Potential effects of herd expansion on cow welfare in a pasture-based dairy industry - stakeholders perceptions

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Introduction

o Pasture based systems - lower risk to cow welfare, positive image amongst consumers
  (Burrow et al., 2012; Heerwagen et al., 2013)

o Quota - abolished 2015 (EU, 2015)

o Predicted increased global demand for dairy products (FAO, 2011)

o Resulting expansion/intensification (Dillon et al., 2005) - threats to dairy cow welfare? (Barker et al., 2009; Boyle & Rutter, 2013; Solano et al., 2015)

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Lameness in dairy cows

- Main cow welfare problem internationally

- Pasture based systems - less lameness

  - Complacency about lameness in Irish dairying?

- Prevalence of lameness: 10-25%

  - But, farmers underestimate the level of lameness

- Irish dairying systems - risk factors for lameness associated with both housing and pasture

(Whay et al., 2003) (Leonard et al., 1999; Somers et al., 2015) (March et al., 2006) (Somers and O´Grady, 2015; Doherty et al., 2014)

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Modern Irish pasture-based dairying system (potential risks)

o Maximum milk solid yield outputs from a limited area

o Maximal amounts of grazed grass in the diet, achieved by early turnout/ long grazing season

o Longer walking distances/ increasingly fragmented land bases

o Higher stocking densities

o Lower number of labour units/cow

o Low cost accommodation

o Contract rearing of replacements

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ProWelCow

Aims of the project:

1. To understand the risks to cow welfare associated with dairy industry expansion
2. To develop strategies to:

PROtect the **WEL**fare of Irish dairy **COW**s

ProWelCow:
implications of herd
expansion for dairy
cow welfare

Objectives

1. Determine changes in herd size and associated investments in Irish dairy herds occurring over the last 3 years

2. Determine perceptions and practices regarding related risks to cow welfare

Material and methods

Surveys

Literature reviews

International study trips

Social science

Breeding for better welfare

Farmers (115)

Vets (60)

Dairy advisors (48)

Moorepark Open Day
National Ploughing

CAVI Conference

Advisors meeting
Moorepark

interview

interview

self-reporting

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Material and methods

- 223 respondents - 40 questions

- Answers: prompted and open ended

- Contrast: farmers answers vs. advisors & vets perceptions

- Logistic regression - PROC LOGISTIC in SAS (9.3)

  - Group probabilities compared using Tukey adjustment

- Pearson correlations – PROC CORR in SAS (9.3)

Results

Study farms/farmers

	Mean (SD)	Min.	Max.
Milk yield (l/cow/day)	21.6 (4.0)	9.0	33.0
Concentrates (tonnes/cow/year)	0.9 (0.5)	0.0	3.0
Winter housing period (no. months)	3.8 (1.0)	2.0	7.0

- Spring calving herds (cows were in mid lactation at time of survey)
- Cubicles/free-stalls - main winter housing system

Investment vs. expansion

- 79% of surveyed farmers **expanded** over last 3 years

Investment (P=0.035)	
No	14.6%
Yes	85.4%

Milking parlour: 93.5%

	Did not invest	**Invested**
Housing (P>0.05)	40.9%	37.4%
Roadways (P>0.05)	52.2%	26.9%

Investment vs. expansion

- As expected: the majority of famers surveyed had increased cow numbers in the past three years

- Unsurprisingly: most had invested in milking parlours

- Lack of investment in housing and roadways in expanded herds poses risks to cow welfare

Intensification-related disadvantage for cow welfare
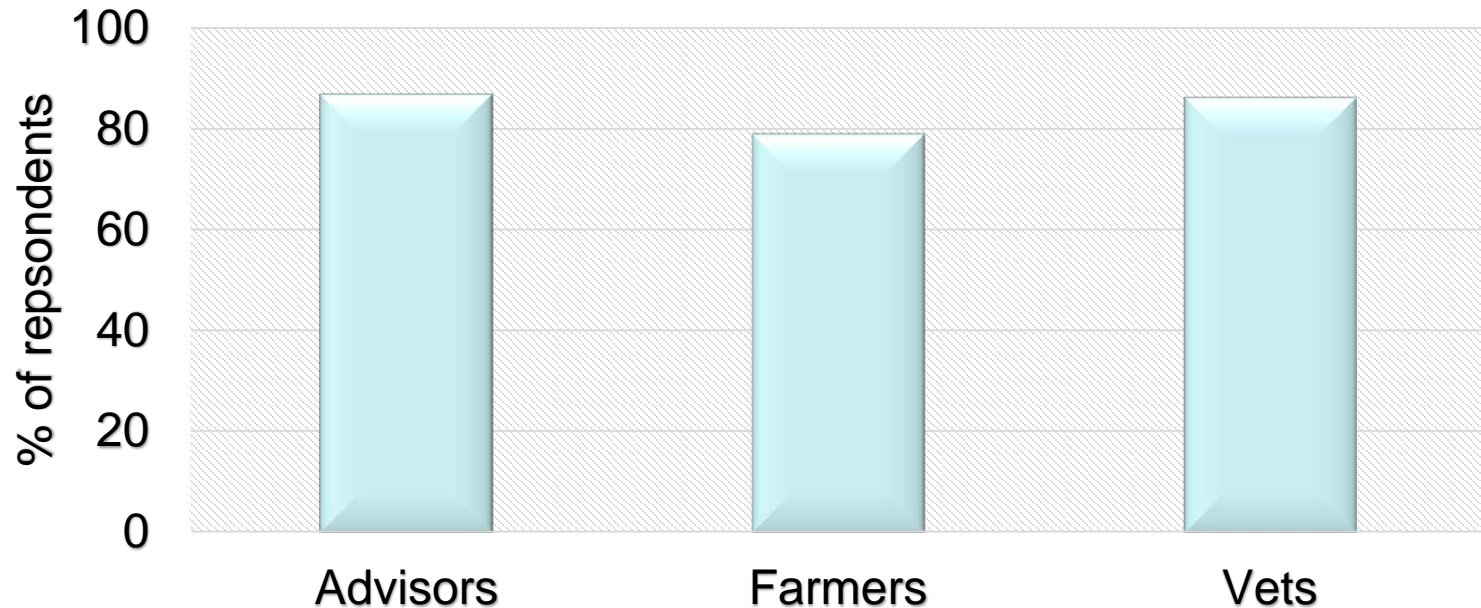
Primary welfare concern in dairy cows

	Percentage of surveyed (%)		
Welfare concern	Advisors	Farmers	Vets
Lameness	2.1^a	13.0^a	28.3^b
Poor body condition	10.4^{ab}	22.6^a	8.3^b
Social stress	43.8^a	14.8^b	30.0^a
Calving problems	18.8^a	8.7^{ab}	1.7^b

- Only a small minority of advisors or farmers ranked lameness as the primary cause of poor welfare in dairy cows

Social stress due to overcrowding

- Primary cause of poor cow welfare according to advisors

Cubicles per cow	Farms %
More than one cubicle/cow	2.5
Equal to 1 cubicle/cow	59.5
Less than 1 cubicle/cow	**32.9**
Don't know	3.8
Not applicable	1.3

- Overcrowding – in housing/at pasture

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Poor body condition

- Primary cause of poor cow welfare according to farmers

| Best method of improving body condition in lactating cows	Advisors (%)	Farmers (%)	Vets (%)
Combination of methods	18.8 ± 5.7a	0.9 ± 0.9b	**31.7 ± 6.1a**
Dry off earlier	2.1 ± 2.1	6.1 ± 2.2	0
Extra feeding	12.5 ± 4.8b	**52.2 ± 4.7a**	10.0 ± 3.9b
Group cows together according to body condition	0b	4.3 ± 1.9b	28.3 ± 5.9a
Once a day milking	**64.6 ± 6.9a**	28.7 ± 4.2b	21.7 ± 5.4b
Nothing special/Other	0	6.1 ± 2.2	5 ± 2.8

Lameness 'prevalence'?

1.6 ± 0.2% (ranging from 0 to 10%)
- Much lower than expected even for grass-based systems

No relationship between herd size and levels of lameness
- No apparent association with expansion?
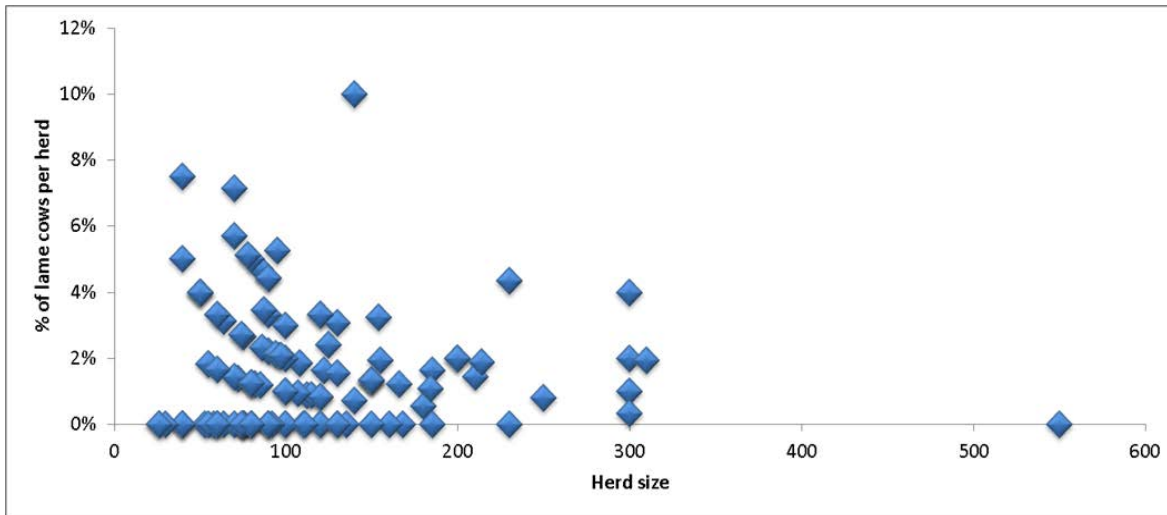
Main cause of lameness in Irish herds?

Main cause of lameness	Perceptions (%)		On farm (%)
	Advisors	Vets	Farmers
Abscess	2.1	8.3	1.7
Bruises	4.2	18.3	19.1
Digital dermatitis (DD)	27.1	23.3	23.5
Footrot	0.0	6.7	7.0
Laminitis	4.2	0	1.7
Ulcers	2.1	8.3	4.3
Unknown	35.4[a]	11.7[b]	7.8[b]
White line disease (WLD)	14.6	23.3	31.3

Conclusions – effects of expansion

o Investment in milking parlours in herds which have expanded (+)

o Increases in herd size combined with lack of investment in housing and roadways (-)

o Overcrowding in cubicle housing on a significant proportion of farms (-)

Conclusions - stakeholders perceptions

o Stakeholders agreed that expansion poses risks to cow welfare

o Disagreement on the main risks: poor body condition cited by the highest proportion of farmers as the primary concern for cow welfare

o Potential underestimation of lameness by farmers

o Need for:

- ✓ training of dairy advisors on lameness
- ✓ epidemiological study to investigate issues uncovered
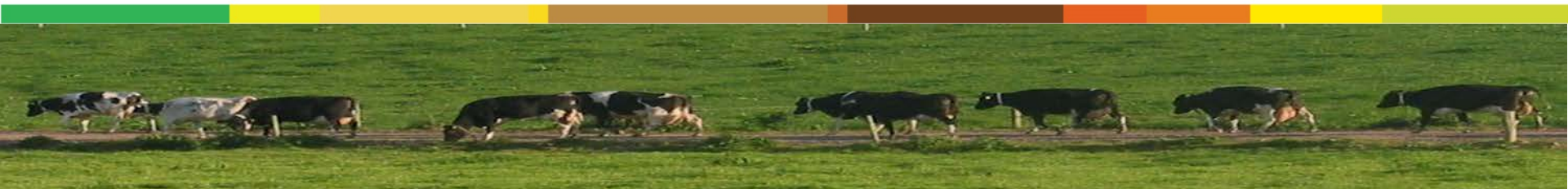
Acknowledgements

Respondents

- Dairy farmers

- Vets at CAVI meeting ´15

- Teagasc dairy advisors