Effect of different cotton material on the yarn produced by the ring spinning

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Abstract:

The ring spinning is the end of the stages of the cotton yarn spinning by traditional methods Before Yarn winding Process, and is characterized by being one of the best methods used to produce thin yarns with high durability of short fibers, it can also produce cotton yarns from No. 4 to No. 240 E, and due to the multiplicity Types of cotton material, and multiple sources, the research was conducted to unclear the impact of the use of different types of cotton on the quality of yarns produced by The ring spinning of yarn, and this study was conducted with the aim of the possibility of producing cotton yarns with different materials and types with different number ring spinning system with better properties in functional performance In the production of (12) samples of cotton yarn with (4) different cotton materials (Giza 86, Giza 90, Greek cotton, Burkina cotton),and (3) cotton yarns of different number (16/1, 20/1, 24/1), and conducted various tests (RKM, elongation, Naps, thick places, thin places and the percentage of irregularities on the yarns to illustrate the effect of using different types of cotton material on the yarns produced in the study, and the results after statistical analysis showed a clear difference in many tests, which shows the obvious effect of the research variables on the produced yarns, and the importance of research in determining the best Types of cotton material used in the production Yarns of different numbers, which are produced by ring spinning system, reflected on job performance, and the results were within RKM values for Giza 86 cotton reached the highest, while it came for the lowest Burkina cotton material, The elongation values for the highest Greek cotton, while the elongation values For the lower Burkina cotton material, The values of Naps of the highest Burkina cotton material, while the value of the cotton material came Giza 86 least, Values came in the thickest places of the highest Burkina cotton material, while the values of the cotton material Giza 90 were lowest , The values of the thin places of the highest Greek cotton material, while the value of the thin places of the lowest the cotton came to Giza 86, and Giza 90, , The percentage of irregularity of the highest Burkina cotton material was achieved, while the cotton material came to Giza 86 the least.

Keywords:

Cotton material, ring spinning, yarns.

search problem:

the research was conducted to unclear the impact of the use of different types of cotton on the quality of yarns produced by The ring spinning of yarn

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Search aim:

this study was conducted with the aim of the possibility of producing cotton yarns with different materials and types with different number ring spinning system with better properties in functional performance in the production

search importance

the importance of research in determining the best Types of cotton material used in the production Yarns of different numbers, which are produced by ring spinning system, reflected on job performance

Research Limits

The research is limited to the analysis of the properties of cotton yarn produced by the ring spinning system of (12) yarn samples of different numbers (16/1, 20/1, 24/1), according to the quality of the cotton material of the thread (Giza 86, Giza 90, Greek cotton, Burkini cotton), Test the general properties of the produced yarns and study the results after analyzing them statistically to determine the best types of yarn produced by the ring spinning system

Research methodology:

the production of (12) samples of cotton yarn with (4) different cotton materials (Giza 86, Giza 90, Greek cotton, Burkina cotton), and (3) cotton yarns of different number (16/1, 20/1, 24/1), and conducted various tests (RKM, elongation, Naps, thick places, thin places and the percentage of irregularities on the yarns

Sample No.	Yarn No.	Material	RKM (k.m)	Elongation (%)	Naps (1000 m)	Thick (1000 m)	Thin (1000 m)	C.V% Irregularity
1	16/1	Giza 86	26.5	6.9	37	43	0	11.5
2	20/1		25.8	7.3	71	92	0	11.6
3	24/1		24.2	7.9	98	112	1	12.3
4	16/1	Giza 90	23.6	7.4	165	69	0	12.7
5	20/1		22.6	7.9	179	81	0	12.7
6	24/1		19.6	8.0	186	89	1	13.2
7	16/1	Greek	19.2	8.0	172	175	12	13.7
8	20/1		15.4	7.7	215	190	48	16.0
9	24/1		14.6	8.0	265	215	48	16.0
10	16/1	Burkina	16.9	7.2	414	385	38	15.7
11	20/1		13.7	7.0	431	337	38	17.2
12	24/1		12.0	6.4	456	392	25	18.0

Research Results:

the results after statistical analysis showed a clear difference in many tests, which shows the obvious effect of the research variables on the produced yarns, and the importance of research in determining the best Types of cotton material used in the production Yarns of different numbers, which are produced by ring spinning system, reflected on job performance, and the results were within RKM values for Giza 86 cotton reached the highest, while it came for the

lowest Burkina cotton material, The elongation values for the highest Greek cotton, while the elongation values For the lower Burkina cotton material, The values of Naps of the highest Burkina cotton material, while the value of the cotton material came Giza 86 least, Values came in the thickest places of the highest Burkina cotton material, while the values of the cotton material Giza 90 were lowest , The values of the thin places of the highest Greek cotton material, while the value of the thin places of the lowest the cotton came to Giza 86, and Giza 90, , The percentage of irregularity of the highest Burkina cotton material was achieved, while the cotton material came to Giza 86 the least **,** This confirms that the best types of cotton raw materials are Giza 86 and Giza 90, compared with Greek cotton and Burkina cotton, and this is reflected on the yarns produced **.**

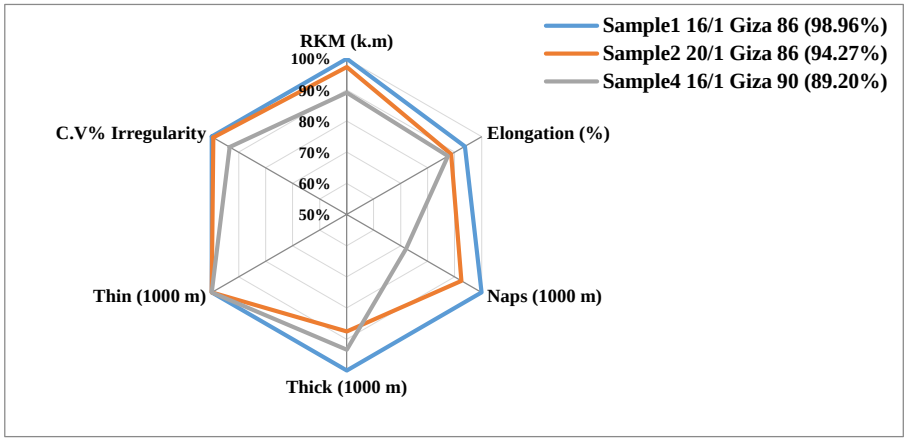

Figure (1) It shows the relative values and quality coefficients of the best research samples

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