

Monitoring of antibiotic use in livestock in Germany: Results of a feasibility study

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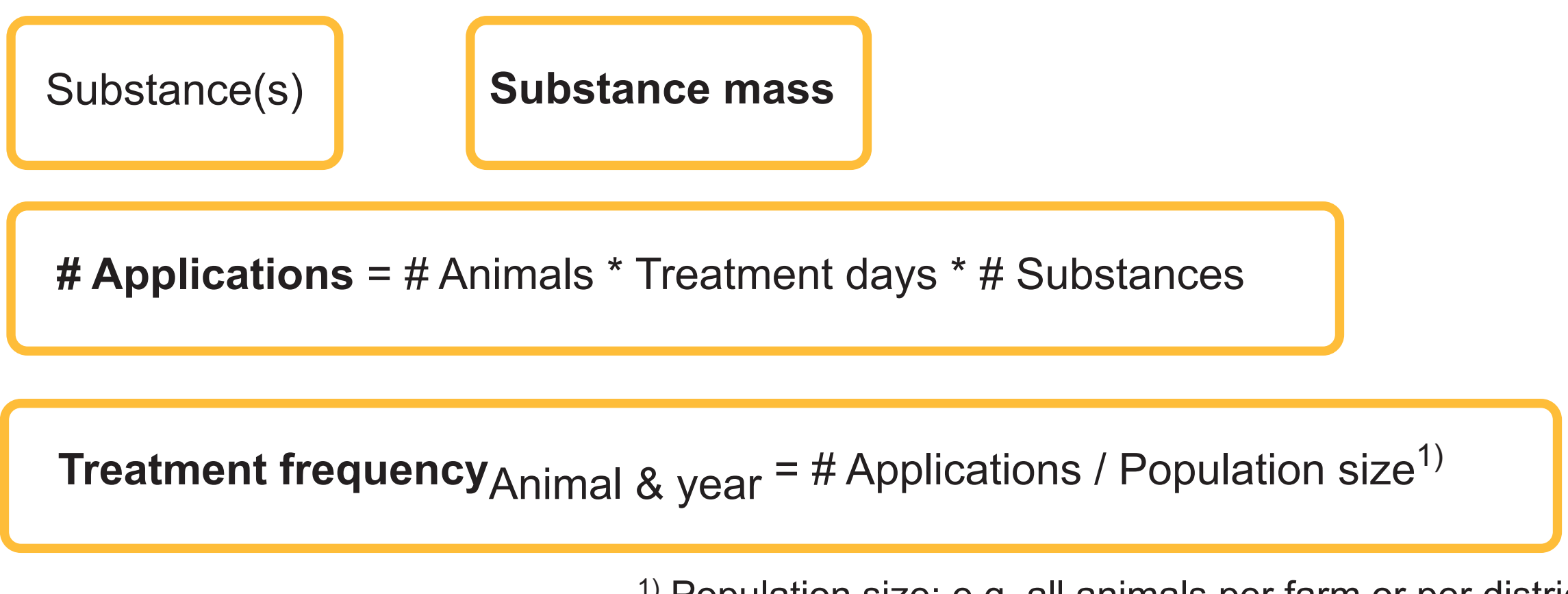
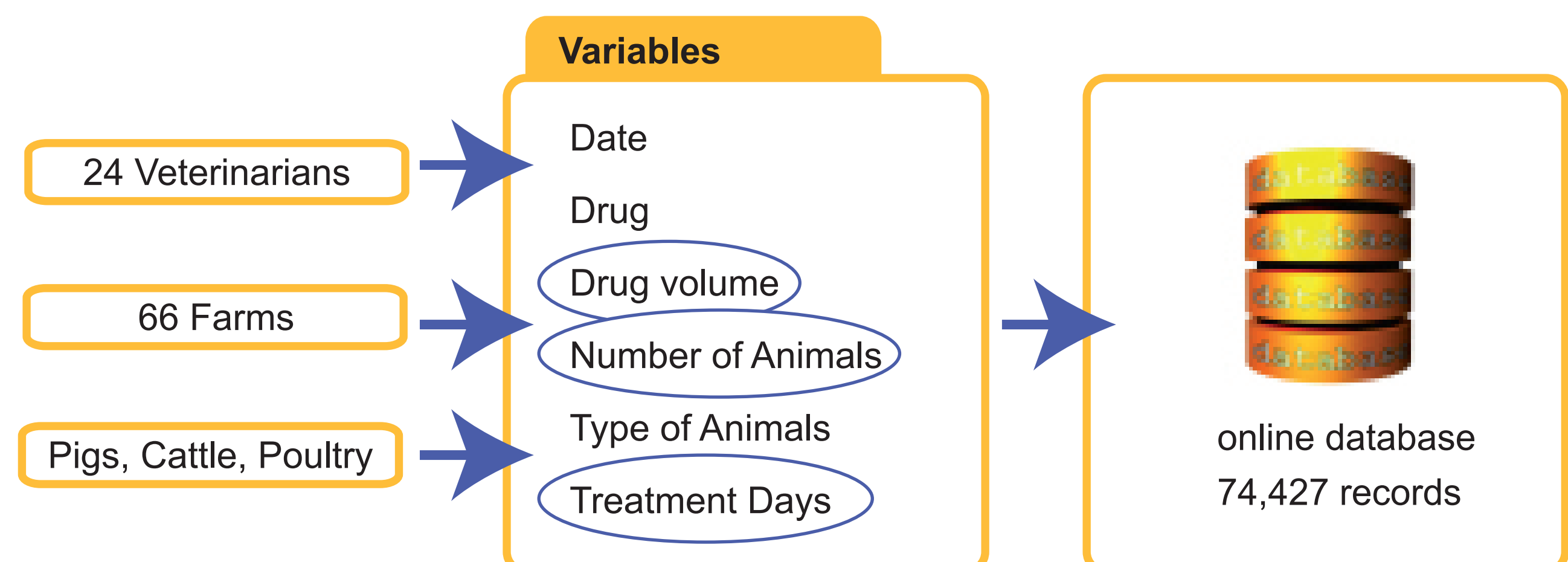
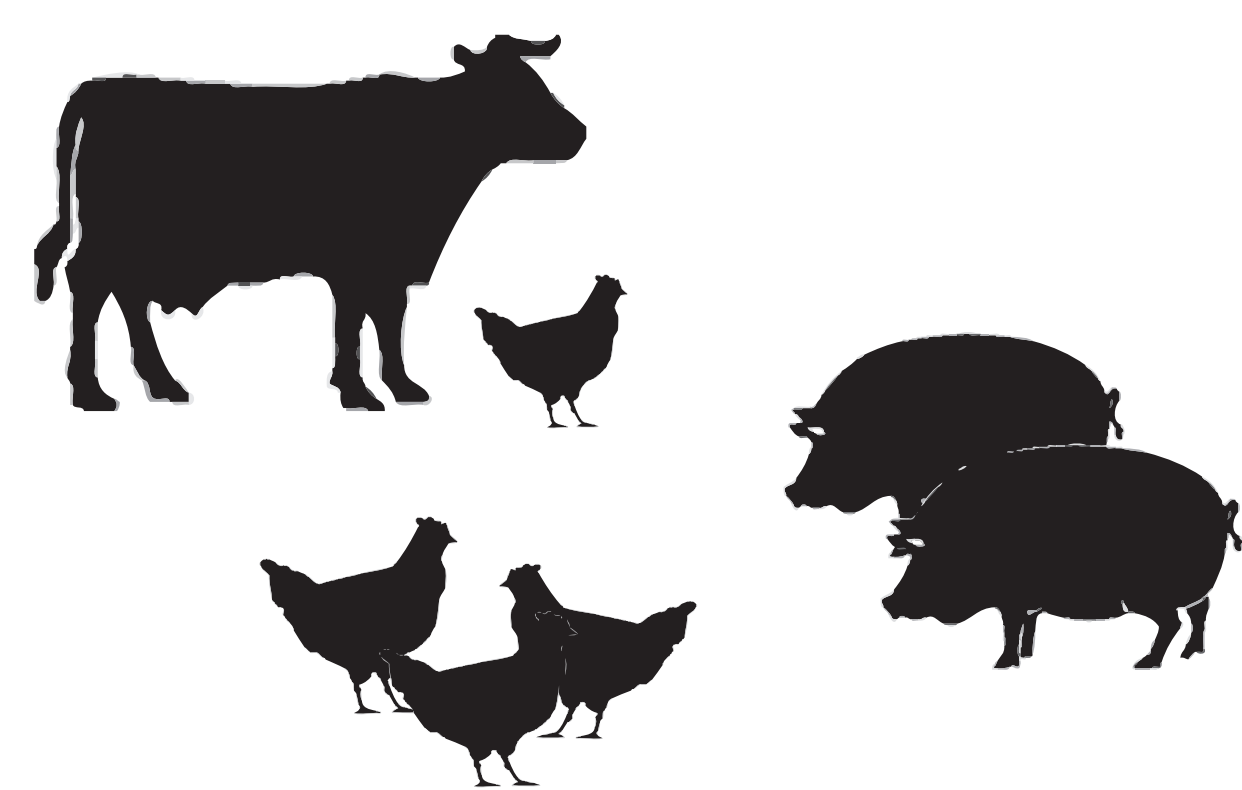
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Introduction

The amount of applied antibiotics may be linked to the development of bacterial resistances. The drug's dose and the application period are regarded as the most important factors affecting the spread of bacterial resistances.

A monitoring system concept to evaluate data of antibiotic use in livestock by a bottom-up approach was tested in a feasibility study.

Material and methods



Results

Antibiotic use

Tetracyclines were the most frequently used substances. But regarding the number of applications, the percentage of tetracyclines was smaller, while the percentage of macrolides and of the sulfonamides/trimethoprim group was higher (figures 1, 2). For monitoring purposes, the number of applications is regarded more important than the consumption in kg.

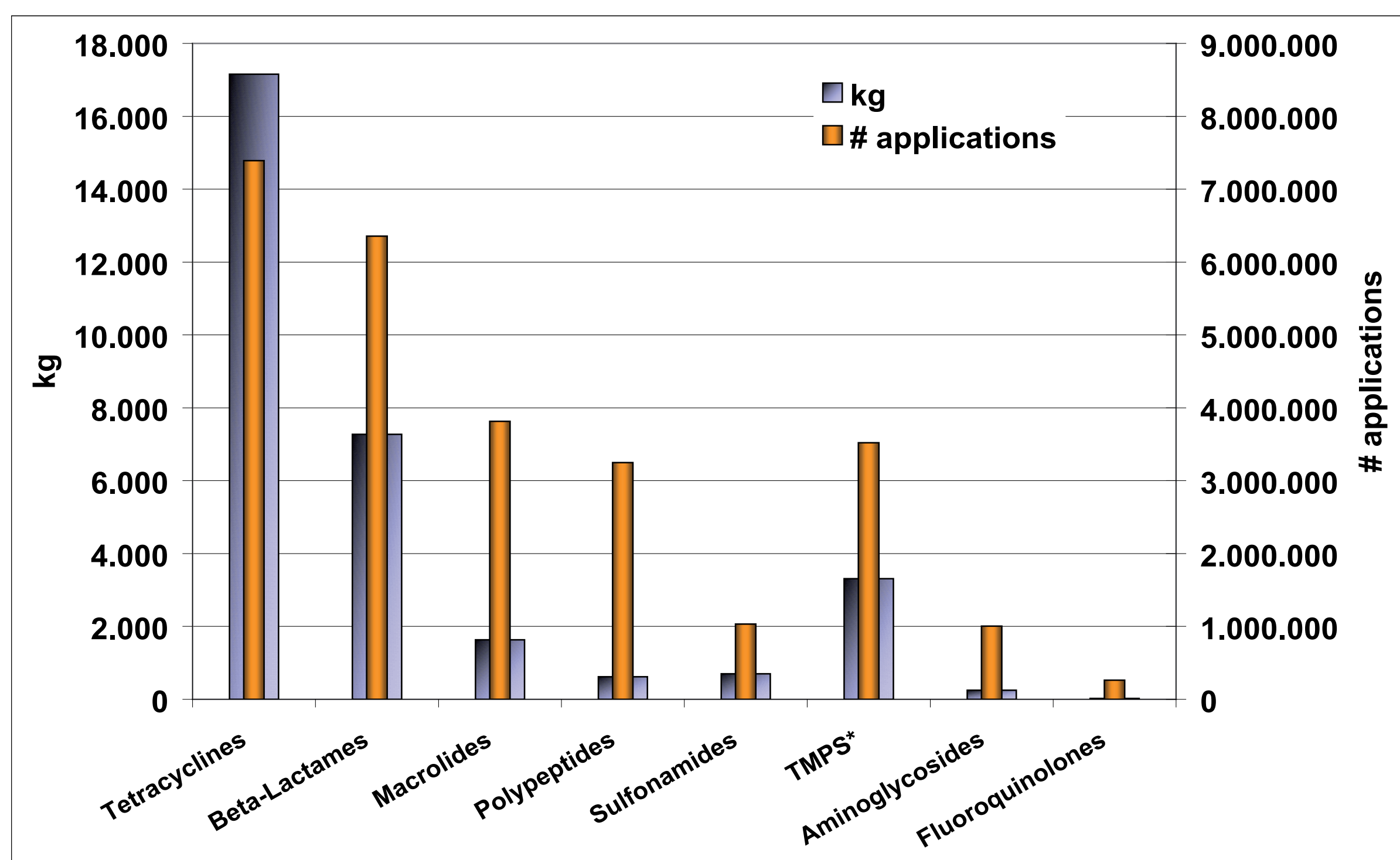


Figure 1: Antibiotic use in pigs *TMPS: Trimethoprim & Sulfonamides

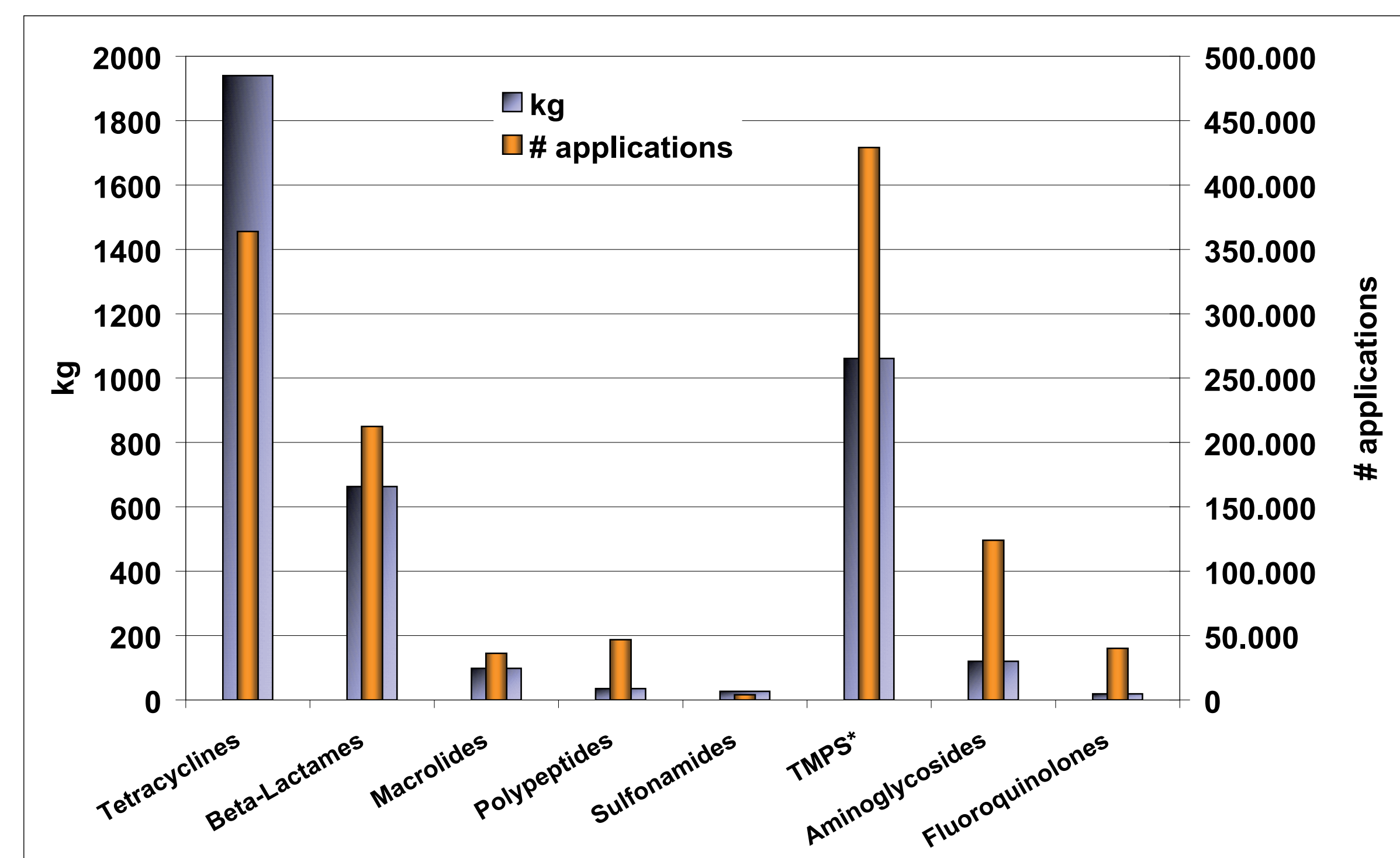


Figure 2: Antibiotic use in cattle

Treatment frequency

- ★ Data from farms: easy calculation.
- ★ Data from veterinarians: Treatment frequency could not be calculated, because the population size (i.e. all animals attended by the veterinarian) was not known.
- ★ Pigs are treated more often than cattle (table 1).

The treatment frequency is suitable for monitoring systems, because it is related to the population and can be compared between different regions or from year to year.

Table 1: Treatment frequency (Geometric mean of farms per animal & year)

Fattening Pigs*	8.9
Dairy cattle	2.5
Calves	2.3

* per fattening pig (30 kg until slaughter)

Feasibility

Although several information gaps were identified, e.g. the number of treated animals per veterinarian, the proposed system is able to function as a monitoring system for antibiotic use in Germany.

A pilot study will take place in 2011 including eight German districts in order to gain representative monitoring data.