

UZBEK COTTON: COMPETITIVE ADVANTAGES AND ACHIVEMENTS IN COTTON SCIENCE

R.A. Gulyaev, J.Dj. Kadirov

*Joint Stock Company "Uzpakhtaexport" (JSC "Uzcottonexport"),
Tashkent, Uzbekistan*

A.E. Lugachev, B.M. Mardonov

Tashkent institute of textile and light industry, Tashkent, Uzbekistan

R.R. Nazirov, A.A. Ahmedov, N.Z. Kamalov, P.N. Borodin

*Joint Stock Company "Paxtasanoat Ilmiy Markazi" (Scientific Research Center of
Cotton Industry), Tashkent, Uzbekistan*

Despite the ongoing global economic crisis, today Uzbekistan remains among the world leaders by the pace of economic development. In the last eleven years, the growth of gross domestic product and industry are not less than 8 percent.

The achievement of these peaks in the socio-economic development would be impossible without the strategy of economic reforms, developed and proposed by our Head of state and recognized by the international community as the "Uzbek model" of development. The advantages and effectiveness of our model of development is proven by the fact that it fully takes into account natural, historical, national, demographic and environmental features of Uzbekistan, and it is justified in practice.

Uzbekistan has consistently implemented structural reforms in the cotton industry, which are reflected in increasing the image and competitiveness of Uzbek cotton on the world market. Modern Uzbekistan is the sixth largest producer and takes the fifth place among the main suppliers of cotton fiber on the world market.

Uzbek cotton production policy is based on maintaining stable output and creating competitive environment for regional and international trade of Uzbek cotton. In this regard, the annual production of Uzbek cotton fiber is about 1.0 million tons. Every year, volumes of domestic processing of cotton have been increasing, which currently account for 40%. The annual increase in the production of textile products is over 25%. Only within last year, the production of more than 100 new products, including filter and denim, memo, gabardine, canvas tent, canvas, ready-made garments and knitwear is settled.

In order to create favorable conditions to attract foreign investments and improve the efficiency of industry, reforms have been implemented in the country, which ensure transition to the corporate management system. In late 2015 was created the integrated complex of raw cotton procurement and processing, and cotton fiber export, represented by the holding company "Uzpakhtasanoatexport" / "Uz cotton industry export". It is composed of four joint-stock companies: JSC "Uzpakhtasanoat" / "Uz cotton industry", JSC "Uzpakhtaexport" / "Uz cotton export", JSC

"Uzpakhtayog" / "Uz cotton oil" and JSC "Pakhtasanoat ilmiy markazi" / "Scientific center of cotton industry."

Implementation of the unified export policy for realization of Uzbek cotton is assigned to the JSC "Uzpakhtaexport" / "Uz cotton export." The company has gathered professionals in the cotton industry, with extensive experience and knowledge in all aspects of the cotton business, trained at leading foreign cotton centers. The company ready to supply cotton fiber during the season and in stable scope at different conditions of supply. In addition, flexible payment arrangements and fixing prices for cotton fiber will be used.

One of the important achievements of ginning industry (JSC "Uzpakhtasanoat" / "Uz cotton industry") in independence years is a technical renovation of its production capacities. During 1993-2014 reconstruction and modernization projects were realized in all the cotton ginneries of the Republic. The technological equipment of enterprises has been renewed and modernized.

Refitting out the enterprises is based on shortening the industrial areas and introduction of equipment with adaptable energy-saving technologies, systems of automatic processing control and regulating, electron stock-taking of seed-cotton and production. Domestic technologies and innovations, which are not detached to foreign analogues have been utilized everywhere.

Currently, almost all 98 ginning enterprises have the updated equipment, rational technology, compact arrangement of production space, orderly infrastructure.

As a result, modernized operating ginneries improve output of high quality fiber cotton products, save fuel and energy. Thus, modernization of enterprises has reduced the amount of equipment by 60%, production areas by 45-50%, fuel consumption by 15-17% and increased productivity by 22%. One of the most important indicators of the effectiveness of this work is reduction of energy intensity of production by 18-20 %, the number of electrical and specific energy consumption for the production of 1 ton of cotton - by 25-27%.

Despite the achievements, the main emphasis in the industry is made on the introduction of new approaches and solutions.

The industry continues apply all efforts for improvement the technology of primary processing of cotton, which should lead to lower contamination of cotton fiber and improve its preparation.

The new packaging system of cotton fiber with using of PET strap and soft containers also must considerably improve the appearance of product, decrease costs and increase production culture. As part of the investment program of Uzbekistan for 2016-2019 years the cotton ginning industry will implement a project on replacement of all old hydraulic presses to new ones for packaging of cotton fiber and cotton linters.

There are also plans to improve management and quality control at cotton ginneries with introduction of ISO 9001 quality management system.

The strategy of development of the industry, planned for the future, laying the stimulation of demand for innovative products. Despite the favorable agreements

with foreign partners, domestic experts prepared for the development of the industry's development is not inferior to foreign analogues reaching effects. Joint Stock Company "Paxtasanoat ilmiy markazi" (Scientific Research Center of Cotton Industry) is part of the Holding Company "Uzpakhtasanoatexport" and is a leading industry research center for primary processing of raw seed cotton.

Wide approbation, testing and implementation of new technical solutions in a real production conditions executed on five cotton ginneries which have the status of experimental enterprises - in Baghdad, Angor, Kushkupir, Asaka and Chinaz.

The main objective of the Research Centre is to conduct research aimed at developing and improving the techniques and technology of primary processing of raw cotton and preparation of sowing seed for the optimization of competitiveness of cotton products. Latest innovation of industry research center includes: universal cleaner of cotton fiber materials, new cleaner-trap of heavy impurities, devices for humidification of raw cotton and cotton fiber, local systems of automation, motor protection devices, frequency converters, portable devices control the temperature of raw cotton. Today Science Center is an integrator of ideas in the field of development of new energy-saving technologies, modern systems of quality control for industry. Promising developments include heat generators for dryers, drying and cleaning systems. Good results received in upgrading of treatment facilities, improving of ginning systems, seeds delinting and linter cleaning with ACS.

Center is also conducts the works to improve the classification and certification of cotton products, in area of standardization, development of the technical and methodical documentation.

A special place is occupied by new instruments for the characterization of quality of raw seed cotton, cotton fiber, linter and seeds. Within last years were developed – an acoustic instrument for measuring micronaire index, the automatic analyzer for determination of the seed cotton trash content, the instrument for evaluation of moisture in cotton products. On the final stage the works for development of instruments for determination of fuzziness of cotton seeds.

Each year, the work is done within the projects of the Committee for the Coordination of science and technology. In 2015, entered to the stage of practical implementation of 7 projects on the state of scientific and technical programs. Significant innovations are included in catalogs of Republican fair of innovative ideas, technologies and projects.



Fig.1 The new universal cleaner of cotton fiber materials



Fig.2 The new cleaner-trap of heavy impurities



Fig.3 Humidifier of seed cotton on the unit "UHK" (1HK)



Fig.4 Appearance of the cotton fiber humidifier



Fig.5 Instrument for determination of micronaire (acoustic method)



Fig.6 Instrument for determination of moisture (seed cotton, fiber, linter, seeds)



Fig.7 Automatic instrument for determination of seed cotton trash content

Strict competition on the world cotton market raises demands for the quality of cotton fibre. The significant reforms, which are directed to strengthen the positions of Uzbek cotton fibre among consumers have been realized in Republic of Uzbekistan during independence years.

In the recent years Scientific-Research Institutes of Uzbekistan have had significant progress in the creation and implementation of new early maturing, high-yield varieties of cotton that satisfy the requirements of the modern textile industry to fiber quality.

Quality indices values of cotton varieties in cotton season 2014 are given on Table 1.

Table 1

Variety	MIC unit	STAPLE 32/inch	UHML inch*100	STR gf/tex	UI %	RD %	b %	SFI %
S 6524	4,6	35,7	111,9	32,9	83,8	77,2	8,7	6,6
Bukhara 102	4,5	36	112,8	31,8	83,2	79,1	9,1	4,9
Bukhara 6	4,4	36,3	113,3	32,7	83,8	79,6	8,9	4,5
Bukhara 8	4,4	36,4	113,4	32,7	83,7	79,6	8,9	4,7
An-Bayaut 2	4,5	35,3	110,7	30,8	83,1	78,3	8,9	7,6
Namangan 77	4,6	35,7	111,6	31,8	83,5	77,9	8,9	5,9
Andijan 35	4,7	35,3	110,8	31,7	83,5	76	8,8	7,7
Khorezm 127	4,7	35,7	112,2	31,2	82,9	79,4	8,6	8,4
Omad	4,5	36,1	113,6	30,6	82,4	78	9,2	5,7
S 4727	4,7	35,7	112,3	31	82,8	78,3	8,7	4,7
Mehnat	4,6	35,7	112,2	31,2	82,9	79,1	8,5	8,5
Andijan 36	4,6	35,9	112,6	30,5	83,5	76,4	8,9	8,6
S 6541	4,6	35,3	111	31,3	82,4	80,1	8,5	8,2
Sulton	4,6	35,6	111,7	31,4	83,2	77,7	9,1	5,6
Ibrat	4,6	35,7	112,2	31,3	82,9	79	8,7	8,9
Andijan 37	4,6	35,8	112,4	31,6	82,9	75,2	8,6	10,4
Beshkakhramon	4,5	36	112,4	31,8	83,1	78,6	9,1	4,7
Porlok1	4,5	37,8	118,8	32,5	83,5	77,8	9	4,9
Porlok 2	4,4	38,7	121,5	34,1	84	79,3	8,4	4,9
Porlok 3	4,4	38,6	121,7	33,1	83,2	78,8	8,9	5,9
Porlok 4	4,6	38,4	120,5	33,3	84,8	78,3	8,8	4,1

The quality characteristics of all Uzbek varieties meet the requirements of the world market.

It is necessary to note that the new upland/middle staple transgenic variety "Porlock" is characterized by high yield, fiber strength and the best performance for the world textile industry.

"S-6524", "Namangan-77", "Bukhara-6", "Bukhara-8", "Bukhara-102", "Omad", "Sultan", "An-Bayut" and other varieties of Uzbek cotton fiber are highly demanded among the world consumers and occupy now the main planting areas in the Republic.

By improving agricultural techniques, the introduction of new varieties over the past 10 years there has been a steady trend in the increase of the share of "Oliy" and "Yahshi" classes. If in the harvest of 2005, the Uzbek cotton share of "Oliy" and "Yahshi" classes was only 67%, in the harvest of 2014 it was 96%.

Measures taken by the Uzbek government, which introduced discounts due to higher micronaire on the domestic market and prohibition from sowing of varieties with high micronaire, allowed to decrease the share of fibre with high micronaire already in 2001. At present cotton fibre of season 2014 by the micronaire index meets the requirements of the state standard and international market. Cotton fibre volume with micronaire index higher than 4.9 decreased from 16.66 % in 1999 to 0.6 % in 2014.

Apparently, there is explicit redistribution of cotton fibre types IV and V: the share of type V decreased more than four times until the season of 2014 – from 81.5 % to 17.2 %, while the share of type IV increased more than three times- from 15.7 % to 68.2 %. At the same time 37 code fibre has grown by 14.5 %.

The main volume of cotton fibre manufactured in cotton season 2014 falls to staple code 36. Pie chart of staple length distribution on slide points to the presence of 19.36% cotton volumes of the Republic in a length code (code35) in season 2014. The share of code 36 was 67.77 % in season 2014, the share of code 37 was 19.36 %. The share of fibre in the range of price discount is not significant. Thus, the share of fibre code 34 was only 0.05 % in season 2014.

Impartial per bale evaluation of cotton fibre length indices in the laboratories of Uzbek Centre "SIFAT" according to international system and a new cotton standard is among such important factors of improving of cotton fibre type as careful selection of cotton varieties, qualitative preparation of planting seeds, improved agrotechnics in cotton growing farms and maintenance of optimal schedule of storage and processing of seed–cotton at the ginneries.

Uzbekistan cotton fibre is famous for its strength. Only 9,28 % of cotton fibre of the Republic lies within a base range according to international norms (26.5 and less gf/tex). 85.80 % of fiber lies within the range of 28.7 and higher, for which there is premiums in the world market. Insignificant volume of 4.92 % lies within the range of 26.5 and lower.

15.29 % of fibre in the Republic lies in the base range of Uniformity index 80.0-82.0. 83,1% of cotton fibre lies within the range of premiums (82.1 and higher). Insignificant fibre volume of 1.71 % lies within the range of 79.9 and low.

Data about quality of a cotton fibre in cotton seasons 1999-2014 indicates that implemented reforms in criteria and methods of cotton fibre quality evaluation,

system of its payment, processing technology of seed cotton, putting into practice the measures for improvement of cotton varieties and stimulation of profitable varieties production were shown by positive tendencies in change of competitive properties of Uzbek cotton fibre.

Taking into account the previous experience, the Holding Company "Uzpahtasanoatexport" takes a series of practical measures to further improve the competitiveness and attractiveness of Uzbek cotton fiber.

List of leading authors (with full contact information):

Gulyaev Rinat Amirovich, 19.09.1977 y.
Doctor of philosophy in technics, 2005 y.

Work: Joint Stock Company "Uzpakhtaexport",
100070, Sh. Rustavelli street, 8, Tashkent
Tel: (+99890) 969-19-24, (+99971) 202-42-13
e-mail: r.gulyaev@uzpex.uz
web: uzpex.uz

Home: 100123 Chilanzar 12-13-44, Tashkent
Tel: (+99890) 950-77-40, (+99971) 274-25-72
e-mail: rgsifat@gmail.com