

Resilience for Dairy (R4D) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000770



# Factors contributing to the financial resilience of spring-calving pasture-based dairy farms



LYON 30/8/2023

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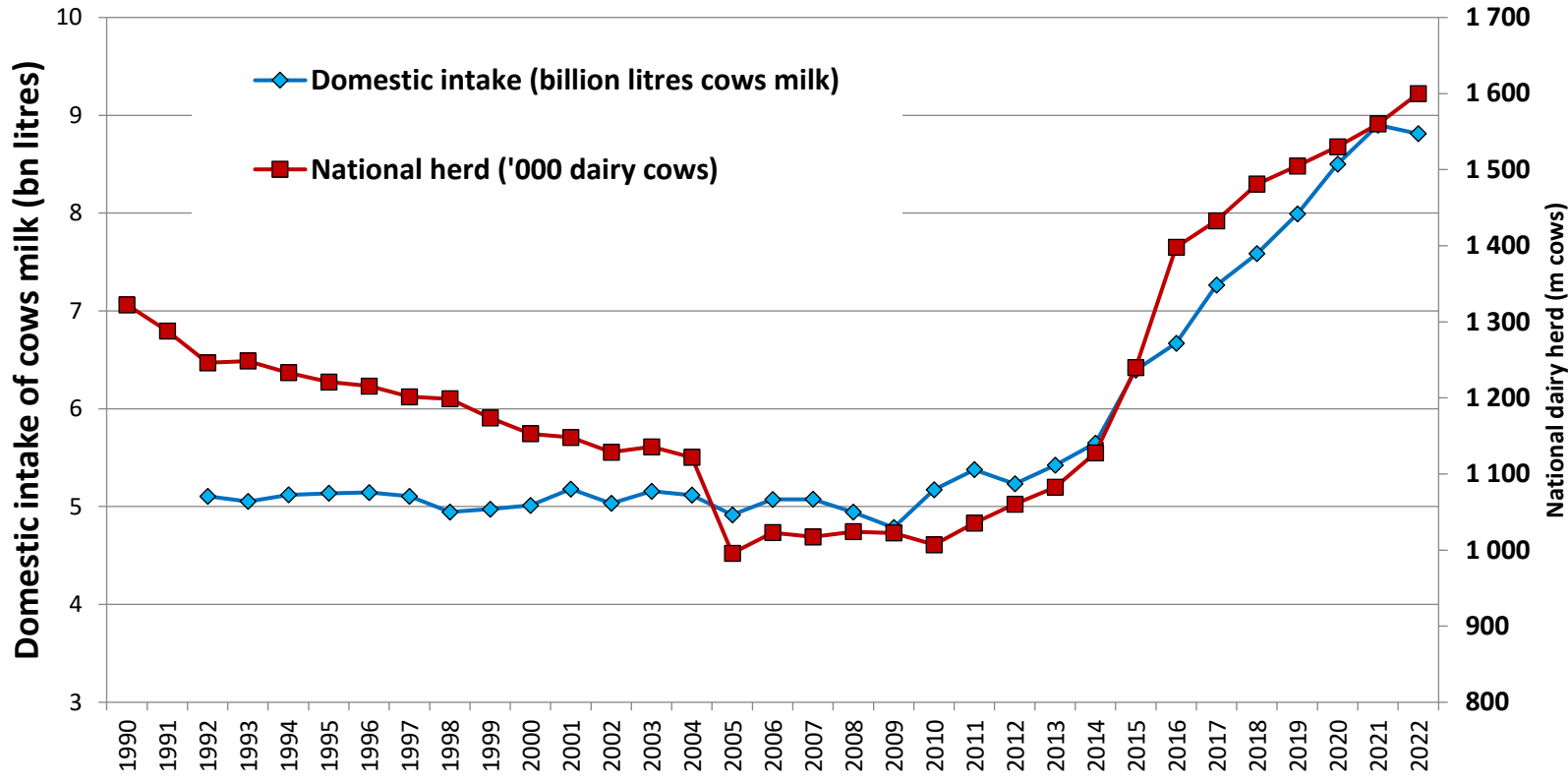


# Dairying in the '70's and '80's



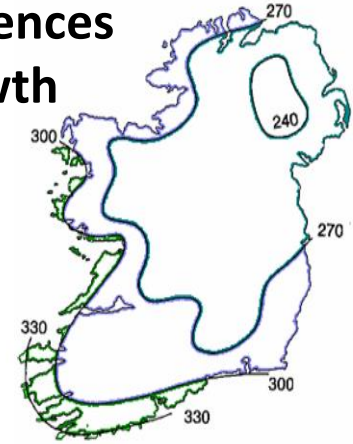
Source: Kilkenny County Committee of Agriculture  
Annual Reports, various years.

# Irish dairy herd – strong growth since quota abolition

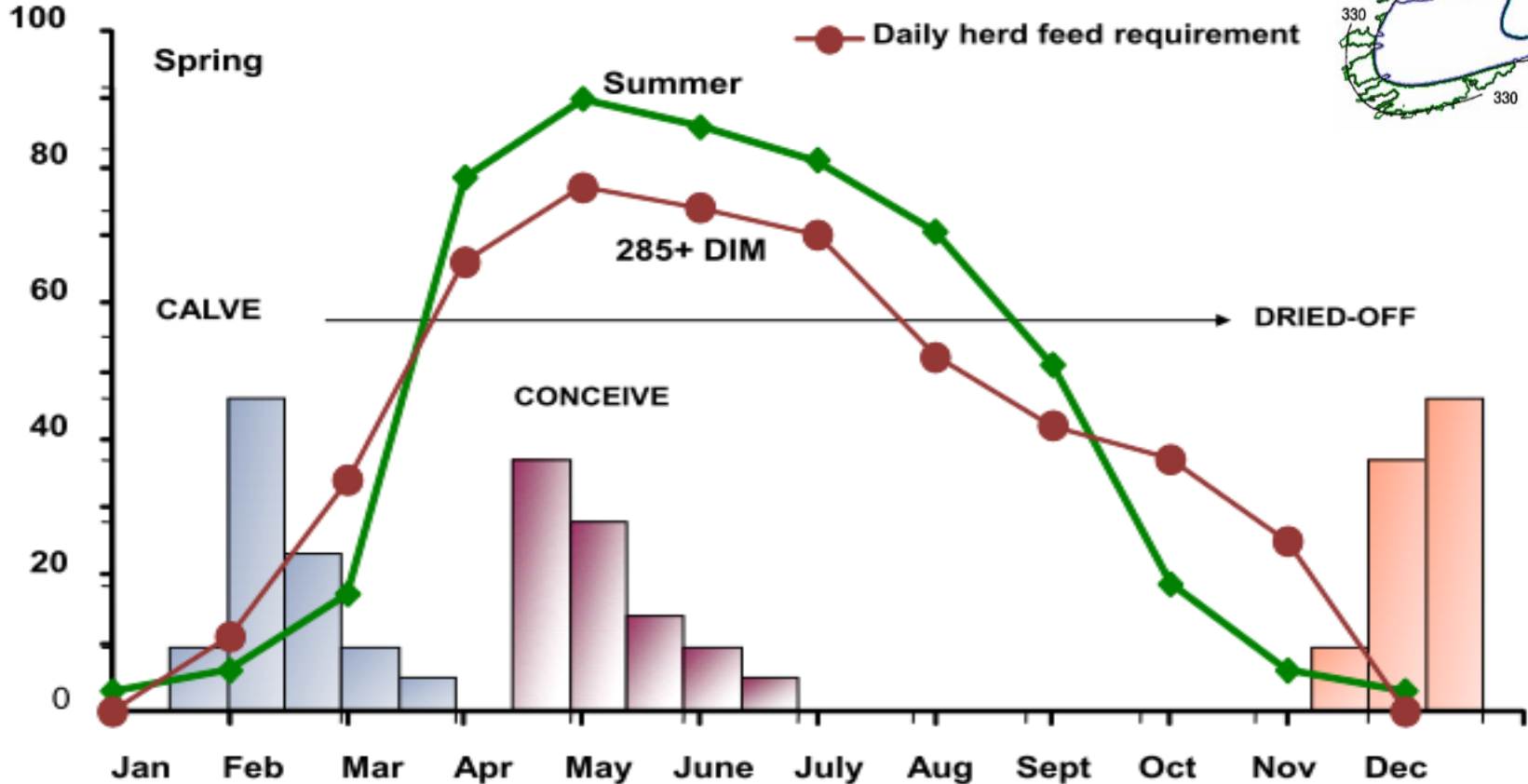


# Seasonal milk production

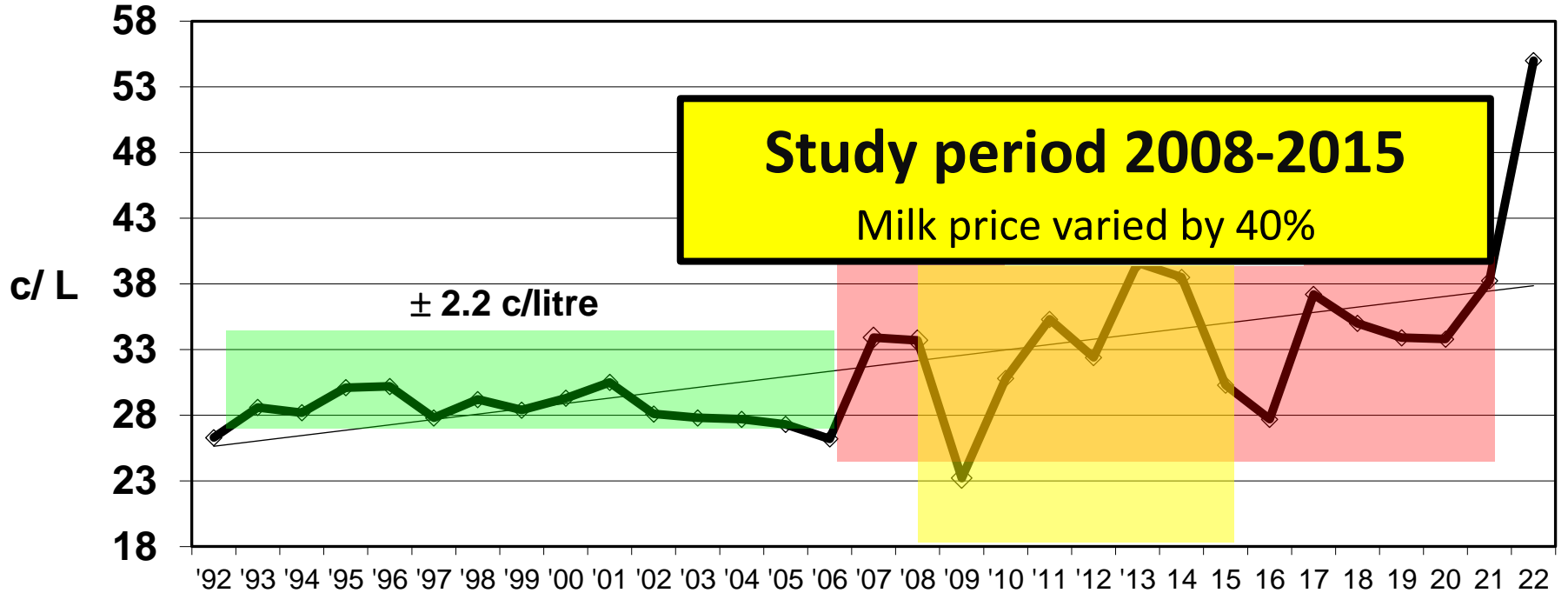
Regional differences  
in grass growth



kg DM / Hectare daily  
% of cows in the herd



# Milk Price – *highly volatile*



Source: Adapted from CSO database, various years.

# Materials and methods

- Matched farm physical and financial data for 315 spring calving dairy farms (2008-2015)
- **Physical:** Stock numbers, stocking rate, milk production
- **Financial:** Output, variable & fixed costs, profitability



# Experimental design - *profit*

- Net farm profit/ha calculated for each farm
- **Average 8 year net profit/ha** determined
- Equal proportions from each region included in each of four profit quartiles (highest to lowest)



# Statistics

- Mixed model framework in PROC MIXED
- Herd nested within region
  - as a repeated effect
  - with a first order autoregressive covariance structure assumed





# Profit category r

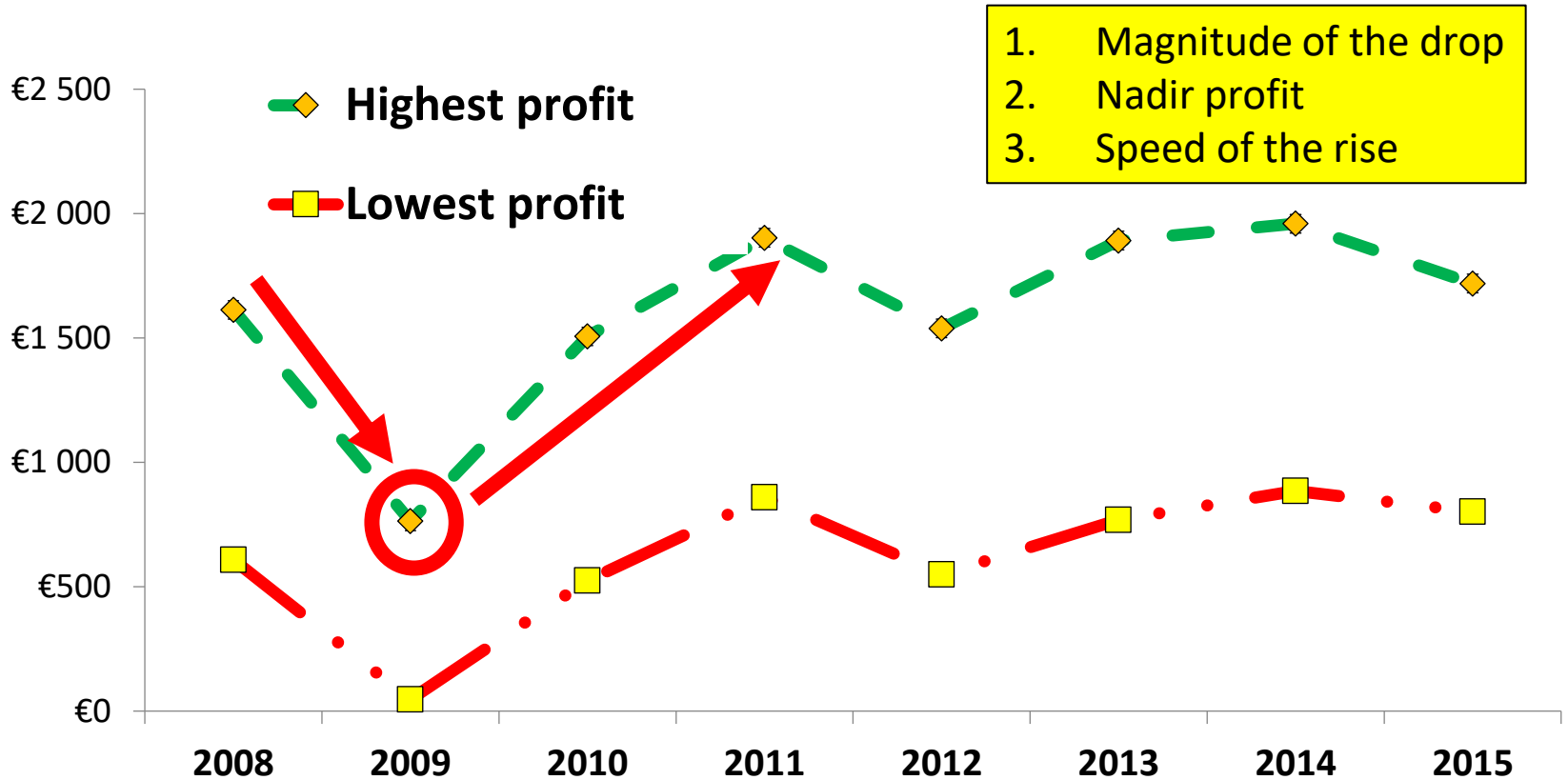
| Profit category        | Highest (n=79) | Seco high (n=79) | Profit cat. * Year |
|------------------------|----------------|------------------|--------------------|
| Total farm (ha)        | 59.0 a         | 65.9             | 0.24               |
| Stocking rate (LU/ha)  | 2.42 a         | 2.28 b           |                    |
| Pasture used (T DM/ha) | 9.9 a          | 9.0 b            |                    |
| Dairy cows (LU)        | 99.5           | 103.4            |                    |
| Dairy cows (% LU)      | 71.6 a         | 69.6 a           |                    |
| Milk yield (L/cow)     | 5,511 a        | 5,274 b          |                    |



# Profit category results - financial

| Profit category                | Highest<br>(n=79) | Second<br>highest<br>(n=79) | Second<br>lowest<br>(n=79) | Lowest<br>(n=78) | SE   | P<br>value | Profit<br>cat. *<br>Year |
|--------------------------------|-------------------|-----------------------------|----------------------------|------------------|------|------------|--------------------------|
| Milk price (c/L)               | 34.3 a            | 34.0 a                      | 33.6 b                     | 33.4 b           | 0.13 | <0.001     | 0.71                     |
| Gross output (€/ha)            | 3,831 a           | 3,376 b                     | 2,978 c                    | 2,553 d          | 51.8 | <0.001     | <0.001                   |
| Total variable costs<br>(€/ha) | 1,345 a           | 1,279 a                     | 1,185 b                    | 1,101 c          | 28.9 | <0.001     | 0.08                     |
| Total fixed costs (€/ha)       | 876               | 910                         | 858                        | 824              | 25.6 | 0.12       | 0.36                     |
| Total costs (€/ha)             | 2,220 a           | 2,188 a                     | 2,042 b                    | 1,924 b          | 48.7 | <0.001     | 0.14                     |
| Net profit (€/ha)              | 1,611 a           | 1,189 b                     | 937 c                      | 630 d            | 18.0 | <0.001     | <0.001                   |

# Variation in annual net profit (€/ha)



# Conclusions



- Highest profit farms were smaller with greater technical efficiency
- Such farms had the greatest reduction in profitability in adverse years but
  - Had the greatest nadir profit
  - Had the fastest recovery from nadir



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# Questions

