

Cow behaviour as a driver for automation..

14 June 2015

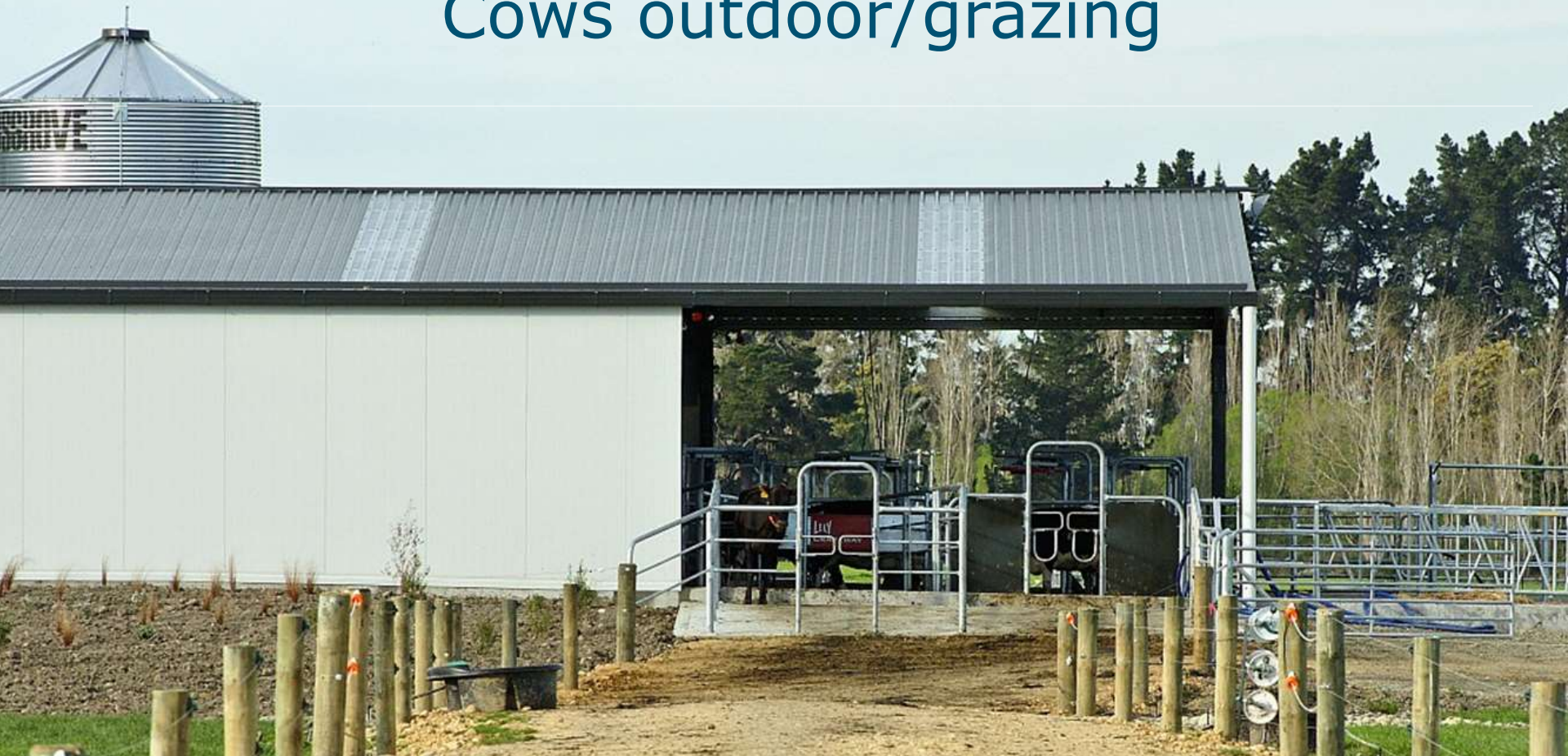
Bert Philipsen and Kees van Reenen



Cows indoor



Cows outdoor/grazing



Free choice and cow behaviour...



Direct observations – ‘manual’

Outdoors



Indoors



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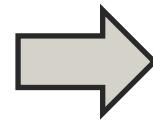
Environmental complexity and use of space in slow growing free range chickens

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per day. Data were collected by walking along predefined paths covering the entire indoor and outdoor areas of each house within the farm and locating as many tagged birds as possible. When a tagged bird was sighted, its location in XY coordinates and ID were collected with the Chikitizer software (Sanchez and Estevez, 1998) installed on a portable computer, with the help of a scaled reference blueprint of the indoor and outdoor areas that was attached to the screen of the computer. The independent variables

‘Chikitizer software’ adapted for use in cows on pasture

CAWA

Behavioural observations with sensors

'Smarttag neck'



'SensOor'

'IceQube'



Behavioural measures of interest

Fundamental aspects of behaviour – cow characteristics

- Consistency of behaviours during grazing over time (e.g. time spent grazing, activity, rumination)
- Social dominance – ‘assertiveness’
- **Sociability**, i.e. the motivation to be close to conspecifics
- **Temperament** – ‘fearfulness’

Behavioural tests



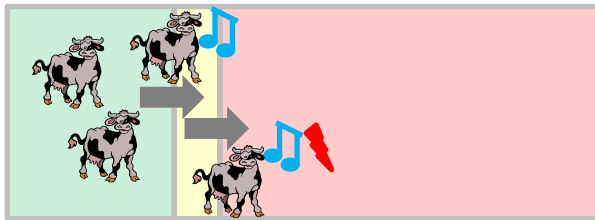
Behavioural measures of interest

Practical aspects of behaviour

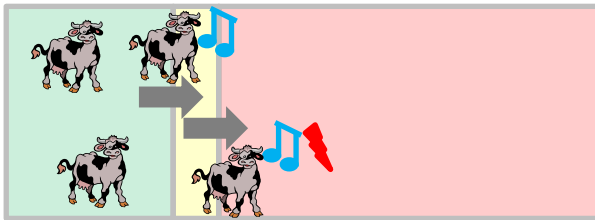
- Relationship between behaviour (standing/lying, steps, grazing, rumination) and grass intake (assessed with marker assisted n-alkane method)
- Relationship between behaviour and characteristics of pasture (e.g. sward height, herbage mass)



Auto Border Collie 2.0



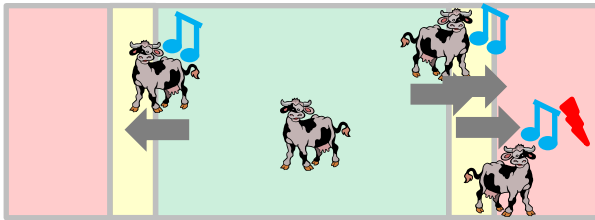
Education



Control



Rotating



Closing

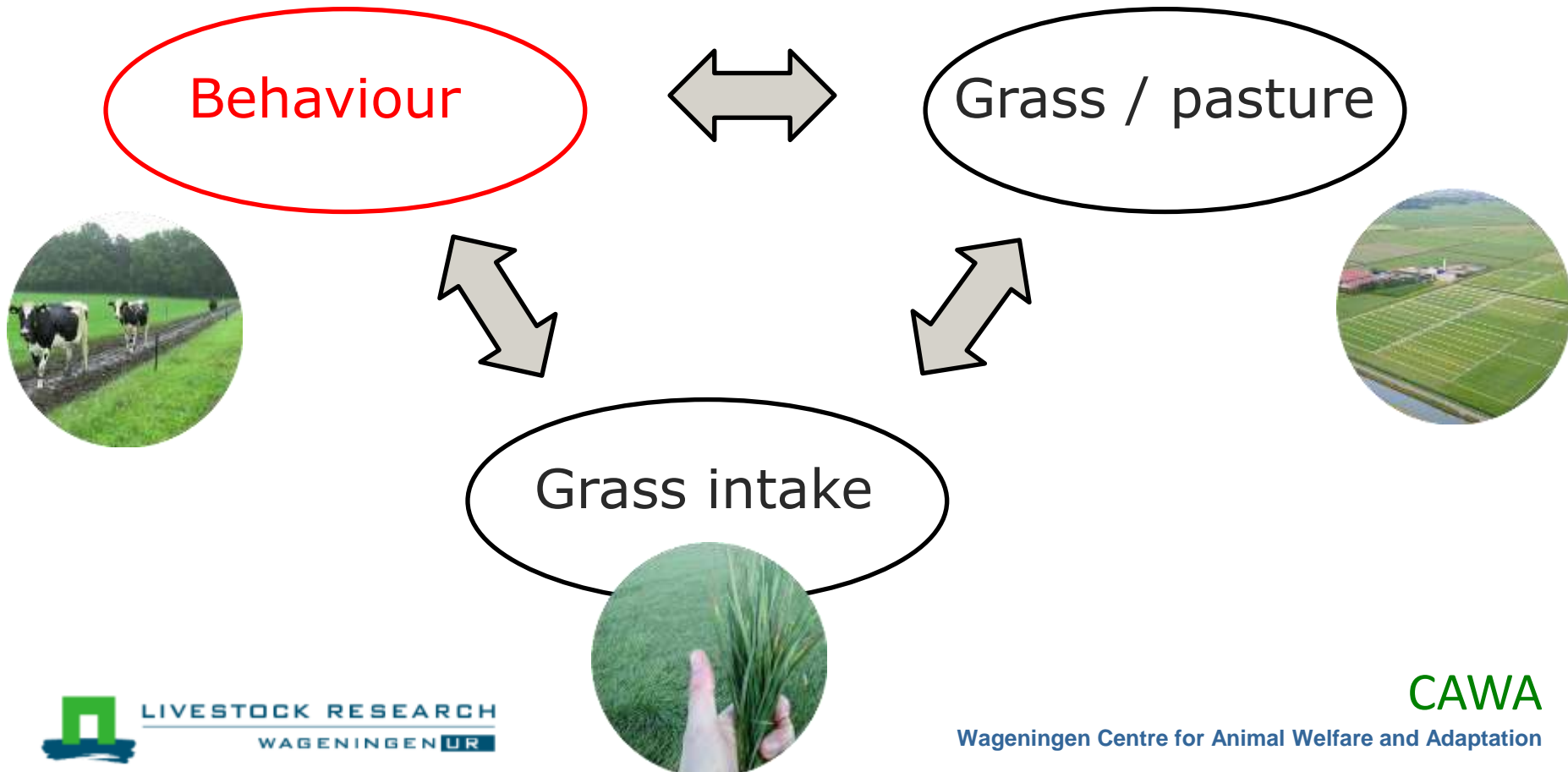


Splitting

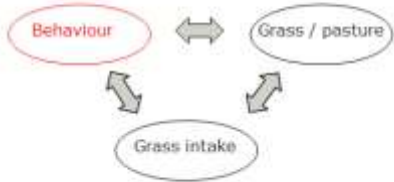


Cows responds to sound

Multidisciplinary approach



Multidisciplinary approach



Increased understanding of cow behaviour can help us to further develop and improve strategies for automation in pasture-based dairy farming



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