



FIBER LENGTH AND QUALITY INDICATORS IN COTTON VARIETIES

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Abstract. Quantitative characteristics of cotton include many important economic characteristics - fiber length, quantity, boll size, etc. To evaluate such signs, it is necessary to measure, weigh, count them. A variation series is generated based on these measurements. Quantitative traits are polygenic, that is, the development of the same trait is determined not by a pair of genes, but by several genes acting in the same way.

Keywords: *Gossypium hirsutum*, *Gossypium barbadense*, method, cotton, varieties, plant, cultivat, fiber, maturity; micronaire, fiber, length, color grade, database, regional, climatic.

Introduction. Cotton fiber length is an essential parameter for the cotton industry and cotton research. However, differences between industry- and laboratory-scale ginning may lead to inconsistencies between research and industry results for measured length. Seedcotton from farms is processed in large industry-scale gins, while researchers typically use small laboratory-scale gins. The proposed method successfully reduces the differences in fiber length parameters between these two types of ginning. Only one new step is needed before assessing fiber quality in lint from a laboratory-scale gin to simulate the processing effect of an industry-scale gin.

- Cotton seeds and lint are separated from seedcotton with a laboratory-scale gin.
- Lint is post-processed with a laboratory-scale lint cleaner, the micro dust and trash analyzer 3.
- The length fiber quality profile resembles the results of industry-scale ginned samples.

Furthermore, on a global scale, research is being conducted to improve selection methods for obtaining high fiber yield from cotton, to create new cotton varieties that meet the requirements of the time by determining the additive effect of genes controlling quality traits, the level of dominance and direction [2-3, 8]. In Uzbekistan, it is important to create local breeding varieties with high fiber quality and fiber yield. Since the fiber yield in our country has been 6-7 q/ha for many years, which is 2-3 times less than the leading cotton-growing countries, researches on increasing the fiber yield attract the attention of scientists. As a result of the transgressive variation that occurs in convergent hybridization in cotton breeding, it is important to increase the possibility of isolating recombinants, which are the source of new genetic variations, which is effective in creating new varieties with a positive set of valuable economic characters in a short period of time. In foza selection, the importance of starting material and different breeding methods is great in creating varieties that can meet the requirements of the current period. In this regard, a number of studies have been conducted by world scientists.



The fiber length of cultivating cotton varieties is valued as one of the textile's important traits. That is why, breeders have to pay great attention to the formation and inheritance of fiber length in their plant populations, hybrids, families, lines and new varieties. Annually, probes of pappus taken from individual selections of boll probe samples and family harvests are exposed to measure the length of fibers. Commonly, probes of pappus taken from individual selections (6 pappus in the probe package) are measured in laboratory conditions by the assistants of breeding departments.

The aim of this laboratory training is to get acquainted with the methodic order of cotton fiber length measurement in the conditions of an academic laboratory. Needed supplies. Laboratory copy book, stationery, velvet board to measure cotton fiber length (photo 89), raw cotton of individual selections from different cultivating cotton varieties, tooth brushes, glass rulers with millimeter indexes, blank tables on the fiber length list (form 5). Learning the order of fiber length measured by the students is effective when every student in pairs works together after the instructor's explanation of how to work together. Measuring of fiber length is implemented in the following order:

1. Every pair of students will be provided with the individual raw selection of one of the cultivating cotton varieties, a velvet board, tooth brush, glass ruler, blank tables on the fiber length list, exemplary fiber packages with pappus to measure their length and other stationeries.

2. The students untie the fiber packages (photo 88) with ten paper lists with 6 pappus between each list and distribute them to every pair of students to know how the pappus were prepared and spread out on the list.

3. Students prepare a paper with two lists as pointed out in the photo with 4 pappus and write their cotton variety and name and surname on the title page. 4. Start by picking out 6 pappus out of the middle part of cotton locules (or lobules) randomly chosen from different places of the individual raw cotton sample.

5. Using your fingers, brush the pappus fiber and divide it into two directions from the concave part of the seed.

6. At the teacher's prompting, fasten the pappus under the holder of the velvet board and rub with a tooth brush as shown in the appendix 6.

7. Put the glass ruler from the seed holder on the rubbed fiber and take a look at the end of the last 2-3 fibers to see what index of the ruler they have reached. The same measurement is repeated with the other direction of fibers. The indexes of the last 2-3 fibers on the glass rulers are being accepted as the result of fiber length.

8. Above explained, preparing and measuring (6th and 7th work) of the fibers will be continued (as the second replication) with the remaining 5 pappus.

9. Name your blank table (by replace the form name with records of your title list).

10. Start registering the taken data in the blank tables on the fiber length list. Depending on the species of cotton variety, the basic fiber length will be chosen as follows:

a) 30 mm for the middle staple cotton variety;

b) to fibers with lengths of up to 40 mm and fine staple cotton varieties with lengths of up to 35 mm;

c) to fibers longer than 40 mm in length, as well as fine staple cotton varieties longer than 40 mm in length. 11. Length of basic is accepted as the zero value and all measured results will be accounted for and remarked under + or - values in the corresponding columns (by the prompt

of the teacher if it is needed). 12. Full points (or dots) are used to remark the values of measuring in the corresponding cells of table as following: one- ., two- ;, three- :, four- ::, five six- seven- eight- nein- and ten.

13. So, 5 out of 6 pappus are measured and calculated. At this point, numbers in every cell are multiplied to create divergences out of the basic and taken result, which doesn't mean it is + or - individually added. Values of small divergences are minus those of big divergences, and the result is divided by the number of measured pappus. Then, the new result depends on its sign is added or minus the basic fiber length.

14. Above done measuring is repeated again with six newly taken pappus samples and registering the results in the table as the second sample, because fiber length measuring should be done in two replications.

15. Check the value of divergence between two replications (probes). It should not be more than 1 mm. If it becomes more, the third measuring will be done, and their average value will be accepted as the final result.

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