



Survey of perceived vs actual volume and concentration of footbath solutions

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Introduction



Courtesy of Dave Pinnegar

Digital Dermatitis is a highly significant cause of infectious lameness (3), causing both acute and chronic lameness, as well as contributing to more serious, non-healing conditions such as toe necrosis (1). Footbathing is a key component in the control of digital dermatitis and is now common practice on most dairy farms.

Inaccuracy of dosing in footbaths has been highlighted previously (2) and is something we often come across when implementing lameness control programs. A survey was designed to evaluate this knowledge on a farm level, and to help highlight where footbathing was not being done effectively.

Materials & Methods

A survey was produced and completed by members of the Westpoint mobility working group during routine mobility visits.

The farmer was quizzed on the volume of bath(s), the chemical(s) used and the concentration being targeted.

The bath was measured and the volume calculated (or assessed using measured buckets for baths with uneven shape) to obtain the true value.

Data was also collected regarding number of cow passes, frequency of bathing and siting of the bath in order that this can be compared with mobility score and lesion data gathered by the paraprofessional team going forwards.

FARMER	What volume is your current footbath? (litres)			What depth is the footbath filled to? (cm)			
VET/TRIMMER	Length (cm)	Width (cm)	Depth (cm)	Calculated Volume (litres)			
FARMER	Chemicals used?			Amounts Added (litres)			
VET/TRIMMER	Expected Concentration			Calculated Concentration			
	How many cow passages before changed?	0-100	101-200	201-300	301-400	401-500	501+
	How often milking herd footbathed?	Summer:		Winter:			
	Dry cows footbathed? Frequency?	Y/N					
	Heifers footbathed? Frequency?	Y/N					
	Wash Bath Present?	Y/N					
	Footbath in normal cow route/cow flow?	Y/N					

Results

Of the 26 farms surveyed, the majority were underestimating the true volume of their footbath, leading to a high risk of under-dosing of any chemicals used to counteract digital dermatitis.

Only 23% of farms surveyed were correctly estimating the volume of the footbath.

Only 23% of farms were adding the right amount of chemical to achieve their desired concentration.

Only 3 farms (12%) were correctly estimating both volume and concentration as some had achieved the correct concentration despite being incorrect about bath volume.

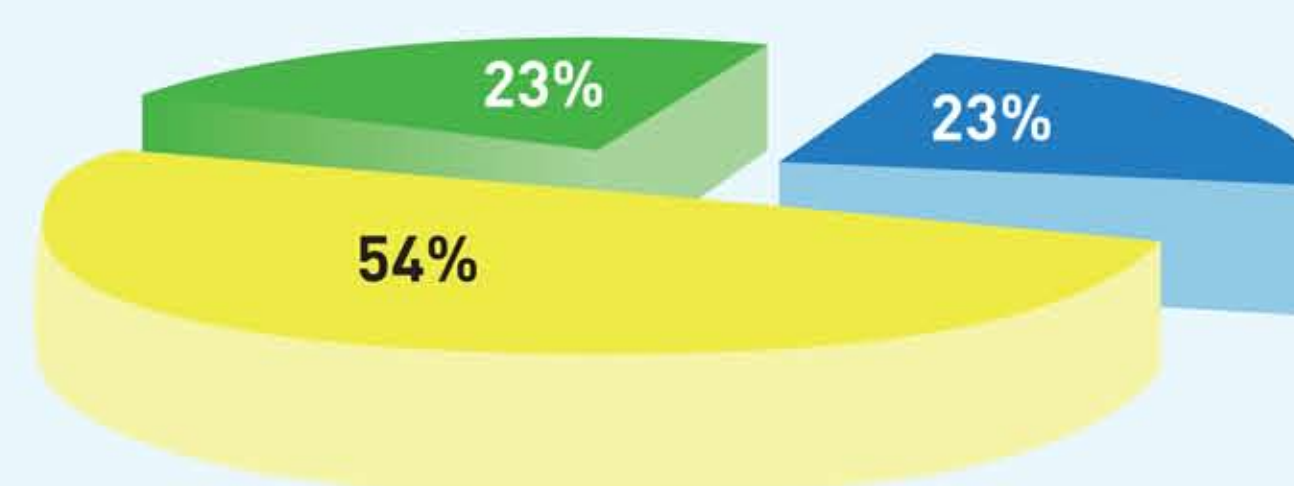
Of the farms over-estimating the size of their bath, the average error was 14%, leading to an 8% over-dose of chemical.

Of the farms under-estimating the size of the bath, the average error was 53%, leading to a 35% under-dosing of chemical.

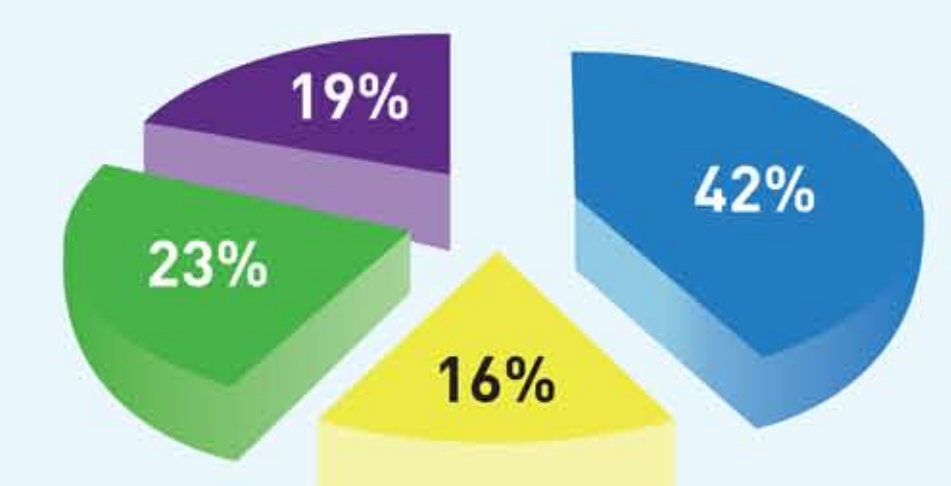
Table 1.
Bath and Chemical Results Summary

	Volume	Average Error	Chemical Concentration	Average Error
% Correct (within 5%)	23%	-	23%	-
% Overestimated	23%	14%	42%	8%
% Underestimated	54%	53%	15%	35%
% Not made an estimate	-	-	19%	-

Bath Volume Summary



Chemical Concentration Summary



■ Correct (to within 5%) ■ Overestimated ■ Underestimated ■ No expected figure available

Discussion

This quick and simple survey has highlighted the fact that only a minority of farms are footbathing accurately and that nearly half of the farms surveyed are failing to achieve expected concentrations of chemical in their footbath.

Formalin is still by far the most commonly used footbath chemical (18/26 farms surveyed) and its disinfection properties improve with greater concentration so ensuring the correct amount is added to the bath is critical to the success of any footbathing regime.

Work is ongoing to increase the number of farms surveyed and to use other data, such as mobility and lesion records, to improve the quality of our advice with regard to footbathing and digital dermatitis control.

Conclusion

A footbathing program is a crucial component of lameness control on many dairy herds and this brief review has demonstrated the importance of including footbath volume and chemical inclusion rate in any conversation we have with farmers about using a footbath to ensure that maximum efficacy is achieved.

References

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