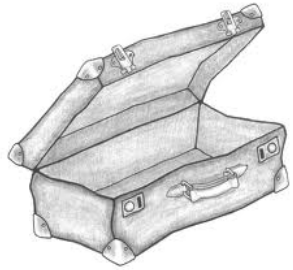




Lying area design & barn climate  
- getting it right

Frank van Eerdenburg  
Utrecht University





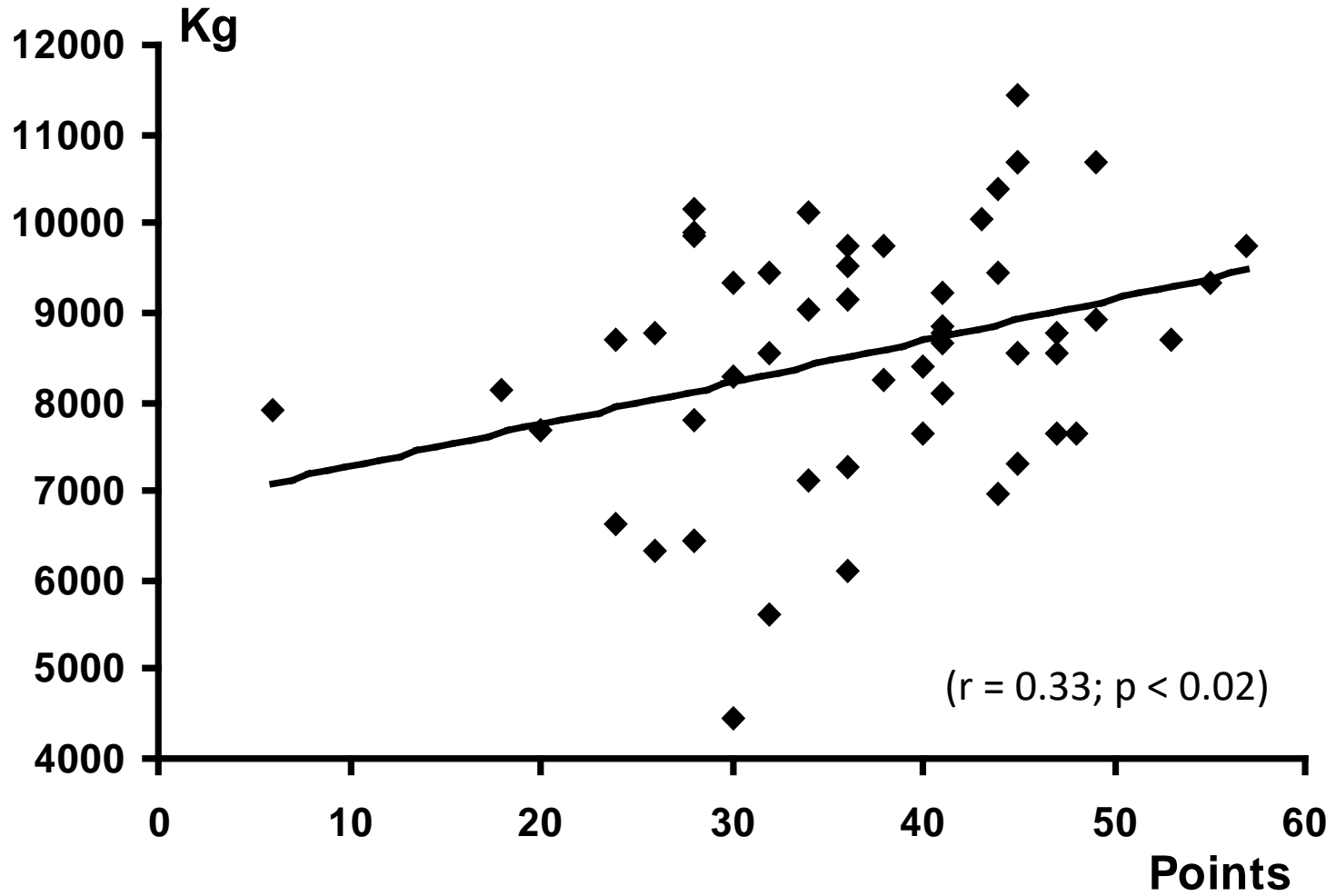
**Take home messages:**

## **Free stalls**

- Should be designed according to the needs and size of the cows.
- Bedding should be soft, clean and inorganic
- Cows should have sufficient grip in the stalls

# Freestalls

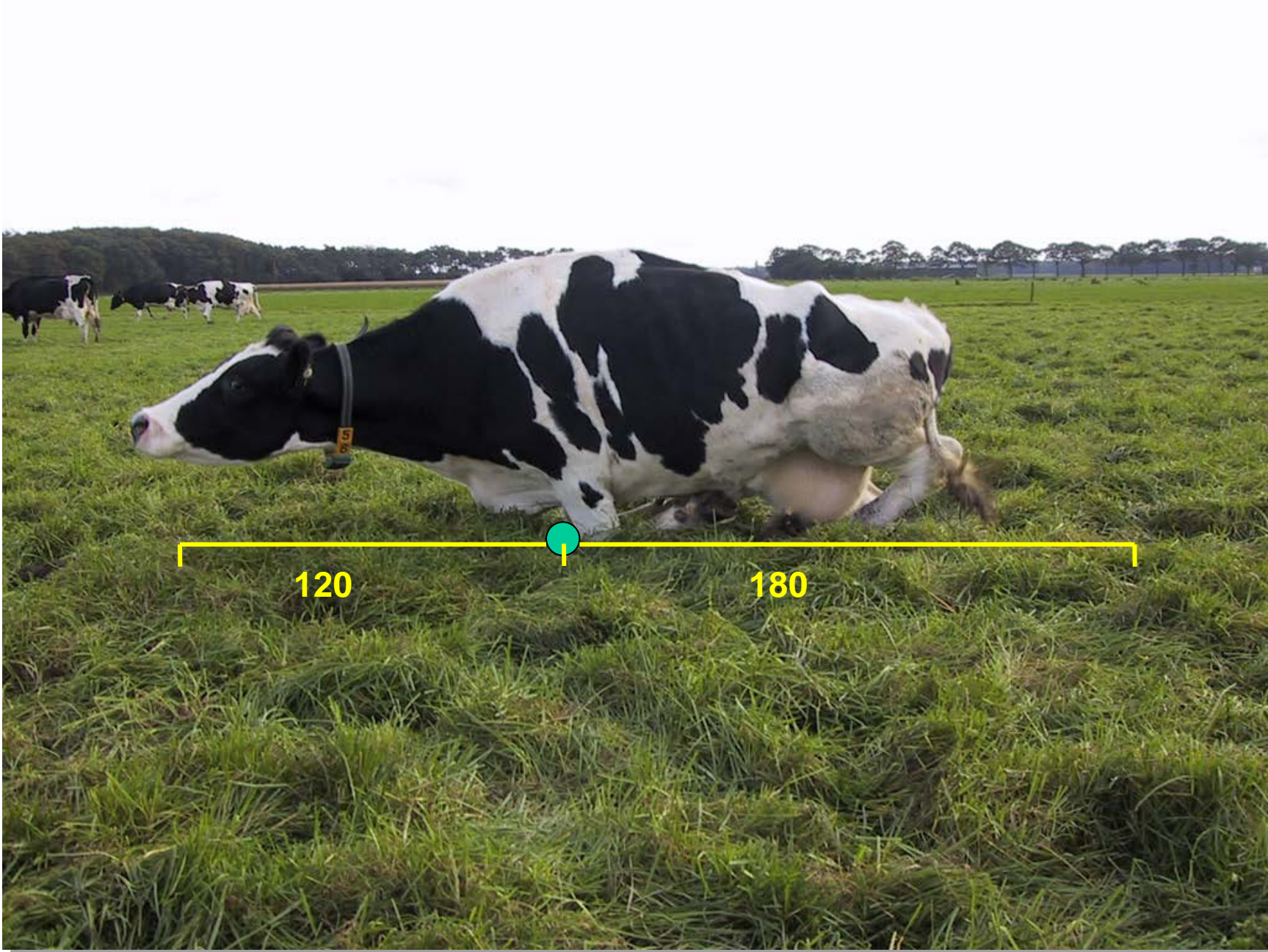
Milk yield





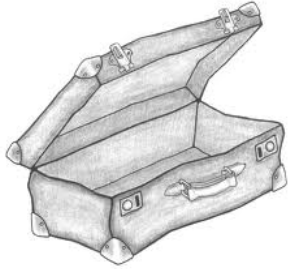
**Cows standing idle < 10%**











**Take home messages:**

- Soft
- Dry & clean
- Inorganic
- sufficient grip in the stalls

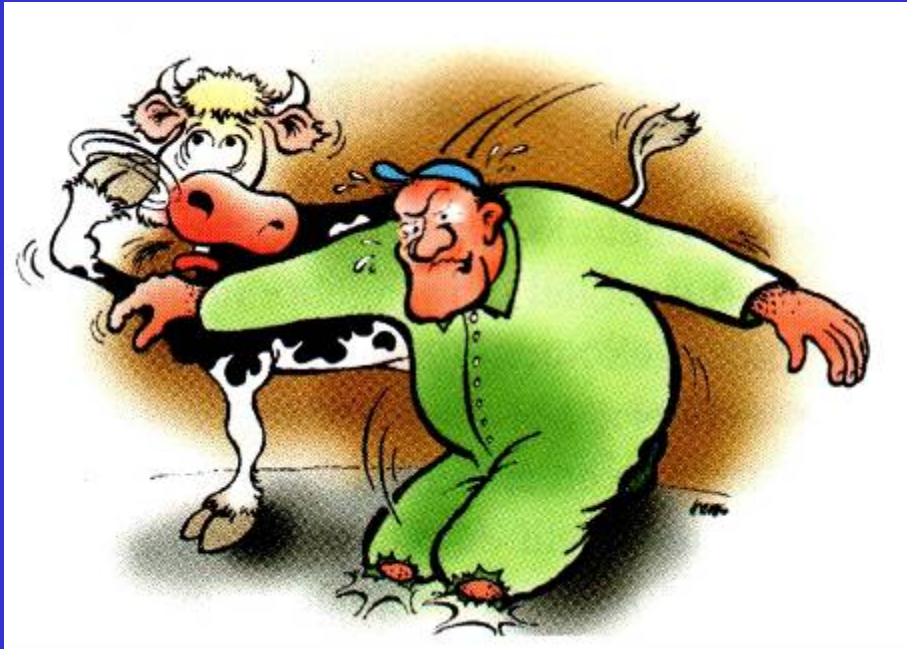
# Bedding







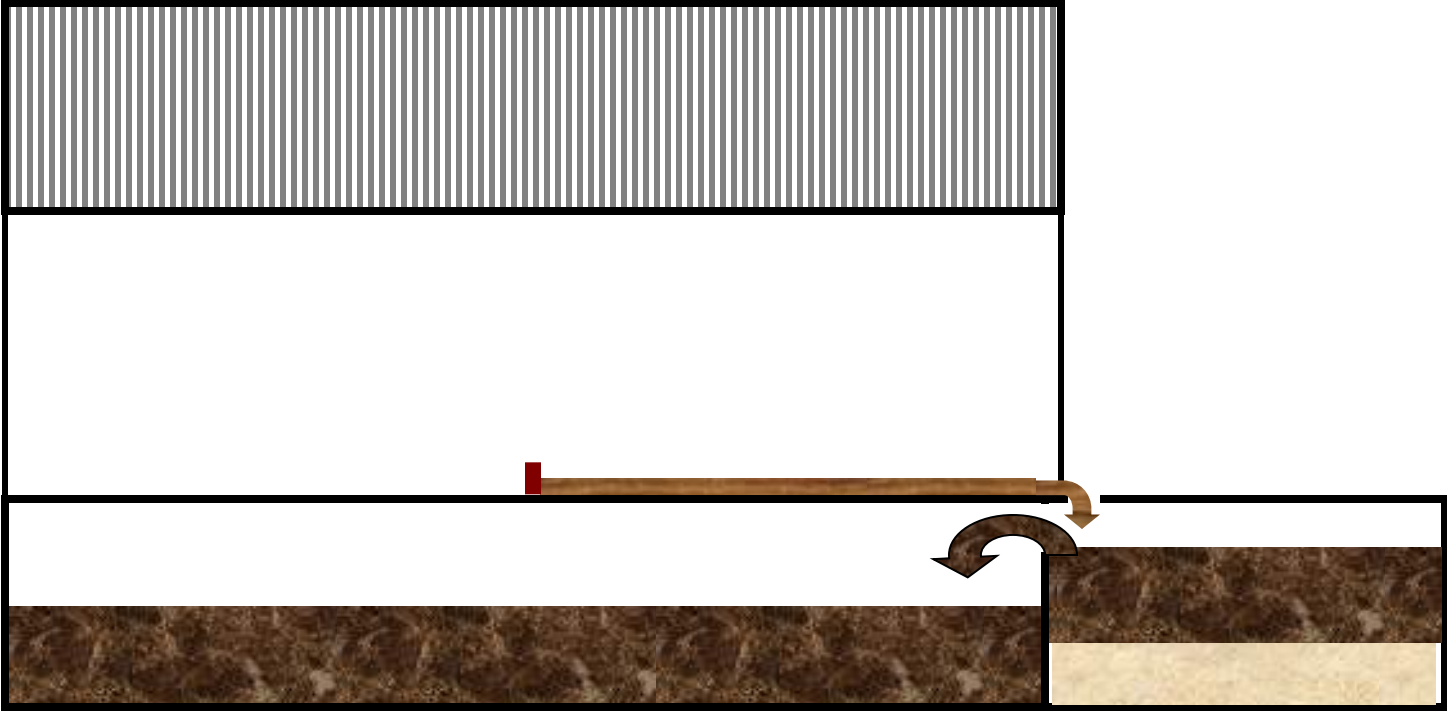
# Do the knee test



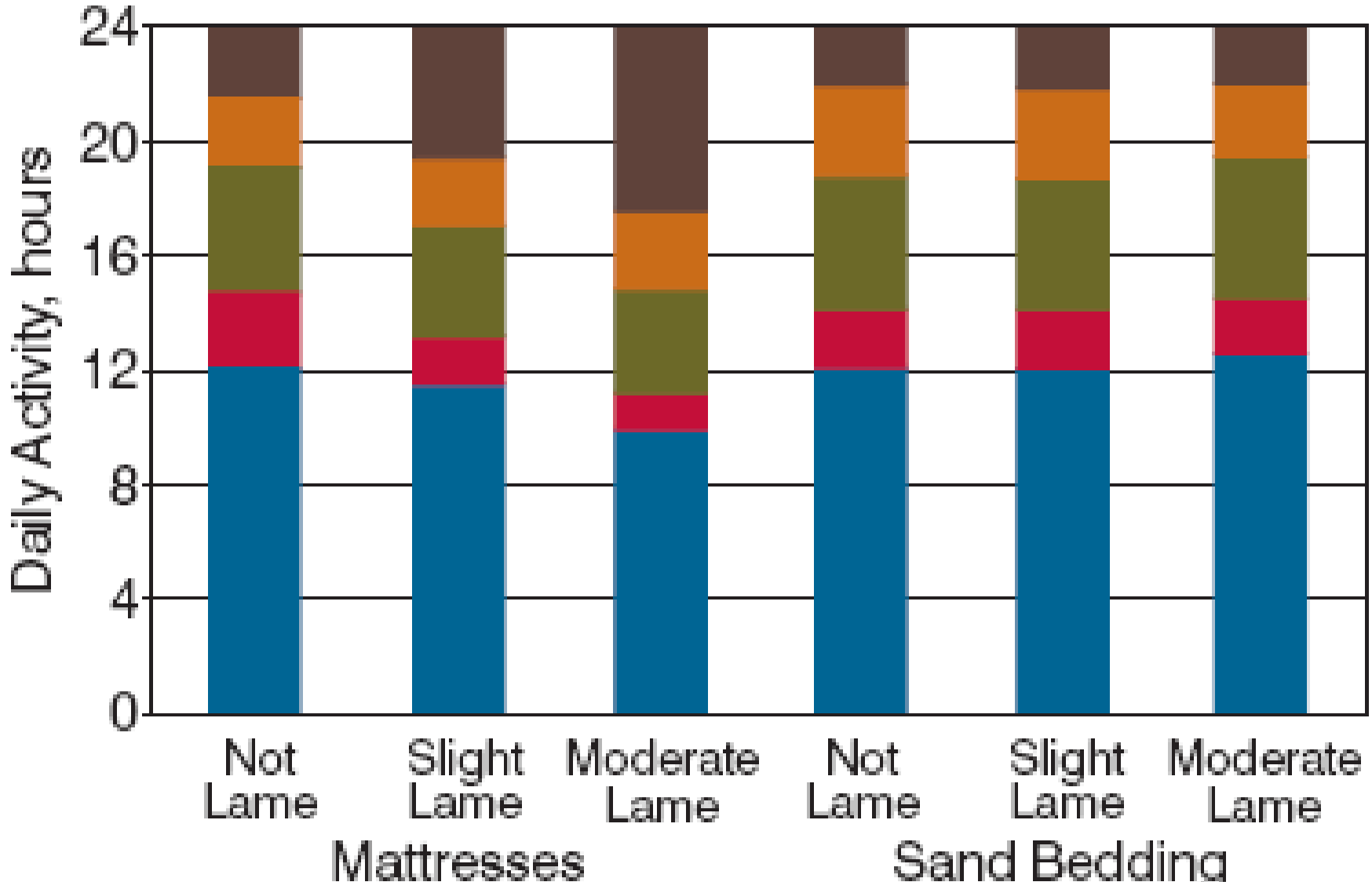
- softness
- moist

# Sand :

- Inorganic
- Soft
- Cool
- Provides grip













# Recycled manure solids





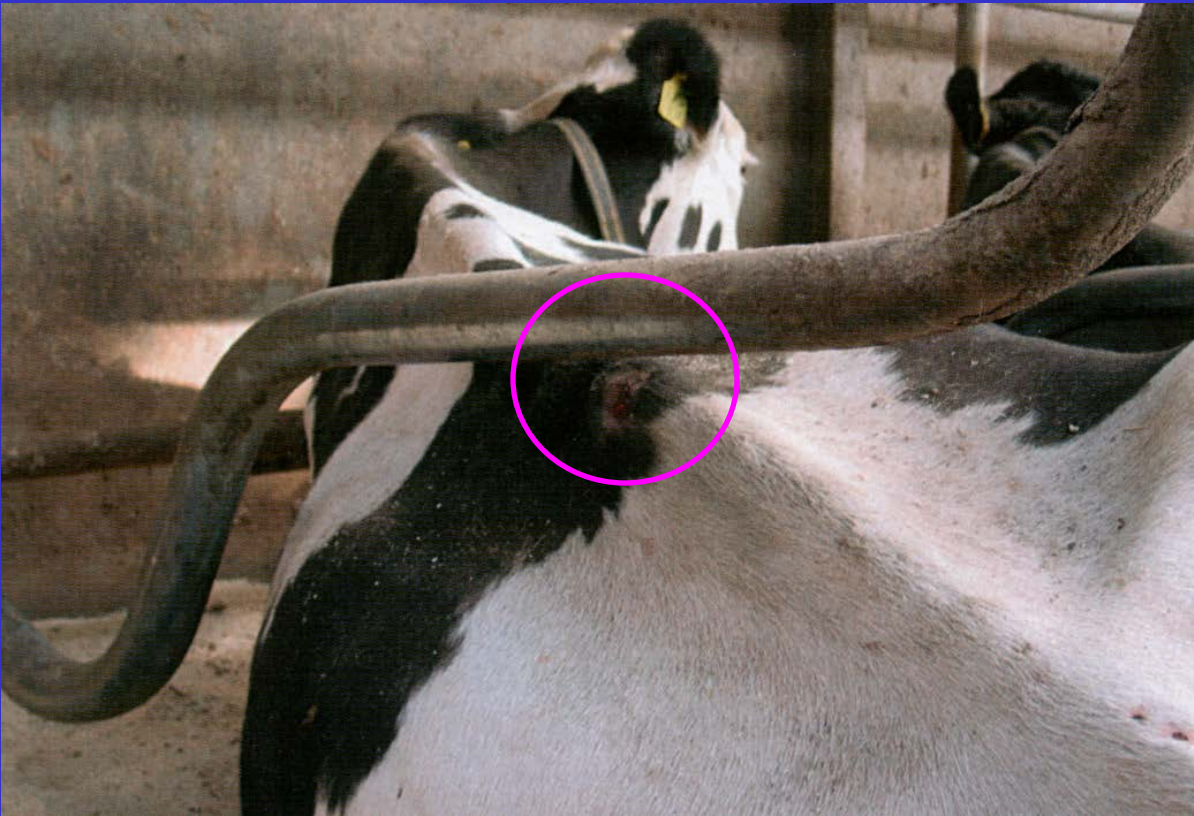




182

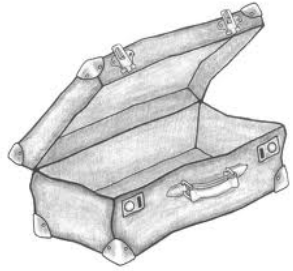


**Cow should not get under the divider**









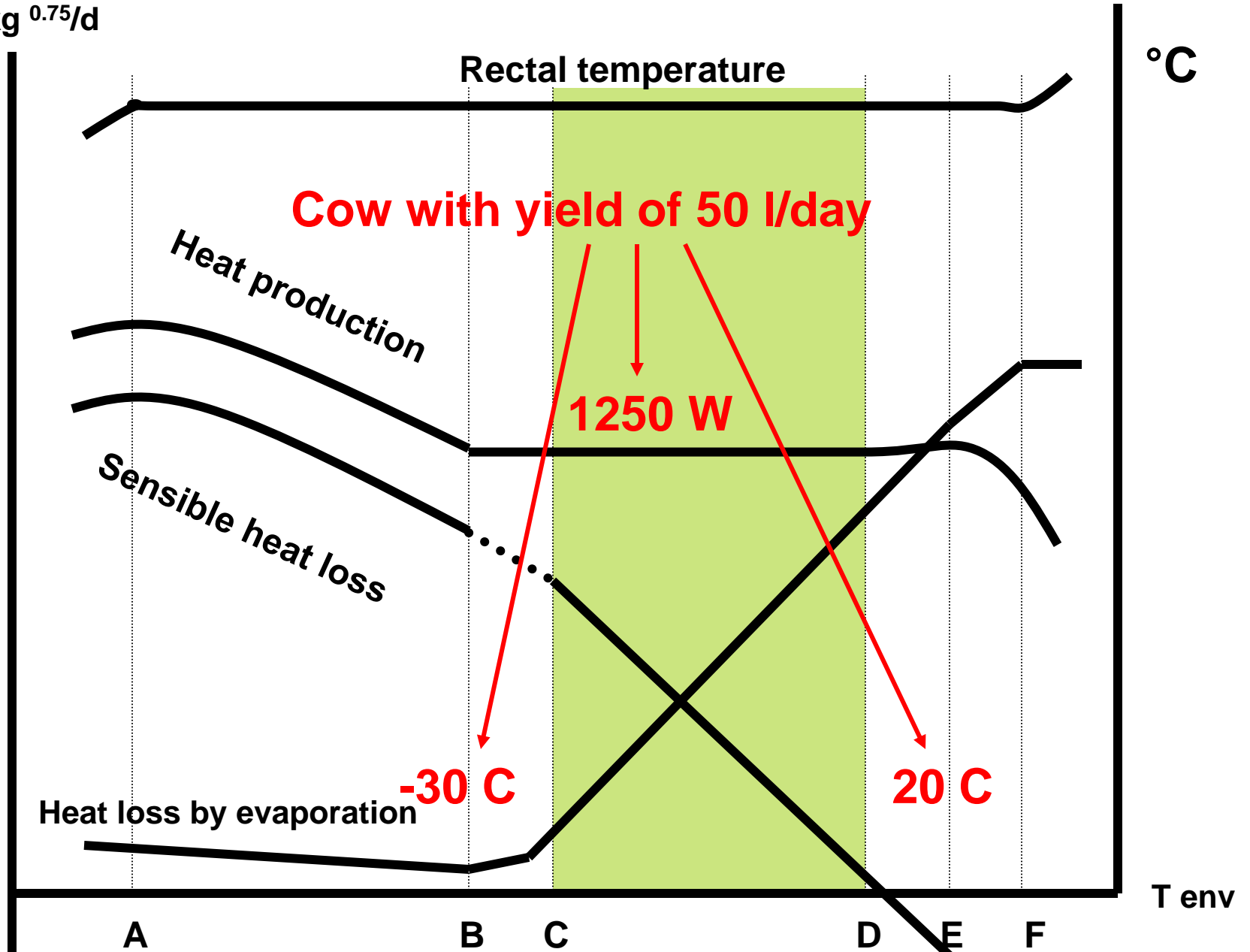
**Take home messages:**

## **Climatic conditions**

- No dirty smell / toxic gasses inside the barn.
- Temperature inside not  $>5$  °C above outside
- No draught or dead spaces
- Relative humidity between 50-80%
- Environmental temperature within comfort zone

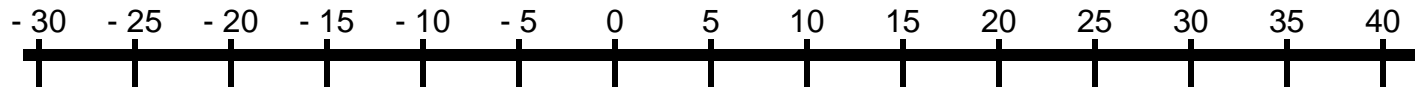
# Thermoprofile

KJ ME/ kg<sup>0.75</sup>/d



# Optimal environmental temperatures for dairy cows

Environmental T in °C



Cows producing

< 10 kg / day

LCT  
↓



UCT  
↓

22 kg / day

LCT  
↓



UCT  
↓

> 35 kg / day

LCT  
↓



UCT  
↓



LCT = Lower Critical Temperature

UCT = Upper Critical Temperature

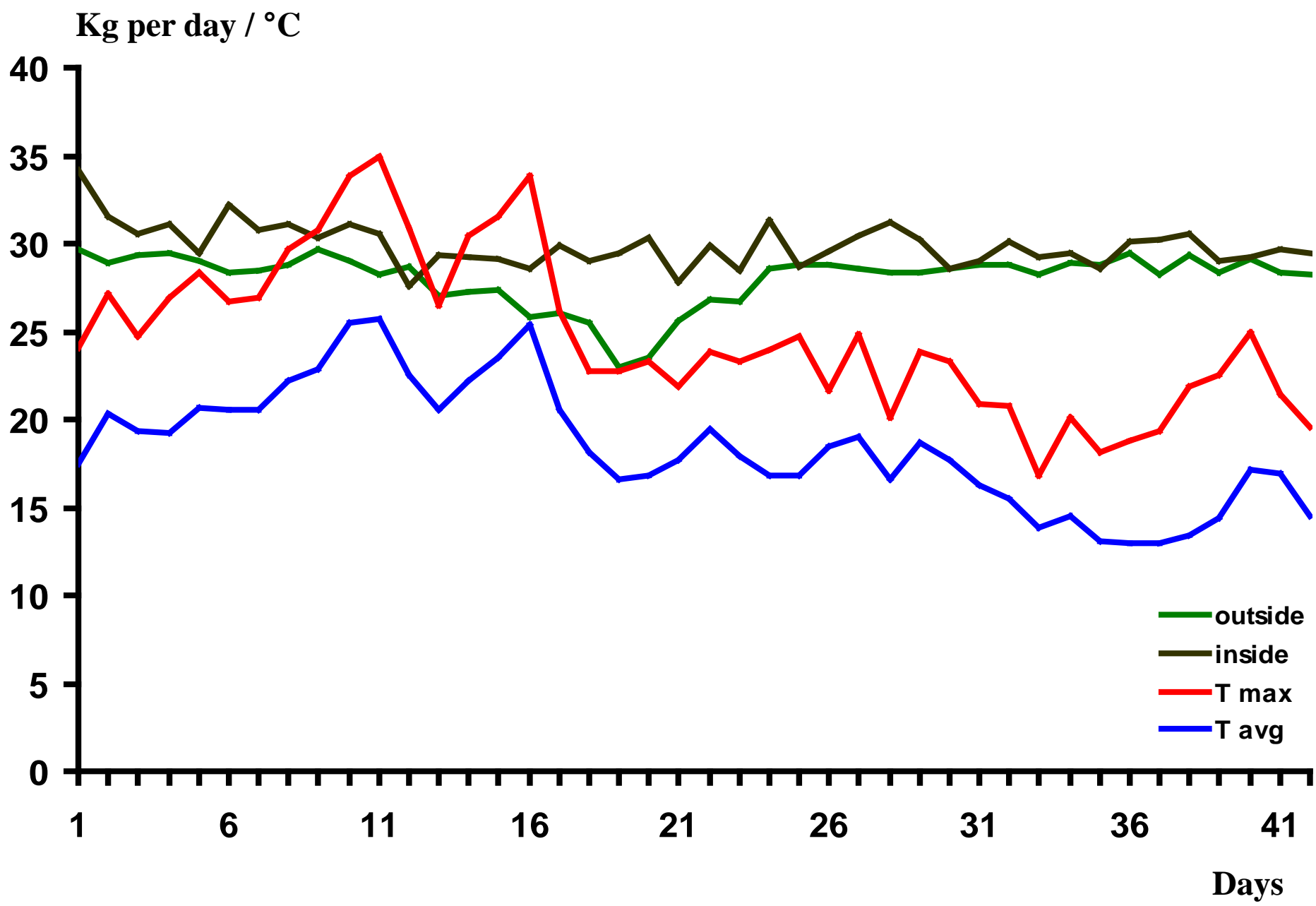


Nominal performance losses



Optimal performance

After Hahn et al., 1983

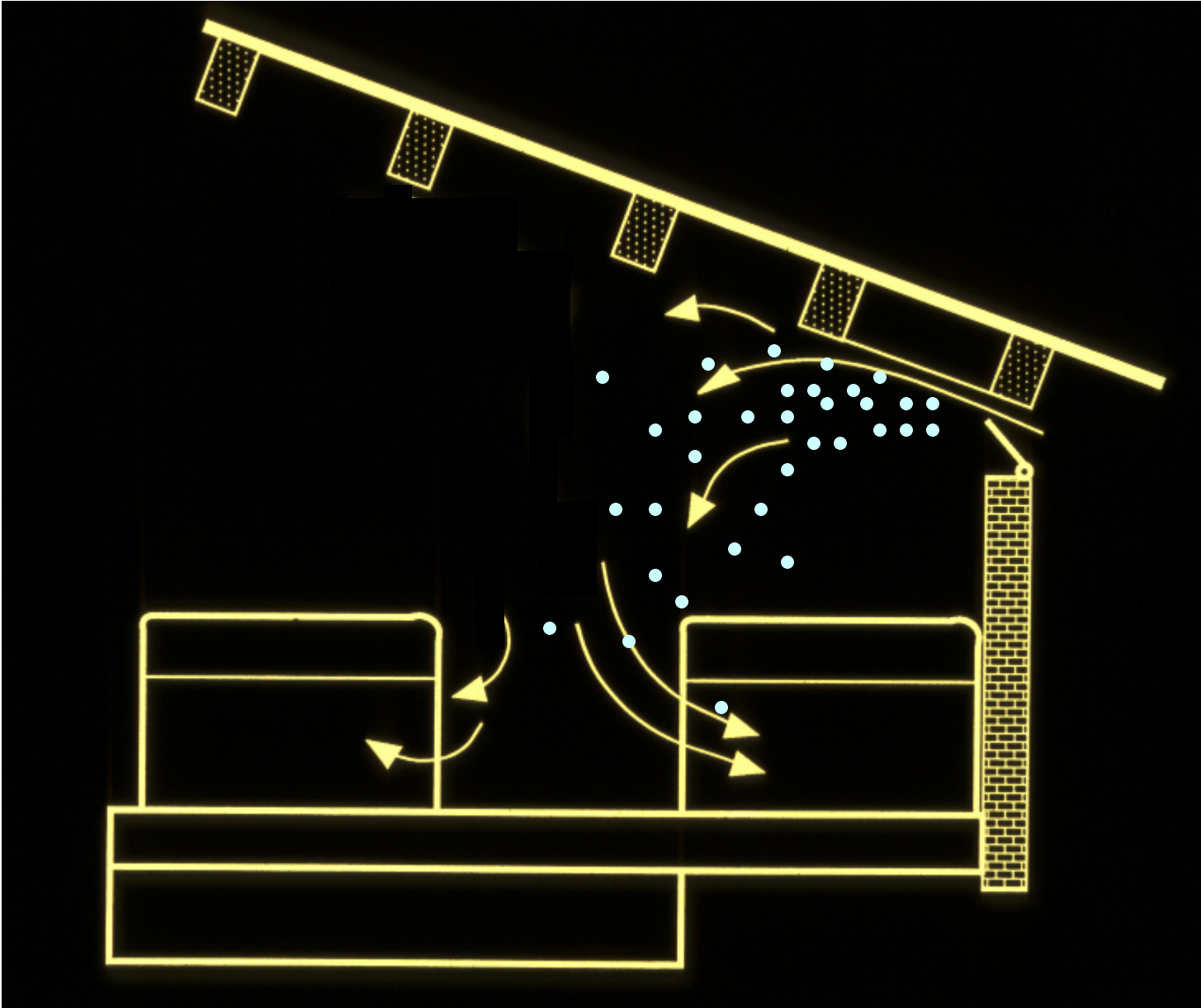


















el "buen  
trato"  
es "buen  
negocio"



**MERCADO NACIONAL  
DE HACIENDA**

Una gauchada al país

Ministerio de Agricultura  
y Ganadería

ANY QUESTIONS?



THANK YOU

