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## Fibre diameter profile characteristics in Merino flocks in different regions

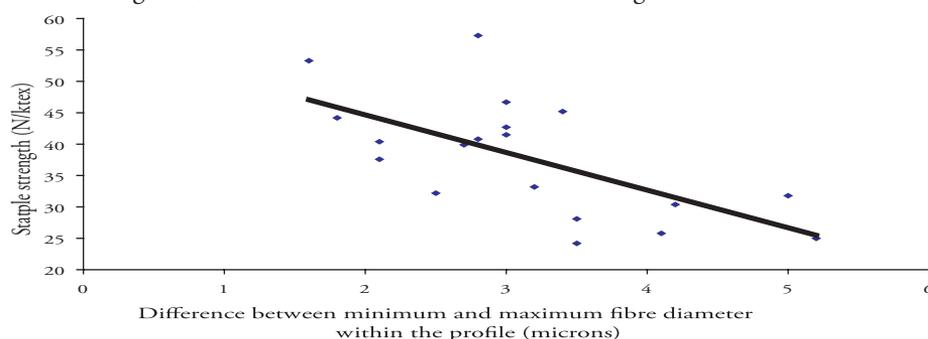
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Fibre diameter profiles can be used to indicate staple strength. The difference between minimum and maximum fibre diameter increases in flocks in drier areas being greatest in the Mediterranean climate type in Western Australia and least in the temperate climate of northern NSW. As the difference in variation between minimum and maximum fibre diameter increases, staple strength generally decreases as shown in Figure 1; all flocks studied are in the fine wool range of less than 19.5 microns.



**Fig. 1.** Relationship between the difference between minimum and maximum fibre diameter along staple profiles and their Staple Strength ( $y = -6.127x + 57.096$ ;  $R^2 = 0.41$ ).

Fibre diameter profiles have been measured in some 7,400 hoggets in 25 Merino ram breeding flocks across Australia. Results for approximately 5,000 ewe or ram hoggets in 19 of the flocks during 2004–05 are presented in Table 1. The complete set of fibre diameter profile data will be analysed with other wool traits as well as live weight and muscle and fat scan data for estimates of genetic and phenotypic parameters and tested for genotype by environment interactions.

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**Table 1.** Mean fibre diameter profile characteristics including mean (MFD), minimum (minFD), maximum (maxFD) diameter and staple strength (SS)

Flock	Region	Rainfall	MFD	minFD	maxFD	Diff.	SS
7	Nth NSW	Wet summer	15.8	15.0	17.1	2.1	40.4
4	Nth NSW	- dry winter	17.0	15.6	18.4	2.8	57.3
4	Nth NSW	“	16.2	14.8	17.8	3.0	46.7
9	Nth NSW	“	16.8	16.1	17.7	1.6	53.3
6	Nth NSW	“	16.6	15.7	17.8	2.1	37.6
24	Nth NSW	“	14.2	13.5	15.3	1.8	44.2
Region average			16.1	15.1	17.3	2.2	46.6
23	Ctrl NSW	Uniform	18.4	17.2	19.9	2.7	39.9
5	Ctrl NSW	“	18.3	16.7	19.7	3.0	41.5
5	Ctrl NSW	“	18.8	16.7	19.7	3.0	42.7
Region average			18.5	16.8	19.8	2.9	41.4
2	Sth NSW	“	16.4	14.3	18.4	4.1	25.8
10	Sth NSW	“	18.4	17.0	20.5	3.5	28.1
11	Sth NSW	“	18.6	16.7	20.1	3.4	45.2
Region average			17.8	16.0	19.7	3.7	33.0
18	SA	Wet winter	19.1	17.4	21.6	4.2	30.4
19	SA	- dry summer	17.9	16.1	19.6	3.5	24.2
15	SA	“	19.2	17.4	21.2	2.8	40.8
Region average			18.7	17.0	20.8	3.5	31.8
17	WA	“	15.2	14.1	16.6	2.5	32.2
21	WA	“	17.2	14.9	20.1	5.2	25.0
14	WA	“	18.7	16.5	21.5	5.0	31.8
20	WA	“	18.2	16.6	19.8	3.2	33.2
Region average			17.3	15.5	19.5	4.0	30.6