

Achieving the most appropriate scientific standards for using compact spinning technique and its effect on the properties of the yarns produce

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Abstract: -

The compact spinning system emerged as a new and innovative generation of ring spinning from here came the idea of research, where three types of Egyptian cotton were selected, Giza 70 super long- Giza 86 long staple and Giza 80 medium length, which are the types that represent the three different levels of lengths of the Egyptian cotton and then those cottons were spun on the traditional ring spinning machine and compact with three different diameter For each cotton type, which is (40/1, 50/1, 60/1), and for every diameter, three types of twines were selected with a twisting exponent (3.2, 3.6, 4), thus 54 of yarns were produced.

Laboratory tests were then performed on the strands produced under research to determine their various properties and the relationship of these properties to the variables of the study factors which are (tensile - elongation - irregularity - - hairs) and based on statistical analysis of the evidence, the study proved that the compact isolation machine produced more robust strands and a clear difference from those strings Produced on the traditional ring spinning machine, and the results came to confirm that the integrated spinning machine produced better leads in terms of uniformity and less in the number of defects (thick, thin and nebs) than those produced on the traditional ring spinning machine, in addition to that, the degree of hairs of the yarns produced on the spinning machine was less and with distinct differences from the traditional ring spinning, as the number of twists in the unit of measurement had an effect on the properties of the produced yarn, and the results showed that the yarn's need for the number of twists of the yarn produced on the compact spinning machine is less than that on Conventional toroidal spinning machine, which directly affects the increase in machinery production, especially the preparatory stages of annular spinning (roving stage) without prejudice to the durability and quality of the resulting yarns .

Keywords:

(compact yarn – ring spinning - twisting exponent- hairs – yarn tenacity)