SYSTEMS FOR CREATION OF FINE AND MEDIUM FIBER VARIETIES OF COTTON IN COTTON PRODUCTION

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Annotation. *This article is devoted to the importance of systems for creating fine- and medium-fiber cotton varieties in cotton seed production in agriculture, as well as the types of seed production systems available in our country and their testing.*

Key words: *agricultural crops, high-quality harvest, agricultural enterprise, seed production system, high-quality seeds, fine- and medium-fiber cotton varieties, elite seed farms, creation of a new variety.*

The cotton seed production system in our country consists of propagating the best varieties of this crop in a short time, introducing them into production and providing farms with high-quality seeds. New promising varieties are first bred in special farms, and after their localization, seed work is completely entrusted to elite seed farms.

Elite seeds are grown in special elite seed farms, seeds of the first reproduction - in specialized seed farms. The first reproduction seeds grown on these farms are sent through cotton ginning enterprises to the first group of high-yielding seed farms in the region. Seeds of the second reproduction are sent to the second group of seed farms through cotton ginning enterprises. These farms grow seeds of the third reproduction and supply seeds to all cotton-growing farms in the region.

Seeds of a new localized variety, obtained after primary selection, are planted in elite nurseries of elite seed farms located on farms. The seeds obtained after elite sowing are sown again on the same farm the following year. The seed received from him is considered reproduction I, and the next year it is planted in other farms and is considered reproduction II. In this order, seed production continues until IV reproduction is obtained. Reproduction Seed IV cannot be seeds, it is transferred to the relevant organizations to obtain oil and other products. Thus, the process from elite to IV reproduction takes 5 years.

Improving seed production, organizing production and improving seed quality. The existing seed production system for each crop cannot be considered permanent. With the further development of agricultural production, seed production is being improved and improved. A distinctive feature of the modern seed production system is the expansion of specialization of its constituent industries.

In order to further improve the efficiency of agricultural production, the introduction of advanced science and technology in specialization, expansion of seed production and its organization on a production basis with inter-farm cooperation plays an important role. That is why our government always pays great attention to this issue.

Specialization and concentration of the production of seed material that meets state standards and technical requirements for varieties and planting qualities in specially specialized farms, as well as mechanization and automation of all technological processes using the least amount of manual labor when organizing seed production. In the CIS countries and abroad, a lot of rich experience has been accumulated in the specifics of organizing seed production of agricultural crops on an industrial basis. Therefore, in our republic, specialization in the production of productive and high-quality seeds continues and is improved.

The process of improving the organization of seed production and improving the quality of seeds involves mechanized, automated, centralized seed

production complexes in specially specialized seed farms or in seed production departments of large farms and associated with the use of factories. Thus, the work of growing fertile seeds is completely separate from the process of growing grain for food and feed.

The production of elite seeds and reproductions is carried out by research institutions, educational and experimental farms of higher and secondary specialized agricultural educational institutions and elite seed farms.

To provide high-quality seeds for agricultural crops in farms that are not involved in seed production, fairly specialized seed farms have been created. Specialization in seed production continues and is improved. Currently, there are four types of it: intra-farm, intra-district, intra-regional and interstate specialization.

Growing elite cotton seeds. Seeds obtained from the primary reproduction of a localized new variety are sown in elite nurseries of elite seed farms located on the farms. Seeds obtained from an elite nursery are sown again in the same farm the following year, and reproduction I seeds are grown and used for planting in other farms. As a result, seeds of reproduction II are obtained.

Work continues in this order until planting IV propagation. Seeds obtained from IV reproduction are not sown, but are used to obtain oil and other products. Thus, the period from elite to IV reproduction lasts 5 years. Elite nurseries in elite seed farms that grow seeds annually are the starting point for localized seed propagation of new varieties.

Here work is carried out continuously in two directions:

• cultivation of elite seeds;

• selection of source plants.

The seeds of these selected plants are sent to an elite nursery for planting. Once the new variety is localized, the elite seed operation will be transferred from the primary breeding farm to the production elite farm. Elite seed farms are organized in regions with almost identical soil and climatic conditions. Each elite farm grows only one type of domesticated cotton seed. Elite seed farms cannot

plant and test other varieties of cotton. Each elite farm grows a sufficient number of elite seeds (about 40,000-50,000 hectares) to renew the variety according to a five-year plan. inbreeding.

The breeding institution that created each promising cotton variety, or the author, studies the result of crossing within the variety before localizing this variety and decides whether to use it or not.

Growing elite seeds without crossing. This method of selecting elite seeds is based on testing 2-3 generations of the best typical plants grown in high agrotechnical conditions and conducting unlimited individual selection. With this method, three nurseries are created for growing elite seeds of the variety.

1. First year seed nursery.
2. Second year seed nursery.
3. Seed propagation nursery.

In the first year seed nursery, the most suitable layerings obtained through individual selection are selected and propagated. The area of this nursery must ensure the production of elite seeds in all areas belonging to this elite farm, while maintaining the characteristics and characteristics of the variety, in accordance with the five-year variety renewal scheme every year.

The first year seed nursery typically produces at least 1,500 plants, individually selected from the best seed families.

Each selected part of the seed is sown in a separate row of 40-50 nests - manually or with a suitable seeder, with a distance between nests of 30-40 cm. The nursery area is from 0.5 to 1 ha.

Uniformization is mandatory; one plant is left in each nest and conditions are created for the normal development of all morphological characteristics of the plant, especially the branches of agricultural crops. This is necessary for a correct assessment of the typicality of plants. Growing and inspecting plants is the most responsible and hard work.

The field is checked twice: at full flowering of the cotton plant and at the beginning of the opening of the bolls, families that are atypical in morphological

characteristics and plants lagging behind in development, gommosis or wilting are identified. They are then recorded in a field notebook and marked as "unusable." Some atypical or diseased plants in good families are uprooted. Families with more than two percent atypical plants are also disqualified. During the second field inspection, the plants are examined especially carefully. At this time, the quality of the cotton or fiber can be assessed by organoleptic method. In addition to the additional recognition of atypical families and plants as invalid, some families with low yields, late ripening, diseased and damaged by pests are also recognized as invalid.

The seed cotton harvest in the seed nursery of the first year is harvested once, when each boll contains 6-7 open bolls, in the following order:

a) samples are taken for analysis;

b) harvesting families and plants that have become unusable;

d) collection of raw cotton in individual families. The cotton crop collected from 100 bolls of each selected family is called the sample for analysis.

When sampling cotton, one or two bolls are taken from the second and third branches of the harvest of all healthy, normally growing plants of the family. To correctly count these cells, they are placed in special boxes with cells. Each sample is placed in a separate bag, the family number is written on it and a label with the same number is placed inside. Samples are sent to the laboratory to check weight, fiber yield and bag length.

The harvest of unsuitable families and plants is collected 1-2 days before the harvest of good families and delivered to the cotton mill. The harvest of selected families is collected individually in bags pre-numbered and prepared for each family. Inside the packages there is the same label with a number written on it.

Seed cotton is harvested from healthy and fully opened bolls located in the first and second places, up to 7-8 productive branches. Cotton harvested from plants of each family is weighed separately on a scale and the yield obtained from

one plant and plants in the same row is determined. In this case, a sample of cotton from all families is added to the cotton collected from each family.

Colonies are selected for planting in the second year seed nursery based on the results of field trials, laboratory analysis, and the colony's ranking from the previous year. The task of the second year seed nursery is to select and reproduce the best representatives of the families of the first year seed nursery. In this nursery, on an area of 2.5-4 hectares, seeds of the best families selected from the first-year seed nursery are planted. Depending on the cotton variety and soil fertility, each colony is planted at a distance of 30-40 cm between nests, 100 nests in each row, either manually or with a seeder. One plant is left in each nest. Inspection of crops is carried out at the same time as in the first year seed nursery.

Based on the results of the field survey and the assessment given to the family last year, unsuitable families are identified and the best plants are individually selected for propagation by seeds next year and planting in the first year's seed nursery.

To assess the economic qualities of cotton in the second year seed nursery and the fiber obtained from it, 100 bolls were selected from each family, boll size, fiber yield, fiber length and maturity, and metric number were determined. were measured directly. Cotton harvesting is carried out in the order of the first year seed nursery.

The task of seed production is the selection and breeding of families obtained from the second year seed nursery. Seeds of good plant families selected from the second year seed nursery are planted and propagated. At least 250 generations are sown on 30-35 hectares using a tractor seeder.

To make planting easier, before planting, all families are divided into groups according to the number of seeds. Families with the same amount are included in one group. Depending on the number of seeds in a group, the planting area is selected and the number of rows for each group of families is determined. One plant is left in each nest.

When propagating by seed, the field is checked once when the pods open, the best families are selected and atypical late-ripening, low-yielding, diseased families are rejected. The seed cotton harvest is harvested twice: first, good bolls are collected that have opened to 4-5 branches, and then to 7-8 branches. First of all, the harvest of unsuitable families and plants is collected and sold.

The cotton harvest of selected suitable plants is placed in many bags and a label is written on it and inside. The label indicates the origin, variety, eliteness, and time of collection. Elite seeds will be sent to the preparation station.

Elite seeds must be 100% pure, meeting standard requirements, not lower than class 2 (90%) in terms of germination. Growing the first reproductive seeds. The areas for sowing the first reproduction seeds will be located on elite farms. The crop from which the first elite seed reproduction was sown is planted in special areas without mixing with other reproductions to preserve the purity of the variety. Before the pods open or when they begin to open, the first propagation sites are cleared of plants atypical for the variety.

Seed cotton is collected manually twice: the first time when at least one boll is opened on each of the 4-5 harvest branches of cotton, the second time when the first bolls are opened on 7-8 harvest branches. Only normally developed, healthy, fully opened cotton is harvested. The seeds are dried in the sun for a day or two before being transported to the cotton preparation center. This method significantly improves seed quality. The dried cotton is placed in bags. A label is attached to the package indicating the origin, variety, reproduction and time of harvest of raw cotton. There is a label inside the package with this information. According to the document, the seeds are delivered to the cotton preparation center. The purity of the first reproduction must be at least 99%, the seeds must meet the requirements of the State Standard for seed quality, the pollen level is not lower than class 2 (90%).

Growing seeds of second and third reproduction. The second reproductive sown area will be located in the best-yielding farms, close to elite farms. If the seeds of the first reproduction and elite seeds are grown on one site of the farm,

then the crop field of the second, sometimes third reproduction is placed on another site of the same farm. The main area for sowing seeds (third reproduction) is located in the best farms on the territory of the cotton gin plant. The following work is being carried out in the second and third reproduction areas:

• careful use of the seed fund, i.e. planting seeds without exceeding the established norm;

• careful approval;

• compliance with the rule of separate collection of raw cotton;

• the company fulfills all its obligations under the concluded agreement.

The agronomist-seed grower is responsible for performing all seed-growing work on the farm. He prepares all documents related to seed production, checks whether the seeds intended for sowing are used in accordance with the norm, approves seed crops under the guidance of the district agronomist approver, ensures proper harvesting of seed cotton and in accordance with the concluded contract. It consists in fulfilling all business obligations.

Seed storage. Reproduction seeds of all varieties are stored in dry warehouses of cotton gins, processing stations and farms, packaged in bags and divided into batches. When the bag is not enough, the seeds of the second and subsequent reproductions are stored in heaps in warehouses until disinfection.

At the place of storage of each batch of seeds, a passport is posted indicating the batch number, seed weight, year of harvest, cotton variety, reproduction, yield, field group, germination, time (start) and end of processing of a specific batch, a sample is taken every two months and analyzed in the laboratory and the quality of stored seeds is checked.

Permit for cotton. The responsibility for approval lies with the selection of fields to produce the best, most fertile, healthy and clean seeds in the cotton industry. Testing begins in the first half of August and is carried out no later than September 1, that is, before the start of cotton harvesting. The results of the approval will be transferred to the compilers for the timely preparation of the task for growing seed cotton. In the process of cotton approval, agronomist-

coordinators, who have undergone 3-5 days of special training, perform the following tasks:

1. Familiarization with documents describing the seeds planted on the farm.

2. Identifying unsuitable seeds and selecting good ones.

3. Determination of seed cotton purity.

4. Determine whether cotton bushes are infected with wilt and gommosis in order to include each field in a group depending on the degree of infection.

5. Determination of the expected gross and seed yield of cotton:

6. Providing information about the approval results.

After reviewing the documents describing the seeding material on the farm, the agronomist-certifier begins approval. First, he inspects all the fields on the farm allocated for seeds. Fields sown with another variety or another reproduction of the same variety and the cotton on which is lagging behind in development, as well as fields heavily damaged by pests and diseases, are considered unsuitable.

Determining whether a seed field is affected by wilt or gommosis is the most important task of the evaluator. This work is carried out by taking samples and counting the infected plants in them. Samples are taken from the field in a checkerboard pattern from all parts of the site. From each hectare of cultivated areas of the first reproduction, 10 samples are taken, each of which consists of 10 cotton bushes.

One sample is taken from each hectare of the second and subsequent reproductions. Infestation of wilt and gommosis is calculated by counting the number of plants infected with wilt and plants infected with leaf stem homomosis separately in each sample, and also counting the total number of pods and the number of pods infected with gommosis. It is believed that the pods themselves, the floral side or the flower head are infected with gommosis. Separately, collect the number of plants infected with wilt and gommosis, and determine the percentage of plants infected with gommosis (leaves, stems) and wilt. Using this

method, the number of cysts in all samples taken from a certain field is summed up, the number of infected people is determined from them, and the percentage of cyst homozygosity is found.

If a farm (team, department, section) has several seed cotton harvesting plots separated from each other, approval is carried out on each plot separately.

As a result of determining the percentage of plants infected with the disease, all fields recognized as suitable during crop inspection are divided into two groups depending on the level of the disease. The first group includes healthy plants, of which up to 5% are infected with verticillium and homomosis. A field of plants infected with cystic gommosis and fusarium wilt is not included in the first group. The second group includes fields whose plants are infected with verticillium from 5% to 15%, fusarium wilt from 3%, gommosis from 5 to 10% and Cossack gommosis from 1%. Fields in which the percentage of pods or plants infected with wilt and gommosis exceeds the amount specified for the second group are discarded.

If, after approval, the incidence of plant wilt in seed fields increases, the incidence level is determined again and, based on the data obtained, the field is included in one or another group or declared unsuitable. The varietal purity of crops allocated for seeds is determined in fields specially designated for this. In the first reproduction zones, one field is selected for every 10-20 hectares. In the second and subsequent selection fields, one or two fields are allocated on each farm. Determination of varietal purity is carried out on a typical part of each individual field in two fields at a distance of 20 meters from each other. From the selected rows, 100 normally developed plants are counted and the number of typical and atypical plants for a given variety is determined. Based on two samples, the average percentage of plants typical for a particular field is calculated, i.e., the purity of the seed crop (plant).

Field purity must be at least 100% for elite plants, 98% for plants of the first reproduction and 96% for plants of the second reproduction. The planned gross and seed yield of cotton is determined by calculating and determining all

elements of productivity, including the number of plants per hectare and the mass of one cotton boll. The planned harvest is determined for each field.

The results of the approval are formalized by drawing up the 2nd and 3rd forms of approval documents. Each farm issues a separate certificate of approval in Form 2, which indicates all the information characterizing the seed field in each department, team, each variety, reproduction, and purity of the variety. Document Form 2 is filled out in 3 copies, one is stored on the farm, and two are sent to the preparation point in the seed cotton laboratory.

A general certificate of admission is issued in Form 3 for each regional agro-industrial association and all information characterizing the seed field in each farm in this region is entered into it. This document is also drawn up in 3 copies, one copy is stored in the regional agro-industrial association, the second is sent to the regional agro-industrial association, and the third is sent to the cotton gin plant.

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