

Risk perception and non-technical skills in agriculture



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Background

Farming accounts for 1 in 5 workplace fatalities in the UK (HSE, 2018).

Handling cattle and working alone are important risk factors (HSE, 2018).

In other high-risk industries, non-technical skills (NTS), the social and cognitive skills which are required for safe and effective task performance, are regularly assessed and trained (Flin & O'Connor, 2017).

A recent exploratory interview study found that NTS are also used by farmers in both lone working and team settings (Irwin & Poots, 2015).

Farmers are also suggested to be highly risk tolerant and to balance the consequences of personal risk with those of financial risk (Sorensen et al., 2017).

Safety Locus of Control, i.e. the degree to which individuals feel directly responsible for their own safety, is also suggested to interact with risk perception and adoption of safety measures (Elkind, 2008).

Aims



To understand how farmers perceive risk in scenarios involving cattle operations and lone working



To explore the use of risk management strategies and to identify specific NTS used in farming



To explore the connection between Safety Locus of Control, risk perception and adoption of risk management strategies

Method



British and Irish farmers (N=50), recruited through online farmer forums and organisational contacts.



Recruitment criteria - farming as primary occupation and previous experience with cattle handling

SNAP Data collection – online, through SNAP Survey Software

- The vignette method was used before to study farmers risk perception in tractor-related scenarios (Irwin & Poots, 2018).
- Tactical Decision Games are also used in high-risk industries to explore and train the use of NTS (Crichton & Flin, 2001).
- As per previous studies, vignettes were short and placed the hazard in the context of a daily task (Greig et al., 2017).

Demographic information

Safety Locus of Control Scale

Go/no-go decision making task in high risk scenarios

8 vignettes

each detailing a hazard related to cattle handling when working alone

4 hazard types

compromised performance
equipment missing
environmental hazards
animal-related

An example of vignette: "You have had a very busy day yesterday on the farm and managed to sleep only 2 hours last night. You are due to begin milking first thing this morning."

Would you proceed in the above scenario? (5-point Likert scale)
Please explain your reasoning.
If you were to go ahead in the above scenario, which risk management would you use?



Data analysis (for open-ended answers) - Thematic analysis – flexible, useful for student projects & vignettes

Results

Describing the sample

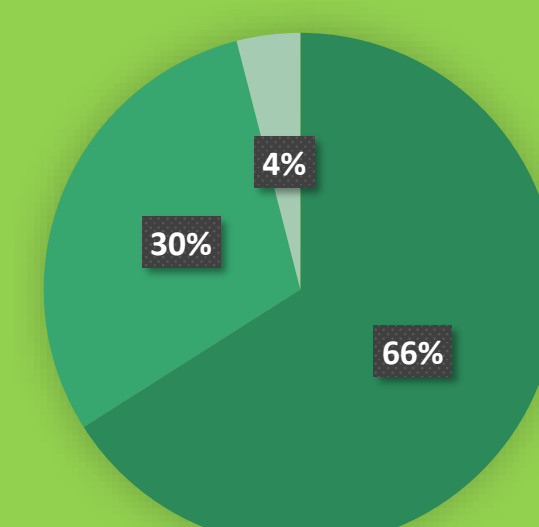


Figure 1. Gender.

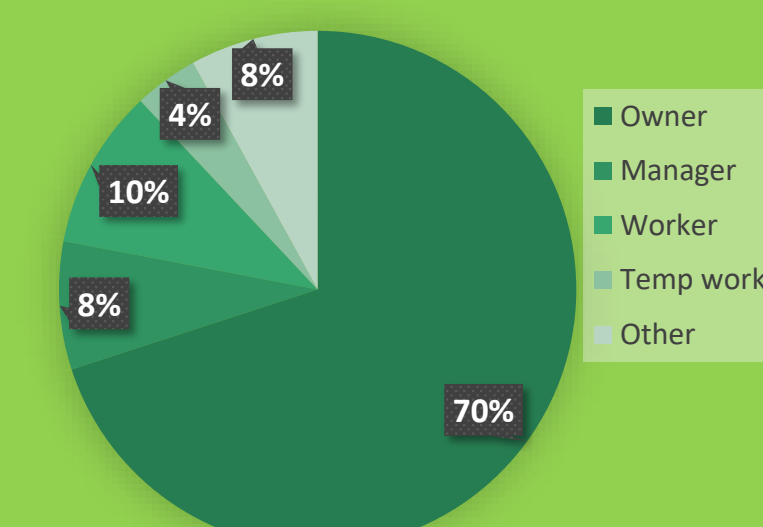


Figure 2. Role on the farm.

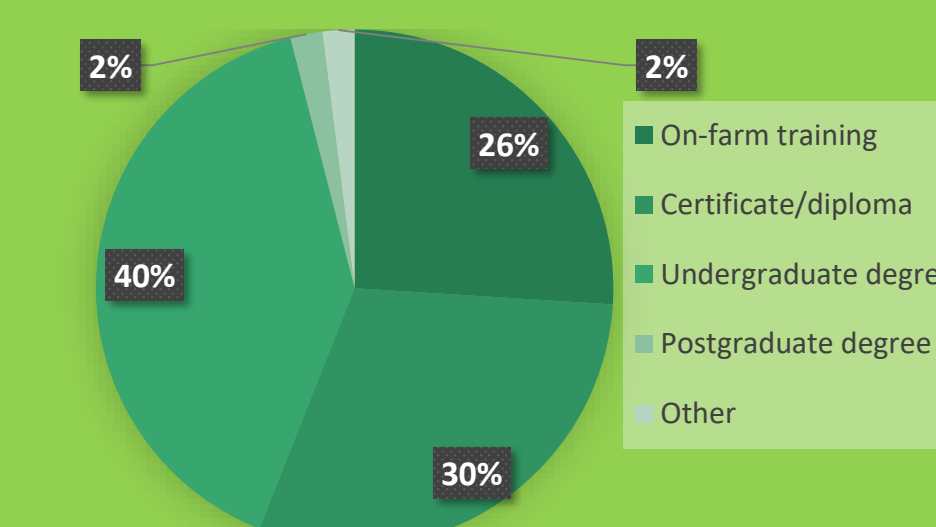


Figure 3. Level of education.

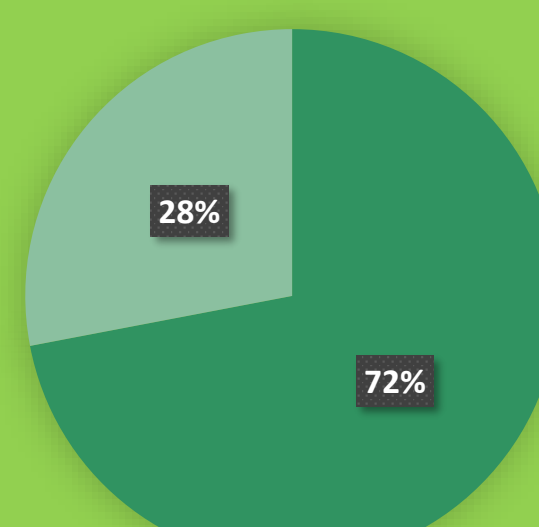


Figure 4. Work schedule.

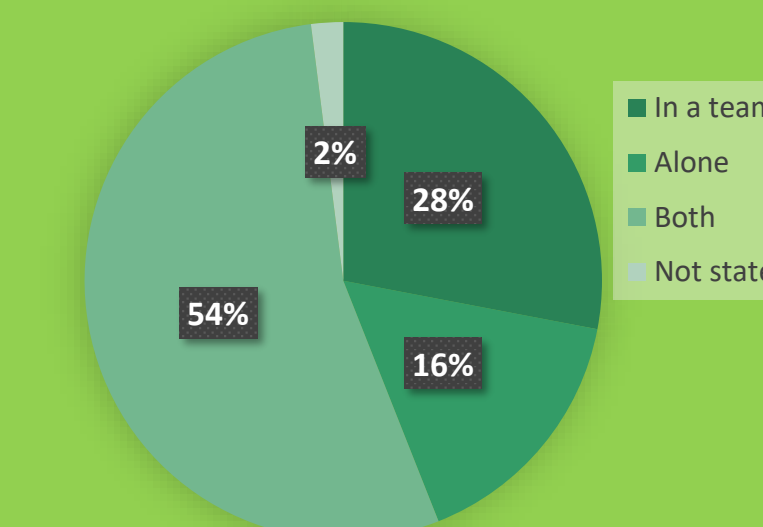


Figure 5. Cattle handling mode.

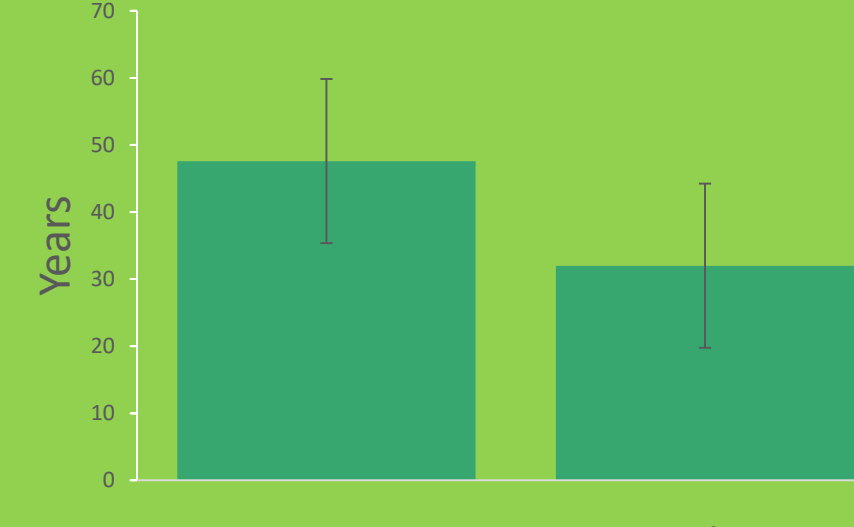
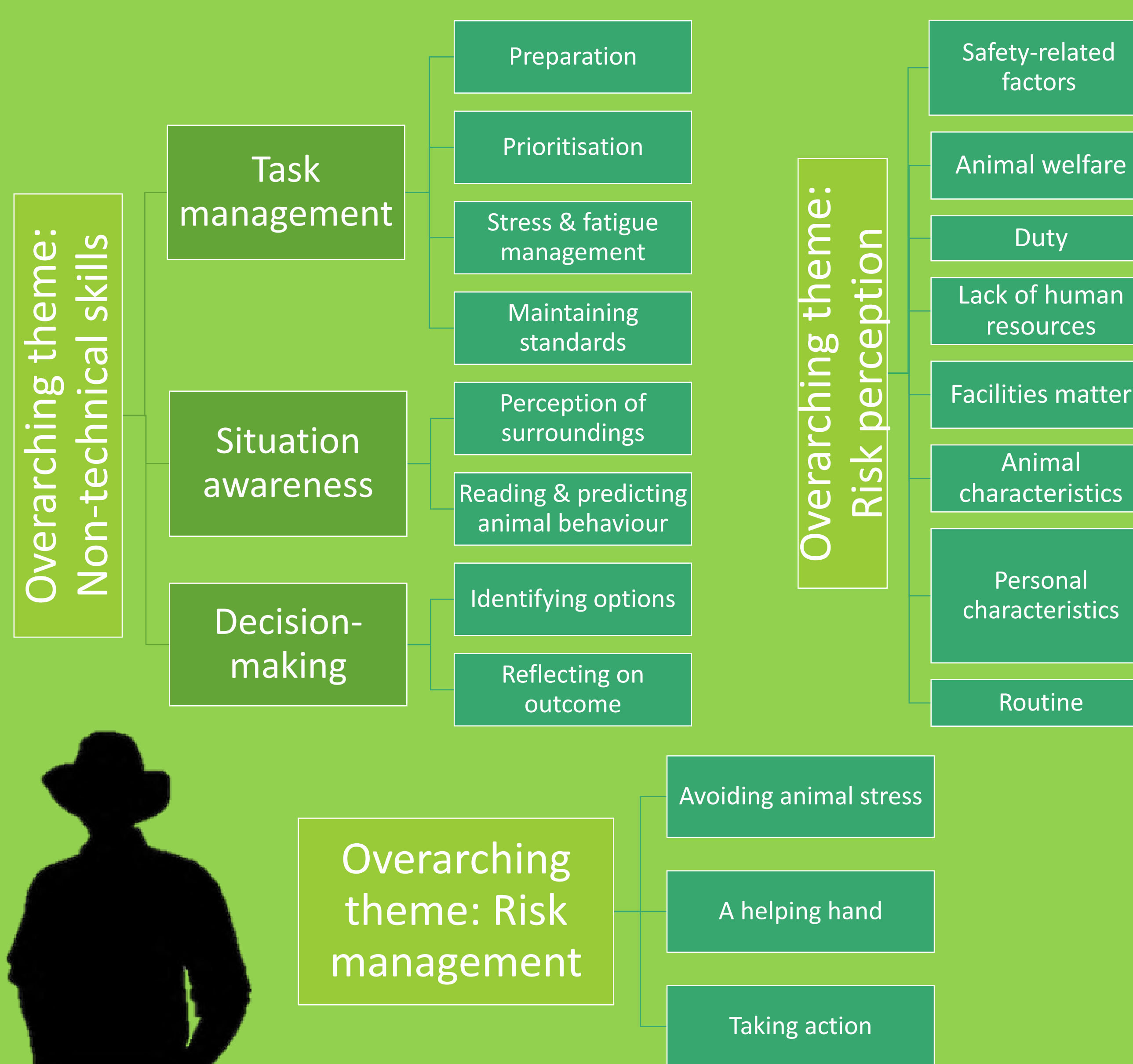


Figure 6. Age versus farming experience. Error bars denote 1 SD around the mean.

Thematic analysis



Discussion

- Scenarios involving hazards related to equipment and animal characteristics were perceived as too dangerous, whereas those involving compromised performance and environmental hazards were regarded as acceptable.
- Cognitive NTS are used by farmers in lone working. Farmers also use communication when bringing in extra help.
- Interestingly, farmers decisions to proceed were also based on animal characteristics. Familiar animals were regarded as safe, whereas unknown animals were perceived as dangerous.
- Animal welfare and duty played an important part in decisions to proceed.

References

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