

Using defined daily doses (DDDvet) to monitor the use of injectable antibiotics among fattening pigs in Finland

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Sikava is a health and welfare classification register for pig farms in Finland. It was founded in 2003 by slaughterhouse companies in order to replace the separate health classification systems run by different slaughterhouse companies.

The basic idea of the classification system was to differentiate farms by their health status to organize animal transport logistics. All these classification systems were put together into one voluntary national register named Sikava. It is run by Animal Health ETT, a private NGO association.

Sikava includes the observations from the herd health visits, laboratory results, meat inspection data and usage of medicines. In 2020, DDDvet values were added into the register for all antibiotics. The register is available on the Internet at www.sikava.fi. The five largest slaughterhouse companies in Finland are members of Sikava.

Sikava covers over 95 % of commercial pig production in Finland.



Background

ESVAC DDDvet system¹ was established in 2015 to provide a standardized method to report the usage of antibiotics and to allow comparison between different countries. We calculated the usage of injectable antibiotics according to the methods described by EMA¹ using the medication data saved into Sikava² by the farmer.

Material and methods

Injectable antibiotic usage for fattening pigs from swine herds in Sikava in 2020 was collected from the register. Tulathromycin was excluded as it does not have a DDDvet value. The usage of peroral antibiotics in feed or water is not common in Finland.

From this data the No. DDD/WA (W=weight, A=number of animals) was calculated in a following manner: the amount of medicine (mg) was calculated by multiplying the amount of medicine used by the concentration of the medicine. This was divided by the appropriate DDDvet value, and the standardized weight used (W=50 kg). No. DDDvet/W of all medication was then added together and then divided by the number of slaughtered fattening pigs (A) in Finland in 2020.

Results

There were 1 873 282 fattening pigs slaughtered in Finland in 2020. No. DDDvet/W of injectable antibiotics, registered in Sikava as used for fattening pigs, was 1 059 082. No. DDDvet/W divided by the number of animals was 0,565. So, with the amount of injectable antibiotics used in 2020 in Finland, 565 out of 1000 fattening pigs with a standardized weight could have been treated one day during that year.

Conclusion and discussion

Using DDDvet values to determine the usage of antibiotics seems to be a promising tool to compare the usage between farms. The data is heavily based on the correct dosages entered into the register.

$$\sum_{i=1}^n \frac{\text{amount of active ingredient used}_i \text{ (mg)}}{\text{DDDvet}_i \text{ (mg/kg)} \times \text{assigned weight (kg)}}$$

$$= \text{No. DDDvet by weight group} = 1\,059\,082$$

$$\frac{\text{No. DDDvet by weight group}}{\text{fattening pigs slaughtered in Finland (in 2020)}} = \frac{1\,059\,082}{1\,873\,282} = 0,565$$

With the amount of injectable antibiotics used in 2020 in Finland, 565 out of 1000 fattening pigs with a standardized weight could have been treated one day during that year.

References

- ¹Principles on assignment of defined daily dose for animals (DDDvet) and defined course dose for animals (DCDvet). https://www.ema.europa.eu/en/documents/scientific-guideline/principles-assignment-defined-daily-dose-animals-dddvet-defined-course-dose-animals-dcdvet_en.pdf
- ²Sikava register: www.sikava.fi