Setting methods of Cotton Seeds and Agrotechnical Indicators of Selected Seeds

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ABSTRACT

This article describes the methods of sorting cotton seeds and the agro-technical characteristics of the selected seeds, as well as technical processes.

Keywords: cotton, fiber, seeds, technology, agrotechnics.

Introduction

Along with cereals, cotton is one of the oldest crops on the planet. Cotton yarn was used in the Indian Valley 3,000 years ago. Cotton was first cultivated in Central Asia 5 centuries BC for agricultural purposes. Cotton is a plant in the genus Gossypium of the Malva family, a small tree-like plant that can be annual or perennial. A low-growing annual plant with branches 0.7-1.5 m high is a cultivated type of cotton. The Indo-Chinese (Gossypium arboreum), African-Asian (Gossypium xerbatseum), Mexican (Gossypium xirztutum) and Peruvian (Gossypium barbadenez) varieties of cotton are known for their usefulness. There are the last two types of cotton in Central Asia, including Gossypium barbadenez, which is grown only in Turkmenistan, Tajikistan and Uzbekistan.

Method and object of research

Cotton, seed cotton is the main product of cotton, consisting of fiber and seeds. During the initial processing of cotton in the ginnery, the main product for the needs of the textile industry - fiber (length longer than 20 mm) is separated from the seeds. Therefore, all over the world, cotton is valued based on the quality of the fiber. Then the lint (less than 20 mm long) used in chemical and local industries is extracted from the seeds. Technological equipment produces dead (unripe short fiber, tangled fibers) and short cotton wool (less than 5.0 mm in length) during cotton processing and fiber cleaning. Cotton contains 30-35% fiber and 50-55% seed (24-29% oil in the seed), 2-3% dead fiber, and 3-5% short wool. Depending on the selection variety of cotton and the thickness of the fiber, cotton is divided into medium-fiber and long-fiber types. Cotton is picked by hand and machine. Cotton fiber is divided into 5 classes depending on the maturity coefficient and appearance, color, 5 industrial navigation and the amount and moisture content of impurities.

The appearance of the cotton variety is determined by the laboratory maturity coefficient if it is unsatisfactory compared to standard cotton samples (cluster method). It serves as a raw material for the textile, oil and gas, hydrolysis, chemical and other sectors of the economy.

Cotton is a soft fiber that grows around the seeds of the cotton plant (Gossypium). Cotton is almost entirely composed of cellulose. Cotton is mainly grown in tropical and subtropical climates. The diversity of wild cotton varieties is particularly high in Mexico, Australia and Africa. Yarn is made from cotton fiber, fabric is made. Cotton fabrics have been known for a long time: cotton fabrics dating back to 5000 BC have been found in Mexico and Pakistan. Today, the world produces up to 25 million tons of cotton a year, with 2.5% of irrigated land allocated for cotton. China is the world’s largest cotton producer.

Seeds - cotton seeds; The harvested cotton is processed (separated from the fiber). Seeds account for 55-60% of the weight of harvested cotton. Oval or noxious shape, oblong or short, 1.5–15 mm long, 1–8 mm wide (diameter), weighing 70–160 mg, average weight of 1000–140 g per 1000 pieces; brown, hard shell and core. Fiber and lint are separated from the top layer (bark). Cotton fiber is a thin, long, smooth and mature natural fiber that matures in the seed coat. It consists mainly of cotton cellulose. Cotton is separated from seeds in ginning plants. Used in the manufacture of yarn and textiles. Cotton fiber is mainly used in the textile industry for the production of various yarns (satin, batiste, marshmallows, netting, poplin, etc.), knitwear and others, and spun yarn. It is used in the aviation, electrical and automotive industries to produce parachutes, special gaskets, insulation materials, conveyor belts, tires, drive belts and others. It is also used in the production of cotton, nonwovens and other materials. The cotton fiber that develops in the seed coat is a highly developed cell in the cortex. Depending on the type of cotton, the stage of development and the function of the cells, the structure and size of the cells in the seed coat vary. The inner cavity of the cotton
fiber is in the form of a canal, filled with cell sap and a thin layer of protoplasm. The channel of the cotton fiber xdm, like the fiber itself, is cylindrical in shape during the early stages of development. As the fiber matures, its walls thicken and lengthen, and the channel becomes very narrow and flattened. The size of the fiber channel depends on the species and variety characteristics of the cotton, as well as the agronomic conditions, as the care of the cotton affects the accumulation of cellulose. In the current varieties of cotton, the number of fibers in each seed is 10-15,000 and more. In cultural forms of cotton, the fiber diameter is about 15-20 microns in the middle part, in wild forms it is 8.3-10.4 microns (NA. Vlasova, 1974), fiber length is up to 42 mm in cultivars, in some species even 60 mm. goes to. Depending on the variety of cotton and environmental conditions, the fiber in the pod ripens in 50-60-80 days. Cotton fiber content (%): cellulose - 90.35-94.6; suv - 7; water-soluble substances - 0.5; inlays - 0.75; oil and wax - 0.4; nitrogenous substances —0.5; kul - 0.12. The fiber wall has a multi-layered structure (see picture). The outer layer, which is less than 1 μm thick, is called the first wall or cuticle (1-3). The chemical composition and structure of the cuticle differs significantly from the main cellulose wall in that it contains (in%) cellulose - 54, protein - 14, pectin - 9, wax - 8, ash - 3, cutin - 4. The chemical composition of different industrial varieties also varies. Due to the presence of hydrophobic wax in the fiber, the fiber does not wet well. Cotton fiber is dull when it is composed mainly of transparent substances (cellulose, oil, wax), as it contains various fine additives. The fiber appears white due to the uneven return of light from the surface of the first wall. The first type of fiber is whiter, the lower varieties are darker or browner. The fiber has the following physical-mechanical and technological properties (depending on the amount and structure of cellulose): linear density, maturity, breaking strength of the fiber, etc. According to the currently accepted standard, fiber is divided into 5 types according to maturity and color and appearance, and 9 types of fiber according to staple mass-length or upper medium length. The fibers obtained from long-fiber varieties of cotton belong to types 1a, 16, 1, 2, and 3, and those obtained from medium-fiber varieties belong to types 4-7. During the initial processing of cotton, the fiber can be mechanically shredded. In addition, the fiber has its own shortcomings.

The quality of the fiber, the moisture, the defects and the amount of impurities must be in accordance with the relevant standards. Cotton fiber is pressed in ginning plants. The broad part of the fiber and hair (blunt side) is called the aun, and the three parts are called the micropile (dust path). The seed coat consists of 2 segments, the lower part of the septum, and the umbilical cord. According to the purpose of use, it is divided into seeds and industrial seeds for industrial processing. Well preserved Ch for several months to a year or two. physiologically mature, healthy and forgetful. It is fermented for safe and healthy germination. An important feature of the seed is the formation of single-celled fibers from 20 mm to 42–44 mm and more in its epidermal cells. The kernel contains 24 to 29% fat. Cottonseed oil is an oil that can be extracted by pressing the seeds or by solvents. Pure cottonseed oil is soluble in many organic solvents, is a light yellow clear liquid, and belongs to the group of semi-drying oils. The composition of triglycerides of cottonseed oil is mainly unsaturated fatty acids: linoleic (41.7-53.69%), oleic acid (23.0-35.2%), saturated acids: palmitic acid (19.6-23.4%) araxin (0.1-0.7%), stearin (1.9-2.7%), myristin (0.3-2.0%). Density of cottonseed oil is 905 kg / m3, refractive index is 1.472-1.477, iodine is 102-111, saponification is 191-1999. Cottonseed oil is used in the preparation of natural and hydrogenated margarine, edible oils, soap, olive oil and others. 1.5-2 million tons of oil are produced annually in the oil industry of Uzbekistan. Tons of technical seeds are processed to produce cottonseed oil, shulkha (seed husk), kunjara. Seed waste is processed and used in the production of cellulose, alcohol, lacquer and other products.

**Conclusion**

Improving cotton production, which is important for the economic development of our country, and achieving optimal yields is a topical issue. This article describes the methods of sorting cotton seeds and the agro-technical characteristics of the selected seeds.

**References**