

## INTRODUCTION

- Isolating causative pathogen by culturing milk samples gives more detailed information for mastitis diagnostics
- Decreasing mastitis incidence and using pathogen-specific treatments is of tremendous importance in times of increased need for spare and targeted use of antibiotics
- Central availability of results of bacteriological milk samples from laboratories in Austria following efforts to ensure data integration and harmonization
- Raising awareness and providing practical solutions are vital with regard to professional udder herd management

## OBJECTIVE

Development of **pathogen-specific evaluations** to optimize the current web-based udder health program for **herd management** and to promote strategies to **improve udder health** in dairy cattle.

## MATERIAL

- 6,892 quarter milk samples collected from lactating cows with (suspected) udder health problems within the project ADDA “ADvancement of Dairying in Austria”
- Routine animal (re-)production and udder health data

## Examples of pathogen-specific evaluations for udder health herd management

- Pathogen-specific udder health reports on individual cows
- Current and serial herd infection reports displayed in charts
- Parameters allowing benchmarking within herds
- Step-by-step analyses of animal and herd udder health status

Date	DIM	Action	24.0	4.20	3.17	150	11.0
23.08.2018	167	Test day	24.0	4.20	3.17	150	11.0
12.07.2018	125	Aureus (hl) Aureus (hr) - (fl) - (fr)					
11.07.2018	124	Chronic Mastitis					
10.07.2018	123	Test day	23.6	4.82	3.07	768	7.0
12.06.2018	95	1. Insemination					
24.05.2018	76	Test day	28.0	5.67	3.01	165	12.0

- Identify chronically infected animals with poor prognosis
- Select appropriate therapy and dry off strategy

Figure 1: Report on individual cow level based on current and historic pathogen-specific and further udder health information

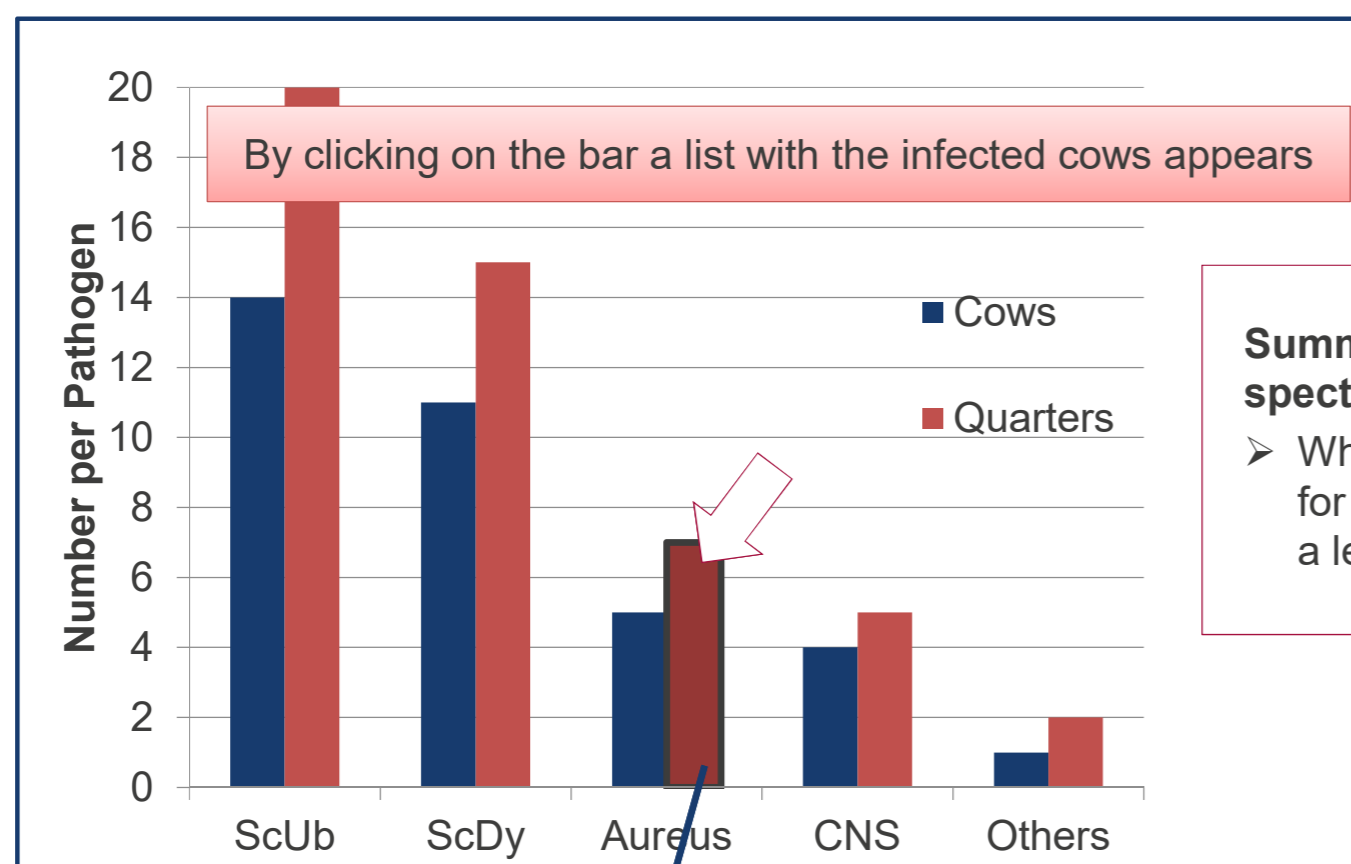
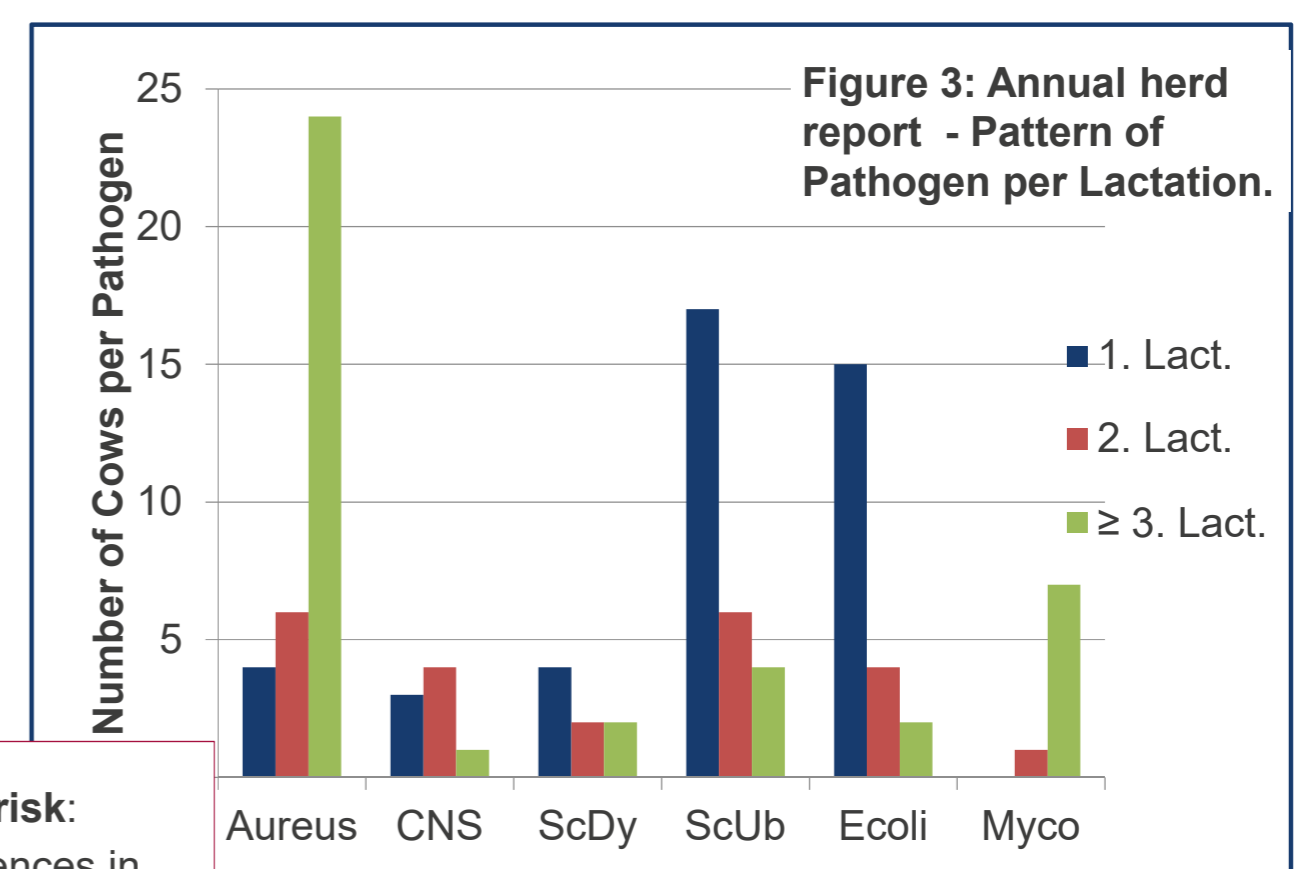


Figure 2: Report on farm-specific pattern of pathogen annually or over a predefined period of time

**Summary of the pathogen spectrum in the herd:**

- Which pathogens are responsible for the majority of infections? Can a leading pathogen be identified?



**Identify likely reservoir of infection, spreading of bacteria:**

- Cow to cow transmission?
- Lacking hygiene in cows environment?

**Control change in management**

Figure 4: Reservoir of infection given in cows per pathogen.

Staphylococcus aureus									Print
N°	ANIMAL	ANIMAL-ID	Date of Sampling	DIM	Lact	Quarter	c_SCC	p_SCC	
23	GLOCKE	AT 123.456.789	30.08.2017	259	2	HL	342	251	
36	HEIDI	AT 987.654.321	04.02.2017	274	3	HL, HR	698	533	

**List infected cows per pathogen:**

- Are there similarities between these cows? Groups of cows at risk?
- Summary of cows with high risk of infecting healthy cows

**Identify cow group(s) at risk:**

- Pathogen-specific differences in first or higher lactating cows?

		contagious pathogens			intermediate			environmental pathogens			
		M	S	A	S	S	E	S	O		
		Y	C	U	C	C	C	N	T		
		C	A	R	D	U	O	E	H		
		O	G	S	Y	S	I	A	R		
Farm current state	Nr. of Cows	0	0	7	5	3	3	4	0	2	1
Farm previous year	Nr. of Cows	4	0	16	12	4	7	6	1	3	2

## CONCLUSION

- **Data integration** ensures that **management errors** and sources of infection can be **identified more easily** and eliminated at an earlier stage
- **Assists in decision-making** processes regarding more precise control and prevention measures to improve udder health on dairy farms
- This tool could play a crucial role in the **prudent use of antimicrobials**

**A more comprehensive picture of udder health in dairy cows**

- **Next Step:** training programs for practitioners
- **Challenge:** Quarter milk sampling needed on regular basis

