International Journal of Recent Advances in Multidisciplinary Topics
Volume 3, Issue 10, October 2022
https://www.ijramt.com | ISSN (Online): 2582-7839

Utilization of Comber Noil in Open End Spinning

N. Arun Prakash[1*], K. Hari[2], A. Ashok Kumar[3]
[1,2]Student, Department of Textile Technology, Bannari Amman Institute of Technology, Erode, India
[3]Assistant Professor, Department of Textile Technology, Bannari Amman Institute of Technology, Erode, India

***Abstract*: To use the noil for open-end spinning and to remove short fibers, the extracted waste known as Noil cotton carder. As the Noil comber is free of waste, it can be used for a number of purposes such as paper money production, surgical and also for blending purposes in open end spinning yarns. As a result of competition in the market, the price of yarn has decreased in the way of mixing with combings. But the current scenario was the price of comber and pure cotton was high. So, in this research, focus mainly on reducing the price of cotton yarn with optimal quality level. These research trails were made with two different noil percentages, 16% and 20% with different proportions of blending with cotton such as 20/80 (20% pure cotton / 80% noil), 50/50 and 80/20. yarn from counts of 20 s, or 32 s with the same process parameters from blowing room to open-end spinning.**

***Keywords*: Difference in comber noil percentages, different proportion of cotton mixing, yarn quality.**

1. Introduction

To produce comber noil in mixture with other fiber in open-end-spinning and this project is an evaluation of the influence of different percentages of noil on the properties of yarn obtained from two mixtures. The first part of this chapter is therefore devoted to the combing theory as first defined by Gegauff. This is especially true of the correlation between the stacking pattern and waste percentage, as well as the interdependence of waste percentage, distance between separation rollers and the amount of material being fed.

Modern carding technology has undergone great changes in its various dimensions, but the main goal has remained the same, fiber fractionation and the removal of dirt and lint is now more effective, even with low-quality cotton. An important development in combing is to be seen in the increase in production with better quality. The improvement was the result of excellent engineering and technological innovations and modifications.

Combing is a process that is used to improve the raw material. It affects yarn properties such as yarn evenness, strength, cleanliness, smoothness and visual appearance. To achieve improvement in yarn quality, combing must be correct, which results in the removal of short fibers, removal of remaining impurities and removal of knots. The basic operation of the comber is to improve the mid length or clip length by removing short fibers.

2. Materials and Methods

A. Material

The raw material has used cotton. There are two variables of comber noil percentages have selected 16 % and 20%. The different level of cotton proportion has been carried out for mixing with range of 20/80, (20 % cotton, 80% noil), 40/60, 50/50, 60/40 and 80/20 and to make yarn sample 20s and 32s count by using following mixing details according to plan. The following table shows that the fibres used form develop the yarn.

B. Problem Identification

The results obtained in the present study on various properties of ring spun yarn on the basis of two different combers noil yarn property indicates the effect of different noil % on U %, CV m % & CV m 10 m. If we increase the noil %. It leads to decrease in the U%, CV m% & CV m 10 m of yarn. The U%, CV m% & CV m 10m of yarn is better in 10% noil when compared to 9% noil.

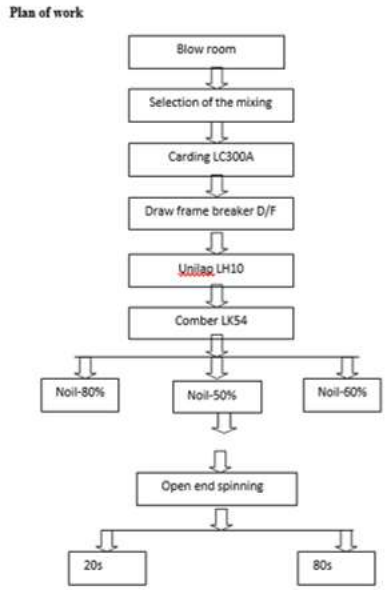

Fig. 1. Plan of work

*Corresponding author: arunprakash.tx20@bitsathy.ac.in

Table 1
Mixing ratio

S. No.	Fibre properties	Parameters
1	Mixing	20/80, 40/60, 50/50
2	UHML	28.5 mm
3	MIC	4.93
4	Maturity ratio	0.88
5	Uniformity ratio	48.0
6	Short fibre content	9.5
7	Strength	21.8
8	Elongation	5.0
9	Rd	75.0
10	+b	9.3

Fig. 2. Cotton fibre test

C. Mixing Details

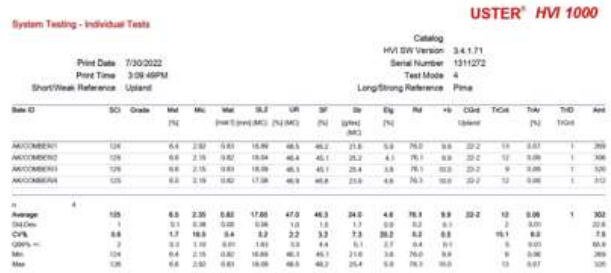

Fig. 3. Comber fibre test

3. Result and Discussion

From the above trial results with different noil levels (18%,20%and 22%) yarn results improvement observed better with 22% noil extraction as compared with 18% and 20% improvement in u %, ipl level, rkm, sys, elongation, for both the counts.

Table 2
Test results

	STRENGTH	Elongation	RKM
20s noil	0.019	17.5	1.293
20s cotton yarn	0.021	28.7	1.437
30s cotton yarn	0.019	17.5	1.293

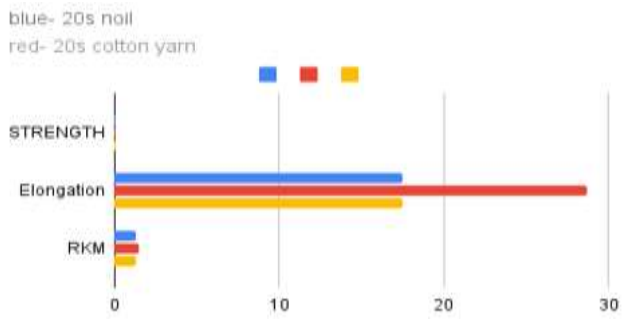

Fig. 4. Strength, Elongation, RKM

4. Conclusion

From the above trial results with different noil levels (18%, 20% and 22%) yarn results improvement observed better with 22% noil extraction as compared with 18% and 20% improvement in u%, ipl level, rkm, sys, elongation, for both the counts.

References

[1] W. Klein, A practical guide to combing and drawing, pp. 1-11.
[2] A. R. Khare, Element of combing, pp. 33-167.
[3] T. V. Ratnam, Quality control in spinning, pp. 73-82, 114.
[4] P. V. Kadole, P. B. Malakane and M. C. Burji, Modern development in card and comber, pp. 1-10.
[5] Lakshmi manual. Page no 11 to 56.
[6] R. Hechtl, Compact spinning systems – an opportunity for improving the ring
[7] U. Meyer, Compact yarns innovation as a sector driving force, Melliand International 6 (2) (2000) 22–25.
[8] P. Owen, Spinning – wider future options, Textile Month, August 1999, pp. 16–18.
[9] B. Wulfhorst, Future development in spinning, Melliand International, 6(4) (2000) 270–272.
[10] W. Kampen, Advantages of condensed spinning, Melliand International 6 (2) (2000) 98–100.
[11] Garde, A. R.; Wakankar, V. A.; and Bhaduri, S. N.; Fiber configuration in sliver and roving and its effect on yarn quality, Textile Research Journal, vol. 31, 1961, 1026-1036.
[12] P. P. Kolte, K. R. Patil, Kulabhaskar Sing, A. M. Daberao, Effect of twist on yarn properties, International Journal on Textile Engineering and Process, vol. 3(1), 2017, 19-23.
[13] S. K. Nerurkar, Detail Analysis of Carding Quality and Its Influence on Processing and Yarn Properties, Indian Journal of Fibre & Textile Research, vol. 4, 1979, 63-70.
[14] Ishtiaque, S. M., A. Mukhopadhyay, and A. Kumar, "Impact of carding parameters and draw frame speed on fiber axial distribution in ring-spun yarn." Indian Journal of Fibre & Textile Research, vol. 34, 2009, 231-238.
[15] H. R. Jambur, P. P. Kolte, V. G. Nadiger, Prof. A. M. Daberao, "Effect of Machine Variables on Rotor Yarn Properties", Journal of the Textile Association, vol. 78(6), 2018, 377-383.