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## **Comments on the possibilities of substitution of cyanamide as an active ingredient for veterinary hygiene biocidal products (PT3)**

### **1. Availability of substitutes or alternatives to the active substance**

Cyanamide is the only agent capable of controlling both, the causative agent of swine dysentery (*Brachyspira hyodysenteriae*) as well as fly larvae (which are a main carrier of *Brachyspira* and other pathogens) in liquid pig manure. To our knowledge, there is no other biocide available for controlling *Brachyspira* in residual faeces in the slurry pit. As there is no alternative biocide available providing the effects of Cyanamide, the only alternative would be to remove the faeces completely and to wash and disinfect the whole slurry pits.

### **2. Technical Feasibility**

However, under practical circumstances it seems to be impossible to remove all faeces without leaving any residues. Considering the constructional circumstances in modern pigpens, which only give a limited access to the slurry pits below the slatted floor, there is no chance to clean up accurately the slurry pits after each fattening cycle.

### **3. Economic Feasibility**

Removing the faeces completely from the slurry pit, clean and disinfect the area below the slatted floor would need an enormous input of labour. The costs involved would make pig production loss generating. Furthermore, it would also be impossible to find the personnel to do this unpleasant job.



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#### 4. Hazards and Risks of Alternatives

Cyanamide causes no resistance ("multi-site" mechanism of that agent) unlike the medication with antibiotics or the use of standard larvicides. As the sanitation of farms affected by swine dysentery would be less effective without Alzogur, the need for medication with antibiotics would increase. This would counteract the "Antibiotika-Resistenzstrategie DART 2000" of the German Government, which has defined as goal number 4: "Interrupt infection chains early and avoid infections" (Bundesregierung, 2015)<sup>1</sup>. Whereas the application of pig slurry containing antibiotics is raising concerns in regard of groundwater pollution (Umweltbundesamt, 2014)<sup>2</sup>, cyanamide is not only biodegradable but also a natural occurring substance synthesized by plants like hairy vetch (*Vicia villosa*) or *Robinia pseudoacacia*<sup>3</sup>. Thus, application of pig slurry containing residual cyanamide is comparable to plowing-in a crop of hairy vetch as a green manure.

#### 5. Conclusion

Disinfection and hygiene are the most important measures for reducing antibiotic treatment of pigs in particular and the medication of farm animals in general. No successful dysentery-eradication would be possible without an effective elimination of *B. hyodysenteriae* in the liquid manure. Thus, there is no feasible alternative to treating infectious faeces in the slurry ditches under the slatted floors with cyanamide. The use of Alzogur in the sanitation of pigpens with dysentery has proved to be very successful.<sup>4</sup>

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<sup>1</sup> Bundesregierung, 2015: DART 2000, Antibiotika-Resistenzen bekämpfen zum Wohl von Mensch und Tier.  
<https://www.bmel.de>

<sup>2</sup> Umweltbundesamt (Hrsg.), 2014: Antibiotika und Antiparasitika im Grundwasser unter Standorten mit hoher Viehbesatzdichte. Texte 27/2014, Umweltforschungsplan des Bundesministeriums für Umwelt, Naturschutz, Bau und Reaktorsicherheit

<sup>3</sup> Kamo, T. et al. (2008): Limited distribution of natural cyanamide in higher plants: Occurrence in *Vicia villosa* subsp. *varia*, *V. cracca*, and *Robinia pseudo-acacia*. In: *Phytochemistry* 69 (5), S. 1166–1172. DOI: 10.1016/j.phytochem.2007.11.004

<sup>4</sup> Cadetg et al., 2019: Retrospective study on the eradication of Swine Dysentery (*Brachyspira hyodysenteriae*) in Switzerland. *Schweizer Archiv für Tierheilkunde*, Bd. 161, Heft 4, 217-230

