

Microgranulated premixes demonstrate superior homogeneity in the final feed

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Background and Objectives

During production in the feed mill, transport by trucks and the provision on pig farms, medicated feed is transferred by pipelines over long distances. This is a potential risk for demixing of the veterinary premix. A trial was set up to investigate the impact of the premix formulation on the in-feed homogeneity of the active substance.

Materials and Methods

Two veterinary premixes, both containing 100 g tiamulin hydrogen fumarate/ kg, were mixed into a commercial pig mash feed (target: 200 ppm) and evaluated on their demixing potential. The first premix was a powder based formulation. The second premix was microgranulated (Vetmulin®). Microgranulation is a formulation technique providing equally sized and bigger particles and is especially developed for homogeneous and easier mixing into feed. The test was performed at Tecaliman institute in France.¹ To mimic the field situations, the medicated feed was dropped in a long PVC tube (5.5 m standard). The shutter on top of the tube was removed to allow the abrupt fall of the medicated feed in the collector pot at the bottom of the tube.

The tiamulin concentration in the feed samples taken at the top (C_t) and the bottom (C_b) of the pot were determined by HPLC. For each premix the test was performed 3 times and the average Elutriation Ratio (ER) was calculated: $ER = C_t - C_b / (C_t + C_b / 2) \times 100$. This ratio expresses the demixing potential: the closer to zero, the better the in-feed homogeneity.

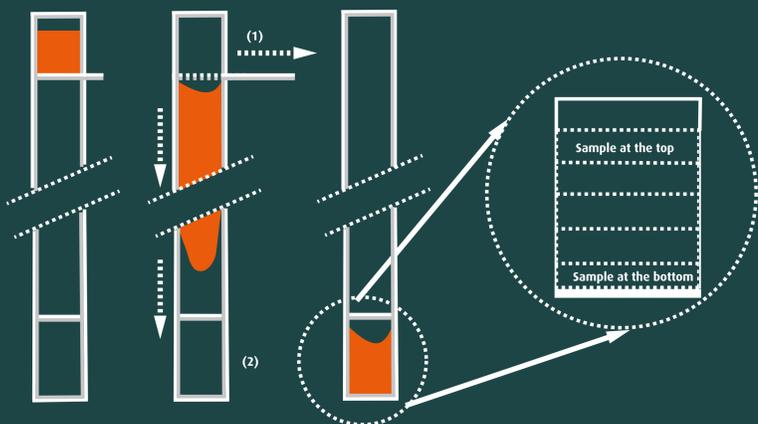


Figure 1. Visualization of the vertical drop and sampling method

Results

The average Elutriation Ratio of the powder premix and the Vetmulin® microgranulated premix was 41.3 and 15.4 respectively. This demonstrates a significant difference ($p < 0.05$, Student Test) in the demixing potential of a powder based formulation versus a microgranulated formulation.

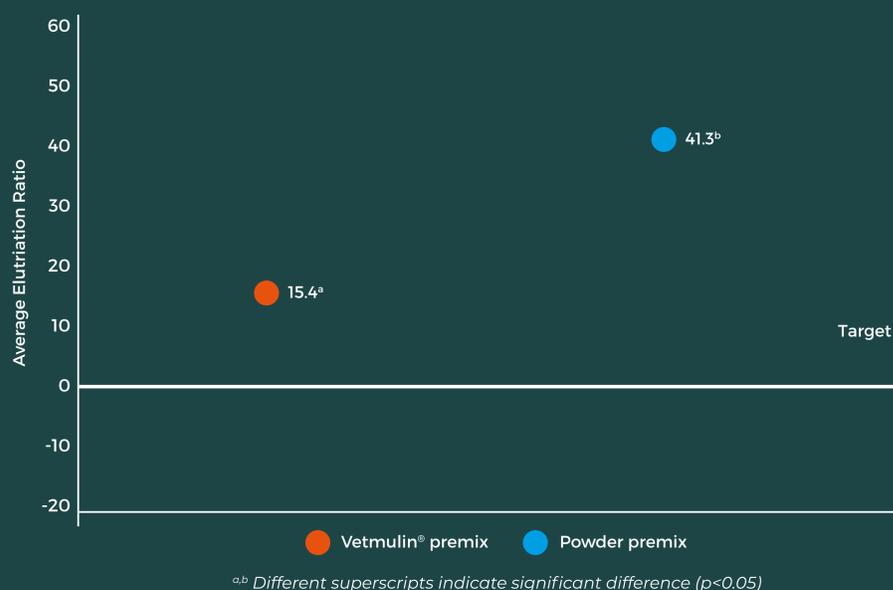


Figure 2. Average Elutriation Ratio of Vetmulin® microgranulated premix and a powder premix

Conclusion

The formulation of a medicated premix determines the demixing potential and consequently, the homogeneity of the active ingredient in the medicated feed. The equally sized and bigger particles obtained by the microgranulation technology of Vetmulin® premix ensure a superior in-feed homogeneity and result in correct dosing and optimal efficacy.²

References

- ¹ Tecaliman homogeneity testing: internal report
- ² Claerhout L et al. Proceedings of the International Pig Veterinary Society Congress 2020, p. 582

