STUDY ‘DETECTION OF CAMPYLOBACTER IN RAW MILK’

Hanna Skarin, EURL-Campylobacter

BACKGROUND

- Milk is considered a high-risk source of *Campylobacter* spp. and other foodborne pathogens
- Pasteurization - effective way to improve milk safety
- But, there is an increased demand for ‘raw milk’ (unpasteurized)
- Bulk tank milk (BTM) or in-line milk filters can be analysed for presence of *Campylobacter* in raw milk
- Studies show *Campylobacter* does not survive well in milk
- … or go into viable but not culturable (VBNC) state
- International standards recommend pH to be adjusted to neutral (or 7.6) at sampling or before analysis (pH 6.5-6.7 in fresh raw milk) to enhance recovery of viable *Campylobacter*
- Received a question from Nez Zealand: do you recommend to adjust pH of the milk?

SURVEY IN EURL-CAMPYLOBACTER NETWORK 2018

- Nr of 33 NRLs responded, 13 of those responded they analyse milk for presence of *Campylobacter*
- The majority of laboratories analysing milk for *Campylobacter* analyse BTM
- None of the laboratories are adjusting pH before analysis
- Both Bolton (7) and Preston (5) broth used for enrichment

QUESTIONS ADRESSED IN CURRENT STUDY

1. Does storage of raw milk at refrigerated temperature affect the survival or ability to cultivate *Campylobacter* over time?

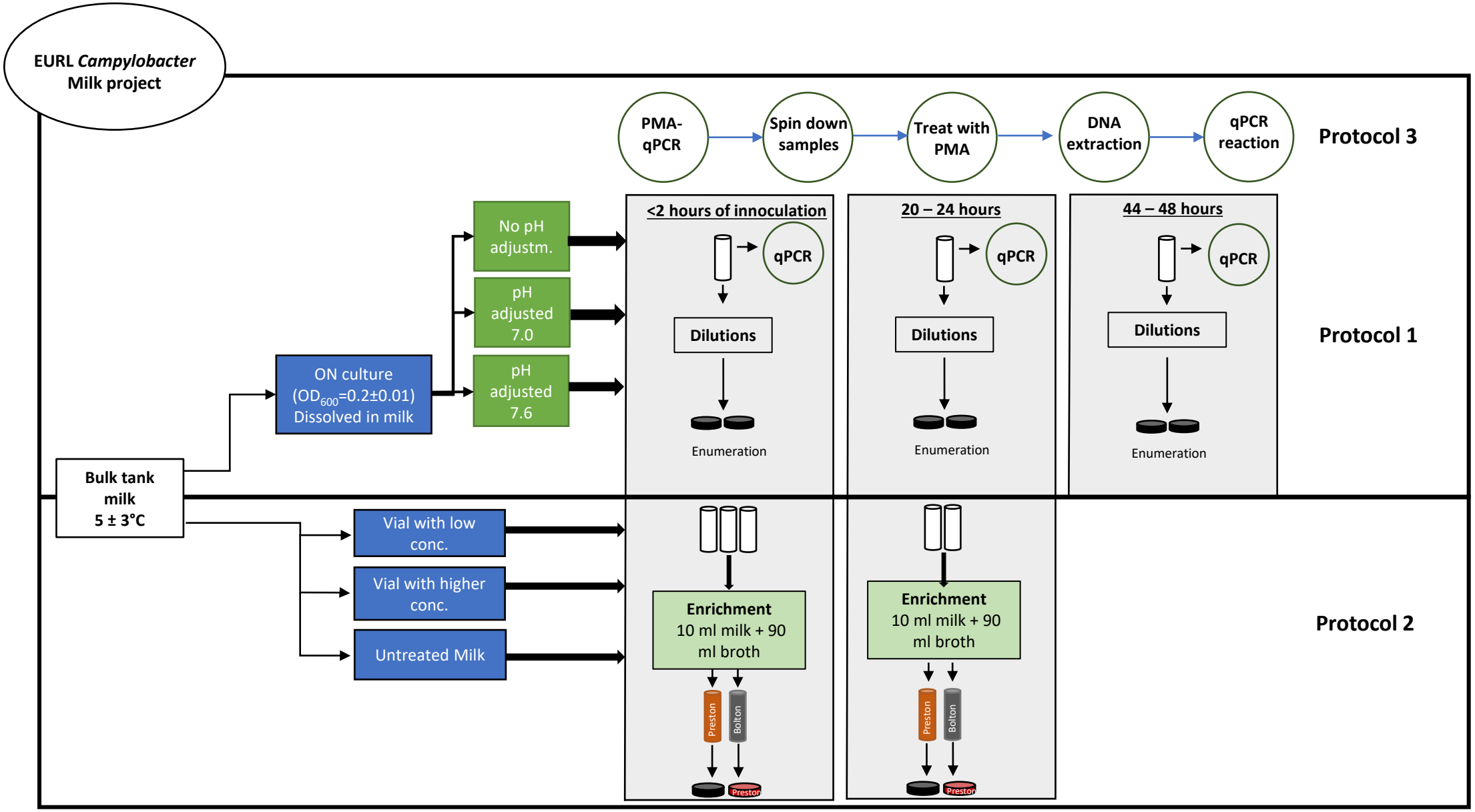
2. Does pH adjustment to neutral or 7.6 have a positive impact on the detection of *Campylobacter* in raw milk?

3. Does the choice of enrichment broth, Preston or Bolton, have an impact on the outcome of detection of *Campylobacter?*

THE ORGANISATION OF THE STUDY

- The study was announced 20 February 2020
- Vials with freeze dried strain of *C. jejuni* isolated from milk were sent out with PT packages in March
- 15 participating laboratories
- The EURL-Campylobacter did a pilot study and formed a first draft of two protocols that would adress these questions
- Kerstin Stingl, NRL-DE, provided protocol for PMA-qPCR to check if bacteria go into VBNC state or die over time
- Online meeting (May) with participants and modified the protocols
- Study started June
- Deadline moved from end Aug to end of the year
- The EURL performs stability checks of the vials every month throughout the study

THE STUDY OUTLINE



FUTURE PLANS

- The outcome of the study will be summerised and discussed with the participants in the spring 2021

- The outcome will be presented at the next workshop 2021

- Connect the study to PT 2021? This study has focused on one strain but many milk samples. In PT test different strains, but one milk sample. Use the method of your choice (with recommendation of ISO 10272-1), but;

    - Bolton/Preston broth

    - Additionally use PMA-qPCR for detection

Questions or comments?