



Prudent antibiotic use in cattle systems in Kenya

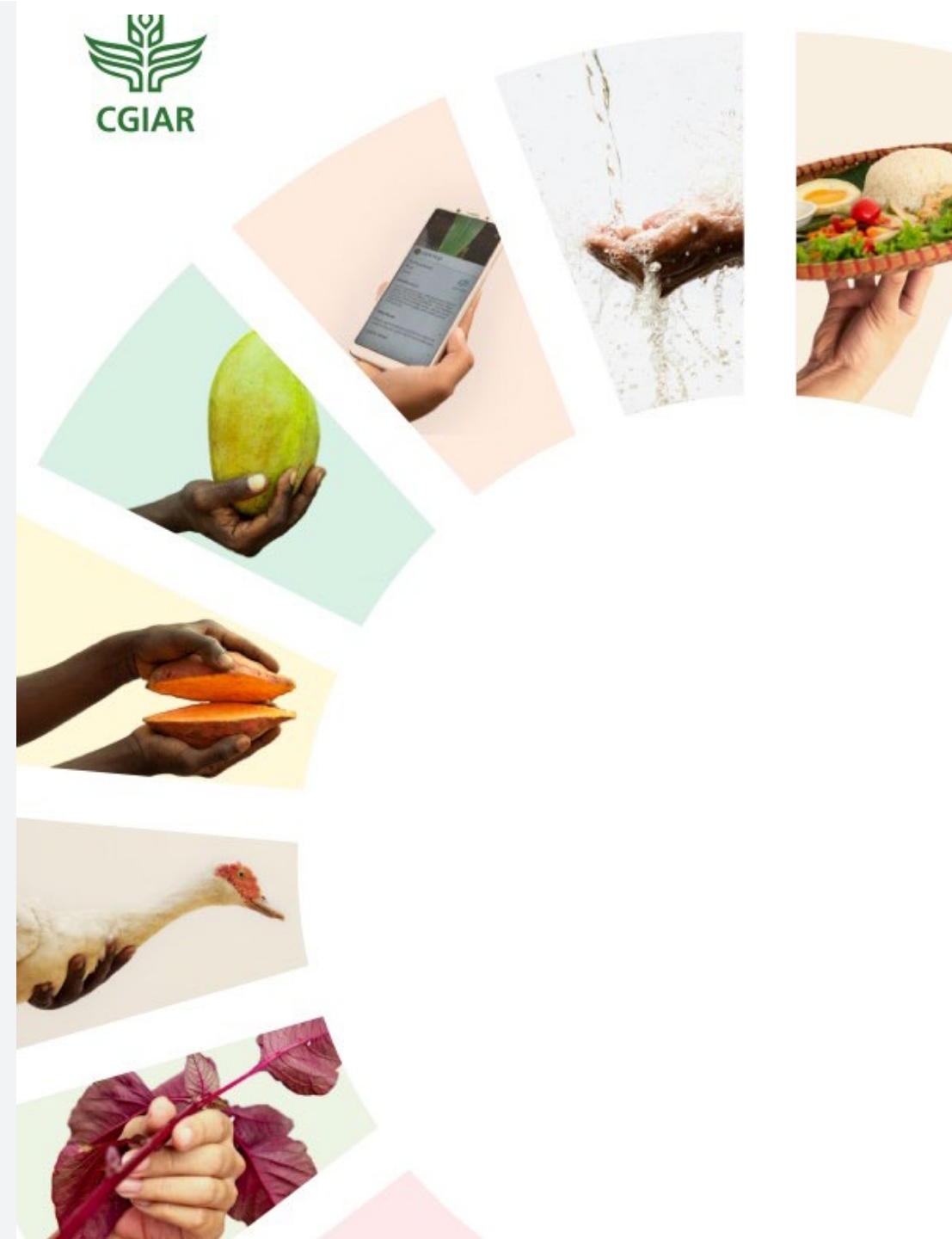
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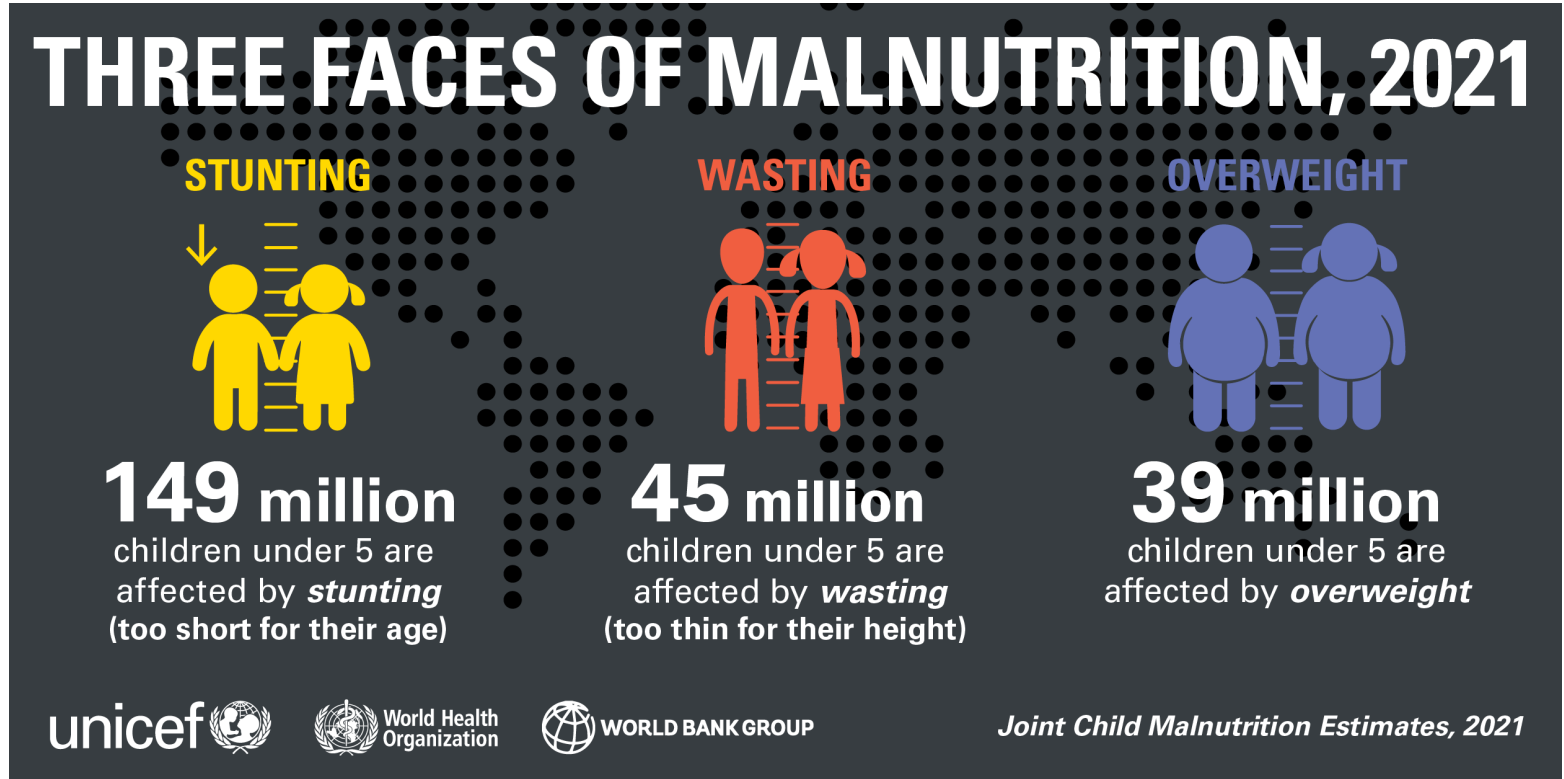
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What does livestock mean to you?



In LMICs, livestock is food, culture, currency, social capital, insurance



45% of deaths in children were linked to undernutrition

Prevalence of chronic undernutrition among under-five children in East Africa 33.3%

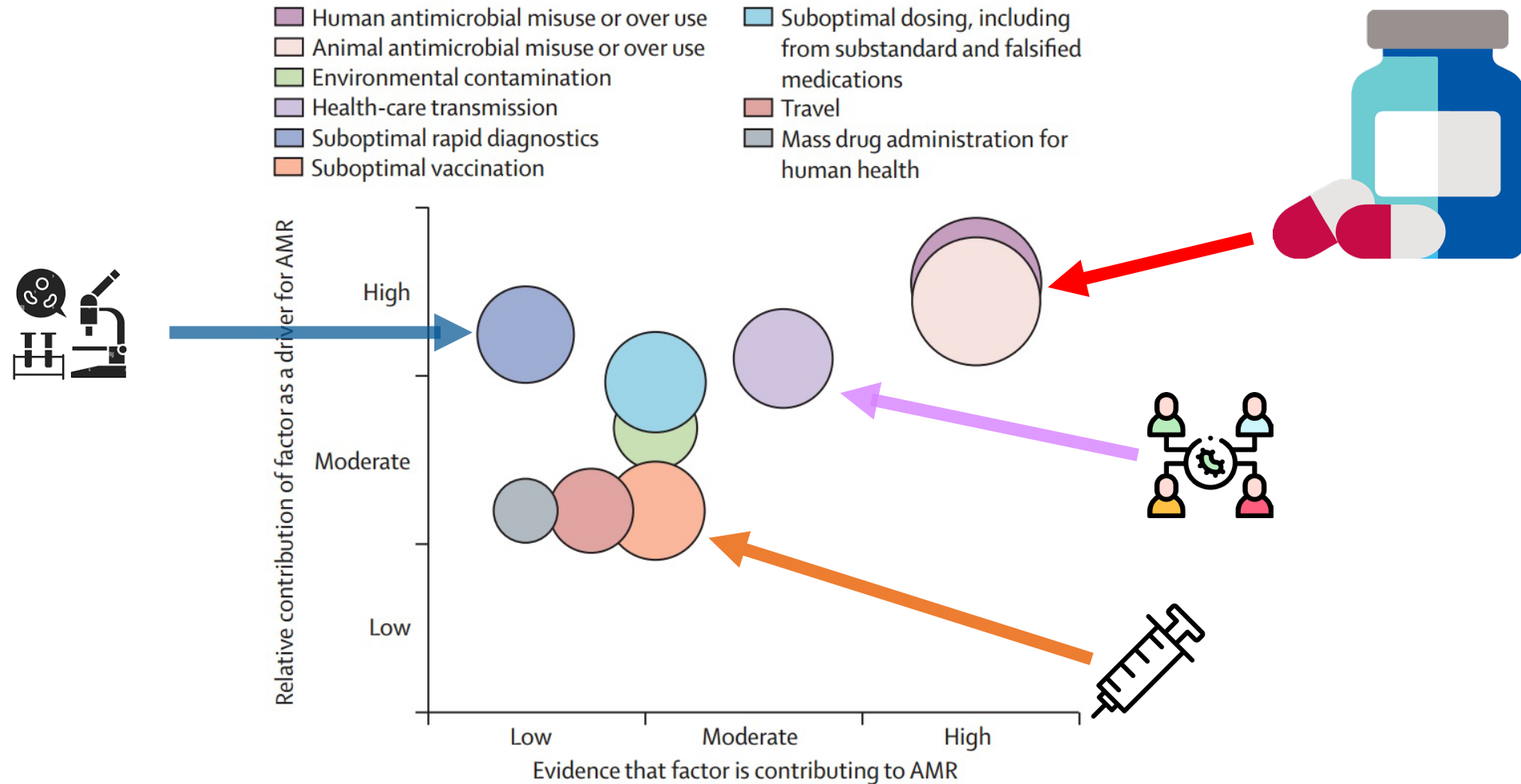
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<https://education.nationalgeographic.org/resource/cattle-economy-maasai/>

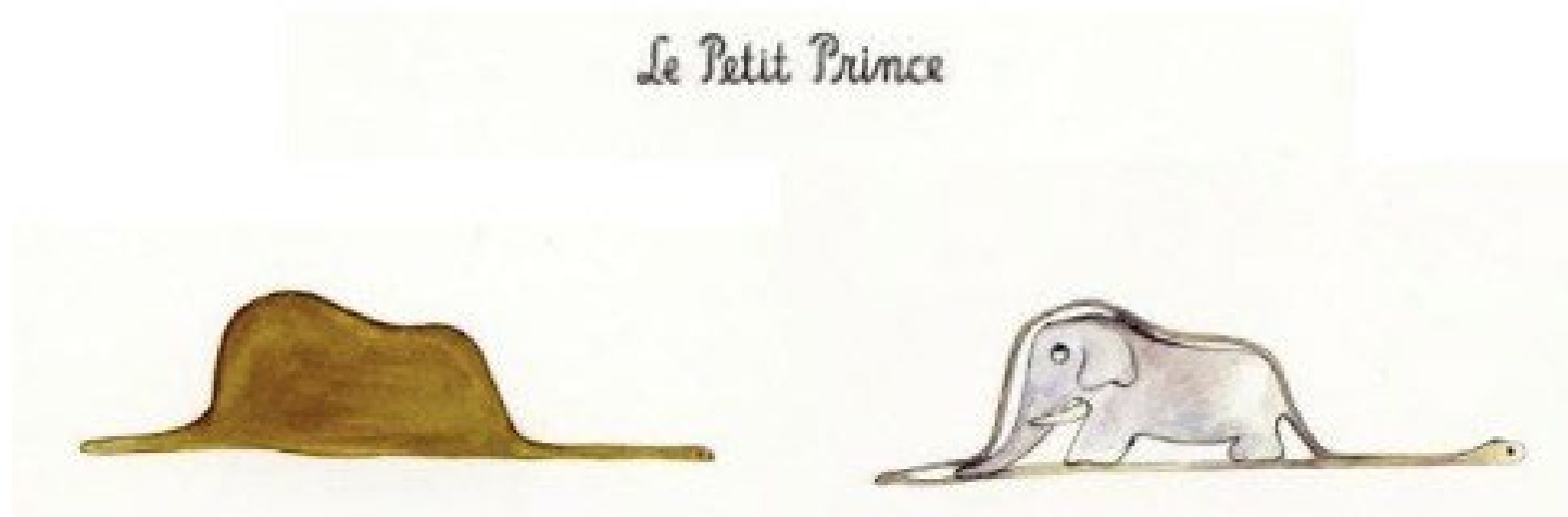


My entry point: Modifiable Drivers of AMR



Holmes et al., 2016

Context matters for sustainable action



Where one stands on an issue is a function of where one sits!



We want farmers to use AM only when necessary so that the development of resistance is reduced.

animalwelfare

publichealth

economics

foodsecurity

animalhealth

gender

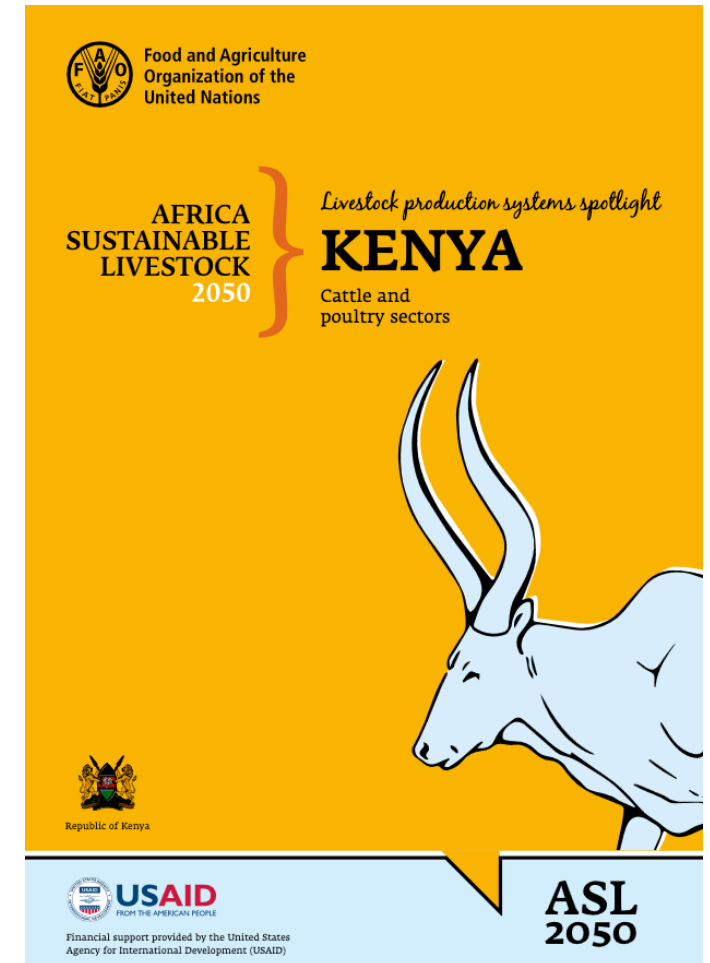
environment

livelihood



Cattle industry in Kenya

- A key livestock sector
- Dairy production: 80% of milk is produced by
 - small-scale intensive, zero grazing = 35%
 - 1–15 animals: the average herd size is 1–3 animals in rural areas and 7–8 in urban/peri-urban areas
 - Milk yield is 15-30L/cow
 - Milk is primarily produced for market
 - Co-operative system
 - Semi-intensive, semi grazing (1-20 cows) = 45%
 - Milk yield is 6L/cow
 - largely consumed at home and surplus is sold



Beef production: 88% is either semi-intensive (54%) and extensive pastoralism (34%)

- Pastoralism is a subsistence system based on low input and low output largely in ASALs.
- 50 herd size, 70% keep mainly indigenous cattle breeds
- meat is sold to consumers in urban market
- Agropastoralism/ semi-intensive: keep livestock and grow crops
- low input and low output, subsistence oriented, and mainly practiced in semi-arid areas.
- 10-12 herd size, animals are raised to be sold,





Practices and drivers for antibiotic use in cattle production systems in Kenya

- 165 farms in three counties
- Most reported diseases were mastitis (30%), diarrhoea (39%) and East Coast Fever (40%)
- 77% obtained antibiotics from veterinary drug stores or from veterinarians (18.8%)
- 39% did not consult animal health practitioners on how to use antibiotics
- disease incidence and herd size were significantly associated with a higher frequency of antibiotic use

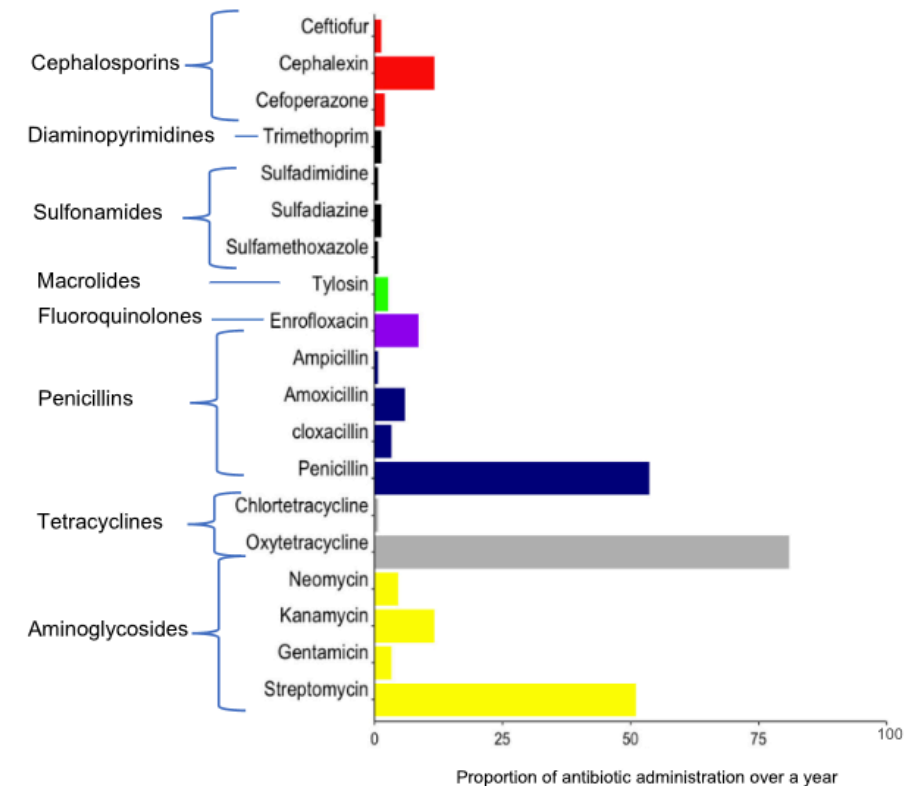


Fig. 3. Antibiotic use patterns by single antibiotics and their classes.

Newly completed: Prevalence of mastitis & use of Point of Cow

120 small holder farms (Githunguri cooperative- owns Fresha)

- 1-3 lactating cows (n=350 cows)
- Extensive questionnaire
- Examination
- Sample all 4 quarters (n=1428)
 - CMT
 - SCC
 - Point of Cow
 - Traditional Microbiology



- Male dominated production system
- 11-20 years in business, 1-2 employees
- Herd size
 - 3-9 cows = 40%
 - 10-20 cows = 41%
- Lactating cows = 76% 3-9 cows
- Housing
 - Semi open sheds, concrete floor
 - Cleaned daily
 - Floor “wet”



Practice

- 2/3 keep animal health records
- 1/4 uses diagnostic services
 - Treatment failure
- Manual milking
 - cleaned the udder with water (57%)
 - 57% using the same towel to dry different cows
- 1/4 use a teat dip or spraying after milking



Mastitis management

- Rely on the CMT because they can get results almost immediately
 - SCC is rarely done
- Microbiology and AST only when there is multiple treatment failures
 - A farmer highlighted that they incur losses because it takes a total of 9 days (3 days for culture sensitivity, 3 days for treatment, and 3 days for withdrawal) to resume selling their milk

Both farmers and Veterinarians were excited about POCT



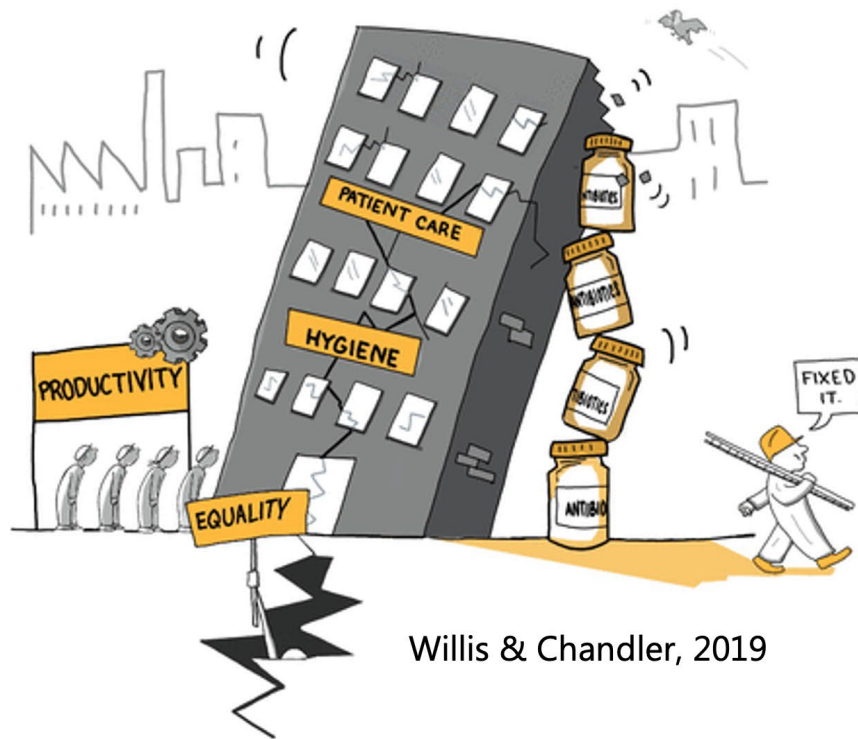
- Sub-clinical mastitis 63%
- Clinical mastitis 7%

Microbiology

- 67% growth on blood agar
- *Streptococcus agalactiae* most common (33%)



Reducing AMU is a balancing act



Willis & Chandler, 2019

