Empirical analysis of SCC impact on production and carryover

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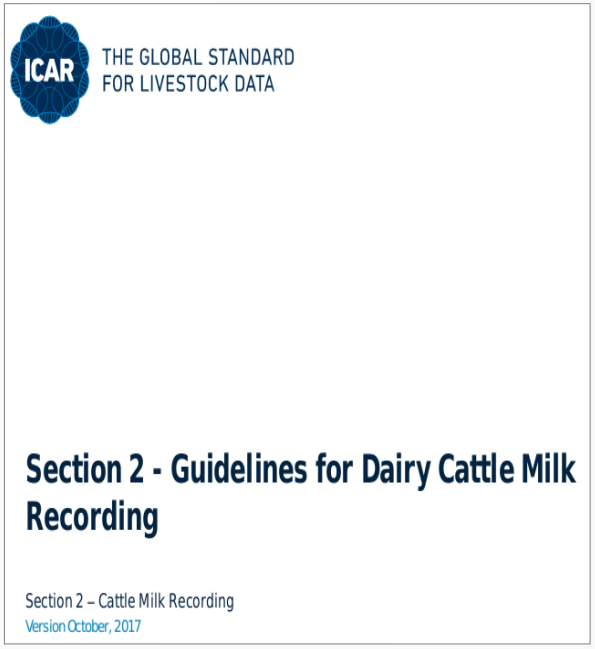
INTRODUCTION

ICAR compliant milk recording schemes

- **Multitrait**
- **Individual**
- **Monthly**



- Most European countries
- Decades in operation
- Huge data sets

Materials

Objective:

To explore the evolution of distributions of yields

Across recorded factors &

Along Somatic Cell Counts

Data:

2nd largest milk recording organization in Spain

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Castilla y León, Spain

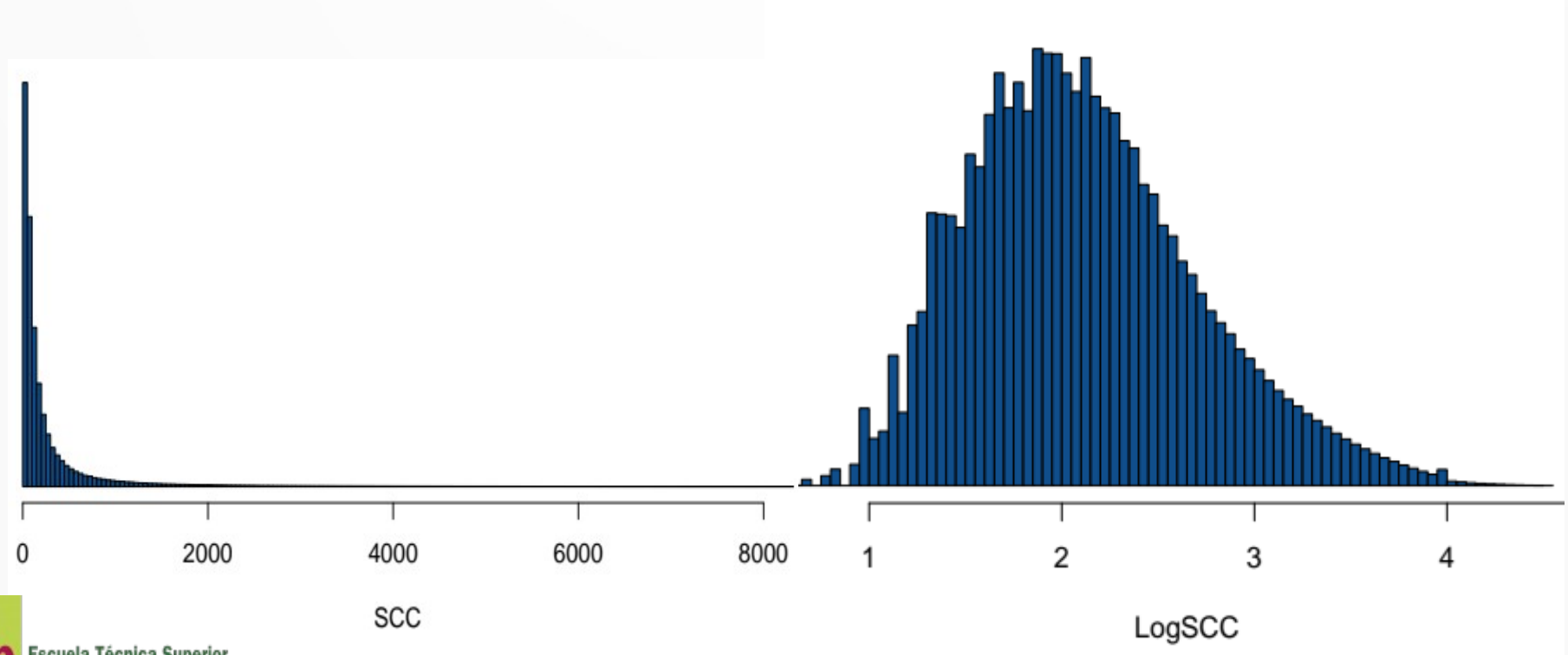
100.000 milking cows

6.8 Million rec's

Methods

Test day SCC & Milk yield

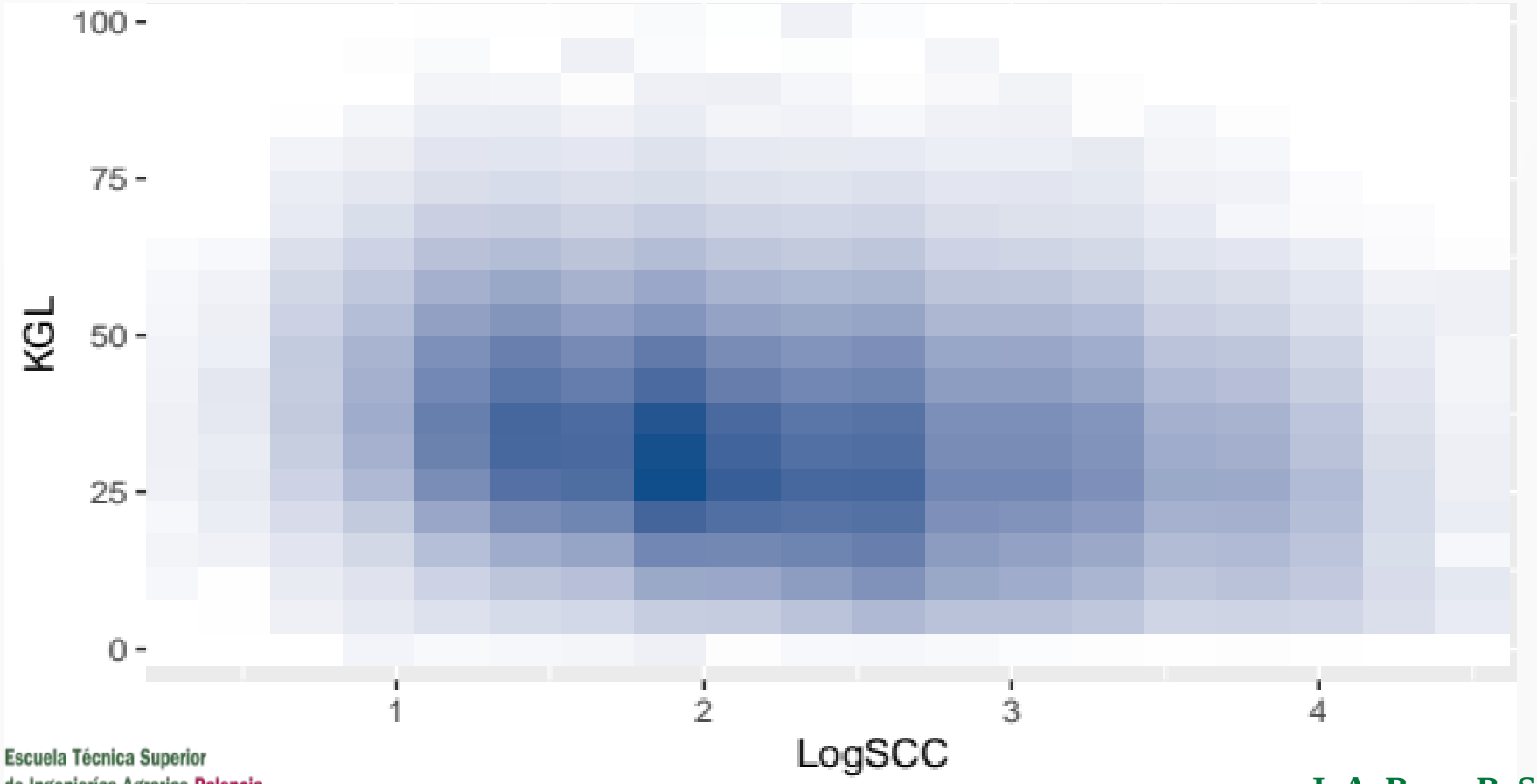
Logarithmic$_{10}$ transforms of SCC (~ no. of digits)



Methods

Test day SCC & Milk yield

Joint Distribution of milk yield and $\log_{10}$SCC



Methods

Test day SCC & Milk yield

Regression of milk yield on $\log_{10}$SCC

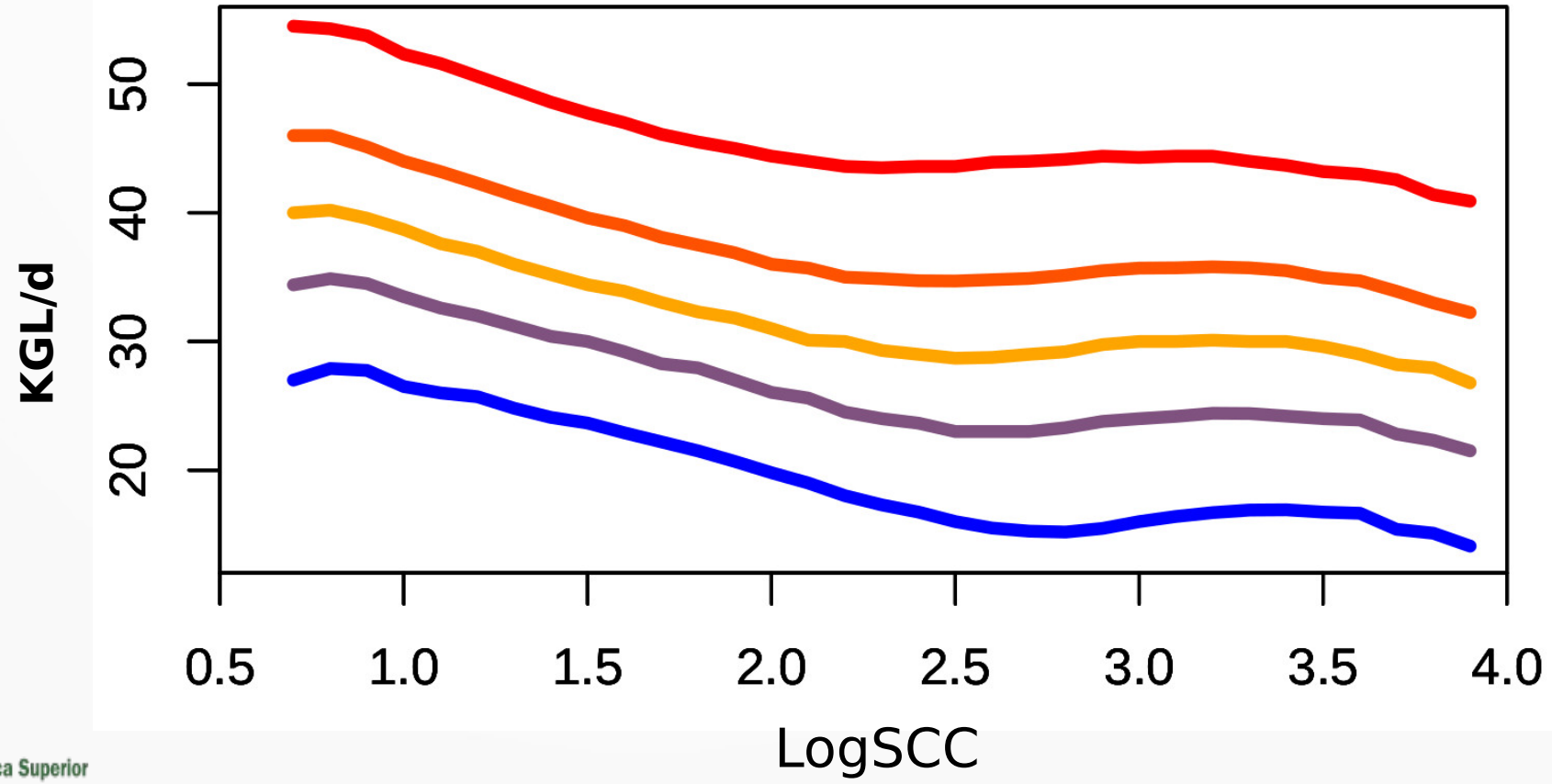
Across a set of milk yield quantiles

Methods

Test day SCC & Milk yield

Regression of milk yield on log_{10}SCC

Across a set of milk yield quantiles



Methods

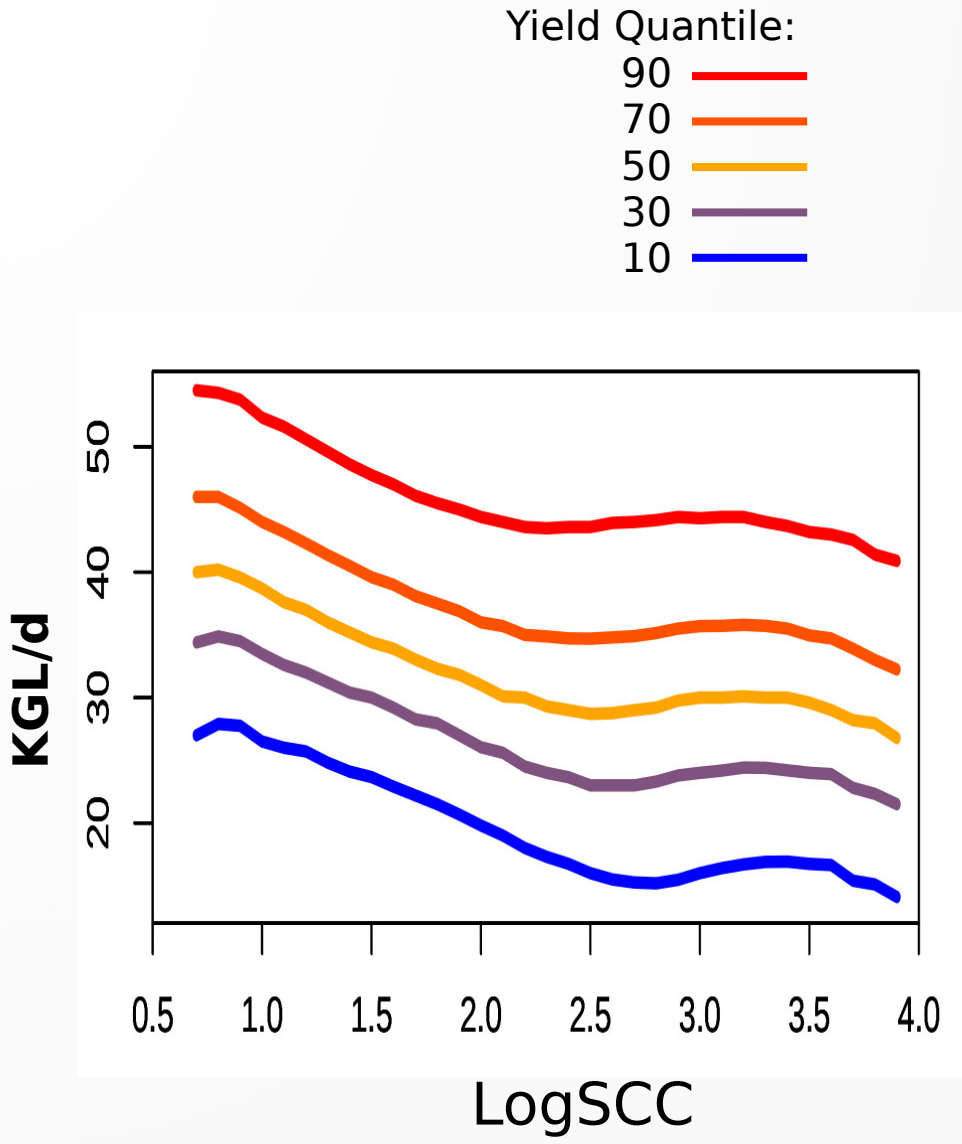
Impact of SCC on milk yield

- Healthy udder:

7.6 kg/d·log$_{10}$ unit

The trend stops at different SCC:

Yield quantile:	cel/μl:
90%	126
70%	158
50%	200
30%	251
10%	398



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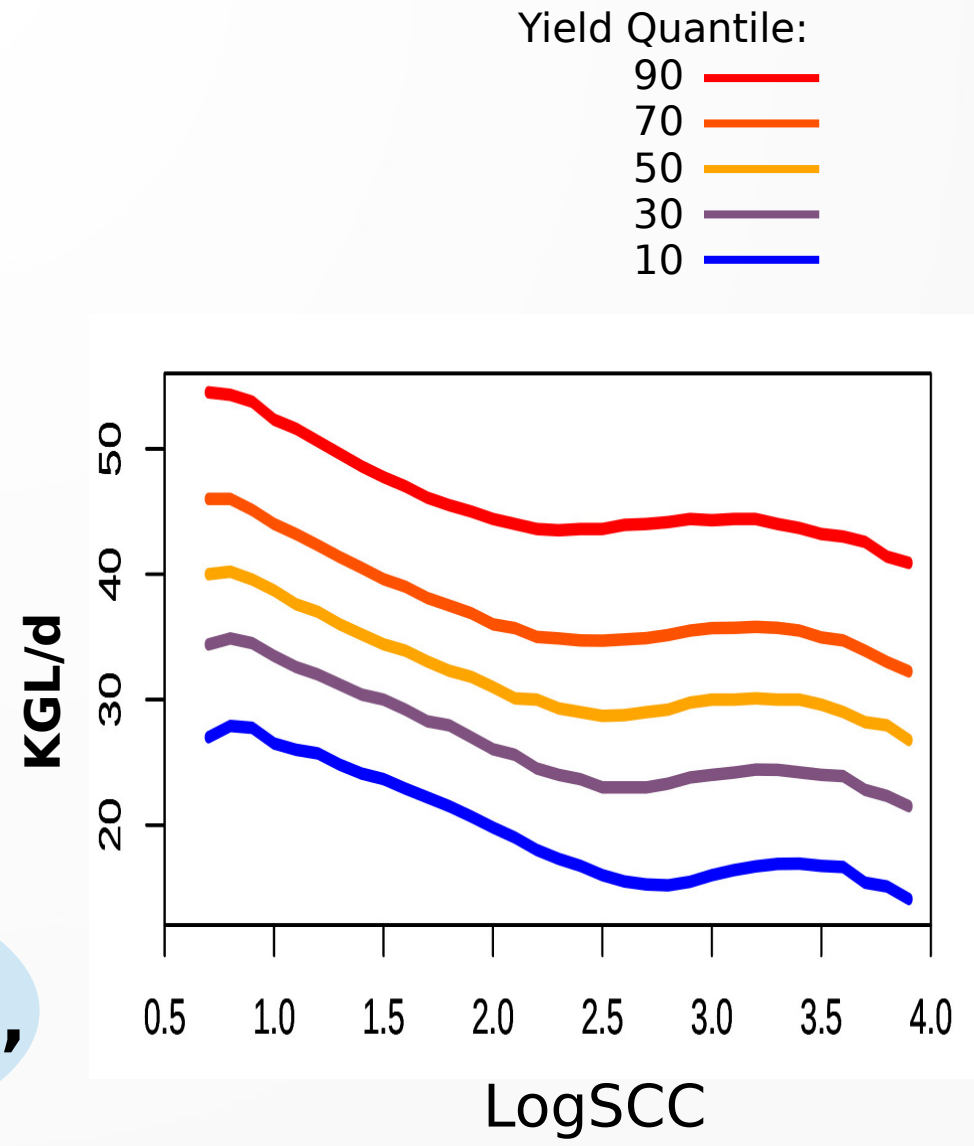

High yield cows are more resilient, *or viceversa*

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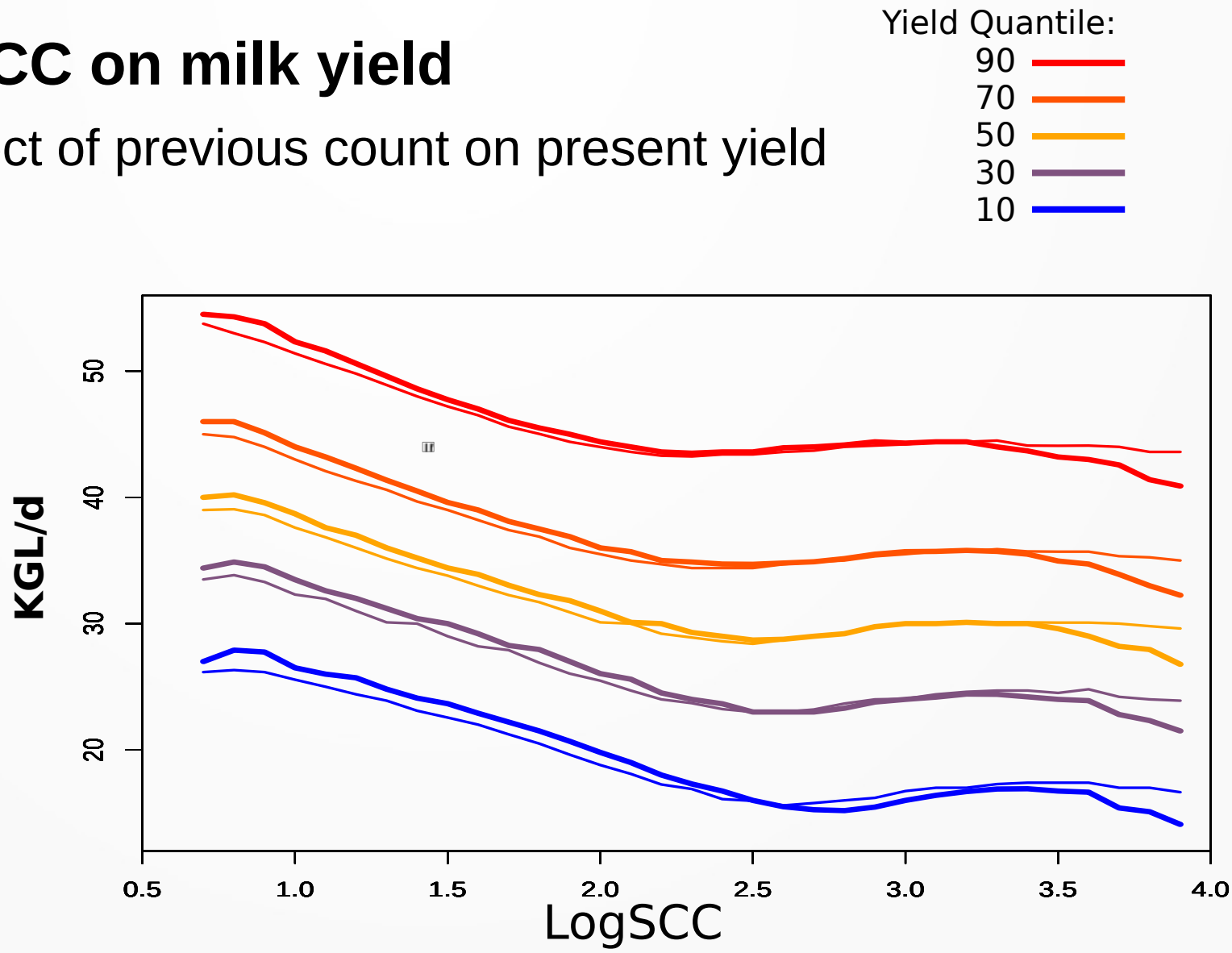
Impact of SCC on milk yield

Carryover: effect of previous count on present yield



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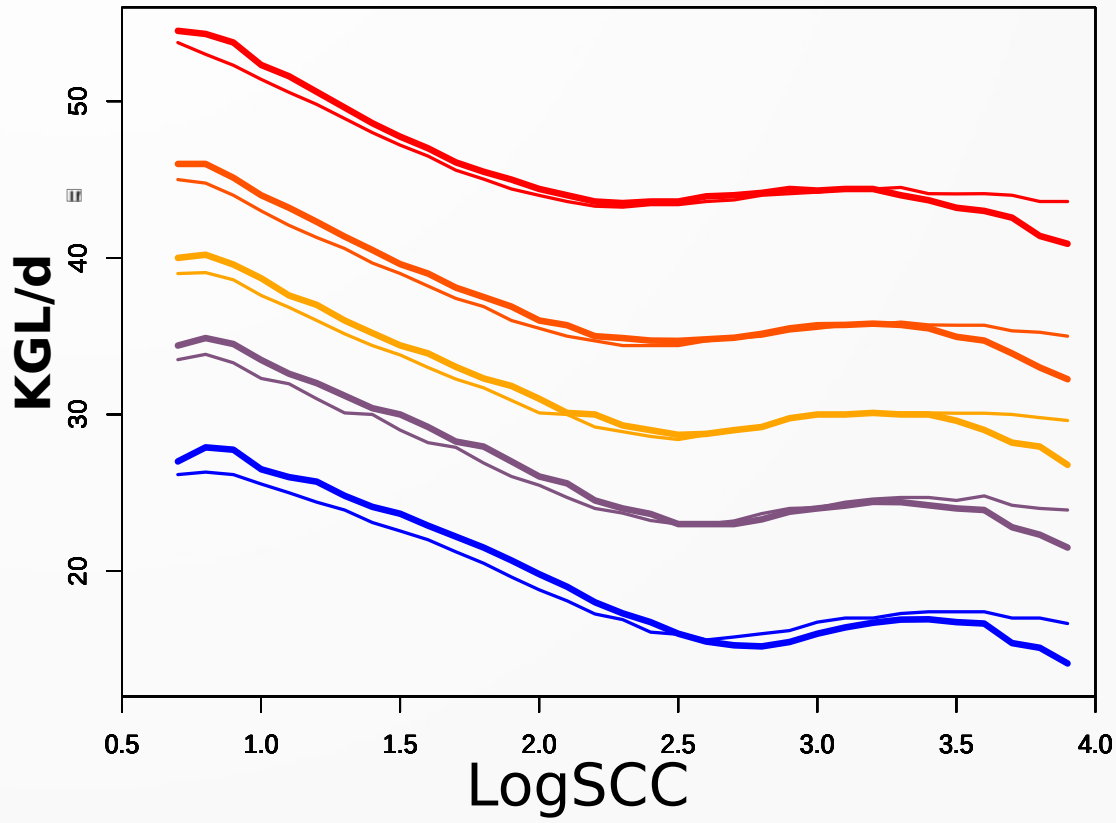

- Lower previous counts

  (sicker udder now)

  ~1 kg/d lower yield

- *et viceversa*

except for very low yield cows

and for counts beyond 2000 cel/μl

CONCLUSIONS

- Regression of yield on log-counts provides accurate and repeatable prediction of mastitis related milk yield losses and carryover effects
- Lower cell counts on the previous month are associated with slightly lower yields
- Use: extension, expert systems, prediction of future yields
- Traditional SCC is not the best systematic indicator of mastitis available anymore
- Better criteria (differential cell counts) will improve the power and scope of this approach.

Thank you!

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