotton during the mid-day is just as effective as early morning or night poisoning. Calm weather should prevail so that wind currents will not carry the poison more than 3 or 4 rows. Generally, from 7 to 9 effective applications should be made during the season, using about 4 pounds of calcium arsenate per acre

when the plants are small and from 6 to 8 pounds when the plants are large. From two to three applications should be made early in the season and from five to six applications to control migratory weevils later in the season. Any application which is washed off by rain within 24 hours should be re-applied. The duster nozzles should be elevated about 5 or 6 inches above the plants and adjusted so that the poison is driven downward through the plants.

If hibernated weevils are numerous and are damaging the terminal buds of the plants a pre-square poisoning is recommended. The usual time to commence poisoning, if weevils are present, is when plants have small squares. Destruction of hibernated weevils before the squares are large enough for hatching of weevils, may reduce the number of early season applications of poison. During the early part of the season, there is little movement of weevils from field to field and if the hibernated weevils are destroyed before many squares are infested, from two to three weeks may elapse between poisonings. After the mid-summer migration commences,

Fig. 5.—Sea island stalk taken from a field which was dusted systematically with calcium arsenate. Note matured bolls on the middle and top of the plant.

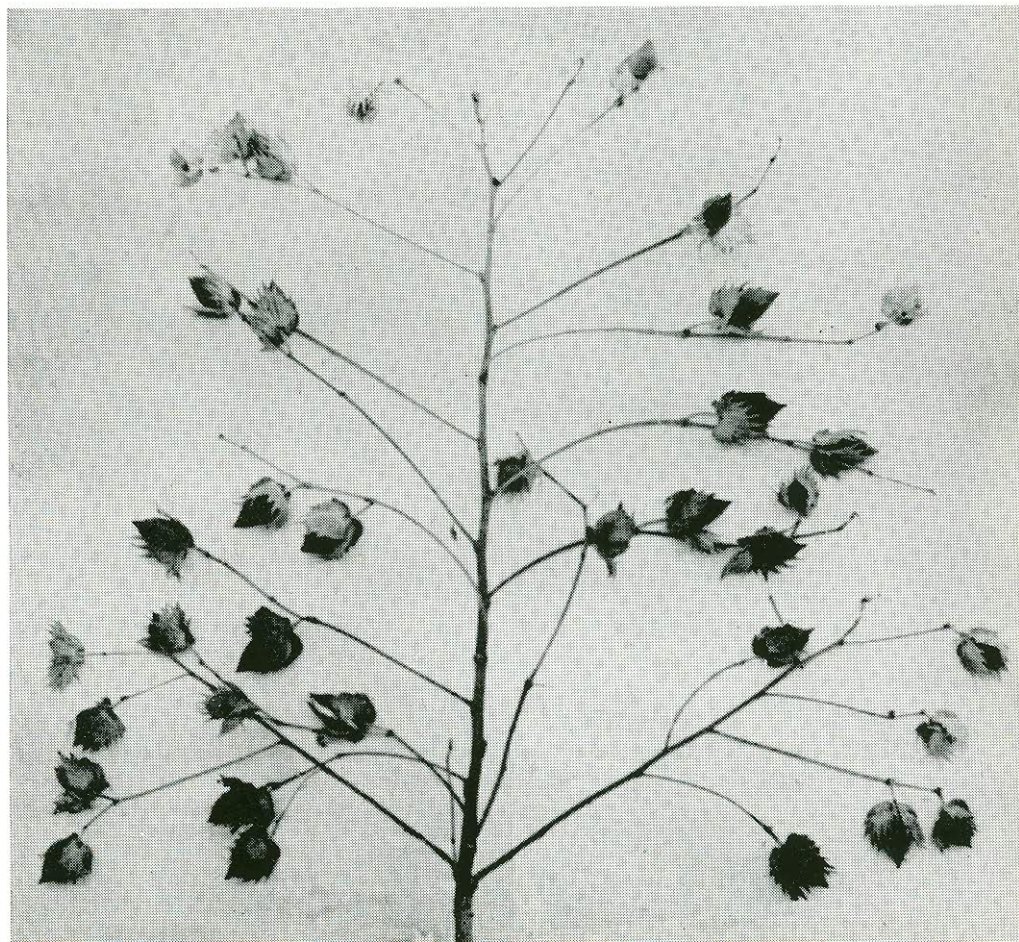




Fig. 6.—Dusting sea island cotton with a two-row traction dusting machine. The nozzles should be placed about 6 inches above the plants for best results.

which usually occurs in South Georgia during the last 15 days in July, it will be necessary to apply poison regularly at from 5 to 7-day intervals until about the first week in September. The late applications are especially important if the bolls are to be protected. (See figures 7 and 8) Applications are based on the assumption that weevils are present in the fields. Growers should inspect their fields once or twice a week and apply poison according to weevil infestation.

Care should be taken in storing and handling the calcium arsenate and the poisoning machinery so that children and livestock do not have access to them.

If sea island plantings are not properly poisoned and the weevils are active and destroy most of the fruit, the plants may become very rank in growth. If the weevils are controlled and the plants are allowed to mature their fruit, the plants will develop normally in size, provided the crop is properly fertilized and planted on suitable land.

The tendency of sea island cotton to develop rank growth when weevils are not controlled has caused many farmers to inquire about "low bush" varieties. A term "low bush" possibly originated merely as a selling point since there are no low bush varieties of sea island cotton.

Each grower should destroy his cotton stalks soon after the crop is harvested, and sometime before the first killing frost. Early destruction of



Fig. 7.—This sea island cotton field was dusted systematically with calcium arsenate. Many squares, blooms and bolls can be seen. Compare with Fig. 8 as this is a portion of the same field but was protected from weevils. Pictured the same date as Fig. 8.

Fig. 8.—This field of sea island cotton received no poison. Few squares and no blooms can be seen.



stalks removes the food supply of the weevils and forces them into hibernation and reduces their chances of survival through the winter.

IMPORTANCE OF CARE IN HARVESTING

The exercise of greater care in harvesting sea island is an important factor in obtaining better prices for the fiber. More care must be exercised in picking this cotton free of trash than in picking upland or short-staple cotton. Since the sea island or roller gins are not equipped with cleaners, as is the case with saw gins, much of the trash and boll-weevil-stained cotton will appear in the lint, lowering the grade and, therefore, reducing the value of the lint.

Sea island cotton should be picked as soon as it opens, as cotton which remains in the field becomes off-color. It is much more difficult to harvest cotton free of trash if picking is delayed until the plant foliage begins to die. Better prices will be obtained if hard locks and stained cotton are sorted out before ginning.

The seed cotton must be thoroughly dry to secure the best job of ginning. Even though it appears to be dry when picked, it should be spread on a shed roof, or on sheets or bags, etc., if a sunning platform is not available. The cotton should be spread in a layer about six inches thick and turned at intervals during the drying process. The direct rays of the sun whiten and bleach the lint, and thereby improve the grade. No seed cotton should be stored damp as it will mildew and become off-colored and the germination of the seed will be damaged. A good way to determine whether or not the seed cotton is dry is to bite the seed, and if the seed cracks the cotton is dry. Cotton will improve in quality if stored in the seed, provided it is thoroughly dry.

Regardless of how well the sea island gin may be equipped or how efficient the operator, it is impossible to produce a good grade of lint if the seed cotton is brought to the gin damp. When cotton is damp the seed is soft and it is very difficult to set the gin so as to prevent crushing some of the soft seed. Seeds crushed by the gin make oily spots in the lint and the crushed seed hulls will also appear in the lint.

Sea island cotton is being bought strictly on grade, staple length, and uniformity of staple, with a wide range in prices paid from the lower to the top grades and from the shorter, mixed staple to the longer, uniform staple. It is therefore important that the clean white cotton should be kept separate from any off-colored, weathered cotton and should be ginned and baled separately. If this is done, a grower is able to get the best prices for the best grades, whereas, if the low grades are mixed with the better grades, the grower is paid for all of the cotton on the basis of the low grade.

GINS REQUIRED FOR SEA ISLAND

In order that the long silky fiber of sea island will not be gin cut it must be ginned on a roller gin. In some sections where sea island is a new crop and where there are no roller gins, sea island has been ginned on a saw gin. Sea island ginned on a saw gin may not be salable and if sold a penalty of 15 to 20 cents per pound may result.

Experiments have shown that running the sea island cotton through a cleaner and dryer before ginning tangles and ropes the long fibers causing the gin preparation to be rough. The mechanical cleaning of sea island also causes many fiber "neps" (tangled fibers) which are objectionable in the spinning of thread and manufacture of fine fabrics. The cotton is not damaged in conveying the seed cotton from wagons or bins if the cotton is sucked up and dropped. But the action of sucking and then blowing the cotton into bins, etc., may result in roping and tangling the fibers which will affect the ginning preparation. Since it has been found that sea island can not be mechanically cleaned without injury, it should be properly prepared before being taken to the gin.

When sea island was grown extensively, there were many experienced roller gin operators. Such operators are now difficult to locate. Many inexperienced persons who have attempted to operate roller gins have found it a very difficult task. Roller gins require constant adjustments, often daily, in order to get satisfactory production, and to prevent kinking of the fibers, cracking of seed, etc. (See fig. 9). These minute adjustments require the services of an experienced operator, otherwise, much time will be wasted, and considerable damage to the cotton may result.

The principal part of a roller gin is the roller. In order not to damage the lint cotton the roller must be kept in good condition and free from holes which will crack seed. The rollers should be kept grooved to prevent the cotton from hanging on the fixed knife which crimps and often breaks the fibers. Rollers properly grooved will not only improve the quality of the cotton but will gin more cotton in a given time than one not grooved. In the

Fig. 9.—Lint cotton coming from a roller gin. The complete lint coverage of the roller indicates proper gin adjustment and a uniform cotton staple.





Fig. 10.—Bales of sea island cotton properly wrapped. Bales are sewed on all sides and no cotton is exposed.

past, walrus hide has been used extensively as a roller covering. Recently, walrus has been costly and difficult to obtain and experiments have been conducted with different roller coverings. A packing consisting of rubber and cotton fabric has been found to give satisfactory results. The packing is easily obtainable, less expensive, and more durable than walrus. Experiments have shown that a gin equipped with a solid composition roller or a combination of walrus and packing will gin as much or more cotton than one equipped with a walrus roller.

When using a solid composition roller it is essential that a doffer be used as the lint cotton adheres to the composition and if allowed to pass around the roller serious trouble from back lashing will result. A special doffer has been designed at the U. S. Ginning Laboratory, Stoneville, Miss., which will prevent back lashing and also improve the ginning preparation of the lint cotton. This doffer is a revolving cylinder with rubber strips attached and turns in front of the roller.

The bagging for wrapping sea island bales should completely cover the cotton on all sides. Before the press is released the bagging should be sewed all around the bale with heavy twine so that no cotton is exposed. The practice of tucking the bagging under the end ties is not desirable as it soon pulls out in handling and much of the cotton is soiled in transit. Mills have often complained that sea island was received in poor condition and the

cotton was badly soiled in transit due to the fact that the ends and side of the bales were not sewed. Mills may not be willing to pay high prices for sea island if some of the cotton is soiled due to poor wrapping, since this soiled cotton is a loss to the mills. Sea island must compete with Egyptian cotton which is very carefully wrapped. The poor appearance of a bale reflects careless handling and may result in lowered prices. The growers should demand that their sea island be properly wrapped and the bales sewed. (See fig. 10.)

MARKETING SEA ISLAND COTTON THROUGH COOPERATIVE SALES

In 1939, 1940 and 1941, some of the sea island cotton produced in Georgia was sold at cooperative sales. After ginning, the growers stored their cotton until a considerable number of bales were assembled. A sales day was designated and the principal cotton buyers were invited to attend. Each bale was classed and bid on by each buyer. After quotations had been submitted by all buyers, disinterested persons determined the highest bidder on each bale. The bale number with the highest price offered was announced and the growers either accepted or rejected the bid.

In order for such sales to be successful only sea island should be offered. In some instances, growers have offered bales of long staple upland cotton at the sales in an effort to confuse the buyers and to obtain sea island prices. This practice is objectionable to the buyers and may result in disrupting the sales.

In the one-variety communities, if the bales known to have been grown from pure seed are properly tagged and these bales separately assembled, more interest should be stimulated in the sales due to the quality of the cotton.

Fig. 11.—Farmers attending a sea island cotton cooperative sale. The announcer on the platform reading the highest price offered on each bale. Most of the cotton offered not pictured.



As a rule many farmers attend the sales and the difference in prices offered for the quality cotton as compared with the low prices for the inferior cotton should impress upon the growers the importance of planting pure seed of a recognized variety and care in harvesting and ginning.

IMPROVED VARIETIES

Considerable breeding work is being carried on by the United States Department of Agriculture in an effort to develop the best strains of sea island for Georgia and other states, both from the standpoint of production as well as fiber length and quality. New strains or varieties have been brought into this country and should any of these prove by tests to be more desirable than present varieties, seed will be released for multiplication and distribution to growers. Strain tests are in progress at the Experiment Station.

SUMMARY

Sea island cotton fiber is the finest cotton fiber produced in the world. It is strictly a specialty crop, and requires more care and attention than upland cotton if profitable results are to be realized. Sea island is sold strictly on quality, and in order to produce the length and uniformity of staple which is desired by the mills it is most essential that pure seed of a recognized variety be planted.

Mills desire uniform staple of $1\frac{5}{8}$ to $1\frac{3}{4}$ inches. The planting of varieties which produce inferior, shorter staple and the planting of mixed seed which also produces inferior cotton has resulted in penalties in price of as much as 20 cents per pound. The production of inferior sea island may result in a serious market reaction and cause mills which are using this cotton to seek other varieties.

The survival of the industry will depend on the availability of pure seed at reasonable prices. One-variety community organizations have assisted in pure seed production and in so improving the quality of the cotton that premium prices are usually paid.

In order to grow pure seed, the sea island plantings should be isolated about one mile from cotton of other varieties. These plantings should be rogued, and the cotton carefully handled on the farm and at the gin to prevent seed mixture.

Sea island is believed better adapted to the Coastal Plain soils and conditions. It should be fertilized somewhat similar to upland cotton except that no nitrogen top dressing is generally recommended.

Planting seed should be treated with organic mercuric dust to control seed-borne diseases which cause stunted plants and irregular stands.

The sea island boll is soft and susceptible to weevil injury until the boll opens. For this reason, sea island is a hazardous crop and its growth should not be attempted unless it is protected from weevils. Dusting with calcium arsenate has proved the most effective method of controlling the weevils on sea island. If weevils are present, from 7 to 9 applications are recommended. If any of these are washed off within 24 hours the applications should be

repeated. In order to protect the bolls from weevil injury the late applications are most essential.

Cotton stalks should be destroyed soon after harvesting as a means of weevil control for following year's crop.

Low prices frequently are obtained for sea island cotton because of improper harvesting. Since roller gins, which are required to gin sea island have no cleaners, the cotton must be harvested free of trash and stain in order to receive top prices.

Many growers who have held their sea island and sold it at cooperative sales were pleased with the results. It is believed that competitive buying stimulates higher prices.

References

"Pure Seed Requirements in the Production of Sea Island Cotton."
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