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Vegetable Matter in Wools and Its Removal

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Vegetable matter content in some Indian wools and the efficiency of its removal on woollen card are reported. It is observed that only the medium burry wools having up to 6% vegetable matter can be brought to an acceptable level by mechanical removal of vegetable matter on the woollen card.

The presence of vegetable matter in wool has a distinct disadvantage, both to the grower and the processor. Knowledge of the type of vegetable matter and its proportion is essential to a processor, since it affects the extent of fibre loss and damage in carding and other processes. Mechanical and chemical methods for removing or avoiding vegetable matter contamination have been reported by Townend and Russell[1]. The present communication gives an idea about the vegetable matter content in some Indian wools and the efficiency of a woollen card for vegetable matter removal. Since it is a general concept that the woollen processors are able to reduce the vegetable matter which they encounter to an acceptable level, only wool lots having 6% or higher vegetable matter content were taken for processing.

Four different types of wool, sheared at this institute during March 1982, were taken for the study. Representative samples drawn from each lot were analyzed for fibre fineness, percentage medullation and vegetable matter content as per standard procedures[2-4]. All the lots, each of about 100 kg, were processed on a Japanese Torigoe Woollen Card having three cylinder-three doffer, matallic breast, peralta roller before the inter-card and fly-sheet on each set adjacent to first stripper roller. Sandoz wool oil (about

Table 1—Fibre Length, Fineness, Medullation, Vegetable Matter and Waste in the Experimental Wools

Wool sample No.	Wool	Fibre length mm	Fineness μ	Medullation %	Vegetable matter %	Waste %
1	Chokla/Nali	57.5	30.4	36	8.63	28.6
2	Mutton Crosses	65.4	33.7	49	5.88	27.2
3	Avikalin	48.2	27.7	25	14.00	32.2
4	Mixed	—	28.9	21	16.80	34.6

Table 2—Vegetable Matter (VM) Content and Burr Removal (BR) Efficiency of Breaker, Inter and Finisher Cards

Wool* sample No.		Scoured wool	Breaker card	Inter card	Finisher card
1	VM, %	8.63	5.01	1.78	1.13
	BR efficiency, %	—	41.00	64.60	36.50
2	VM, %	5.88	3.05	0.93	0.47
	BR efficiency, %	—	48.00	69.50	49.40
3	VM, %	14.00	5.33	1.51	1.09
	BR efficiency, %	—	61.80	71.60	27.80
4	VM, %	16.80	6.10	1.89	1.56
	BR efficiency, %	—	63.70	69.00	17.50

*Wool Nos. correspond to those in Table 1.

3% on the weight of wool) emulsified in water was evenly sprinkled over the wool at the time of willowing prior to its carding.

It is observed from Table 1 that the finer wools have higher vegetable matter content. This is because such wools are more prone to burr-entanglement and its adherence. The carding and spinning waste is also higher in finer wool lots. The fibre length of the mixed lot is not reported here, since it was not possible to measure the length of the fibres without breakage. Data presented in Table 2 show that the inter-card efficiency is higher than the breaker-card efficiency in vegetable matter extraction. This is due to the crushing action of peralta rollers before the inter-card. The peralta rollers reduce these impurities by crushing them, after which they drop out in the succeeding parts of the card[5].

The vegetable matter content in the mutton cross is at a tolerable limit (0.47) at the finisher card stage (Table 2). In the rest of the wools, its presence is at a level of about 1%, which is highly detrimental to the quality of yarn and the end-product. It may be inferred that only wools having up to 6% vegetable matter should be processed on the woollen system.

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