

Performance evaluation of various natural agro fibres in carpet making and their costing

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■ **ABSTRACT** : The growing concerns for environment and health hazards associated with the use of synthetic dyes, particularly in western countries gave fillip for cultivation and use of naturally coloured cotton, other minor fibres like banana, sisal, hemp etc. The popular belief is that the industrial practices and particularly the chemical industry have altered the natural balance in the world. There is a perception that chemistry is fiddling with the nature. This in turn, leads to returning to traditional or so called more natural way of life. As a part of this trend, there is a lobby for using natural colouring matters today. The reasons for increasing popularity of naturally coloured cotton and other agro fibres include that, these fibres are ecological and economical. In processing of white cotton the chemicals and dyes used and their effluents cause pollution directly or indirectly, the chlorinated products and bleaching agents employed for bleaching cause skin irritation. Dyes containing traces of heavy elements such as arsenic, lead, cadmium, cobalt, zinc and chromium are found skin irritants. The cost of dyeing cotton and other agro fibres economically and environmentally can be very high especially in the counties with strict pollution standards. The cost of naturally coloured cotton is 31 per cent less than the conventionally grown and dyed yarn. Further, the demand for organically produced agricultural products is on the rise. Dyeing uses up to 85 per cent of all the energy used to produce textiles and produces more pollution than any other phase of textile manufacturing. Natural coloured cotton has high quality light and wash fastness, saves resources and prevents pollution. When most textile materials are subjected to continuous rubbing forces, the result is broken threads or holes that we usually associate with wear and abrasion. However, when carpets undergo similar forces, the most obvious results are loss of pile height, gradual flattening of yarns, fuzzing and matting of the pile. Aiming at developing environmentally friendly products, naturally coloured cotton and many other agro fibres were used for making carpets and subjected to some important functional parameters assessed for durability of the newly designed carpets. The results of the study showed that, among the five different types of carpets, compression recovery of naturally coloured cotton carpets was higher followed by cotton carpets. Compression recovery of all the carpets was far less and the carpets did not recover more than 50 per cent. Among the ten different carpets sisal carpets were the costliest followed by banana carpets. The cost of these carpets was high due to cost of raw material *i.e.* yarn and is not easily available. Naturally coloured carpets were the cheapest or economical among all types of carpets. The cost of production totally depended on the complexity of the design and number of colours used in the design.