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ProHand® - Stockperson training in professional handling of dairy cows

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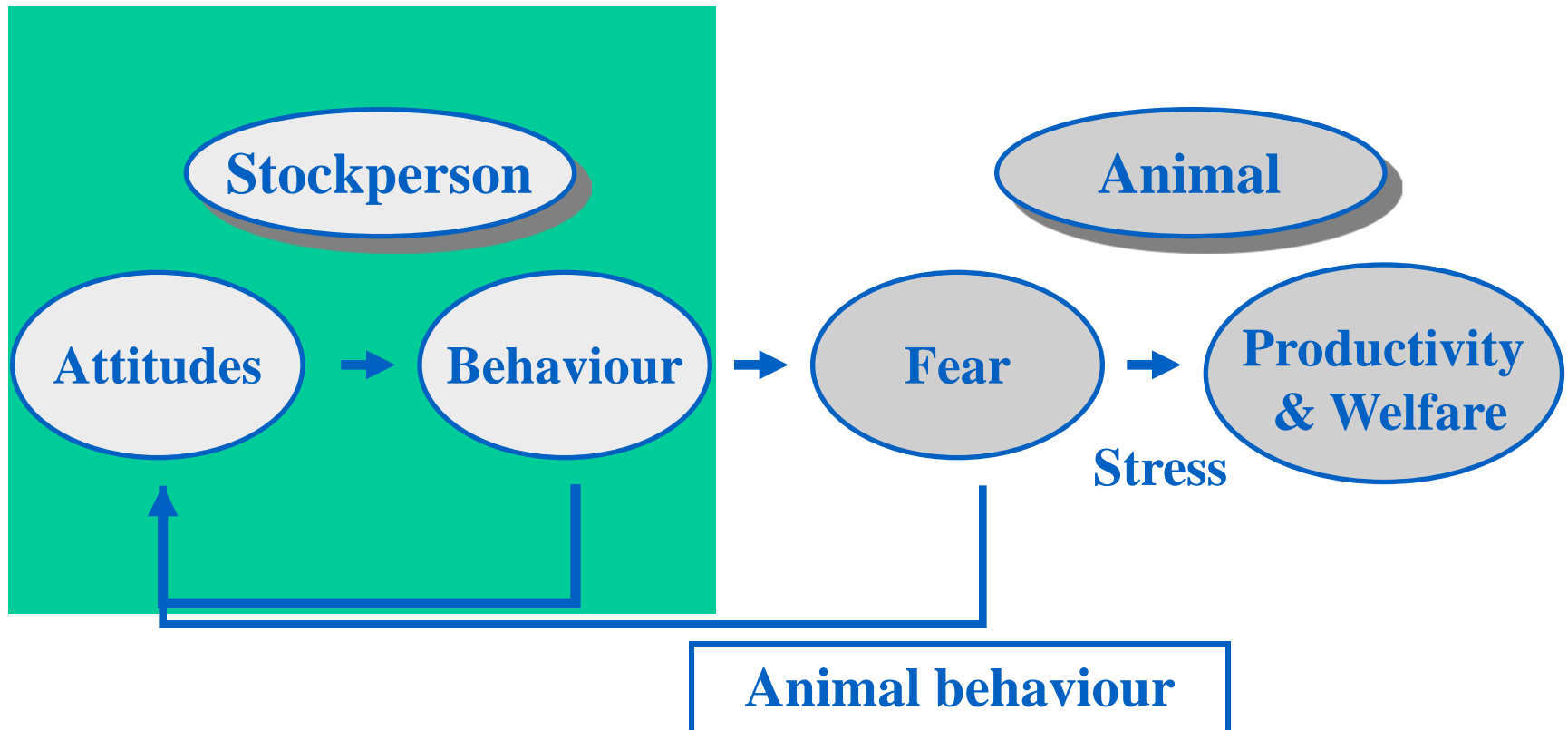
ProHand Dairy

- Today we will briefly introduce you to this programme which aims to:
- improve the attitudes and behaviour of stockpeople in order to reduce fear and stress in dairy cows on farm,
- which in turn should improve animal welfare (and productivity).
- To introduce you to this programme, we will briefly discuss (1) the research underpinning the development of the programme and (2) details of the programme.





1. A model of human-animal interactions in the livestock industries





2. Assessing fear

- Our research (& others) has focused on fear of humans because of its implications.
- Behavioural tests measuring the animals' responses to human can be categorized into three main groups:
 - responses to a stationary human,
 - responses to a moving human and
 - responses to actual handling.
- Furthermore, physiological responses (eg heart rate and corticosteroid responses) in these tests can be measured to support the behavioural assessment of fear.



Responses to a stationary human

[High avoid arena](#)

[Low avoid arena](#)



3. Assessing stockperson behaviour

- **+ve stockperson behaviour** – reduces fear responses in animals
 - talking, hand resting on the animal, patting the animal, slow and deliberate movement
- **-ve stockperson behaviour** – increases fear responses in animals
 - slapping, hitting, tail twists, shouting, making loud noises, fast speed of movement, unexpected movement



4. Variation in cow fear and stockperson behaviour

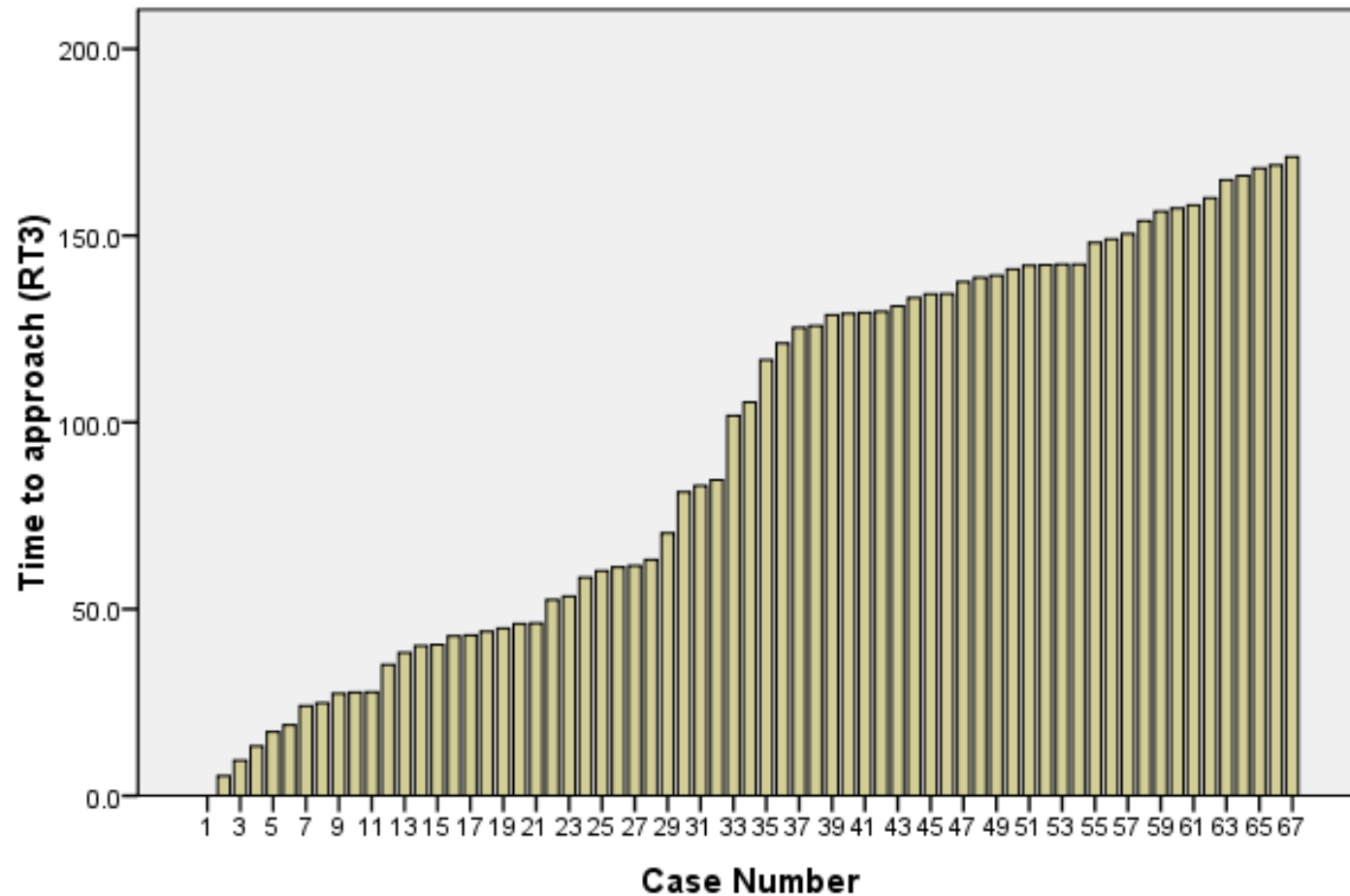
- Substantial variation between farms in fear responses to humans
 - Also substantial variation between farms in stockperson behaviour





Dairy farms

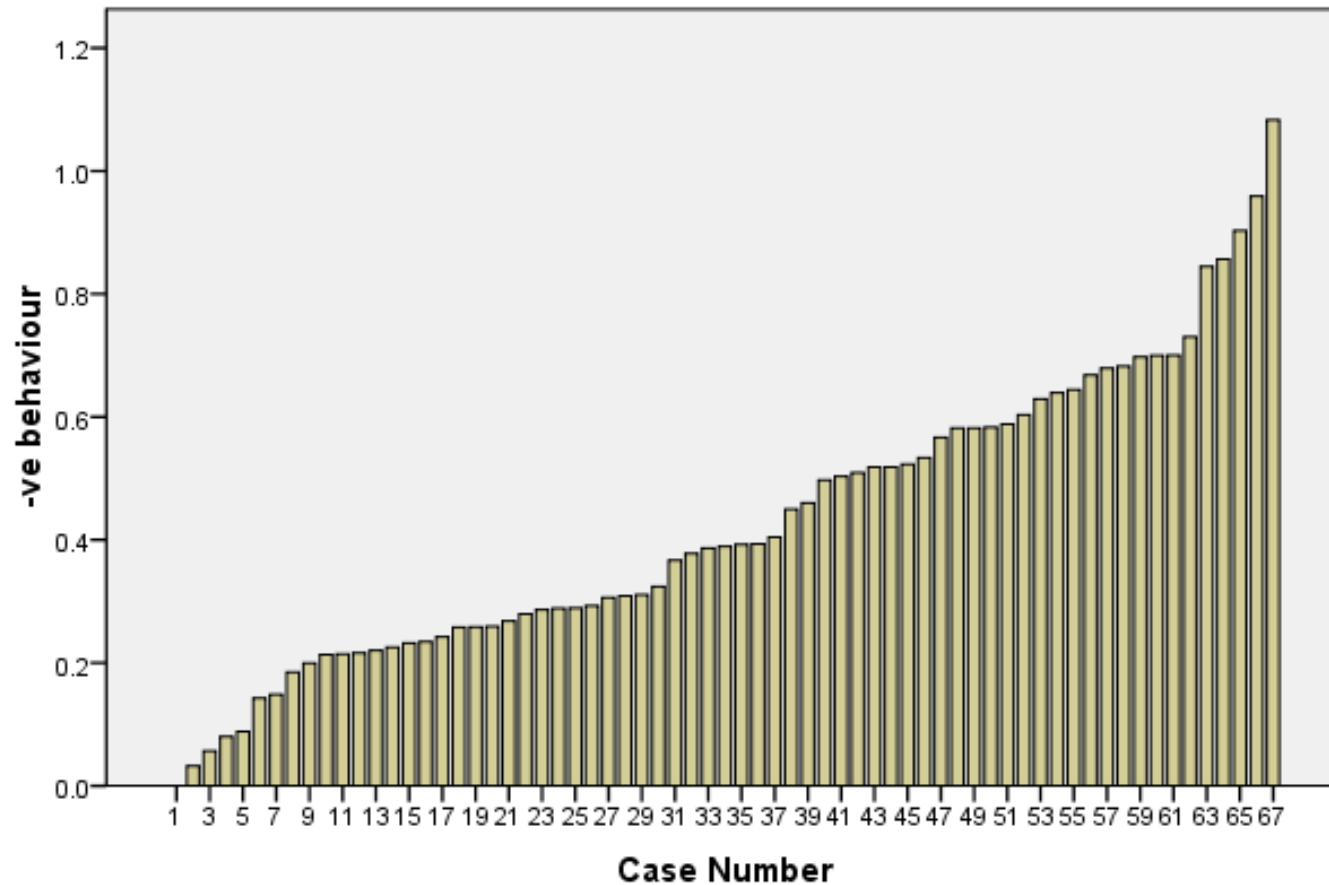
Variation in fear





Dairy farms

Variation in stockperson behaviour





5. Effects of fear on welfare and productivity

Consider:

- Human behaviour and the behavioural responses of animals to humans.
- Human behaviour and the stress physiology of animals.
- Human behaviour and animal productivity





Correlations between stockperson behaviour & animal fear in field studies

Correlations coefficients (r)

Pigs

Hemsworth et al (1989) 0.45*

Coleman et al (2000) 0.40*

Dairy cows

Breuer et al (2000) 0.31

Hemsworth et al (2000) 0.33**

Waiblinger et al (2002) 0.47**

Meat chickens

Hemsworth et (1996) 0.32

Cransberg et al (2000) 0.43*

Laying hens

Edwards (2009) 0.59**

Note - Correlations between -ve stockperson behaviour and fear of humans.



Handling, fear and stress physiology in dairy cows (n=48)

Variable	Handling treatment		P value
	+ve	-ve	
Behavioural response to humans			
Flight distance (m)	2.16	4.55	0.001
Acute cortisol response (nMol/l)			
At 5 minutes after human exposure	19.4	28.5	0.01
Basal free cortisol concentrations (nMol/l)			
Morning	1.42	2.82	0.10
Afternoon	1.90	2.78	0.05



Handling, fear, productivity & stress physiology in dairy cows (n=36)

Variables	Handling		P value
	-ve	+ve	
Flight distance (m)	4.88	2.81	0.001
Milk yield (kg/day)	16.7	18.0	0.05
Lameness	48%	6%	0.05

From Breuer (2000)



Conclusions

Impact of stockpeople on farm animal welfare

- Evidence from handling studies.
- Evidence from field studies.
 - Evidence of relationships between stockperson behaviour and animal fear.
 - Evidence of relationships between animal fear and productivity.
 - Intervention studies indicate causal relationships between these stockperson and animal variables.



6. Attitudes and behaviour

- A person's voluntary behaviour is predicted by his/her attitude toward that behaviour and how he/she thinks other people would view them if they performed the behaviour.
- A person's attitude, combined with subjective norms, forms his/her behavioural intention.



Targeting ‘stockmanship’?

- The best way to predict how stockpeople will interact with their animals is by **knowing what their attitude** is toward the activity itself.
- The idea that attitudes best predict how stockpeople behave towards their animals is quite important and this has been applied in previous research and the subsequent training programs developed.
 - What does seem to be of importance is the attitude of the stockperson towards working with animals.



7. How attitudes affect stockperson behaviour

- Questionnaire - Attitudes of stockpeople measured using questions and statements such as:
 - How much physical effort (pushing, slapping) is required to move your cows into the milking facility?
 - Dairy cows don't feel pain like humans
 - How often do you pat or stroke your cows during milking?
 - Dairy cows are easy animals to work with
 - How often do you sit or stand (say for more than 2 minutes) and just watch the cows?



Correlations between stockperson attitudes and behaviour in field studies

Correlations coefficients (r)

Dairy industry

Hemsworth et al (1995)	-0.47**
Breuer et al (2000)	-0.55**
Hemsworth et al (2000)	-0.19*
Waiblinger et al. (2002)	-0.35

Pig industry

Hemsworth et al (1989)	-0.61**
Hemsworth et al (1994c)	-0.55**
Coleman et al (1996)	-0.20

Note - Correlations between +ve beliefs about petting and -ve stockperson behaviour



7. Modifying behaviour - Options for training

- Manuals
 - Low compliance
- Classroom teaching
 - Intolerance for formal classroom situations
- Mass communications
 - Fail to induce large scale behavioural change
- Cognitive-behavioural training
 - Proven to be effective



Cognitive-behavioural training

- To change the behaviour of stockpeople towards farm animals ultimately requires:
 - targeting the **beliefs** that underlie the behaviour
 - targeting the **behaviour** in question, and then
 - maintaining these changed beliefs and behaviour
- It is important to target both attitudes *and* behaviour because of the reciprocal relationship between these two characteristics



Inducing behavioural change

- Inducing behavioural change involves:
 - Imparting knowledge and skills
 - Changing established habits
 - Altering well-established attitudes and beliefs
 - Targeting denial, offence, counter-arguments, counter-examples, etc.
 - Preparing the person to handle stressful situations and reactions from others towards the individual, following change



Targeting beliefs

- For example:
 - Sensitivity of cows to handling, especially -ve handling
 - Importance of patting (i.e., +ve attitudes to patting)
 - Importance of avoiding excessive effort in handling (i.e., +ve attitudes to verbal and physical effort)
 - Effects of handling on both cows (e.g., ease of handling) and the stockperson (e.g., job satisfaction)



Targeting behaviour

- For example:
 - Recognizing the difference between +ve and -ve interactions
 - Appreciating when to use -ve interactions
 - Minimizing use of -ve interactions
 - Maximizing use of +ve interactions



Targeting animal behaviour

- For example:
 - Recognizing fear responses
 - Escape attempts, exaggerated avoidance
 - Using “feedback” on the behavioural responses of animals to handling



8. Does ProHand training work?



8. Does ProHand training work?

Intervention studies

- Establishing causality and validating training in the food animal industries
- Two treatments imposed:
 - **Intervention:** cognitive-behavioural intervention procedure, targeting key stockperson attitudes and behavior
 - **Control:** no intervention was attempted



Measurements

- Stockperson attitudes
 - Behavioral beliefs about handling animals
- Stockperson behaviour
 - Number and percentage of -ve behaviours
- Animal behavior
 - Behavioural response to humans
- Animal productivity
 - Milk yield



The effects of cognitive- behavioural training on stockperson and cow variables (Study 1, n=29)

Variables	Treatments		P value
	Control	Training	
Stockperson attitudes			
“Little effort to handle” subscale	27.7	32.0	0.01
Stockperson behaviour			
- ve (%)	80.6	40.1	0.001
Forceful -ve (%)	10.1	2.6	0.001
Cow behaviour			
Flight distance (m)	4.5	4.2	0.05
Cow physiology			
Milk cortisol (nM/L)	2.05	1.40	0.06

From Hemsworth et al. (2002)



The effects of cognitive- behavioural training on cow productivity variables (Study 2, n= 94)

Variables	Treatments		P value
	Control	Training	
Milk yield (L/cow/month)	550.6	579.8	0.02
Milk protein (kg/cow/month)	17.1	18.5	0.03
Milk fat (kg/cow/month)	22.8	23.8	0.04

From Hemsworth et al. (2002)



Conclusion

- Understanding stockperson behaviour and the key attitudes underpinning these behaviours, appears to be the key to manipulating human-animal interactions to improve animal welfare and productivity
- Some of the attitudes and behaviours in commercial situations, may not be intuitively obvious



ProHand[®] Training



Structure of ProHand Dairy Day 1

- Introduction to entire training package, including mouse tutorial
- Stockperson handling questionnaire
- Introduction to **ProHand** Dairy
- Orientating users to the structure of the training program



Structure of ProHand Dairy Day 1 - (10.00 - 2.30)

- **Section 1:** Fear of humans in commercial cows
 - Summary component
 - Review component

- **Section 2:** The effect of fear of humans on ease of handling of cows
 - Summary component
 - Review component

- **Section 3:** The effect of fear of humans on the productivity of cows
 - Summary component
 - Review component

- **Section 4:** Why are commercial cows fearful of humans?
 - Summary component
 - Review component



Structure of ProHand Dairy Day 1 (cont)

- **Section 5:** Feedback to users on questionnaire
 - Summary component
 - Review component
- **Section 6:** Recommendations for professional handling
- **Section 7:** Maximizing cow productivity by improving stockperson handling behaviours: a study
 - Review component
- **Section 8:** Professional handling guidelines for stockpersons managing commercial cows
- **Section 9:** How to maintain changes in your behaviour
- **Conclusion to Day 1**



Structure of ProHand Dairy Day 2 - (2 hrs)

- **Part 1:** Review of Day 1
- **Part 2:** Cow flow
- **Part 3:** Beliefs and productivity
- **Discussion and Close**



Beyond Day 2

- Newsletters
 - Quarterly for 12 mths
 - Reinforce and refresh main points
 - Encourage stockpeople to think about the recommendations and their behaviour
- Posters
- Stockperson Manual
- Caps & Mugs



Questions?



ProHand 
Maximise your Positives, Minimise your Negatives

ANIMAL WELFARE
SCIENCE CENTRE



ProHand (cognitive-behavioural) training programmes available

- Pig stockpeople
- Dairy stockpeople
- Pig stockpeople at abattoirs
- Sheep and cattle stockpeople at abattoirs
- Transport drivers
 - EU 6th Framework Sub-project 3 “Minimising Handling Stress”: Training packages developed for cattle, pigs & laying hens.



Important functions of trainer

- ◆ Trainers need to address the following issues or barriers in achieving change:
 1. Stockpersons often deny that they have poor attitude and behaviour towards dairy cattle
 2. Credibility of data
 3. Recognize and be sensitive to concerns of stockpeople
 4. Recognize difficulties stockpeople may have if co-workers and supervisor are not supportive
 5. Reinforce the need for stockpeople to be vigilant to change habits



Important functions of trainer

- ◆ Trainers need to address the following issues or barriers in achieving change:
 6. Encourage stockpeople to practice recommendations between training sessions, and beyond
 7. Promote the view that stockpeople are professional animal handlers
 8. Fully supportive of all segments of the program
 9. Practicality of the recommendations
 1. There is time to follow the recommendations
 2. Handling facilities can also affect fear and stress