# Comparison of the syringeability of a fixed combination of florfenicol and meloxicam with florfenicol-based products commonly used in bovine respiratory disease (BRD)

D. ACHARD[1] , S. LACOSTE[1], M. LETERTRE[1], S. TROTEBAS[1]

[1] Ceva Santé Animale, Libourne, France

## Objective

Syringeability is a direct measurement of the performance of the formulation of any injectable product. It is a key-product criterion strongly connected to compliance and user safety. For calves with bovine respiratory disease (BRD), a better syringeability can also positively contribute to reduce the stress associated with the administration of the product. On the other hand, some florfenicol-based products are known for having a poor syringeability. This study was therefore designed to compare the syringeability of a new fixed combination of florfenicol and meloxicam: Zeleris® (florfenicol 400 mg/mL and meloxicam 5 mg/mL, Ceva) with three florfenicol-based veterinary products commonly used in BRD: Resflor® (florfenicol 300 mg/mL and flunixin meglumine 16.5 mg/mL, MSD), Nuflor®300 (florfenicol 300 mg/mL, MSD), Florkem® (florfenicol 300 mg/mL, Ceva).

## Materials and methods

To determine the syringeability of each product, a volume of 15 mL was withdrawn in a 20 mL glass syringe set up with a 1.2 mm diameter steel needles at 5°C and at room temperature. A mass of 1 kg (equivalent to 1 Newton force) was applied to the piston and the time needed to empty the last 10 ml of solution was recorded. This procedure was repeated six times for each product. The fastest time necessary to empty the syringe characterize the product with the highest/best syringeability.

## Results

The results of this study clearly demonstrated the high syringeability of the new fixed combination of florfenicol and meloxicam (Zeleris®). Zeleris® syringeability was better than the other florfenicol-based products both at 5°C and at room temperature (figure 1 and 2). The superior performances of Zeleris® may be explained by the various excipients used in its formulation.

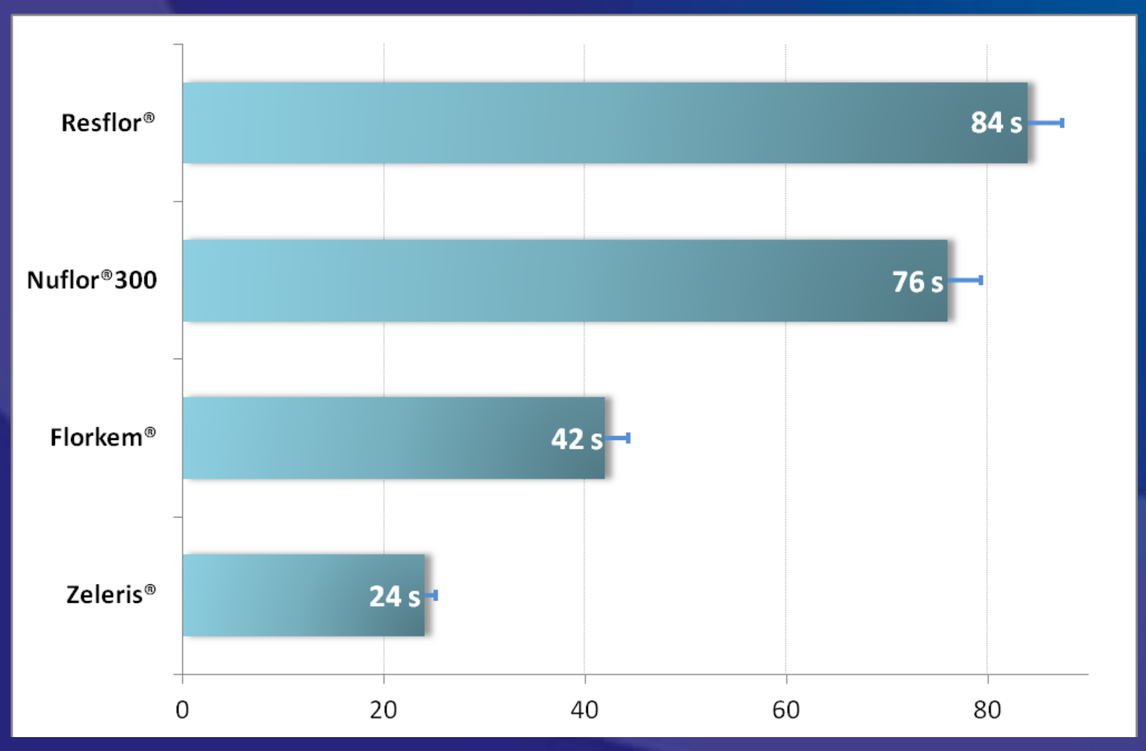


**Figure 1.** Syringeability test (in seconds) performed at 5°C with a needle of 1.2mm of diameter (mean +/-SD)

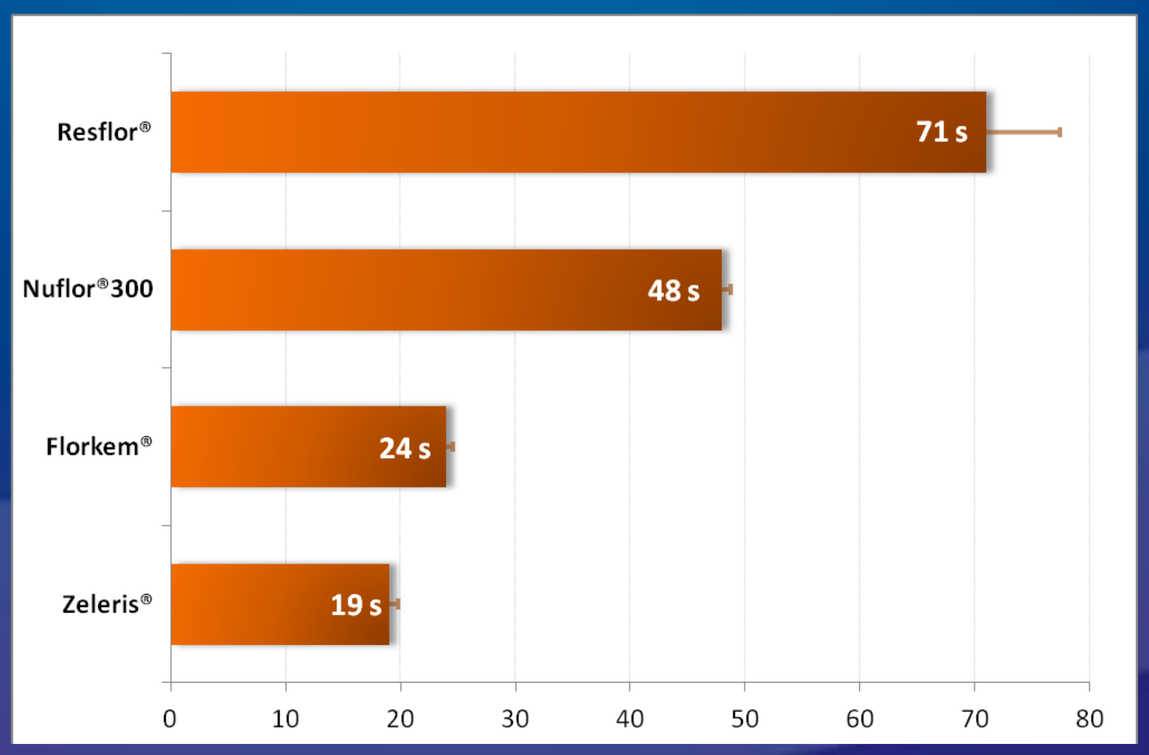


**Figure 2.** Syringeability test (in seconds) performed at room temperature with a needle of 1.2mm of diameter (mean +/-SD)

## Conclusions

These results along with efficacy studies suggest that Zeleris® is a reliable and practical treatment of BRD in the field.