

Environmentally compatible slurry spreading in mountain areas

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Introduction

Ammonia emissions can be reduced by using trailing hose systems to spread slurry. This system represents a step towards environmentally sound slurry spreading. However, farmers in mountain areas are very reluctant to implement it, as they question its operational reliability.



Trailing hose spreader on the test bench with 15 % gradient

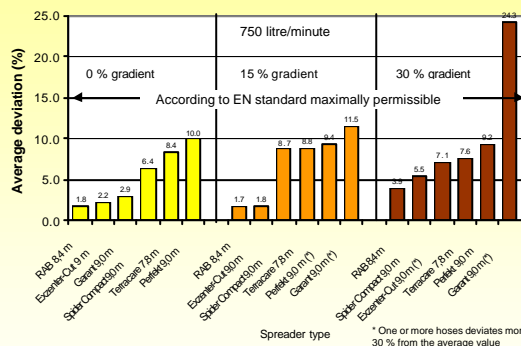
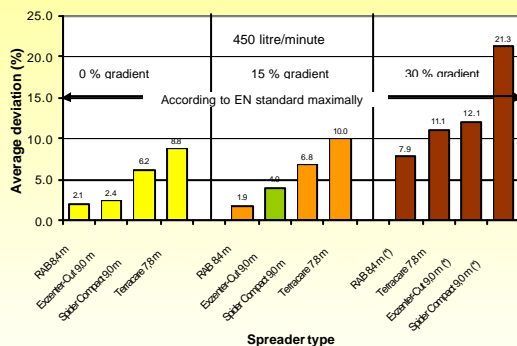
Method

A test bench was built to investigate spreader operation and measure the slurry flowing from each individual spreader hose. A slewing mechanism on the spreader suspension allowed to simulate any desired gradient. After 30 seconds, the slurry flow from each individual hose was scaled and the average deviation from the overall mean was calculated. Experiments were conducted with six types of spreaders available on the Swiss agricultural machinery market with working widths of 7.8 – 9.0 m, using different flow rates (450 and 750 l/minutes) and gradients (0, 15 and 30 %).

Results

The spreading accuracy is determined in the level according to a European standard:

1. Average deviation lower than 15 % and
2. No hose deviates more than 30 % from the average.



* One or more hoses deviates more than 30 % from the average value

Conclusion

On the level, all spreaders comply with the European standard.

On hillsides, only some of them fulfil the requirements.

Number of machines (total 6), which satisfy the European norm →

		Flow rate	
		450 l/min 27 m ³ /h	750 l/min 45 m ³ /h
Gradient	0%	4	5
	15%	4	4
	30%	1	4