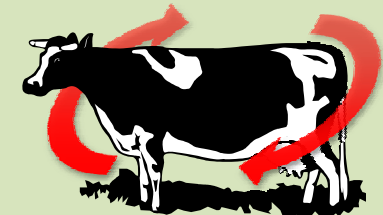


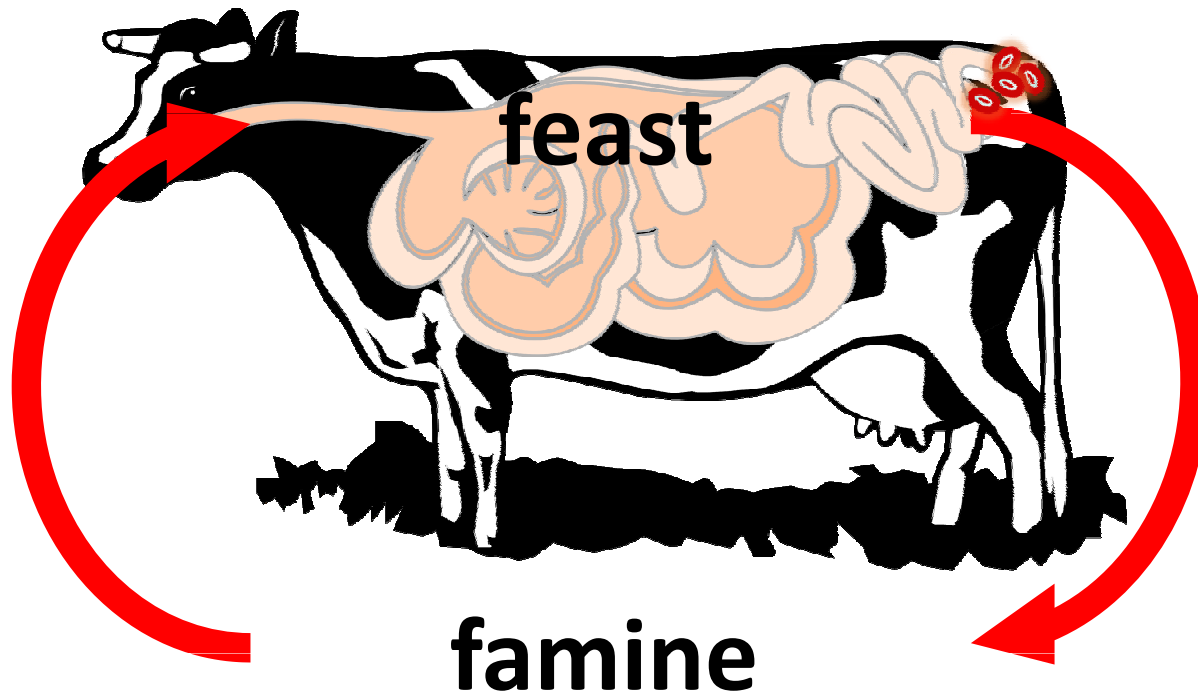
Only a few need to survive for a pathogen to cycle



Ron N. Xavier, Hugh Morgan, Ian R. McDonald & Helen Withers

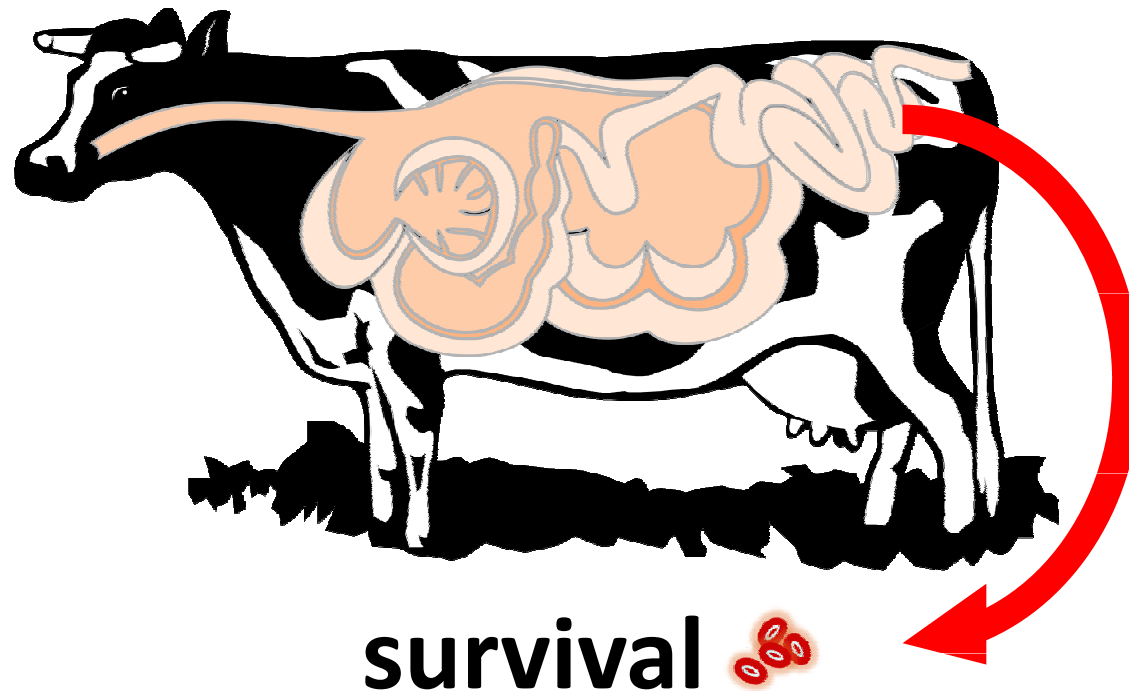
Pathogen Cycling

On farm, *E. coli* O157:H7 experiences the constant shifts between feast in the **ruminant host** and famine in the **external environment**.



Surviving outside of host

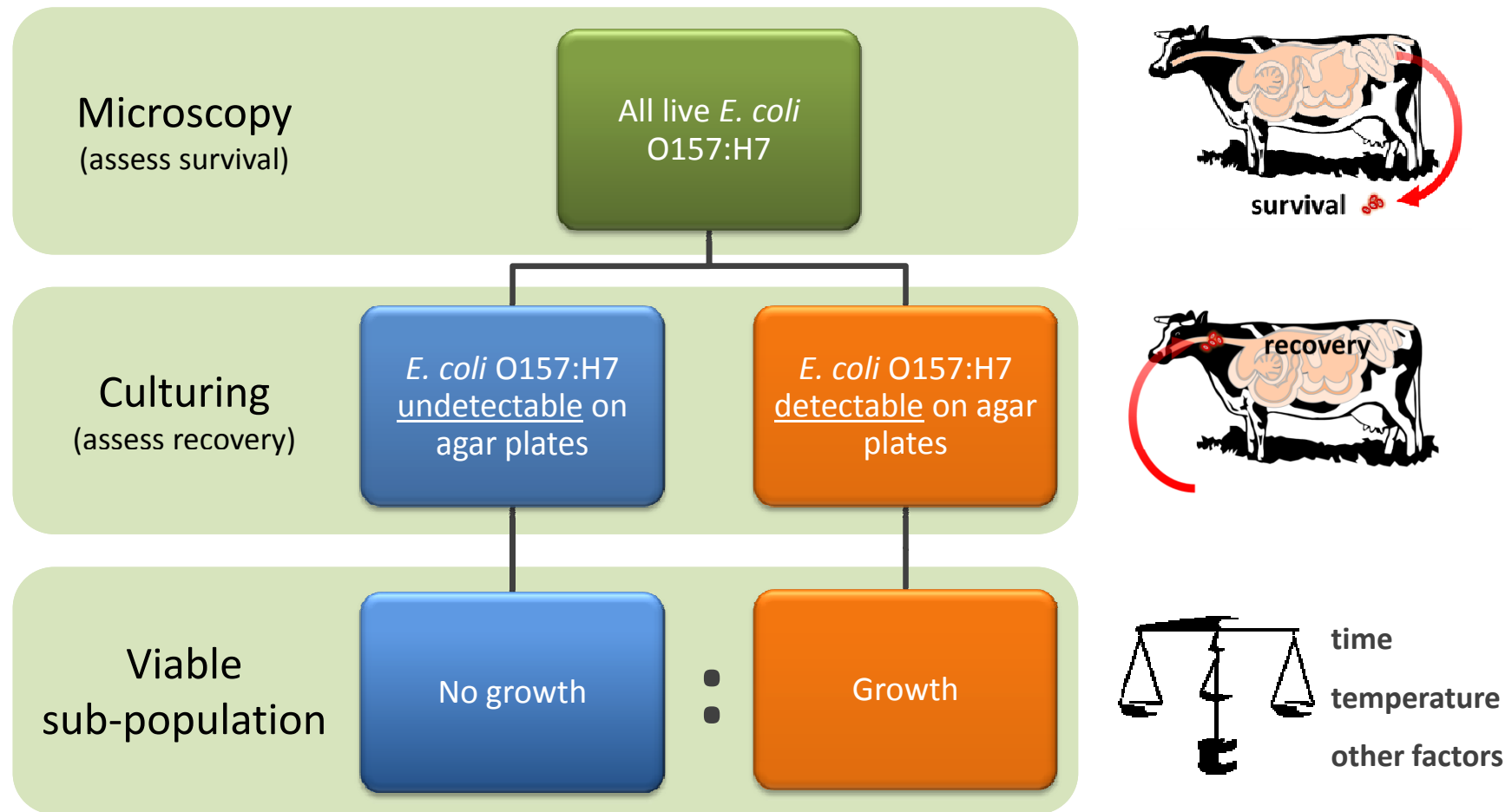
- ↑ **proportion** of shed *E. coli* O157:H7 surviving in external environment
- ↑ **chance** of *E. coli* O157:H7 on the hide of adult animal and calves
- ↑ **risk** for *E. coli* O157:H7 on contamination on meat



Outside of the host:

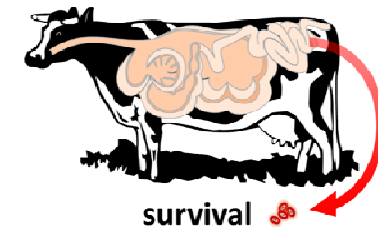
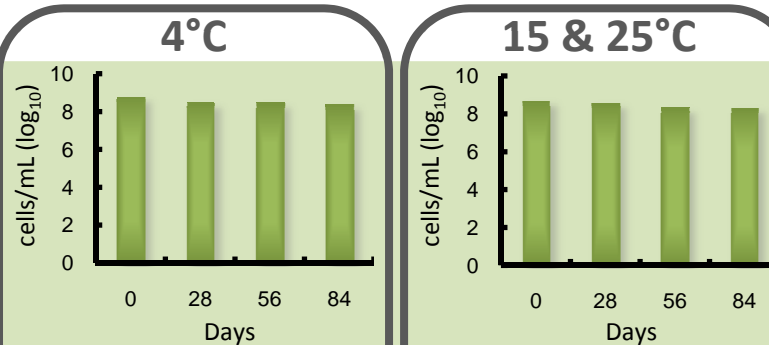
- starvation
- variable temperature

Microscopy vs. culturing

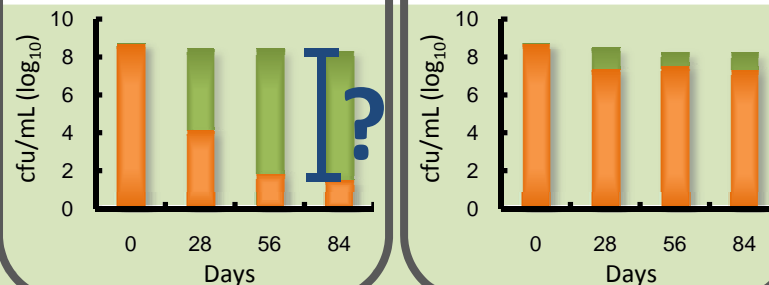


Starvation at 4, 15 & 25°C

Microscopy
(assess survival)



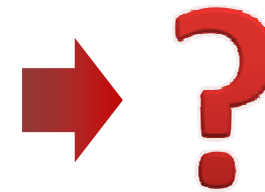
Culturing
(assess recovery)



Risk?

sub-population unable to recover

sub-population able to recover



To conclude...

