CA18105

RIBMINS

Risk-based meat inspection and integrated meat safety assurance

How to design studies to investigate interventions performance in abattoir

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WG3 Abattoir level: controls + risk categorization

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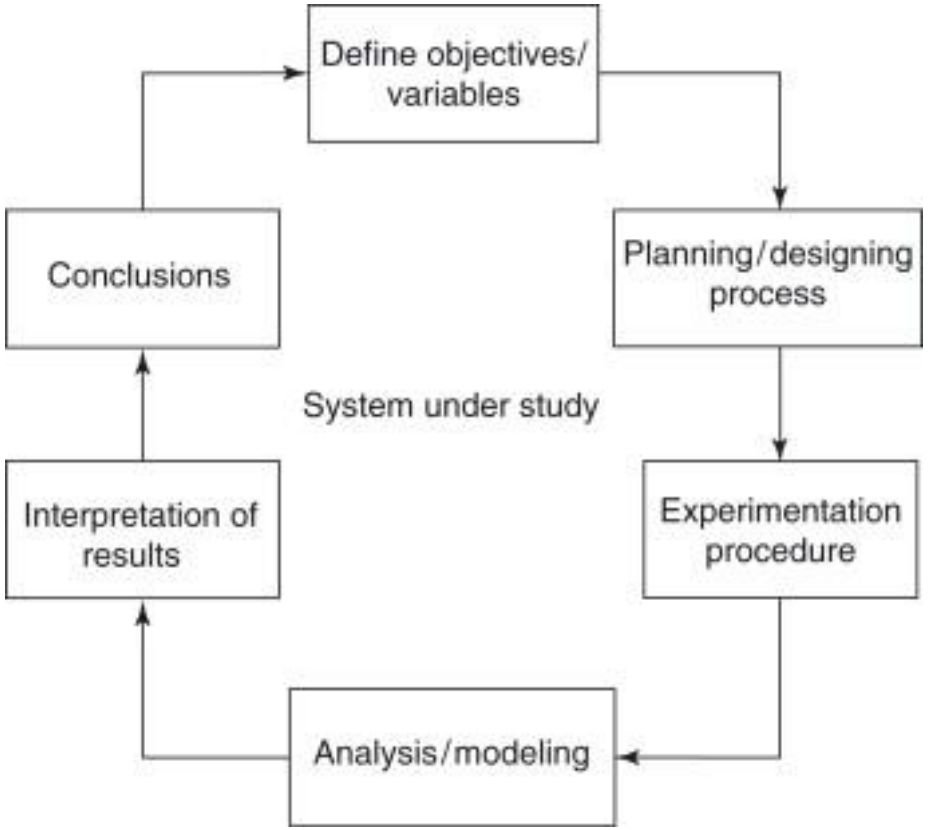
Study design



- Controlled trials
- Challenge trials
- Quasi experiments

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Hot water washing beef carcasses

- Randomized controlled trial
- *Salmonella spp*., Aerobic bacteria counts, *Enterobacteriacae*
- Temperature of the hot water at the nozzles 85°C for 10 s

WG3 Hot water washing beef carcasses

- Sampling:
- 70 control carcasses / 70 treatment carcasses.
- p_c 20%
- Estimated mean difference 0.66

Table 1: Table 3. Number of carcasses (ss) to be tested for each group according to the expected prevalence for C (p_c) and the expected (or desired) prevalence (p_t) according to the expected (or desired) prevalence reduction (Pr_50; Pr_60; Pr_70).

	Pr_50%		Pr_60%		Pr_70%	
p_c	p_t	ss	p_t	ss	p_t	ss
10	5	341	4	222	3	152
16	8	202	6.4	132	4.8	90
20	10	156	8	102	6	70
30	15	94	12	62	9	43
40	20	64	16	42	12	29
50	25	45	20	30	15	21
60	30	33	24	22	18	16
70	35	24	28	16	21	12
80	40	17	32	17	24	9

EFSA Journal 2010:8(4):1544

WG3 Hot water washing beef carcasses

- Sampling animals from the same batch, same day, same workers.

  Only main researcher knows the whole data.
- Different people doing treatment, sampling,

  analysis in laboratory

BLIND STUDY

WG3 Hot water washing beef carcasses

- First 10 hot water washed, second 10 not, third 10 hot water washed,….
- To randomize the study, we put data in the excel and the program calculates which number to sample.

Example every 3rd carcass.

WG3 Hot water washing beef carcasses

- Samples are taken immediately after washing.
- Bacteria attaches to meat in 10 minutes.
- Extended time to sampling – potential bias

WG3 Hot water washing beef carcasses

- log CFU/1.000 cm2 area – swab (bottom part, upper part, in the middle, at cutting line)

Chemical washing of the chicken carcasses

- Before and after trail – quasi experiment
- *Camylobacter spp*. (*Salmonella spp*., ESBL- *E.coli)*

WG3 Chemical washing of the chicken carcasses

- Sampling in the same population/flock
- Sample: neck skin or rinsed carcass of 50 carcasses
- The higher prevalence of positive carcasses, the number of carcasses to be included in the quantitative study will be 50
- it will be possible to identify a difference of 0.5 $\log_{10}$ between the mean concentration of the two groups
- **Randomize**: we sample every 3rd or

10th carcasses depends on the batch size

(normal range 3.000 – 4.000 birds)

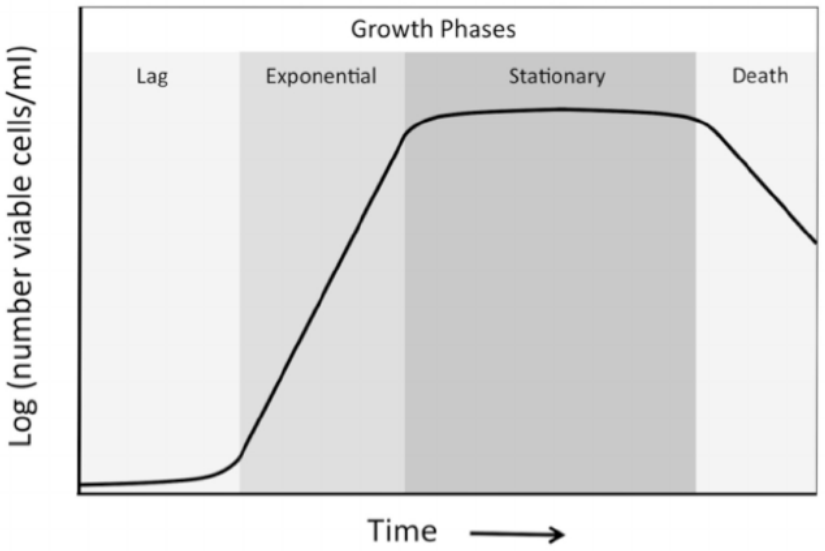
WG3 Chemical washing of the chicken carcasses

- **BLIND TRIAL**
- Sampling animals from the same batch, same day, same workers.
- Only main researcher knows the whole data.
- Different people doing treatment, sampling, analysis in laboratory.

WG3 Chemical washing of the chicken carcasses

- We have to use neutralising broth to help with growth of bacteria
- Important when to sample, because of the logarithm of bacteria growth
- We have to considered species:

different Campylobacter species (method of applications, spray or rising methods,…)



Thank you for the attention.

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