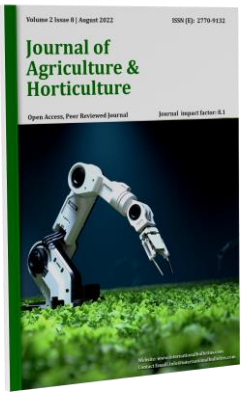

DEFINING THE SEED FIBER RESIDUE AND WEIGHT OF 1000 SEEDS IN COTTON VARIETIES

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Abstract. One of the important problems in cotton breeding is the creation of high-yielding, fast-maturing varieties with high fiber yield and quality and their wide use in production. In the world, the cotton plant occupies a key place in the world textile industry. One of the major standards of seed quality is the 1000 grain weight, which is effective on sprouting, seed potential, seedling growth, and plant performance. Therefore, an experiment was run in the form of completely random blocks in 3 iterations to study the effects of the 1000 grain weight on the sprouting rate and seed potential of cotton different 1000 seed weight treatments were used in a standard sprouting test and accelerated aging test inside a germinating machine.

Keywords: Cotton, fiber index, family, ridge, quality indicators of fiber, micronaire, fiber lent, varieties, germination, for delinted.

The purpose of this training is to study the admitted indexes of fiber residue on the cotton seeds and the importance of the weight of 1000 cotton seeds. The methodic order of identifying the fiber residue and the weight of 1000 seeds is the purpose of this training. Needed supplies. Different cotton seeds, technical scales of the 1st class with the type of T-1, device to define the residual fibrousness of cotton seed, model POS or OV-Yu, lab drying closet, exhaust-hood, electric lab seed drying ovens, clay pods of 500 sm^3, hydrochloric acid, tweezers, analyzing glasses, unbleached bags, plastic dishes, laboratory copy books, stationery are needed to conduct this training.

According to the state standard for variety and planting qualities (table 1), residual fibers on the surface of seeds must be less than 0.4–0.9 percent, depending on the seed category. Usually, the increase of residual fibers or pubescence on the surface of planted cotton seeds causes a lowering of precision drills' operation efficiency at the time of seed planting. State standard on cotton seed Uz.SS. 663:2006

Table 1.

Planting seed varieties and qualities

Seed category	Variety purity %,	Germination %, not least	Moisture %, not more	Dockage (mass portion of mineral and organic sweepings)	Downy for delinted seed %,	Mechanical damage of seeds in %, not more	Residual fiber of seeds in %, not more

				For fuzzy	For seed least	For delinted		For fuzzy	For seed least downy	For delinted	For fuzzy	For seed least downy	For delinted
OS ES	100	95	9.0	0.5	0.5	0.2	0.5	5.0	8.0	6.0	0.9	2.5	0.4
R-1	99	90	9.0	06.	-	0.3	04.	6.0	-	7.0	0.8	-	0.4
R-2	98	90	9.0	0.7	-	0.3	0.4	7.0	-	8.0	0.8	-	0.4
R-3	96	87	10.0	0.7	-	0.3	0.4	7.0	-	8.0	0.8	-	0.4

The weight of 1000 cotton seeds has ranged from 100 (Namangan-77) up to 145 grams (Parloq-2) as a result of the analysis of 30 modern cotton varieties. From the point of view of cotton breeding and its seed production, it has both positive and negative importance. Positive importance based on its oil content, which depends on the weight of the seed, and negative importance related to fiber output. Fiber output of cotton varieties has a negative correlation with the weight of 1000 seeds (photo 1, 2, 3).

Photo 1,2,3. Naked seeds and fiber attached to the seed, cotton fiber, fuzzy seeds.

The determination of fiber residue and weight of 1000 seeds of planting seed is carried out in the laboratory on the basis of average probes (seed samples) by the method of Standard 21820.3-76. According to this method, 1 kg of average seed probe is picked out from a united sample of seeds through "Quartovaniya". This mass of seed is enough to define residual fibrousness (1), residual pubescence (2) and the weight of 1000 seeds (3).

Defining the residual fibrousness of seeds is done by taking off the fiber residue from cotton seeds by hand or with the help of devices like POS or OVYu.

At the application of the probe, the working chamber of the device is adjusted by the plastic spacer: three spacers are put in the working chamber for the seed with residual fibrousness of 0.5 % and less, which has passed double lintering, for the rest of the seeds, two spacers.

Removing fiber residue by hand is done by the forefinger, not letting go of the pubescence.

The seeds are put in the working chamber of device to removing the fiber residue by the mechanical way. Gradually rotate the hand of the device of POS, making by the right hand of 150 turns on the counter; frequency of rotation – one turn per 1.5-2 seconds. [1]

Simultaneously, the external slender-shaped wall of the working chamber is turned slowly by hand against the hand to improve the mixing of seeds.

At the device OV-Yu is set exposition to work for 3 minute. The cotton fibers span on the spindle are take off by the tweezers. Removed fiber by hand or by device is calculated up to precise of hundred shares of gram. [2]

The percentage of fiber residue in seeds is calculated by multiplying the weight of individual fiber by 10 arithmetic index of the two definitions is accepted as the result of the analysis.

The result is calculated up to the decimal share of the percentage. The analysis is repeated if the divergence index between the results of the two definitions exceeds 0.2 percent. If the divergence between the results of the repeated analysis exceeds 0.2%, the residual fibrousness of the seeds is calculated as the mean arithmetic value of the four probes of the analyzed results (table 2).

The definition of residual fibrousness is repeated, if the fibrousness of two probes of seeds diverges from the mean to the size that is more than pointed out in the table. A record of the analysis result and calculation of the analysis result are done on the seed batch.

Table 2.

Data on the laboratory analysis on the definition of residual fibrousness and residual pubescence of cotton seeds.

Mean of residual fibrousness of two seed probes, %	Admissible divergence between two probes, %.
	0.2
Mean of residual pubescence of two seed probes, %.	Admissible divergence between two probes, %.
	0.05

Defining the residual pubescence of delinted seeds In GOST 3118, hydrochloric acid is poured into two clay pods and, in 15-20 minutes, it pours off. Fill a pod with seeds after 5 minutes of the acid pouring off, covered with glass, and put into a drying closet heated up to 120–130 C^0, equipped with an exhaust hood.

After the pods have dried, the seeds are poured over the previously weighed glasses. The glasses with the seeds are weighed up to hundreds of grams. Fill in unbleached bags with separated lint of seeds destroyed under the effect of acid vapor by gentle rubbing for 2-3 minutes. [3]. Then the seeds are poured out on the black page. The smallest particles of husks and pubescence are separated from the seeds and weighed with delinted (cleaned out of pubescence) seeds together with husks on the prior used glass up to hundreds of shares of gram.

Treatment of the results. Calculated the weight of delinted seeds after being exposed to acid vapor, defining the weight of pubescence.

The following formula was used to calculate residual pubescence (O) as a percentage:

$$O = \frac{m_1 \cdot 1{,}06}{m_2} \cdot 100,$$

Where: m1 - weight of pubescence, in gram; m2 - weight of seed probe, in gram; 1.06 – amendment on the moisture.

The mean arithmetic value of the two definitions is accepted as the result. The result is calculated to be up to hundreds of shares of the percentage. The analysis is repeated if the

divergence of the results of the two defining exceeds 0.05 %. If it again exceeds the divergence, the arithmetic mean of four probes is accepted as a result. The table is used to record the results.

Methodic instruction about the definition of the weight of 1000 cotton seeds is given in the "Interstate standard GOST 21820.076 Seeds of raw cotton and cotton seed. Methods of sampling". Herein, singled out two probes (samples) with 100 seeds each from an average sample to define the weight of 1000 cotton seeds and absolute weight.

The defining of the weight of 1000 seeds is conducted through the weighing of those two seed probes with 100 seeds each, and multiplying the mean index of those two indexes to 10.

The absolute weight of seeds – this is the weight of seeds without pubescence (linted) and dried for one hour at 130 C^o, calculated on the two seed probes with 100 seeds each and multiplying the average weight to 10. Absolute weight of seeds is the most precise index of seed size, because defining it excludes pubescence and moisture, which effects the weight change (Rakhimov Kh.R., Rudenko L.S., 1976).

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