

# Flock level antibiotic usage in UK sheep flocks

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## CONTEXT

- In 2016, the UK government identified reducing antibiotic usage as a priority & called for the implementation of sector-specific targets, a role taken on by the Responsible Use of Medicine in Agriculture (RUMA) Target Task Force (TTF)<sup>1</sup>
- The Sheep TTF set non-numerical targets that concentrated on improving farmer communications, overall flock health, nutrition and management of disease ‘hotspots’
- Sheep TTF numerical targets included increased national vaccine sales as a proxy measure for increased preventative measures and responsible use



## STUDY

  Vets supplied antibiotic data from sheep-only farms & engaged farmers to complete questionnaire on disease prevalence & vaccination


## RESULTS


12 UK vet practices → 152 sheep-only flocks → 526 ‘flock years’ of data

Year	2015	2016	2017	Previous study <sup>2</sup> (2016)
Mean usage	15.2 mg/kg	16.9 mg/kg	16.7 mg/kg	11.4 mg/kg
Median usage	9.1 mg/kg	10.6 mg/kg	10.9 mg/kg	5.6 mg/kg

Entrenched usage patterns

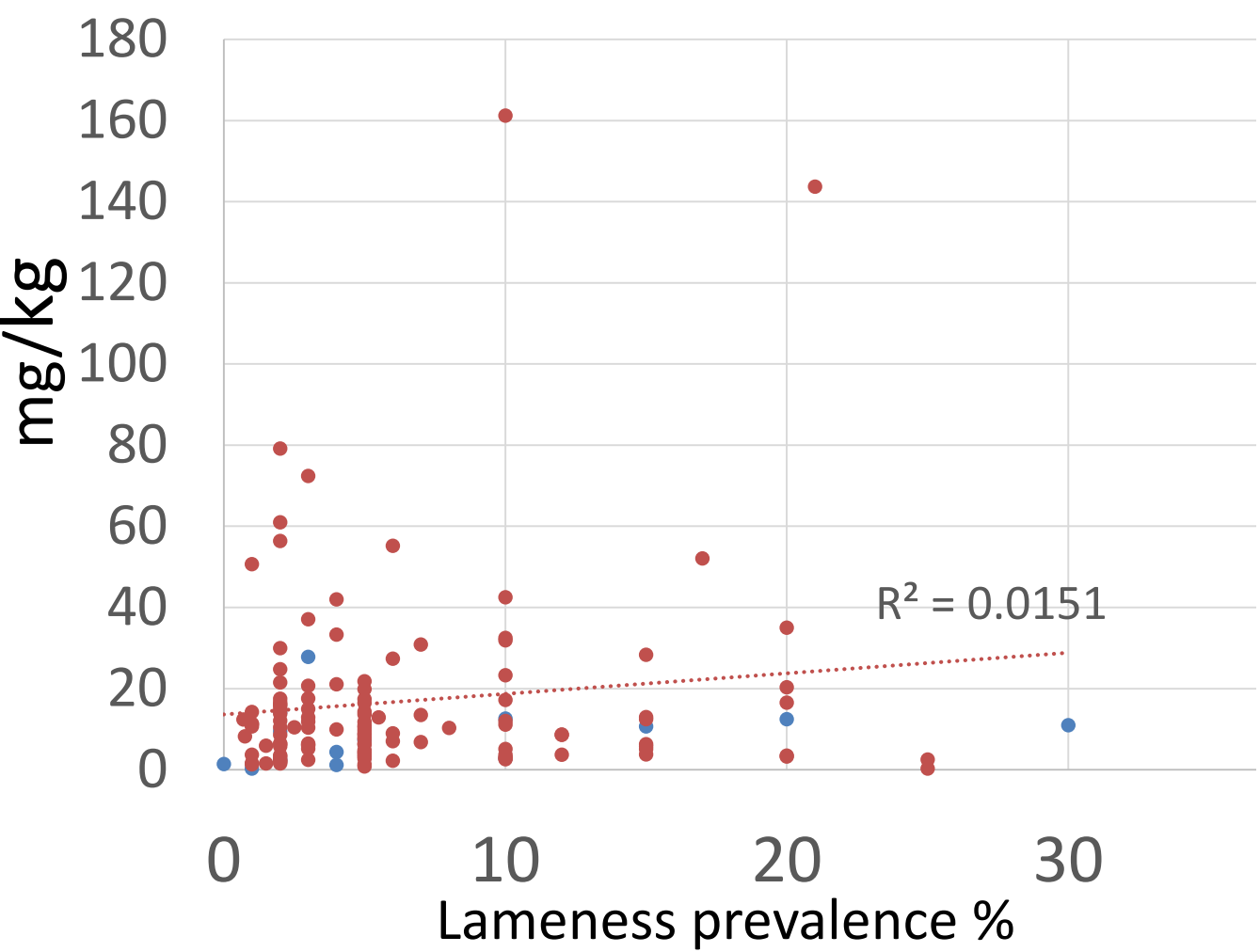
Long-term Antibiotic Usage Patterns	Number of farms (n=137)	
Under 5 mg/PCU in all 3 yrs	11	8%
Under 10 mg/PCU in all 3 yrs	36	26%
Under 15 mg/PCU in all 3 yrs	67	49%
Under 20 mg/PCU in all 3 yrs	82	60%
Over 20 mg/PCU in all 3 yrs	12	9%
Over 50 mg/PCU in all 3 yrs	2	1%

 **‘high users’** (top quartile of arithmetic mean annual usage)

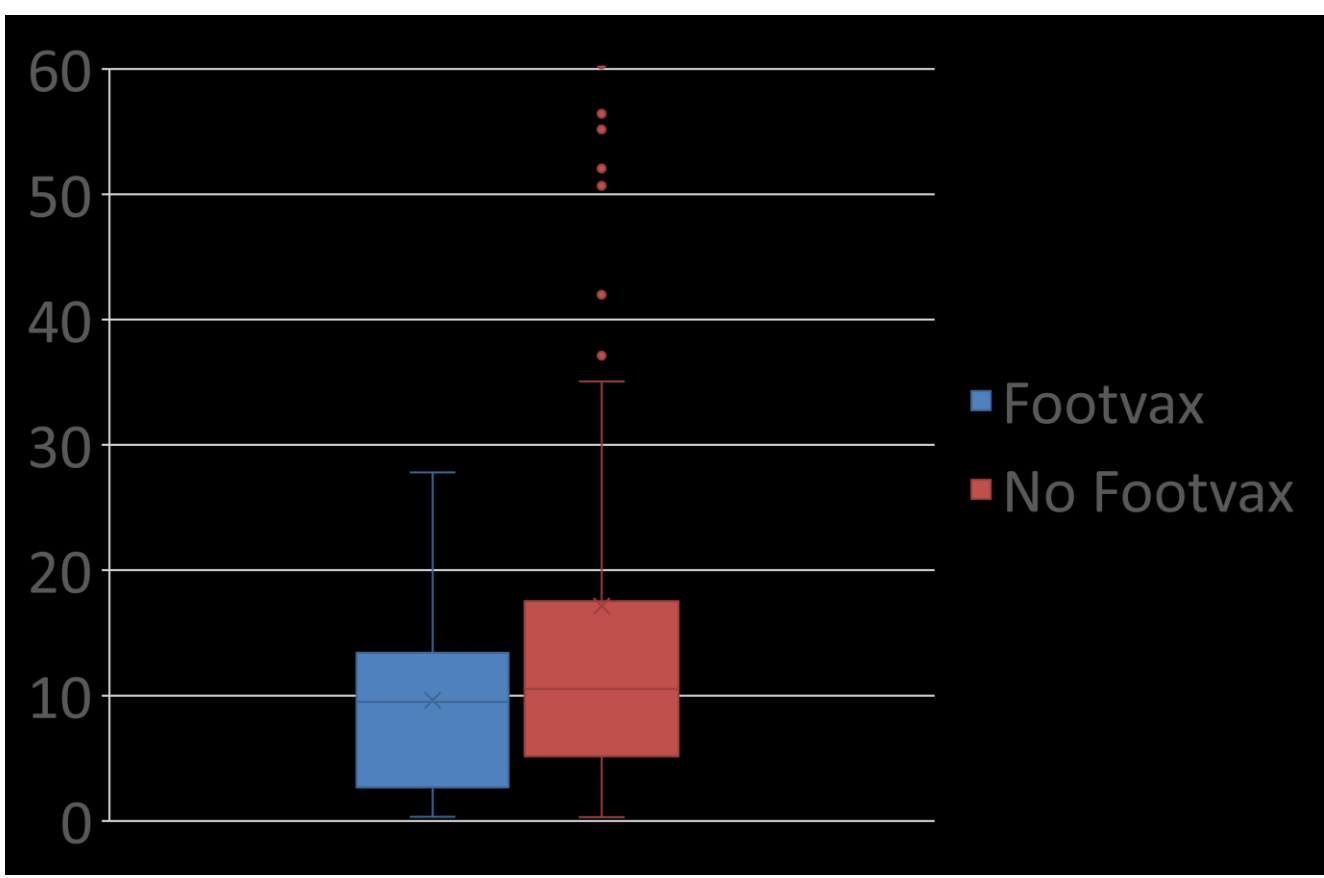
 **‘low users’** (bottom quartile of arithmetic mean annual usage)

- No significant difference between low users and high users in proportional usage of antibiotic classes or route of administration
  - no defining practices associated with high use

Scatter plot of Flock ABU against farmer-reported lameness prevalence



Flock ABU for flocks that vaccinate against footrot and flocks that don't

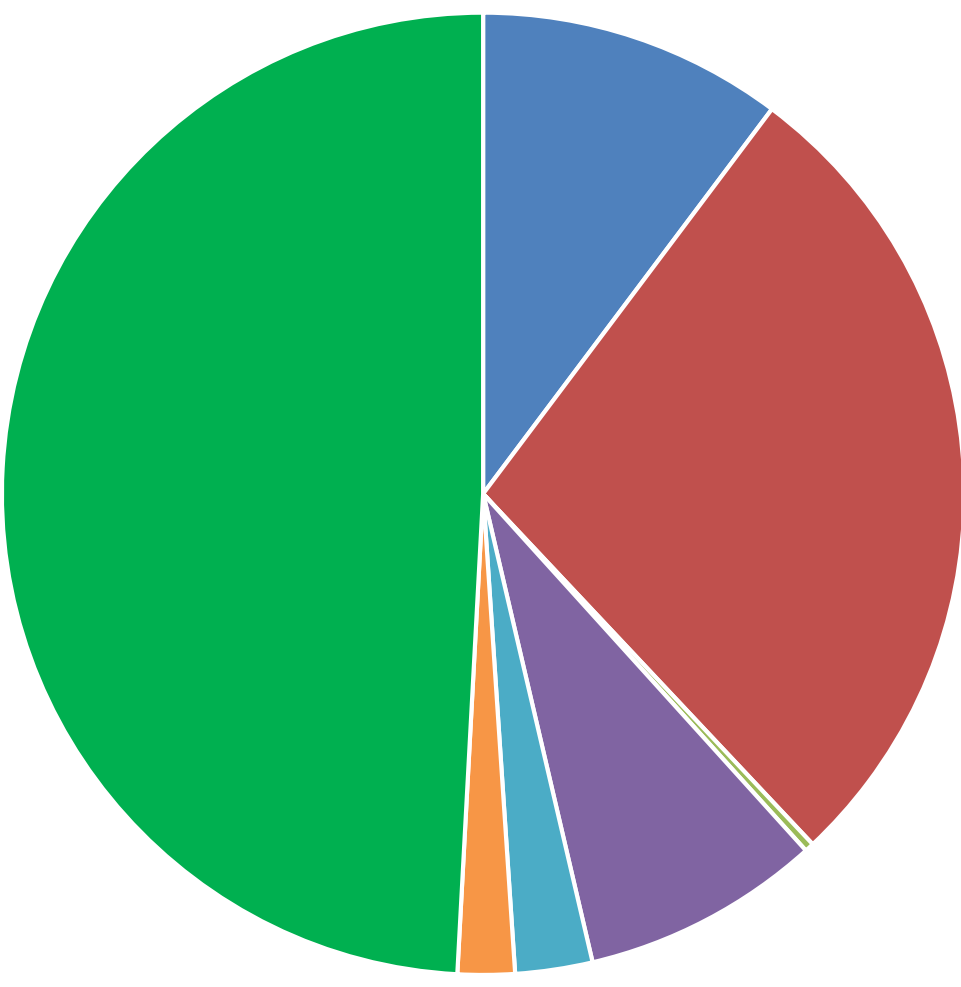


- Weak association between flock ABU with proportion of ewes lambing indoors and with farmer-reported lameness prevalence

Sum of total amount prescribed (mg)

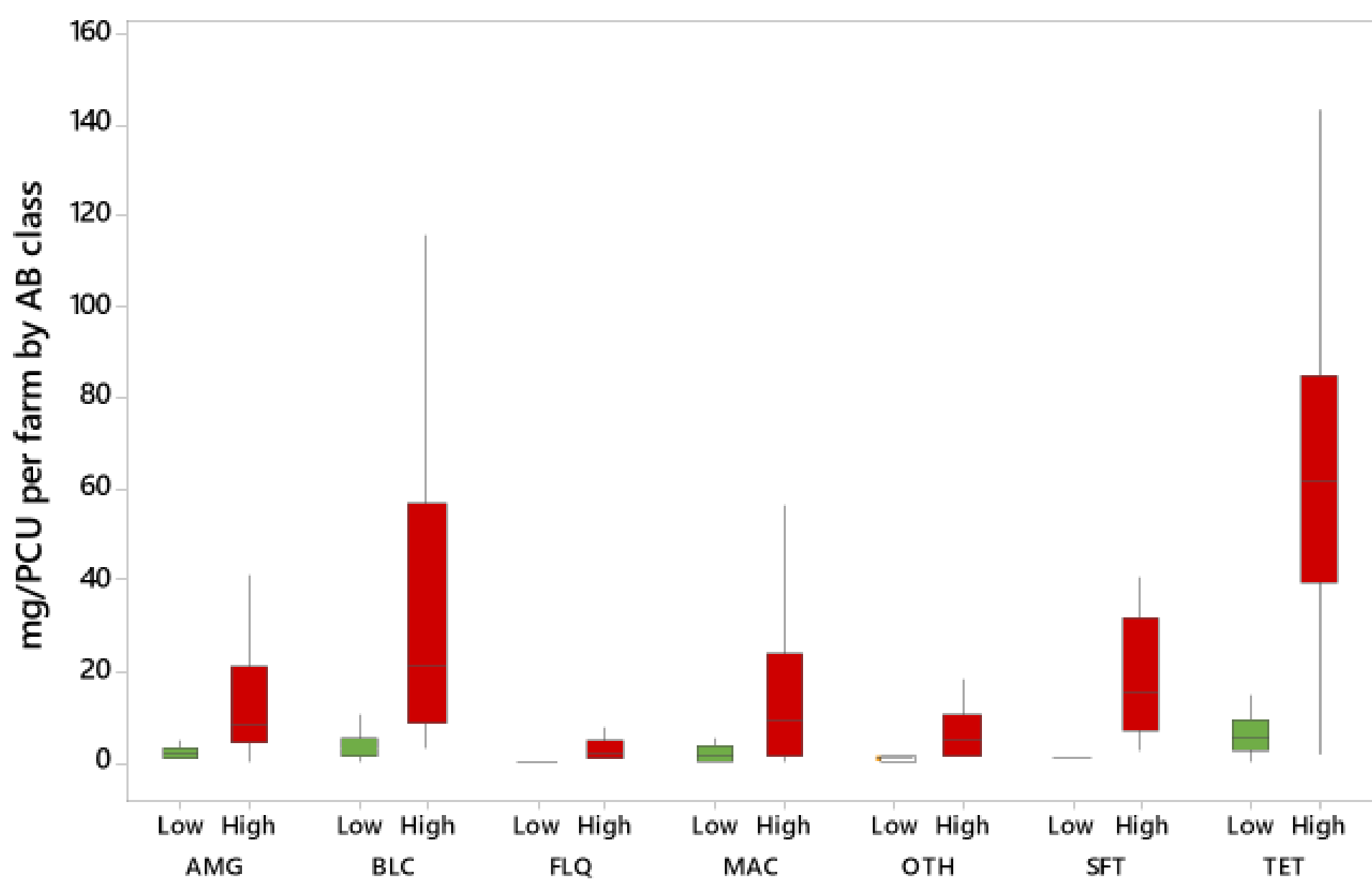
 Parenteral antibiotics made up **86%** of total usage

- TET tetracycline 49%
- BLC beta lactams 28%
- AMG aminoglycosides 10%
- MAC macrolides 8%
- SFT sulph-trim 3%
- OTH other 2%



Total high priority critically important antibiotic usage was Fluoroquinolones at 0.31% of total

Antibiotic classes used by **high users** & **low users**



## CONCLUSIONS & IMPLICATIONS

- Essential to get usage data from more sheep farms
- Appropriate vaccine usage may be important in the responsible use of medicines but vaccine usage is not necessarily directly correlated with antibiotic usage
- Communications should target the vets of ‘high users’ with a view to examining all management practices & encouraging responsible use

1. RUMA Targets Task Force <https://www.ruma.org.uk/targets-task-force/>

2. Peers Davies, John G Remnant, Martin J Green, Emily Gascoigne, Nick Gibbon, Robert Hyde, Jack R Porteous, Kiera Schubert, Fiona Lovatt and Alexander Corbishley ‘Quantitative Analysis of Antibiotic Use in British Sheep Flocks’ 2017 181: 511 originally published online October 19, *Veterinary Record* 2017 doi: 0.1136/vr.104501



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