

Mastitis Pathogens Detected in Europe Using Real-time Multiplex PCR

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The Reference in Prevention for Animal Health

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INTRODUCTION

UDDERCHECK (Image 1) is a diagnostic to detect the major causative agents in mastitis.

This study wants to show the results for mastitis pathogens in different dairy herds around Europe from January 2011 to December 2016.



Image 1: UDDERCHECK test.

MATERIALS AND METHODS

Bulk tank milk samples and milk from individual mastitic cows were collected of dairy farms throughout 22 European countries. Sampling was performed following UDDERCHECK sampling kit instructions and sent to HIPRA's diagnostic lab (DIAGNOS). The samples were processed following previously published protocols based on an automatic DNA extraction and purification to detect the presence of:

- ✓ *Staphylococcus aureus* (*S. aureus*)
- ✓ *Escherichia coli* (*E. coli*)
- ✓ Coagulase-Negative Staphylococci (CNS)
- ✓ Coliforms.

In addition, all the samples collected were tested for the presence of *Streptococcus uberis* (*Strep. uberis*), to investigate the appropriateness of including this pathogen in a new diagnostic tool called UDDERCHECK.



Image 2: FTA card contained in UDDERCHECK.

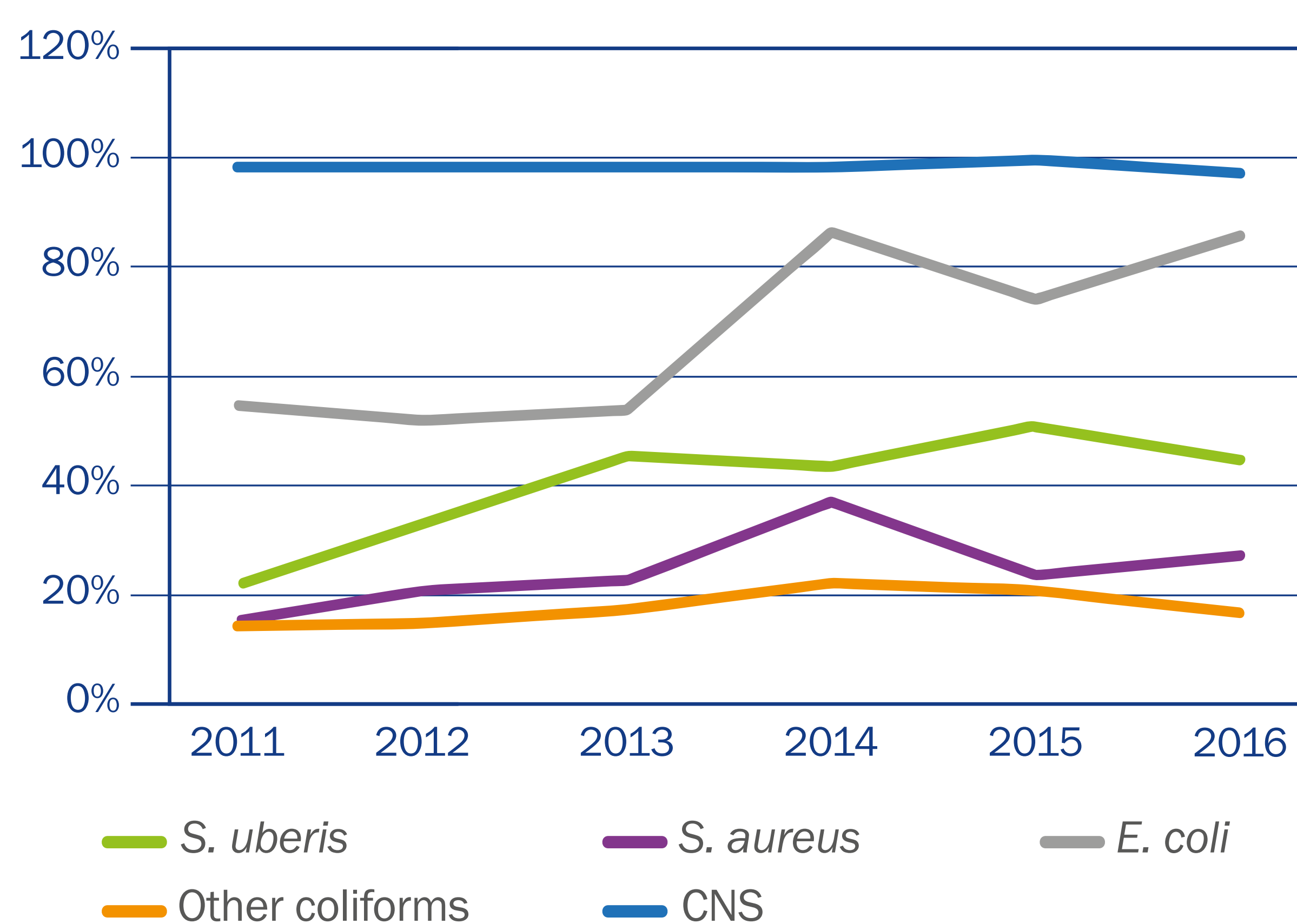
RESULTS

A total of 7,953 samples were collected from 4,026 dairy farms. CNS bacteria were the pathogens most frequently detected over the six-year period, followed by *E. coli* and *Strep. uberis* (Table 1 and Graph 1).

Table 1: Percentages for bacteria detected between 2011 and 2016.

	2011	2012	2013	2014	2015	2016
<i>S. uberis</i>	22%	34%	45%	44%	50%	46%
<i>S. aureus</i>	15%	21%	24%	38%	24%	29%
<i>E. coli</i>	53%	51%	54%	78%	71%	71%
Other coliforms	15%	15%	18%	23%	23%	18%
CNS	98%	97%	97%	97%	99%	96%

Graph 1: Pattern of prevalence for the pathogens studied between 2011 and 2016.



DISCUSSION

The data shown that there's a trend towards more environmental pathogens such as *Strep. uberis* and *E. coli* in Europe. This will present a higher risk of *Strep. uberis* becoming a serious threat to farms all over Europe.

TAKE HOME POINTS

- ✓ *Strep. uberis* and other environmental pathogens prevalence is increasing.
- ✓ Further investigation is needed and awareness of *Strep. uberis* on farms should be raised.
- ✓ We need to update our control of mastitis plans in order to control the environmental pathogens.