A COMPARISON OF MOBILE PLUNGE DIPS OPERATING IN NEW SOUTH WALES

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Recently there has been a return to plunge and shower dipping of sheep in NSW for external parasite control. Concurrently, an increase has been noted in the development and use of mobile plunge dips. Some dips are considerably shorter than the 12 m previously recommended by NSW Agriculture (Belschner 1959). This is likely to reduce swim time. Current label recommendations for time in the dip (swim time) vary from 25 seconds to 1 minute. Since both dip length and swim time are likely to affect wetting a comparison of S mobile plunge dips was made to assess their effectiveness.

One hundred and ten merino sheep, 2-3 weeks off shears, were put through each dip. Twenty five of these sheep which were a dense, fine/medium wool type with body wrinkle and neckfolds, were tagged to enable subsequent monitoring. Dips were charged with Diazinon and a blue dye (Lanacet 2R®) at 100 ppm. Swim time, order through the dip and swim length were subsequently recorded. Wetness was scored using a 5.1 cm plastic grid over each animal. Each square of wool was assessed for amount of dye before giving a score of 0 - wool completely wet, 1 - wool partially wet, or 2 - wool completely dry.

Examination of 16 1 tagged sheep for wetting showed only 10 to be completely wet to skin level all over. The main dry areas were along the back from head to tail up to approximately 20 cm either side of the midline. Table 1 shows the results for each plunge dip. Analysis of the results showed no significant correlation between order through the dip and dip time with wetting for each dip.

Table 1. Swim length, range in dip times, number of dunks and mean score for dryness for 20 sheep scored in each dip together with the significance grouping

Dip	Shape	Swim length (m)	No. dunks	Swim time range (seconds)	Mean score (dryness)	Significance grouping for dryness by dip[A]
A	U	6.6	1	11-37	4.16	a
B	straight	5.5	2	8-47	3.51	a b
C	straight	7.2	3	11-30	2.28	b c
D	U	6.6	1-2	13-34	1.87	c d
E	straight	4.5	2-3[B]	7-20	1.84	c d
F	U	10.0	2	16-35	1.77	c d
G	U	9.5	2-3	15-60	1.23	c d
H	straight	11.2	2	20-45	0.62	d

[A]Dips with the same letter are not significantly different $P < 0.05$.
[B]Sheep held under dip wash until just before the next dunk.

Dips were manned by their respective operators which introduced confounding variables. Nonetheless, the comparison clearly demonstrated that the plunge dips do not wet all sheep to skin level all over and that there was a significant difference between the performance of certain dips. Swim time, although dependent on length, was also very dependent on whether sheep baulked at the exit causing pile ups in the dip, or whether they turned around and started to swim back the wrong way.

The minimum swim time for the longest dip (11.2 m) was 20 seconds. This was 5 seconds less than the shortest swim time specified on a chemical label (25 seconds). Length of dip, number of dunks and method of dunking all influenced wetting and require further investigation so that a reliable system can be devised for effective use of plunge dips.

BELSCHNER, H.G. (1959). "Sheep Management and Diseases", 6th Ed. (Angus and Robertson: Sydney).