

Occurrence of pest rodents and their control on swine and cattle farms

Leena Seppä-Lassila¹, Heidi Rossow¹, Maria Rönnqvist², Jukka Niemimaa³, Otso Huitu³, Pirkko Tuominen¹

¹Risk Assessment Research Unit, Finnish Food Safety Authority Evira, Helsinki, Finland • ²Microbiology Research Unit, Finnish Food Safety Authority Evira, Helsinki, Finland

³Forest and Animal Ecology, Natural Resources Institute Finland, Helsinki, Finland

Background

Production animals can be carriers or reservoirs of zoonotic pathogens campylobacteria, salmonella, yersinia and toxin-producing *E. coli* strains. The infection can occur via different routes, for example from contacts with pest animals and wildlife. Farm-level actions in controlling the number of pest animals and preventing their access to production animals and feed are crucial. Increasing knowledge on the pathways of zoonotic infections in production animals helps the farmers to make management decisions and risk managers to target their actions accordingly, when trying to prevent food-mediated zoonotic infections in consumers.

Material and methods

Cattle (n=18) and swine (n=20) farms from Southern and Western Finland were recruited for the study. A questionnaire concerning farm management, biosecurity and pest control was completed on the farm visits. Rodents were trapped on two consecutive nights using approximately one hundred instantly killing traps, which were checked and cleared after each night. The intestinal package of the caught rodents and other small mammals were cultured for detecting campylobacteria, salmonella, yersinia and toxin-producing *E. coli*. The determination of the possible antimicrobial resistance profile of at least *E. coli* indicator bacteria strains will be carried out.

Conclusions

- Large variation between rodent/mammal yield.
- Rats are underrepresented in the data.
- Number of production animals, reflecting the physical size of a farm, seems to be associated with larger yield
- Access for shelter (long vegetation) and water were more common on farms with high yield of rodents and small mammals.

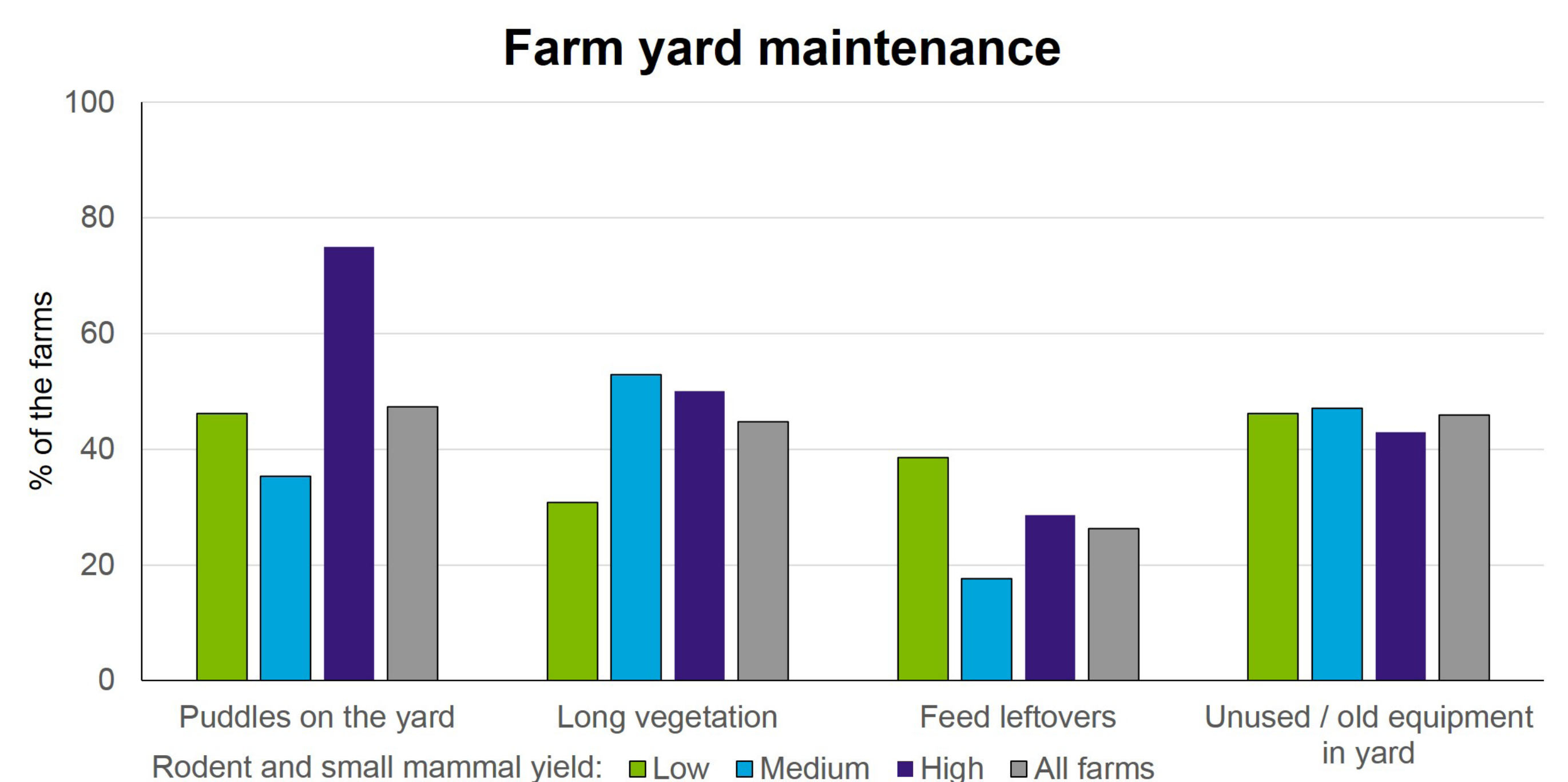
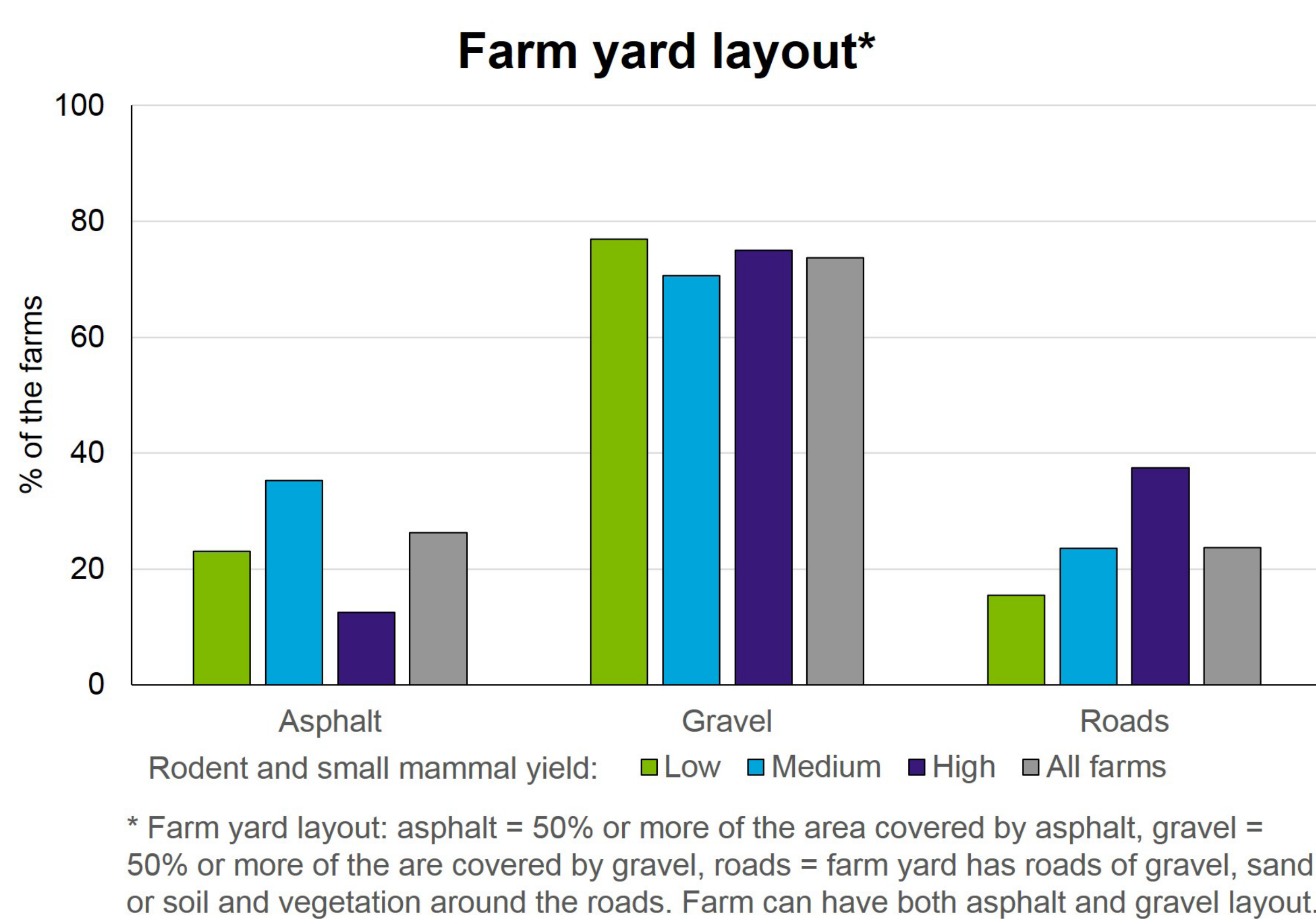
Results

In this poster the preliminary results of the questionnaire and trapping are presented.

Mean age of the farmers was 41.7 years on swine farms and 45.5 years cattle farms. Reflecting the mean age, mean work experience was 15.3 and 17.8 years on swine farms and cattle farms, respectively. Farms were divided in three categories based on the yield of two trapping nights as presented in the table.

Most of the caught rodents and small mammals were mice (yellow-necked mouse, house mouse, harvest mouse; 65.2%) and voles (bank vole, southern vole, field vole; 23.2%). Only 4.0% of the yield were rats (brown rat) and 7.5% were shrews (common shrew, taiga shrew, pygmy shrew, Eurasian water shrew).

The two-night yield per farm varied from 0 to 31 rodents or small mammals, with a mean yield of 10.6 animals. There was no difference in the yield between swine and cattle farms. Southern farms had higher yield (11.2 animals) than Western farms (9.3 animals), but no significant difference was observed.



Descriptive statistics of the farms in the study

Pest rodent and mammal yield categories	Number of farms	Production animals per farm	Oldest animal housing building ¹	Condition of the housing ²	Oldest forage storage building ¹	Condition of the forage building ²
Low (0–9 animals)	13	529	1981	2.42	1987	2.21
Medium (10–14 animals)	17	926	1974	2.35	1978	2.53
High (15–31 animals)	8	1859	1995	2.69	1994	2.57
All farms	38	986	1981	2.44	1984	2.43

¹ Building year of the oldest building, mean

² Condition evaluated on the scale 1–5, 1= excellent and 5=very poor