Table 3. Regression equations and the coefficients of determination (R^2) for the best 1-varaible, 2-variables and 3-variables within each variety for hairiness in carded ring yarns at counts (Ne) 50 and 60 and their six variables

Varieties	Carded ring yarns at Ne 50			Carded ring yarns at Ne 60		
	Rank	Equation	R^2	Rank	Equation	R^2
Giza88	X7	Y1 = 6.73 - X7 (2.88)	0.91	X11	Y2 = 7.59 - X11 (0.08)	0.94
	X7 X5	Y1 = 5.76 + X5 (0.01) - X7 (1.98)	0.94	X11 X7	Y2 = 7.62 - X7 (1.56) - X11 (0.05)	0.96
	X7 X5 X9	Y1 = 3.58 +X5 (0.02) - X7 (1.97) + X9 (0.02)	0.94	X11 X7 X8	Y2 = 7.67 - X7 (1.96) + X8 (0.18) - X11 (0.05)	0.97
Giza86	X5	Y1 = 3.67 + X5 (0.01)	0.82	X5	Y2 = 3.81 + X5 (0.01)	0.68
	X5 X8	Y1 = 2.54 + X5 (0.01) + X8 (0.24)	0.91	X5 X10	Y2 = 6.77 + X5 (0.008) - X10 (0.08)	0.83
	X5 X8 X9	Y1 = 4.36 + X5 (0.01) X8 (0.29) - X9 (0.02)	0.94	X5 X10 X7	Y2 = 7.11 + X5 (0.01) + X7 (1.02) - X10 (0.13)	0.93
Giza80	X5	Y1 = 3.18 + X5 (0.01)	0.90	X11	Y2 = 4.48 - X11 (0.01)	0.90
	X5 X11	Y1 = 4.13 + X5 (0.007) - X11 (0.007)	0.92	X11 X5	Y2 = 4.26 + X5 (0.002) - X11 (0.007)	0.93
	X5 X11 X7	Y1 = 4.17 + X5 (0.006) + X7 (0.33) - X11 (0.01)	0.93	X11 X5 X7	Y2 = 4.27 + X5 (0.002) + X7 (0.009) - X11 (0.009)	0.93
Giza90	X5	Y1 = 5.16 - X5 (0.01)	0.80	X10	Y2 = 6.45 - X10 (0.04)	0.87
	X5 X7	Y1 = 5.21 - X5 (0.02) + X7 (0.26)	0.91	X10 X5	Y2 = 5.83 + X5 (0.003) - X10 (0.02)	0.94
	X5 X7 X9	Y1 = 4.74 - X5 (0.02) + X7 (0.31) + X9 (0.006)	0.92	X10 X5 X11	Y2 = 5.80 + X5 (0.003) - X10 (0.01) - X11 (0.003)	0.95

Y1 = Hairiness in carded ring yarns at Ne 50

Y2 = Hairiness in carded ring yarns at Ne 60

X5 = Short fiber content
x7 = Maturity ratio
x8 = Micronaire value
x9 = Uniformity index
x10 = Fiber length
x11 = Fiber strength

Table 4. Regression equations and the coefficients of determination (R^2) for the best 1-varaible, 2-variables and 3-variables within each variety for hairiness in carded compact yarns at counts (Ne) 50 and 60 and their six variables

Varieties	Carded compact yarns at Ne 50			Carded compact yarns at Ne 60		
	Rank	Equation	R^2	Rank	Equation	R^2
Giza88	X7	Y3 = 5.81 - X7 (2.47)	0.92	X5	Y4 = 2.98 + X5 (0.03)	0.92
	X7 X5	Y3 = 4.54 + X5 (0.02) - X7 (1.3)	0.97	X5 X7	Y4 = 3.72 + X5 (0.02) - X7 (0.07)	0.94
	X7 X5 X10	Y3 = 3.16 + X5 (.02) - X7 (1.28) + X10 (0.03)	0.97	X5 X7 X10	Y4 = 0.97 + X5 (0.02) - X7 (0.66) + X10 (0.07)	0.96
Giza86	X5	Y3 = 3.35 + X5 (0.008)	0.71	X5	Y4 = 3.58 + X5 (0.01)	0.76
	X5 X8	Y3 = 2.42 + X5 (0.01) + X8 (0.2)	0.83	X5 X10	Y4 = 6.07 + X5 (0.008) - X10 (0.07)	0.90
	X5 X8 X9	Y3 = 3.53 + X5 (0.01) + X8 (0.23) - X9 (0.01)	0.86	X5 X10 X7	Y4 = 6.26 + X5 (0.01) + X7 (0.52) - X10 (0.09)	0.93
Giza80	X11	Y3 = 4.23 - X11 (0.01)	0.89	X11	Y4 = 3.99 - X11 (0.009)	0.78
	X11 X5	Y3 = 4.06 + X5 (0.002) - X11 (0.008)	0.91	X11 X9	Y4 = 3.61 + X9 (0.005) - X11 (0.01)	0.84
	X11 X5 X8	Y3 = 4.11 + X5 (0.001) + X8 (0.02) - X11 (0.01)	0.92	X11 X9 X5	Y4 = 3.43 + X5 (0.001) + X9 (0.005) - X11 (0.006)	0.86
Giza90	X5	Y3 = 4.21 + X5 (0.004)	0.73	X5	Y4 = 4.62 + X5 (0.004)	0.74
	X5 X11	Y3 = 4.43 + X5 (0.002) - X11 (0.005)	0.78	X5 X11	Y4 = 4.81 + X5 (0.002) - X11 (0.004)	0.78
	X7 X11	Y3 = 4.70 + X7 (0.24) - X11 (0.01)	0.86	X7 X11	Y4 = 5.10 + X7 (0.26) - X11 (0.01)	0.90

Y3 = Hairiness in carded compact yarns at Ne 50

x5 = Short fiber content
x7 = Maturity ratio
x8 = Micronaire value

Y4 = Hairiness in carded compact yarns at Ne 60

x9 = Uniformity index
x10 = Fiber length
x11 = Fiber strength