A Study of Weave Structures and Their Effect on Comfort and Dyeability of Cotton Fabrics

Supervisor: Dr.R.Murugan **Candidate: Mr.J.Thanikai Vimal**

The effect of diagonal feeding of roving both with respect to conventional and compact spinning system on the yarn characteristics were conducted on woollen and cotton ring spun yarns. The conventional and compact cotton yarns of (9.54 tex) were doubled in three modes, namely conventional / conventional, compact / compact and conventional / compact. Doubled yarns using the hybrid combination, namely, conventional/compact were produced with a view of reducing the cost as compact yarn is expensive in comparison to conventional yarn. The second phase consisted of production of eleven weave structures comprising of plain, 2/2 twill, 4/4 twill, 2/2 pointed twill, 8 thread twilled hopsack, 8 thread weft sateen, 8 thread honey comb, 8 thread brighton honey comb, 8 thread Huck-a-back, 8 thread crepe cord and 8 thread pin head crepe from these three combinations. Essential parameters, namely crossing over firmness factor (CFF), floating yarn factor (FYF), fabric firmness factor (FFF), weave factor (P1) and geometrical properties thickness, porosity and areal density were determined and the fabrics were tested for various comfort properties, namely, air resistance, wickability, thermal conductivity and overall moisture management capacity. The findings reveal that other geometrical parameters, namely, areal density, thickness and porosity have to be taken into account together with weave parameters in an attempt to obtain a full understanding of the relationship between the comfort properties and the properties of fabrics.