
SLU
SCIENCE AND EDUCATION FOR SUSTAINABLE LIFE

Keeping dairy cows and calves together – strategies and economic consequences

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Researcher in Veterinary epidemiology

Introduction

ProYoungStock

Promoting young stock and cow health and welfare by natural feeding systems

Participating countries:

Austria
France
Germany
Italy
Poland
Slovenia
Sweden
Switzerland

Photo: Bruno Martin

Rearing of young stock allowing CCC: on-farm strategies, legislation and economic aspects

- Lead: Hanna Eriksson, Nils Fall & Karin Alvåsen (SLU)

- Contributors: BOKU, FiBL, IGHZ, INRAe, Ucat, UniKassel

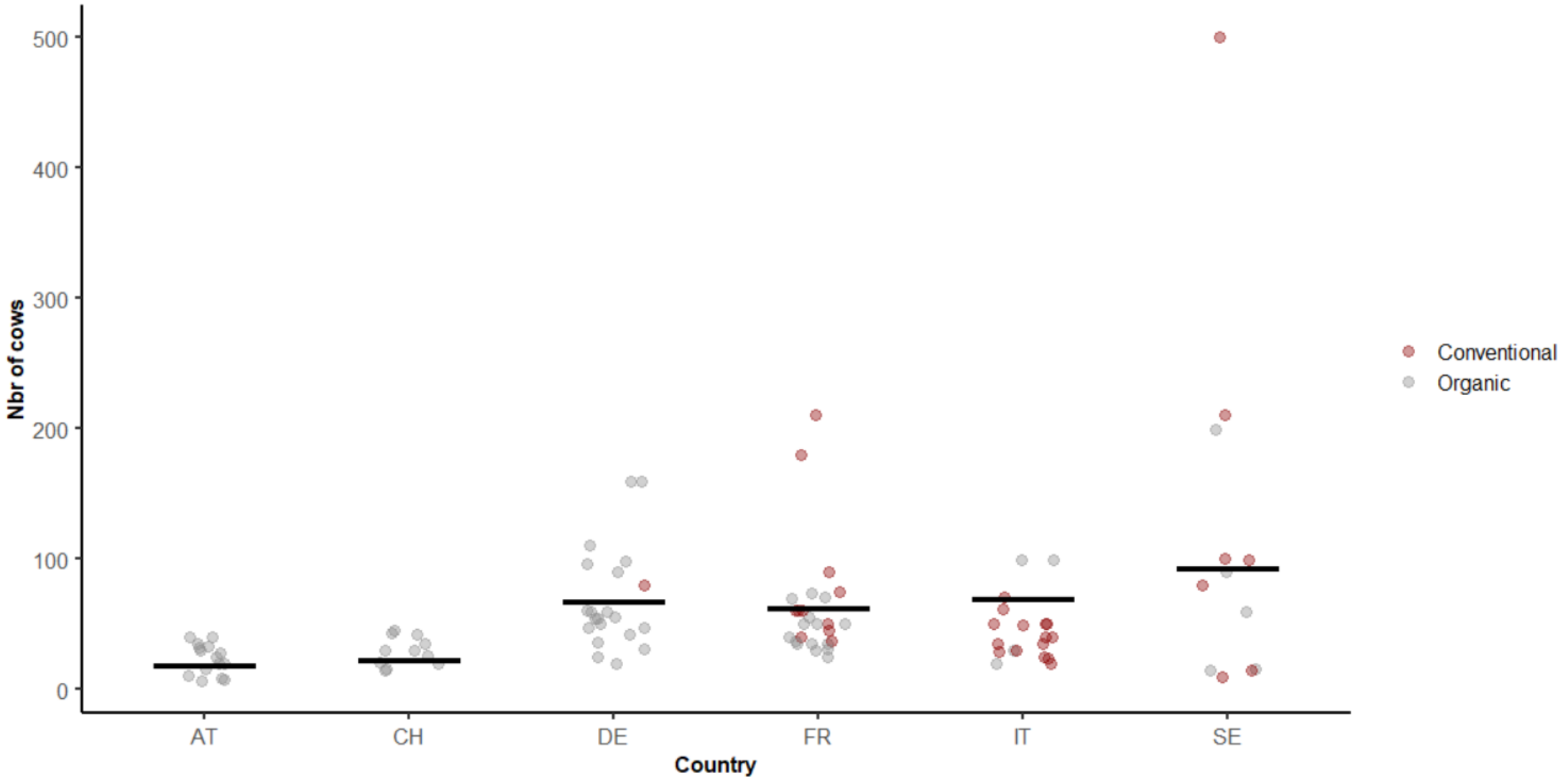
Survey study

- **Goal**: describe the type of housing and management used on European farms with cow-calf contact (CCC) systems
- Farm selection based on each country´s individual circumstances
- **Prerequisite**: calves kept with lactating cow **at least 7 days**
- 104 farms with CCC identified in six countries
- Farmer/manager interviewed

Survey sections

- Farm description
- Rearing system (e.g. dam or foster cow rearing)
- Milk period
- Performance testing
- Perception of animal health
- Drivers and barriers for CCC

Results – farm description



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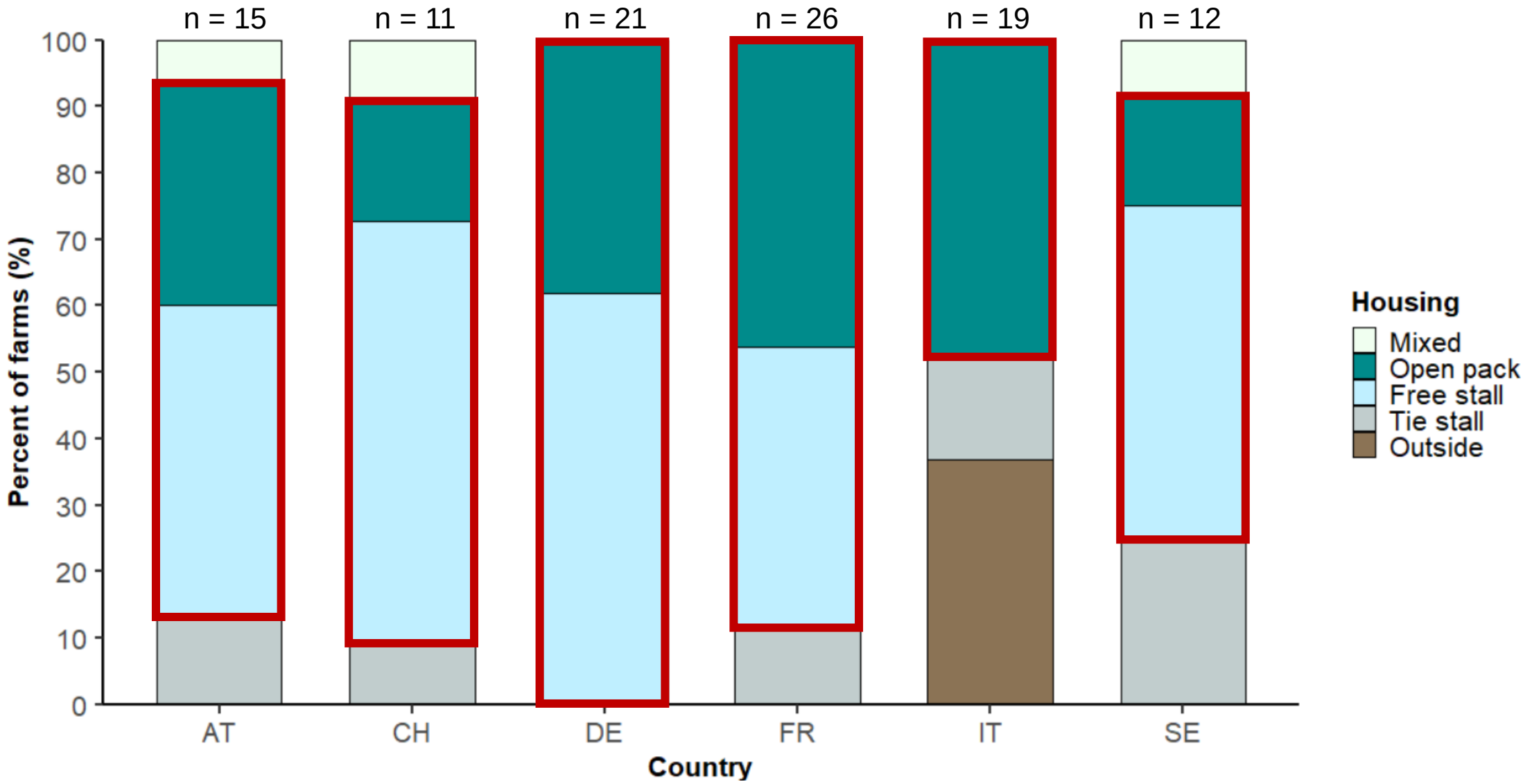

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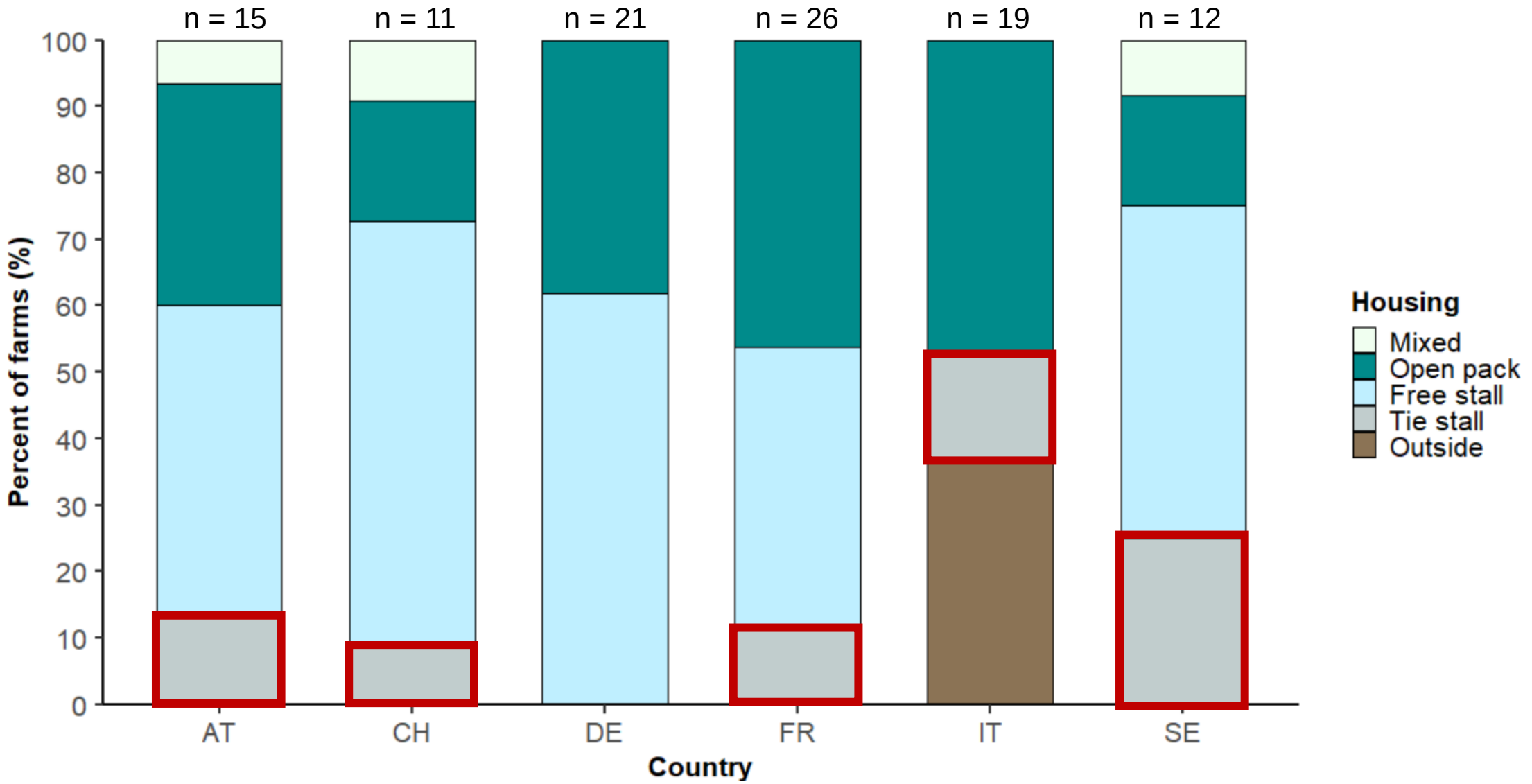

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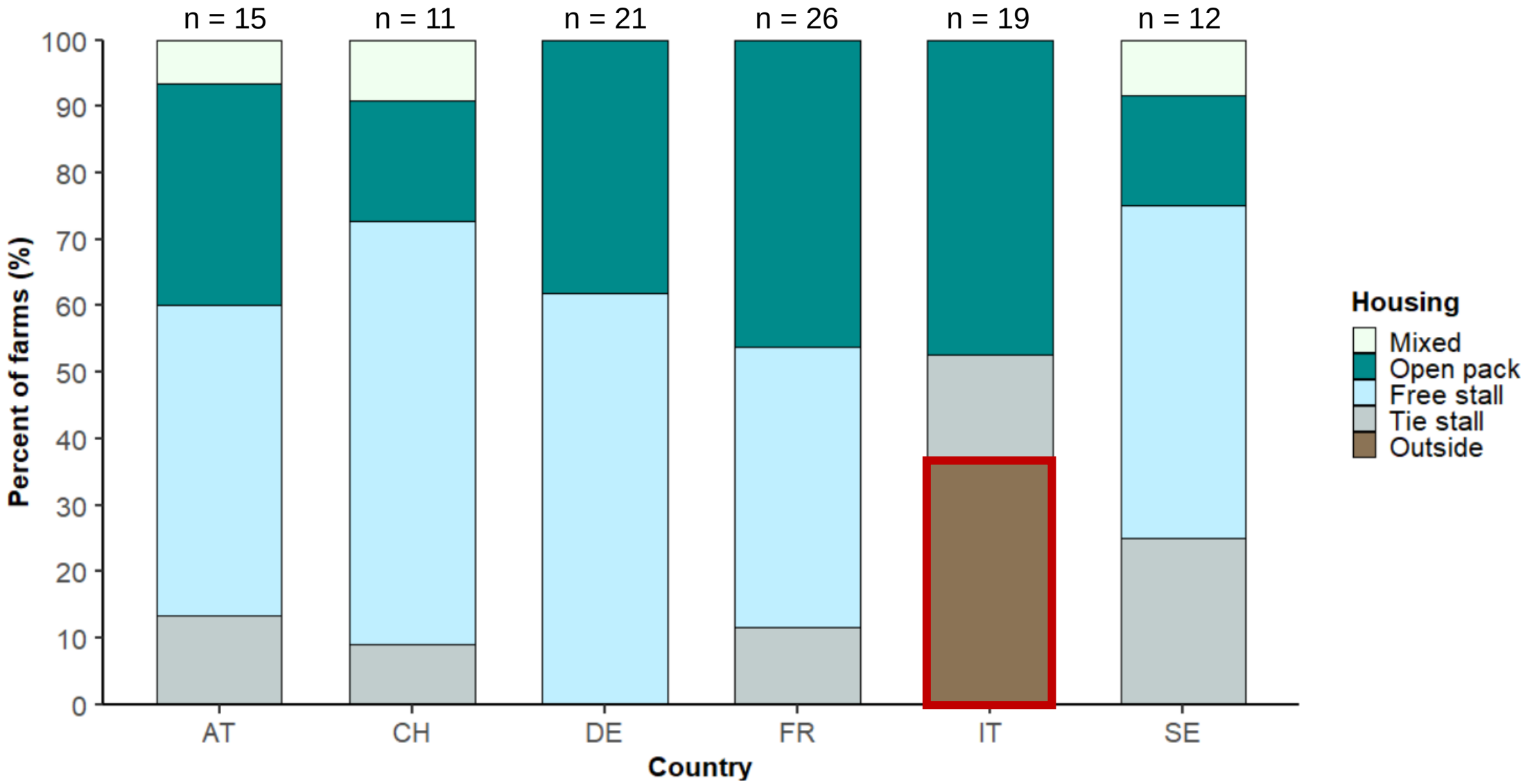

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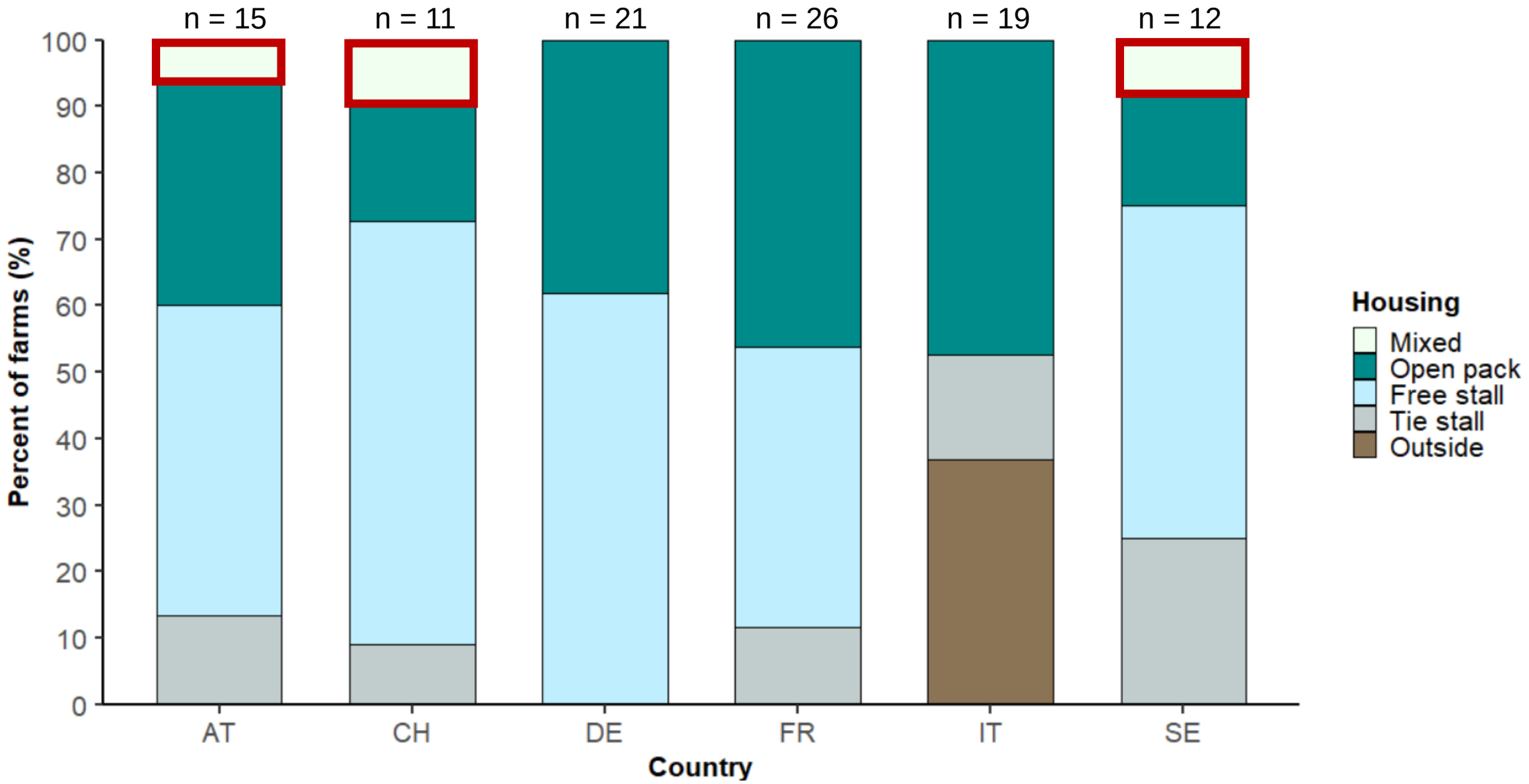

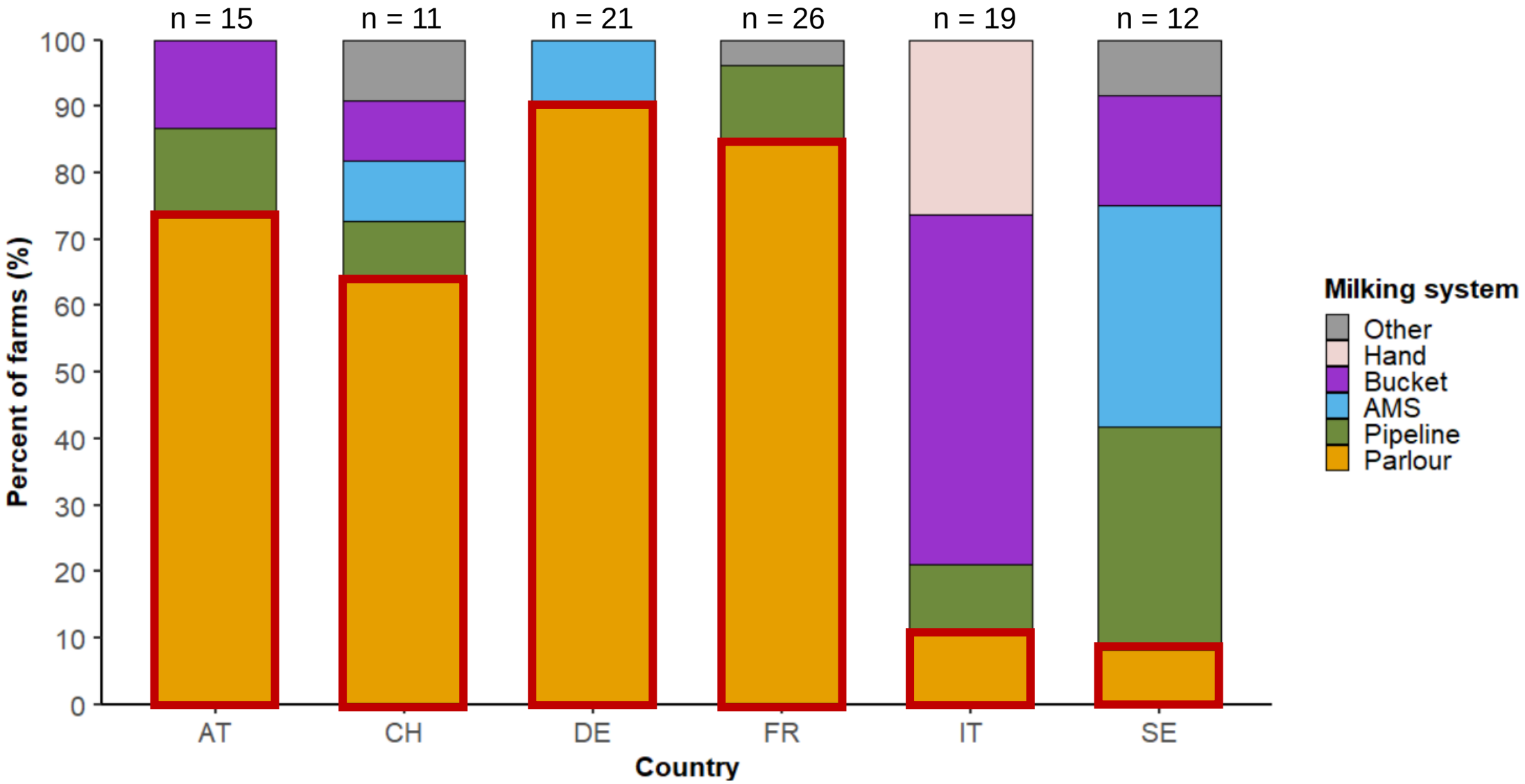
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Percent of farms (%)
AT
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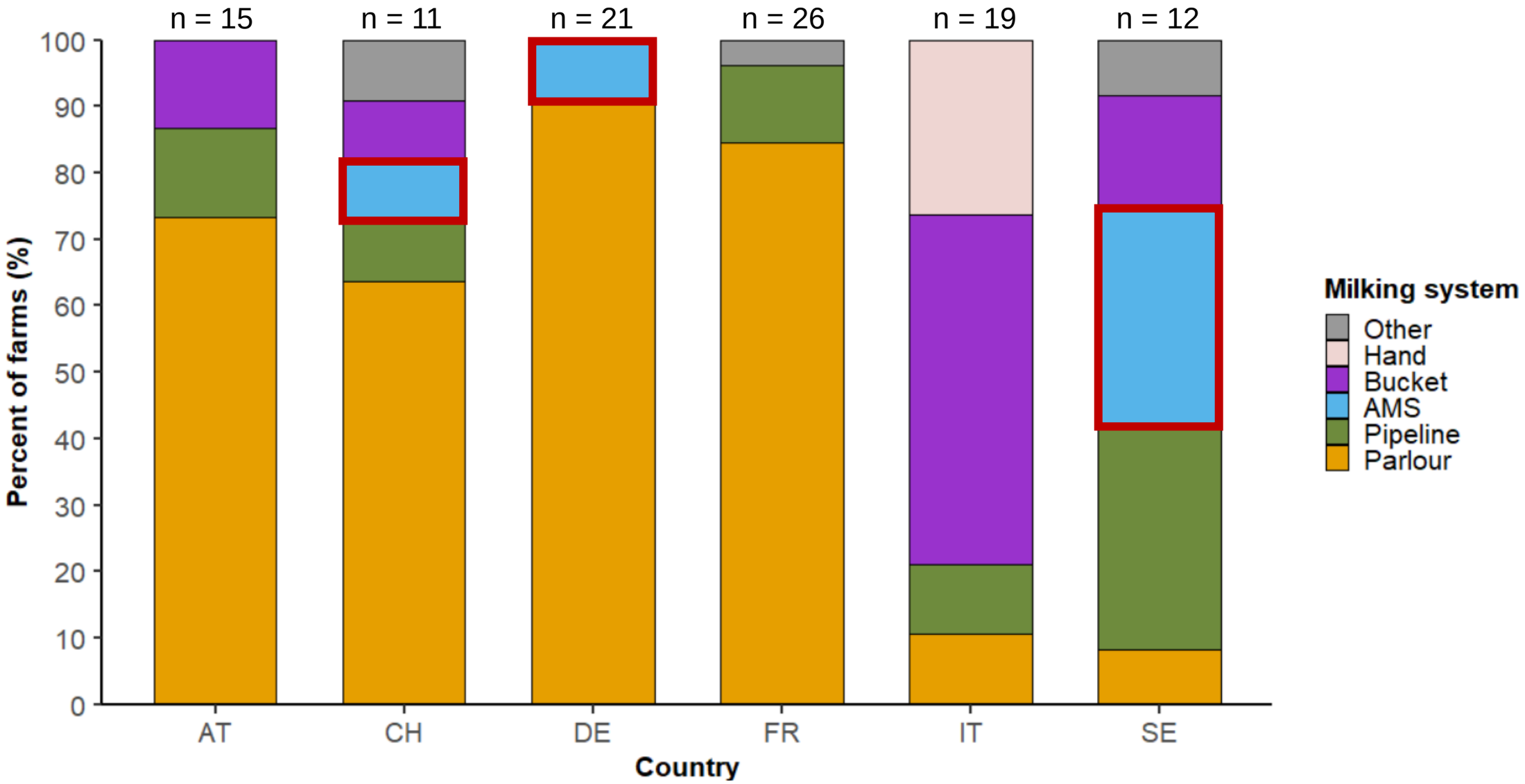
Country
Milking system
Other
Hand
Bucket
AMS
Pipeline
Parlour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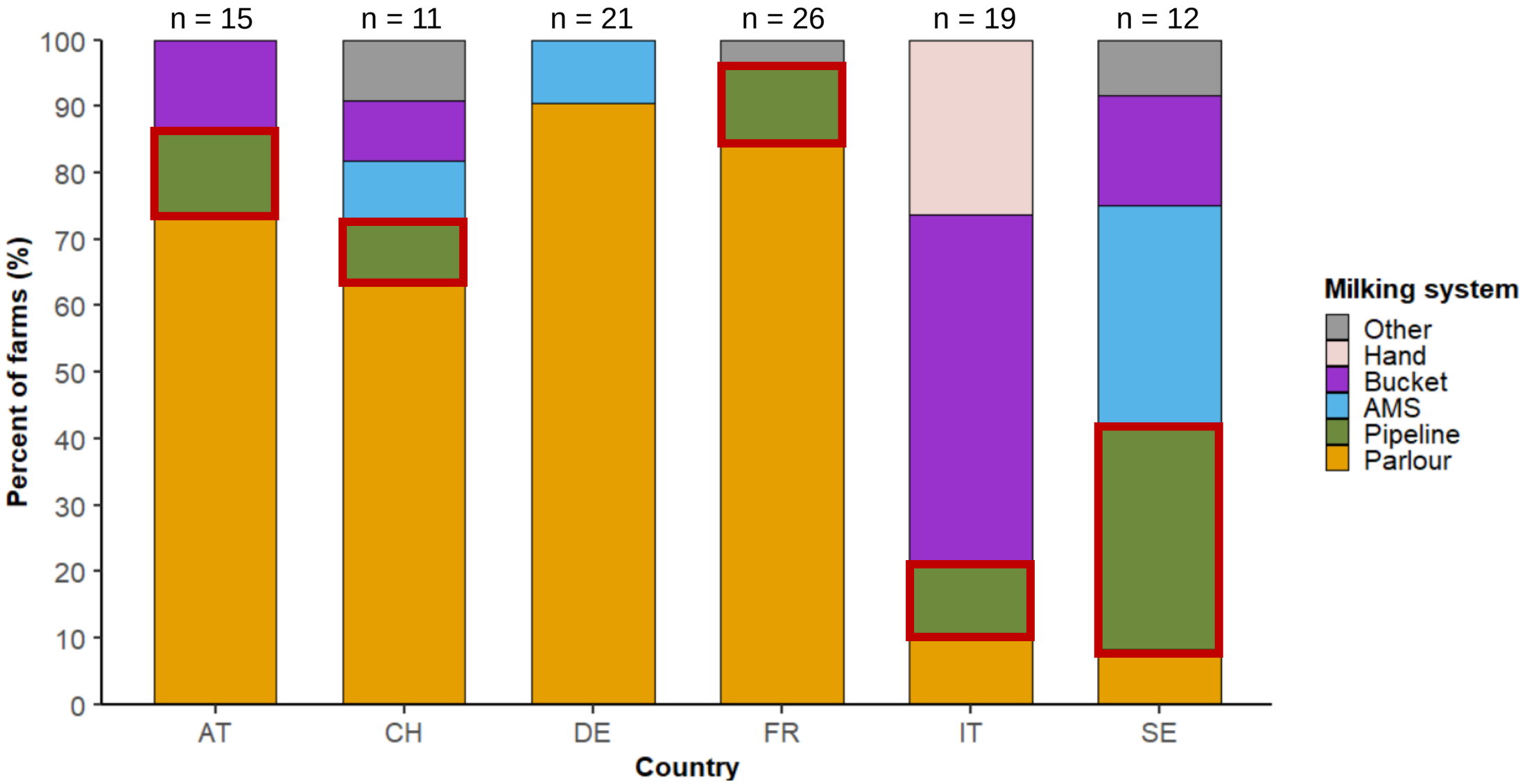
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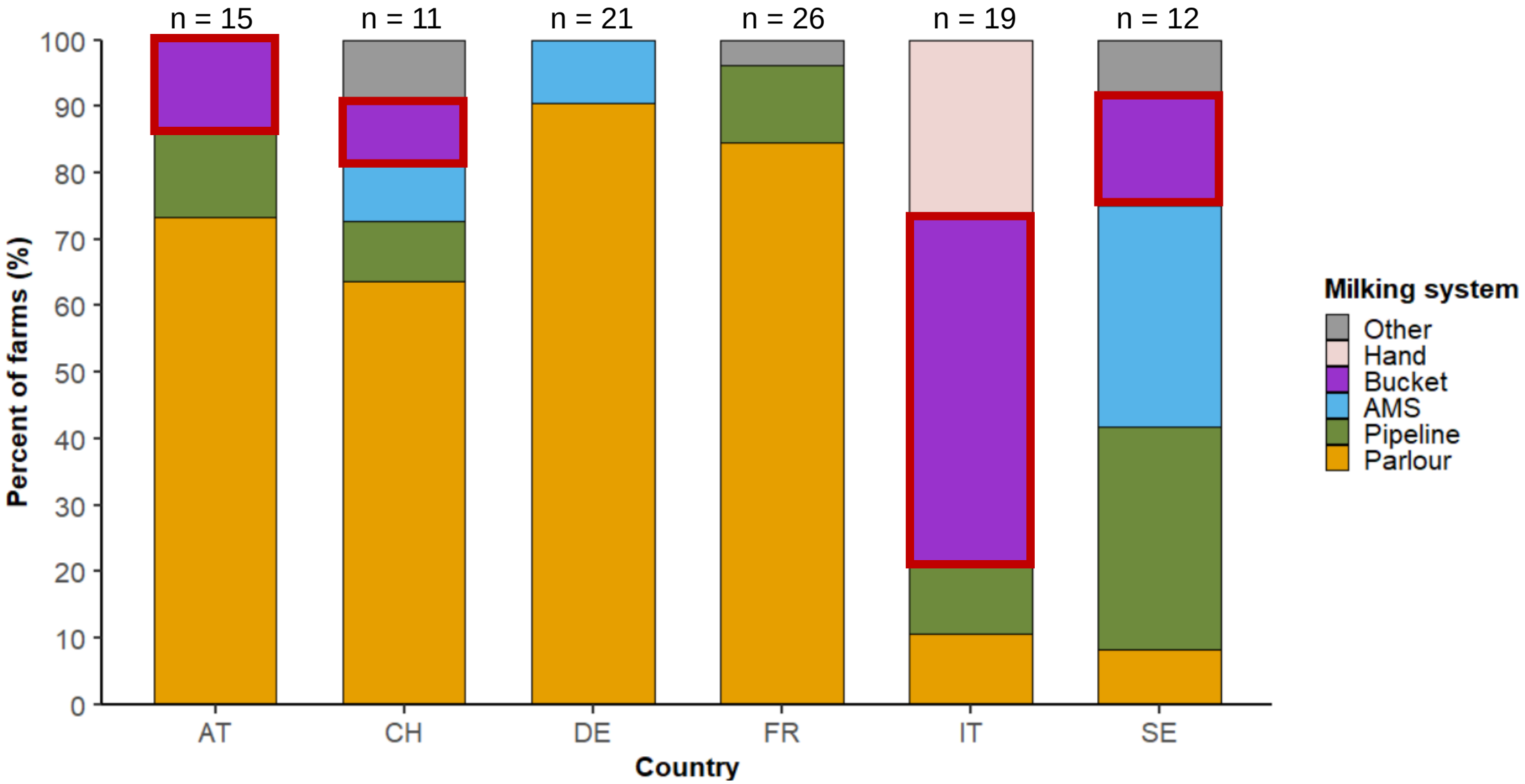
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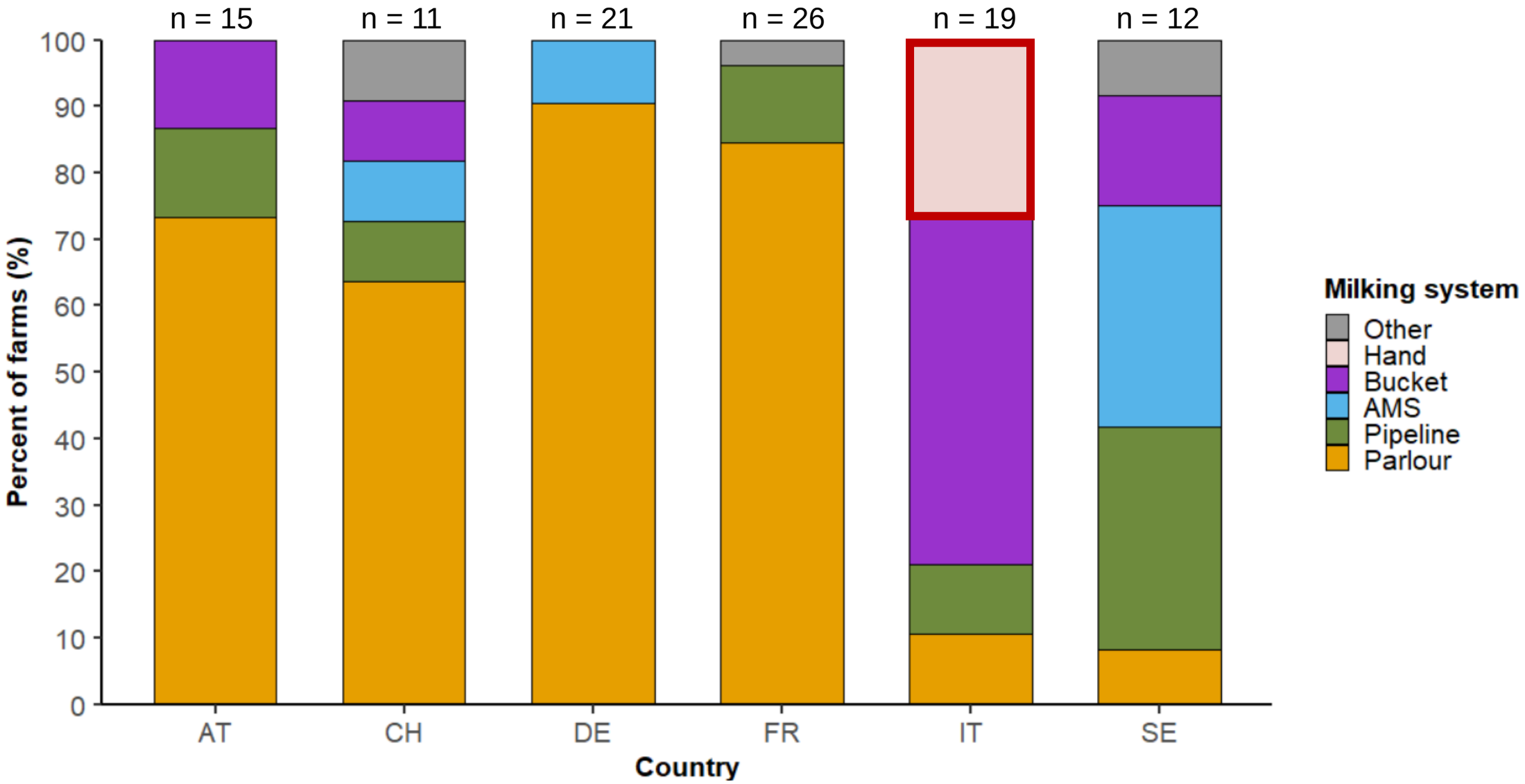
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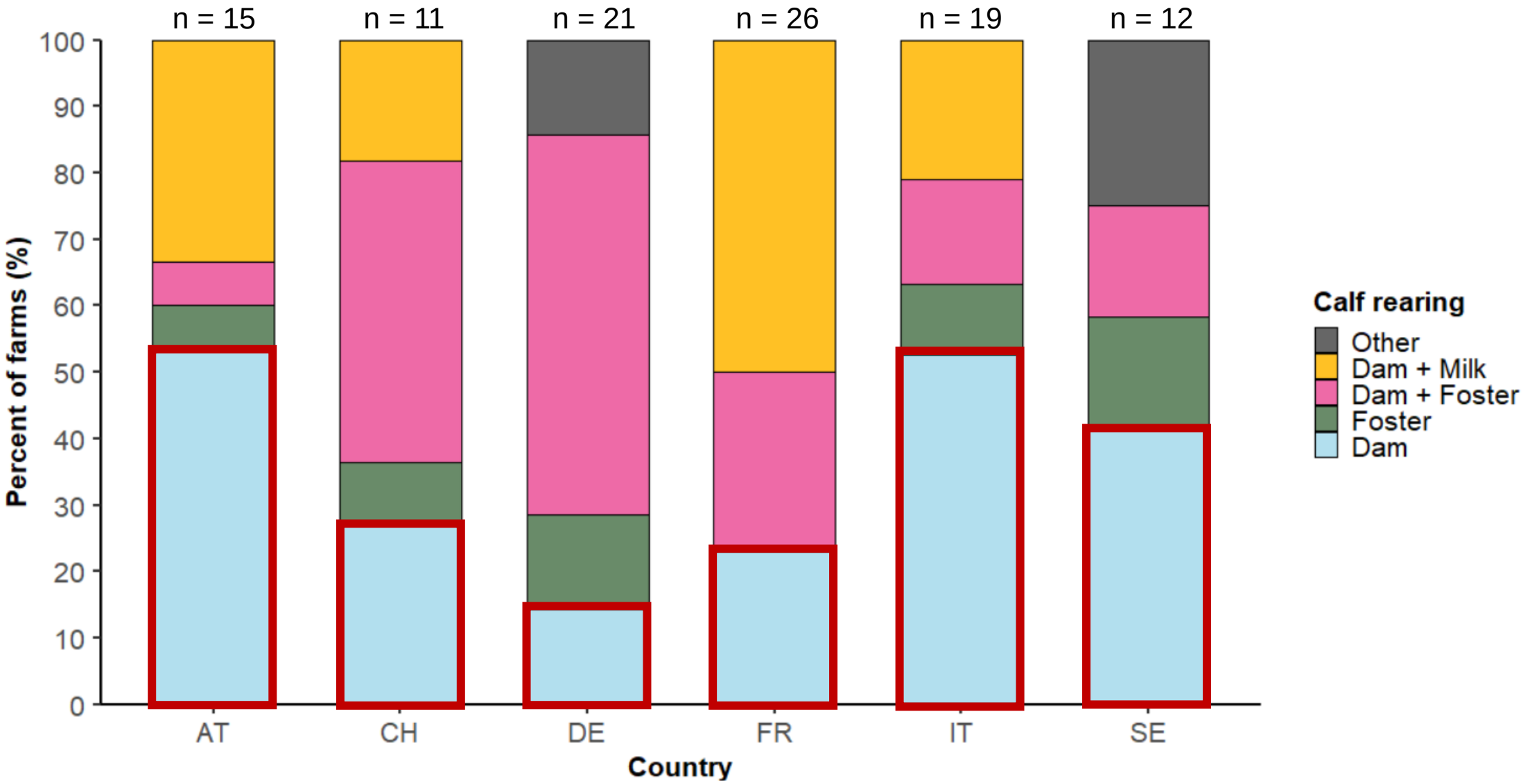
Results – rearing systems



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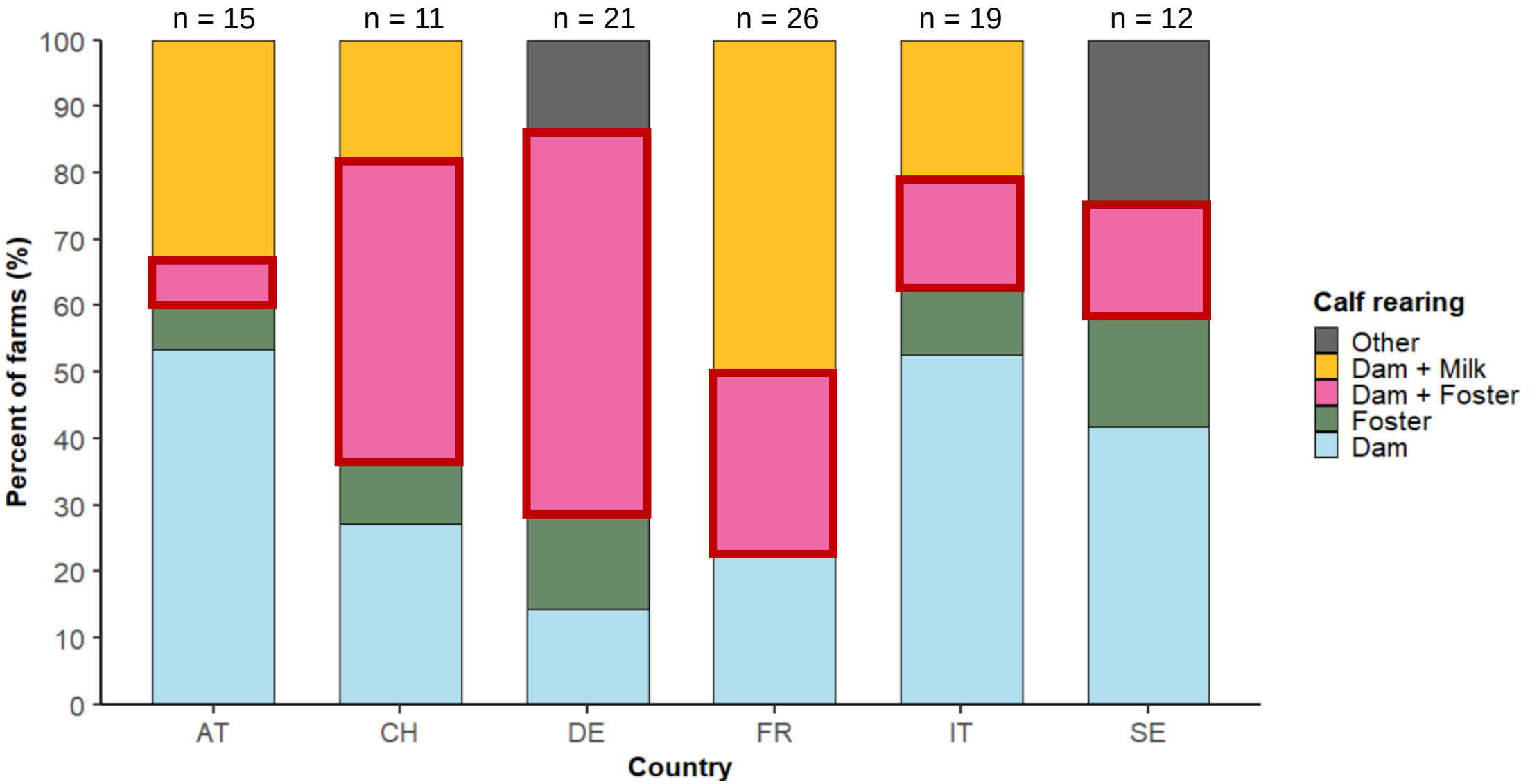

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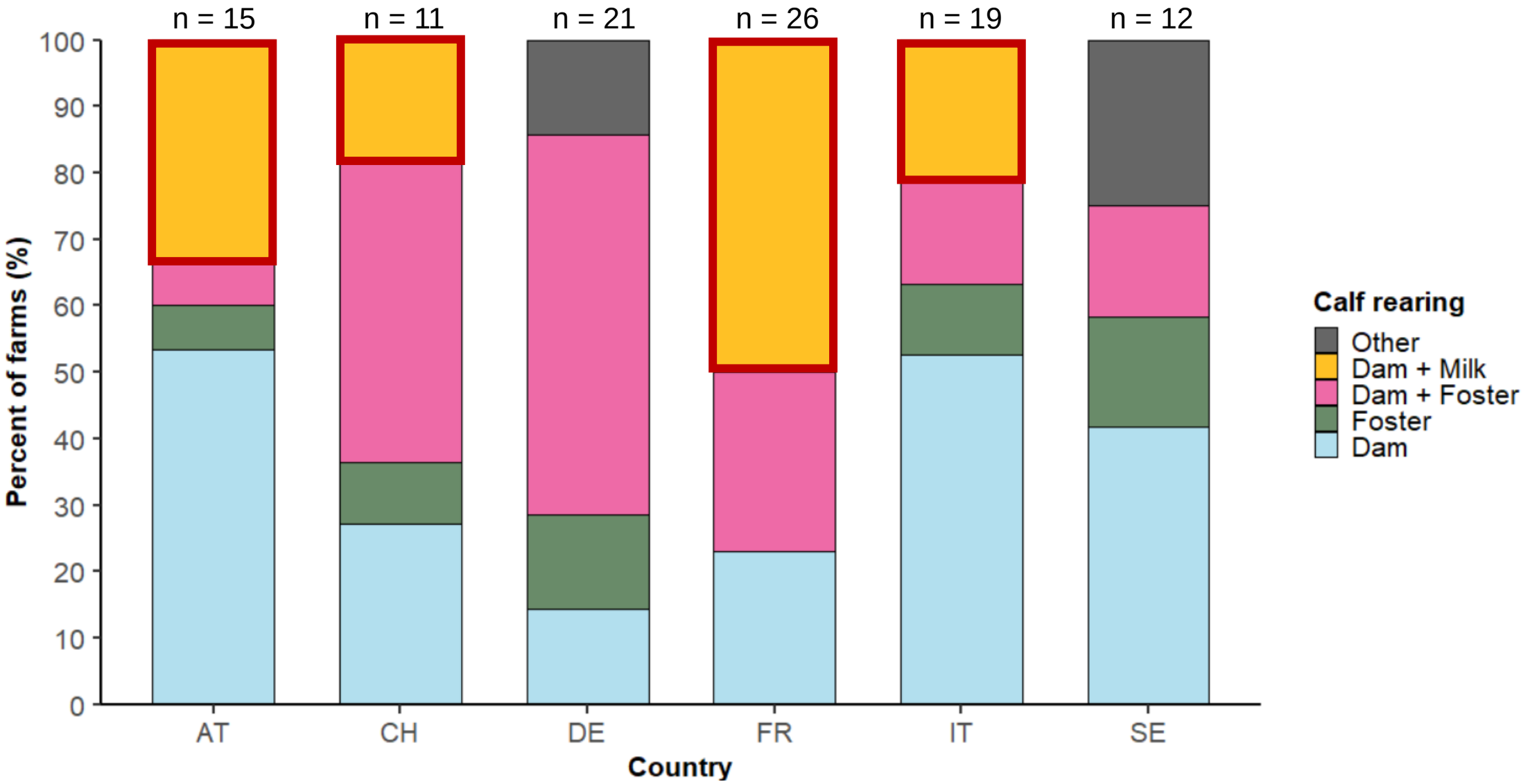

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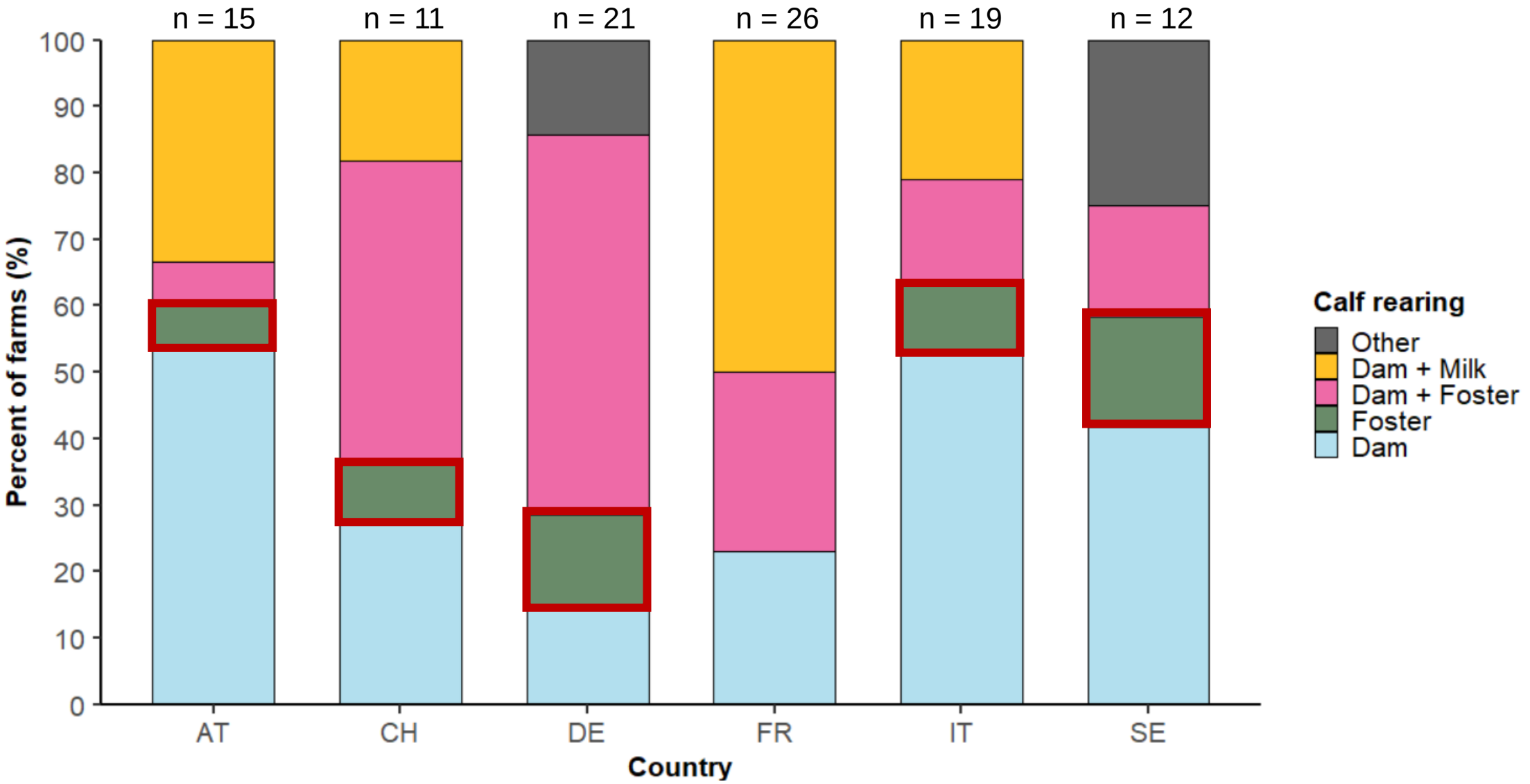

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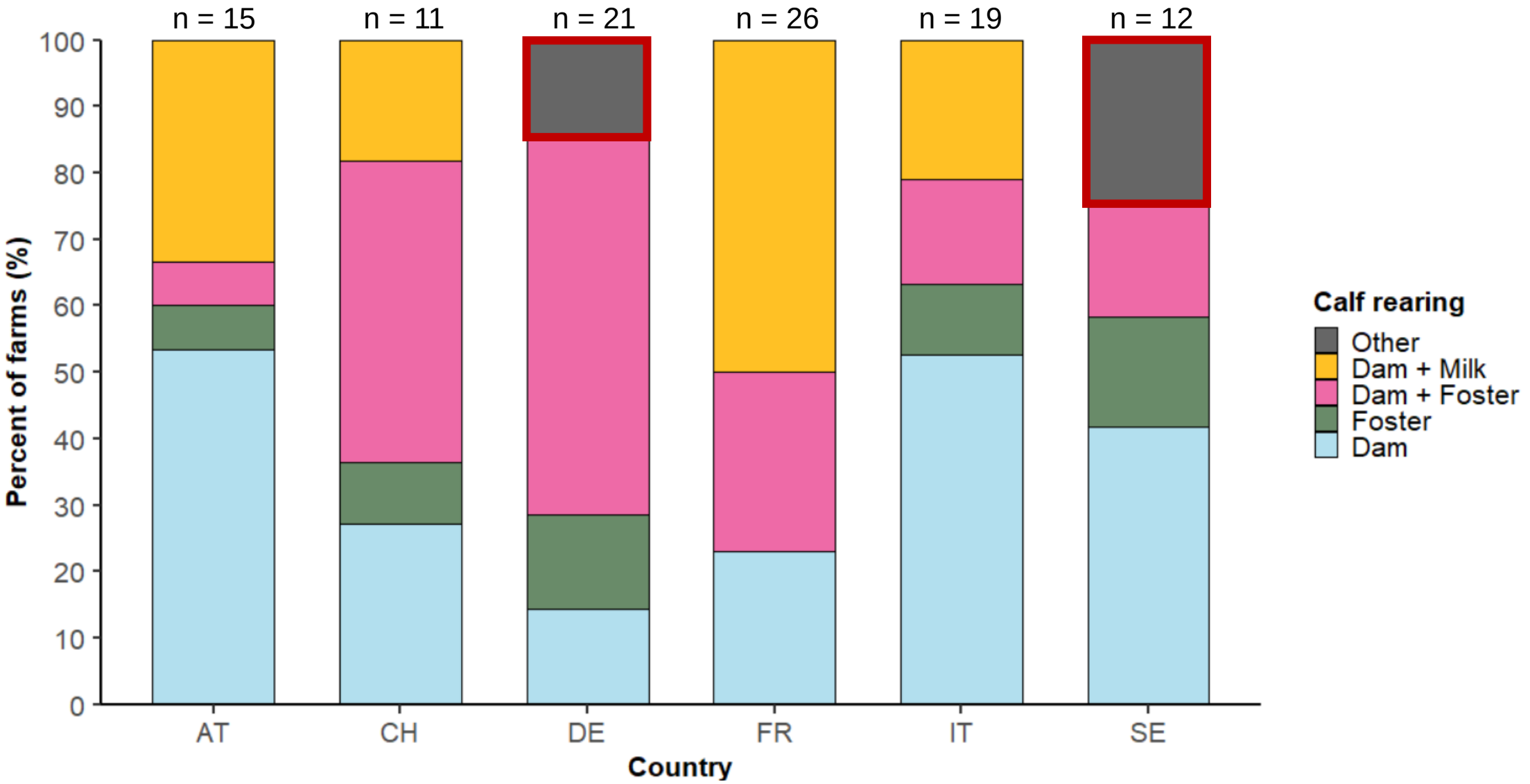

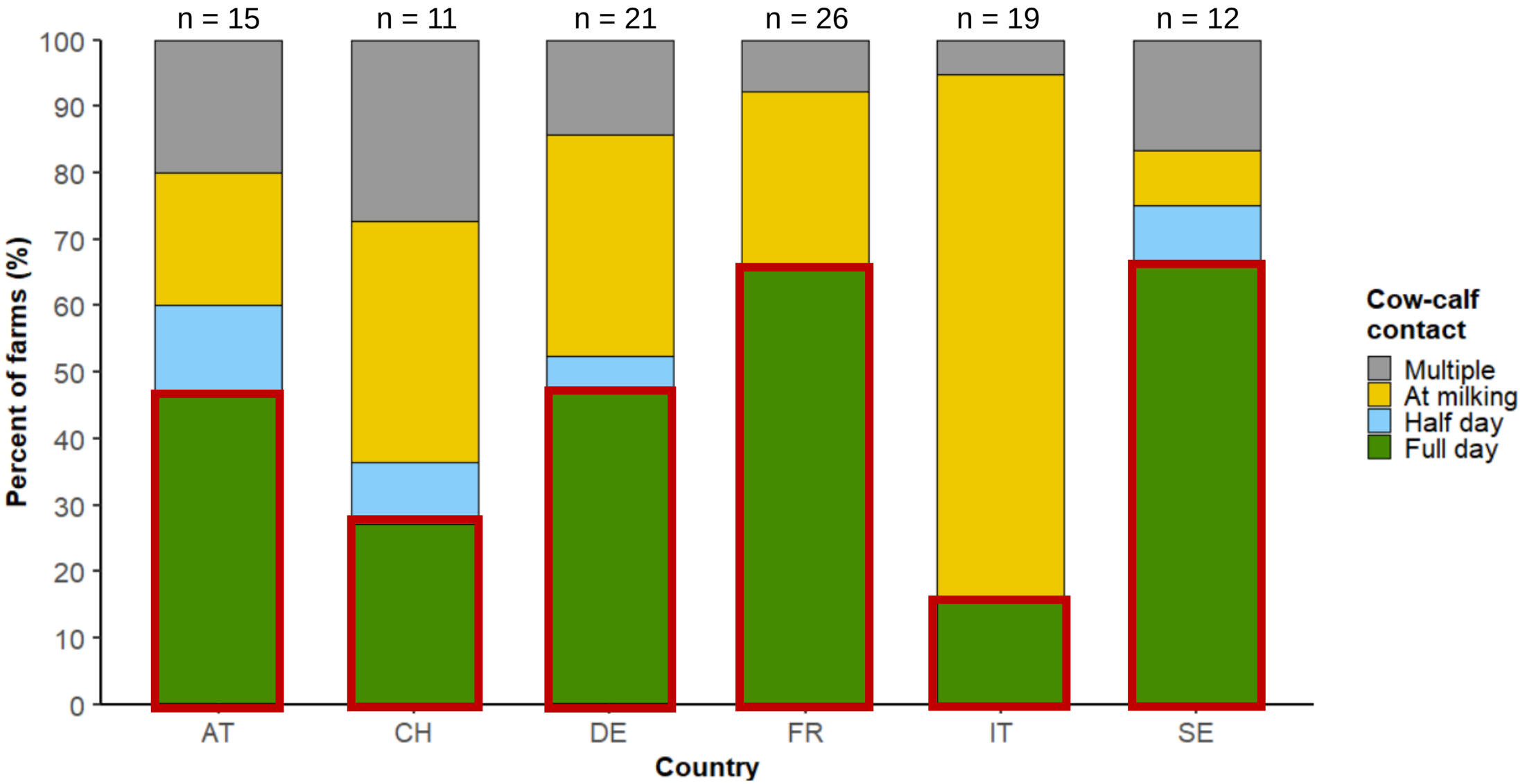
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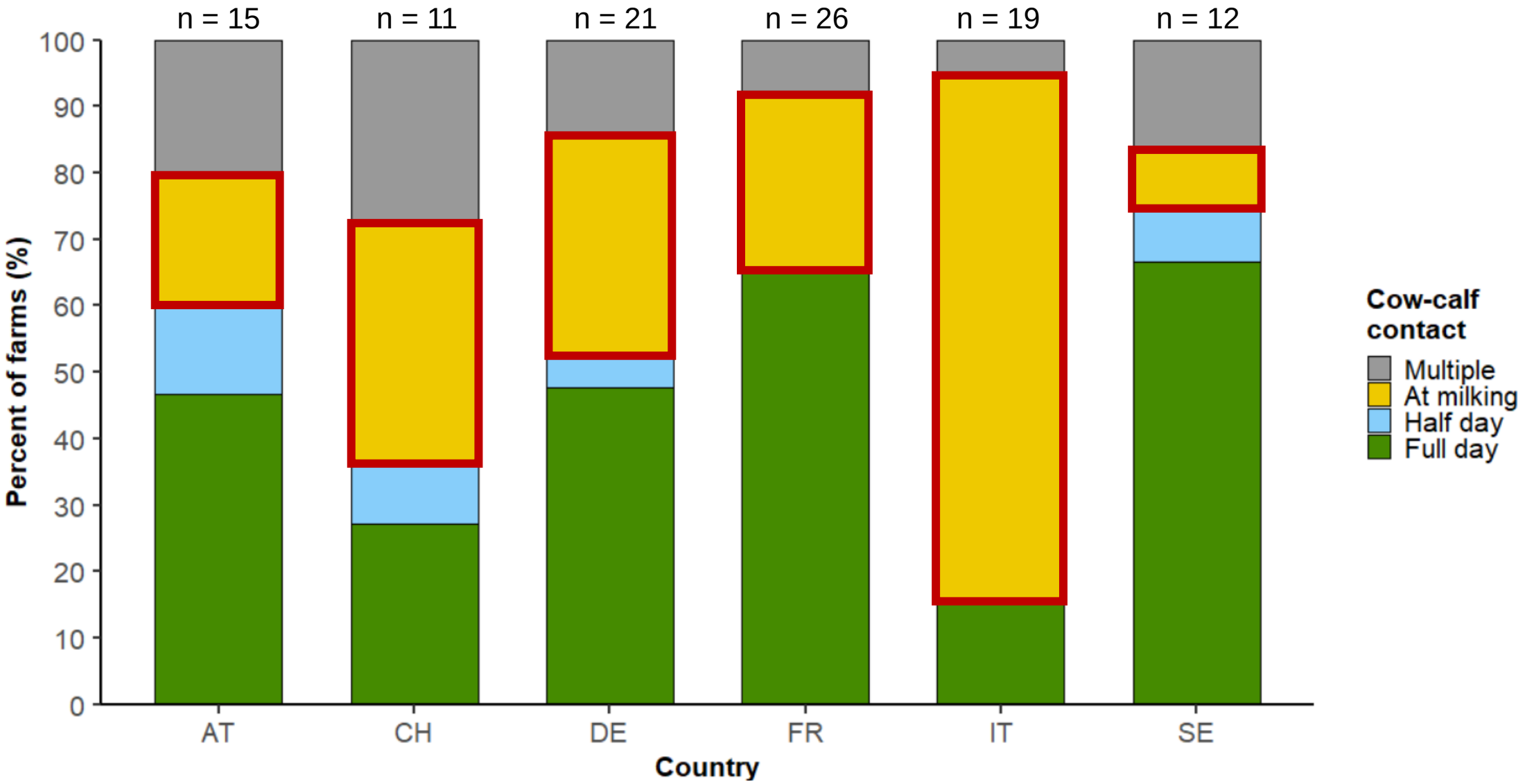
Percent of farms (%)
AT
CH
DE
FR
IT
SE
Country
Cow-calf contact
Multiple
At milking
Half day
Full day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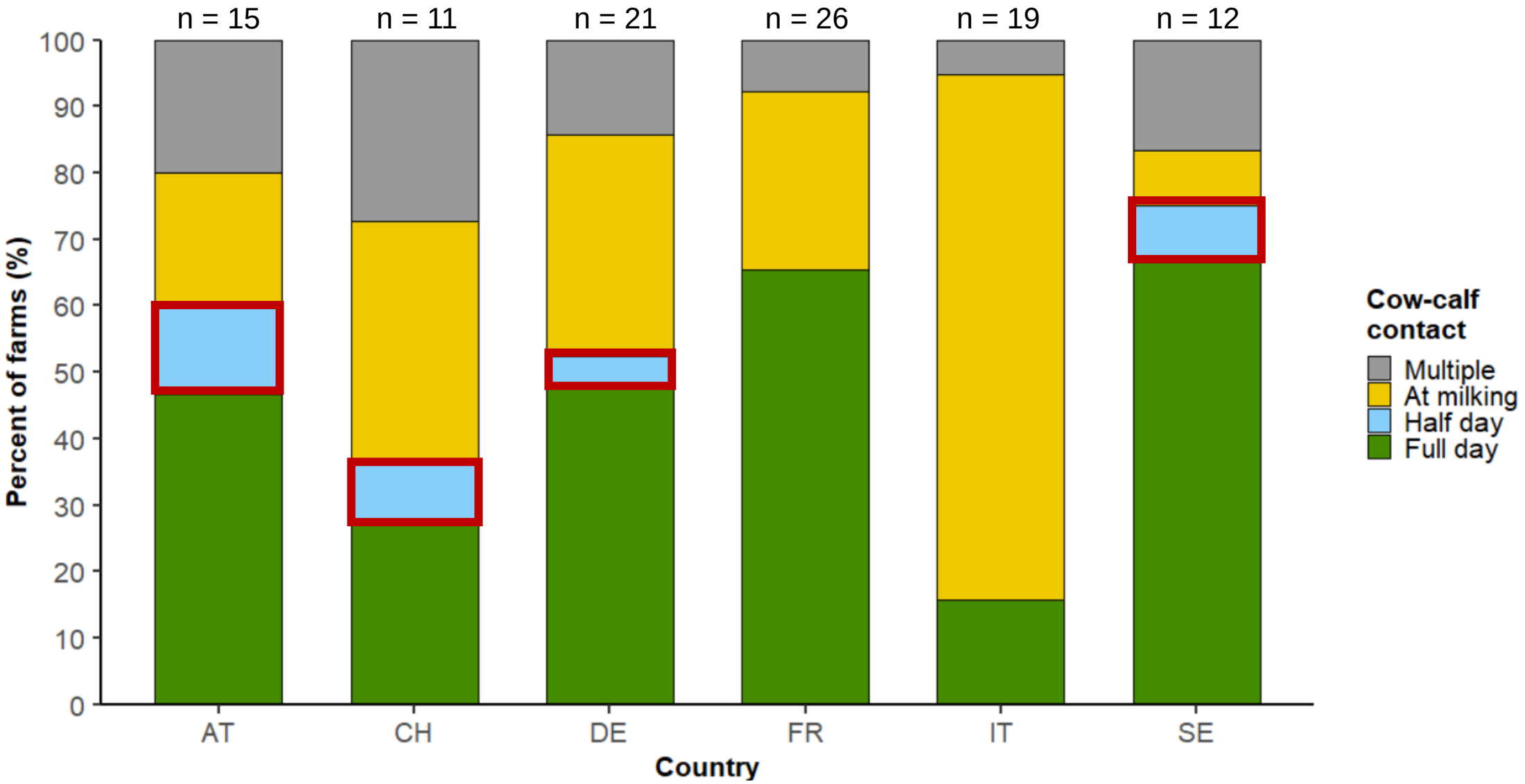
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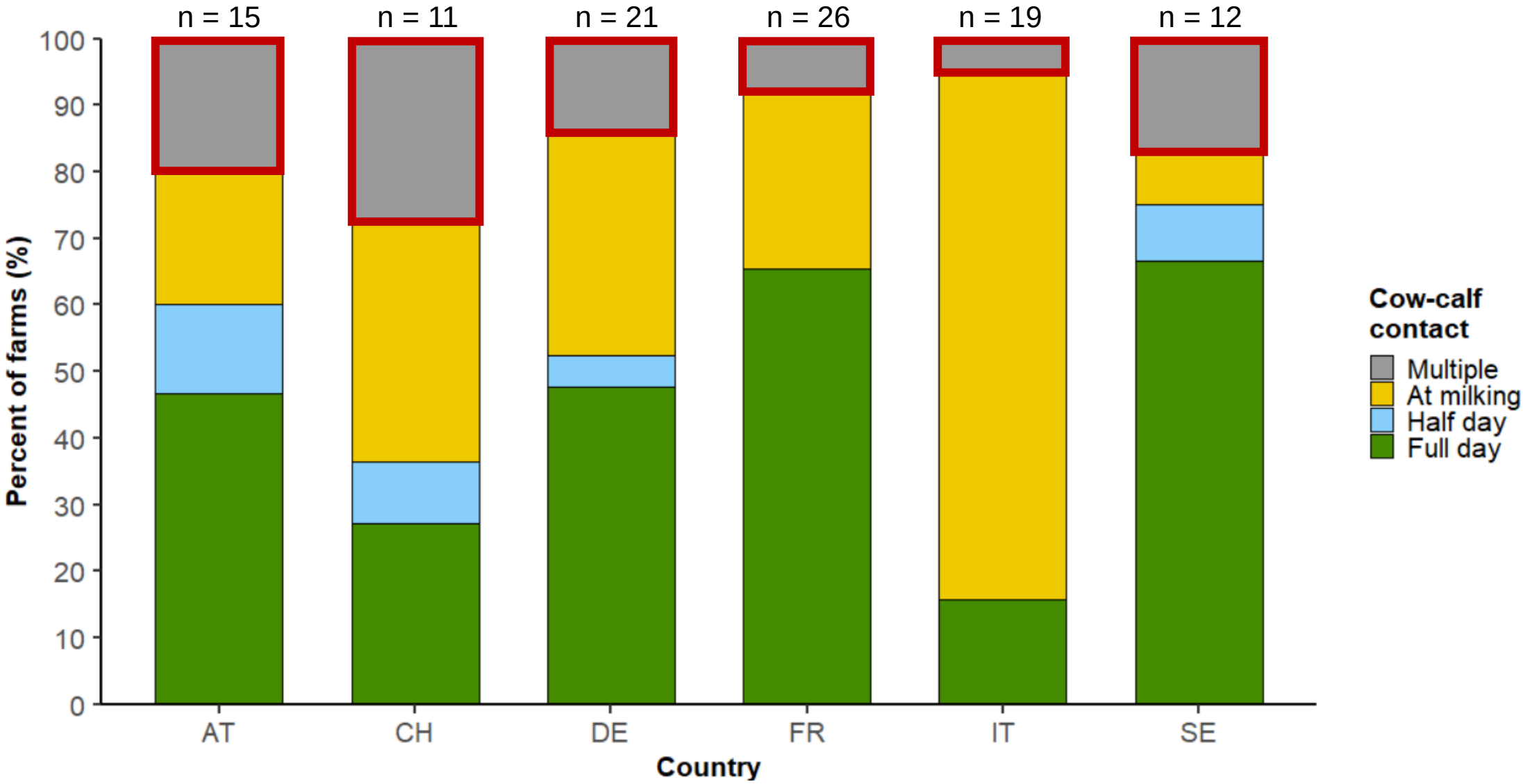
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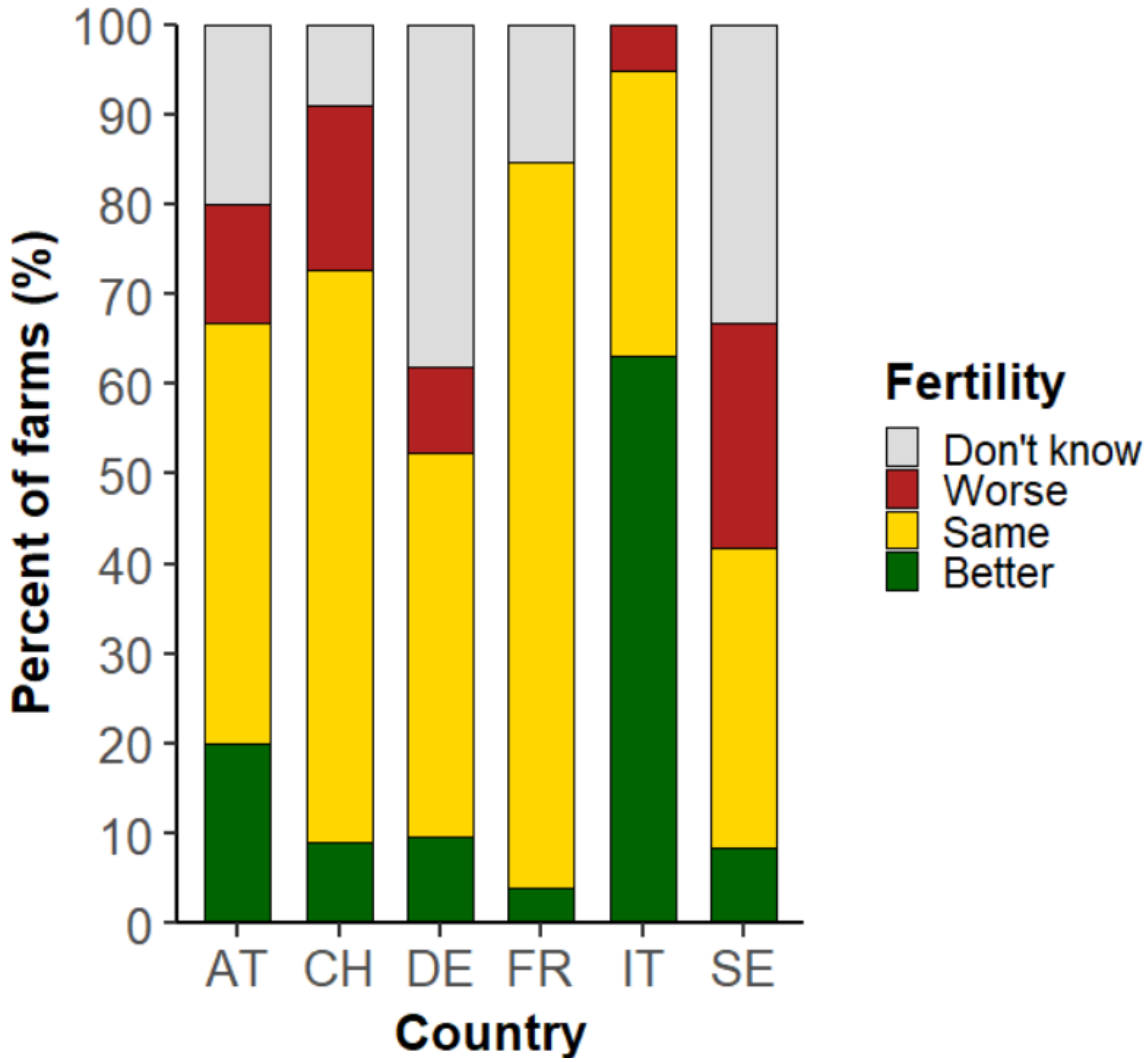
Percent of farms (%)
AT
CH
DE
FR
IT
SE
Country
Cow-calf contact
Multiple
At milking
Half day
Full day

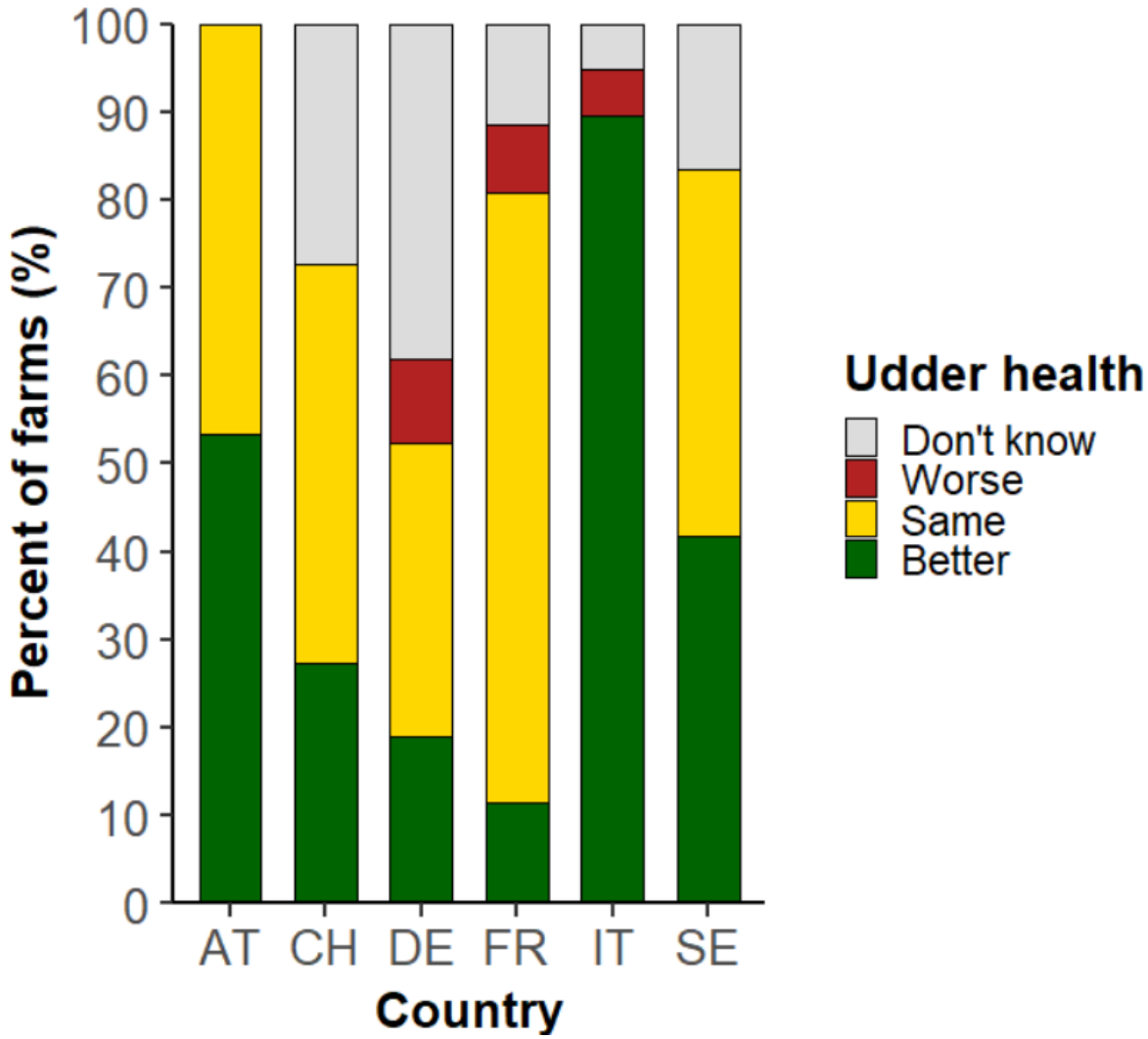
- Colostrum intake achieved by suckling on 92% of farms
- 74% of farms milked suckled cows
  - 60% of farms using foster cows either did not milked suckled cows, or only milked the dams
- Of the farms that milked suckled cows, 82% milked twice per day
- Median number of calves per foster cow was 1-3 depending on country
- Forage access from 1.0 – 2.9 (mean±SD) wks
- Concentrate access from 0.7 – 4.5 (mean±SD) wks
  - 31% of farms did not feed concentrate

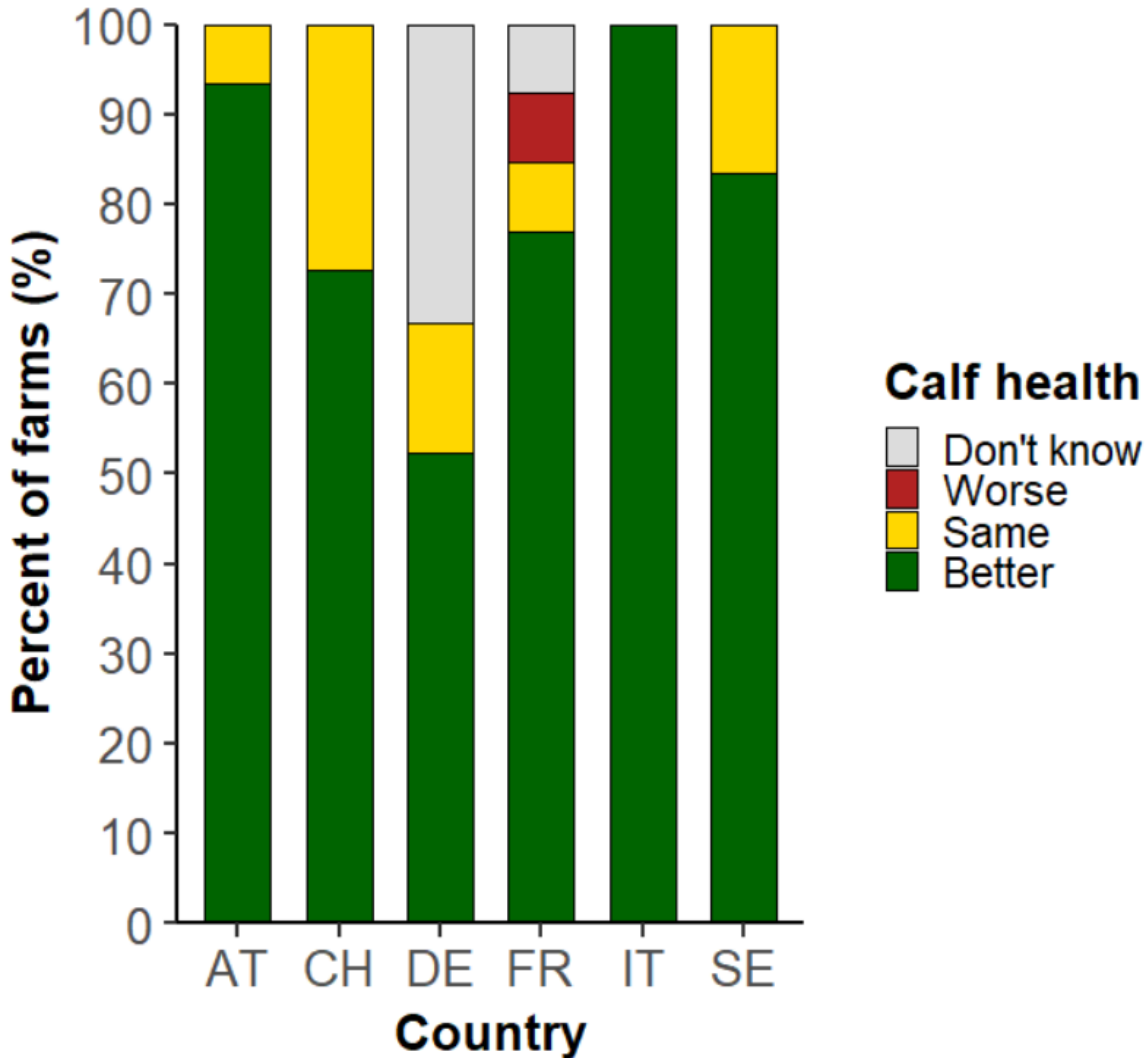
Results – separation

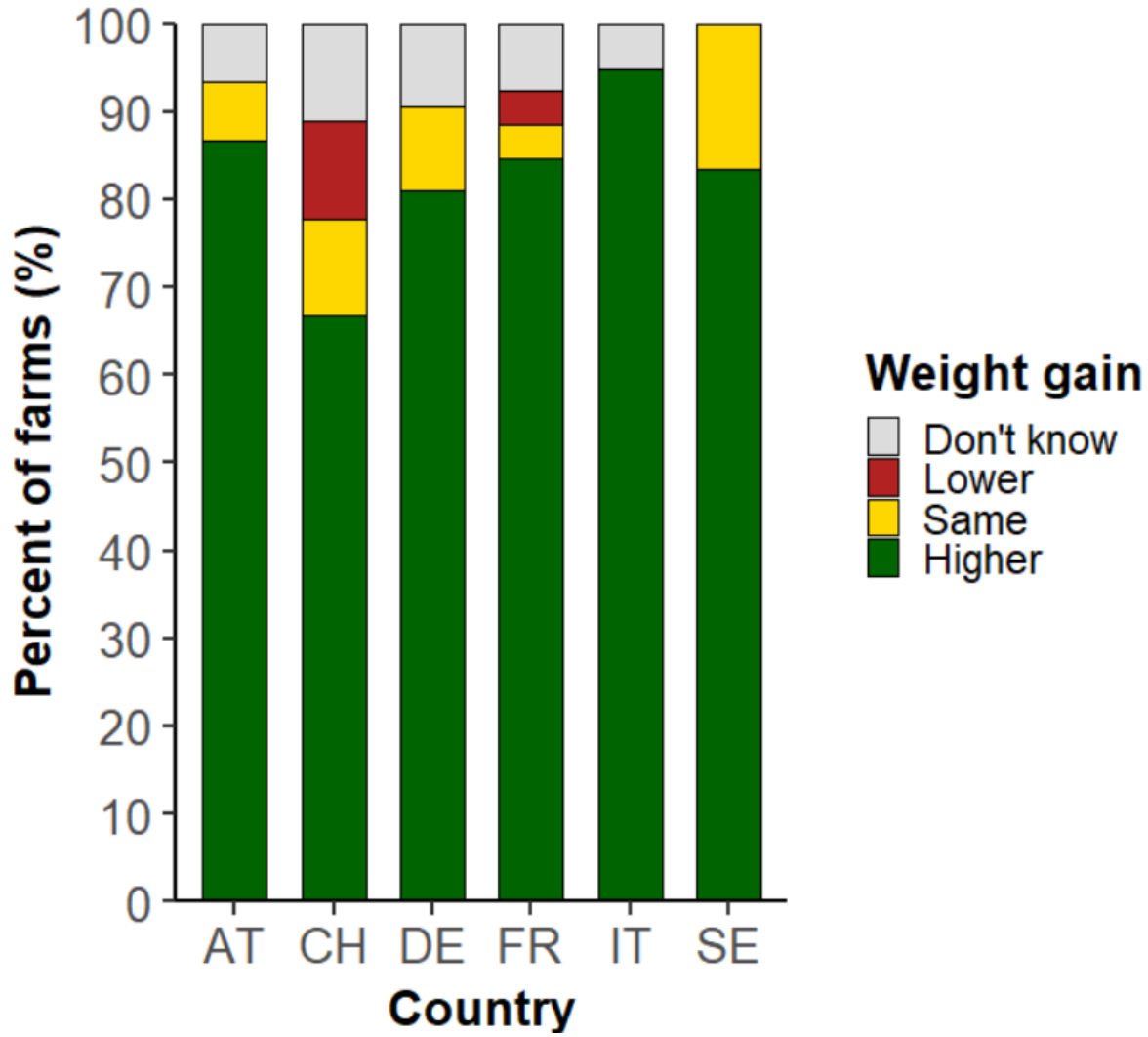
- 85% of farms practiced abrupt separation
- Reported responses after separation
  - Vocalisation among cows: **73%** of farms
  - Vocalisation among calves: **54%** of farms
  - Impaired milk let-down: **16%** of farms
  - Decreased calf weight: **9%** of farms
- Strategies used on farms
  - Reducing number of cows the calves can suckle
  - Reducing daily contact time
  - Letting younger calves suckle the cows first
  - Starting to milk suckled cows some time before separation

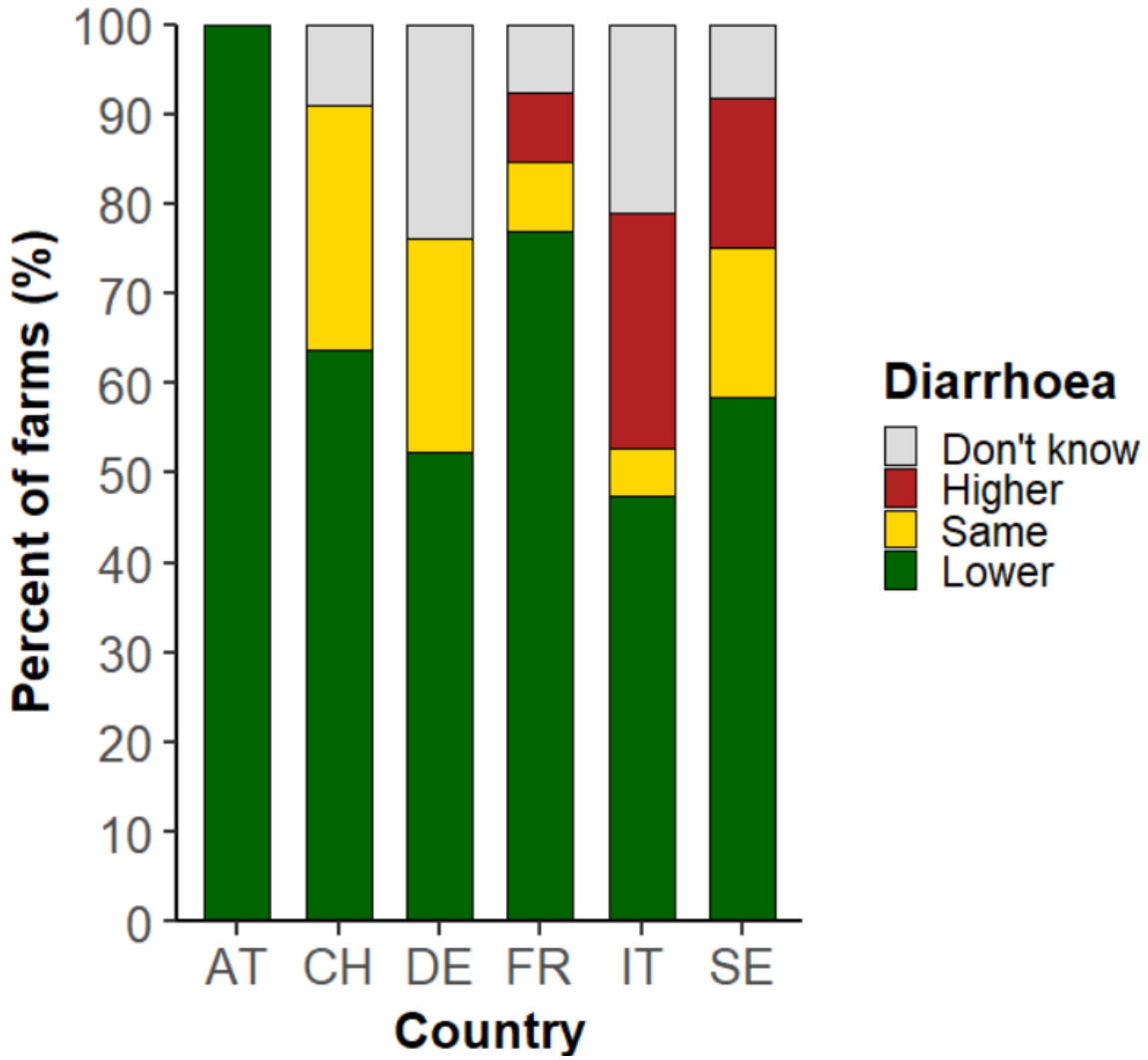
Results – perception of health

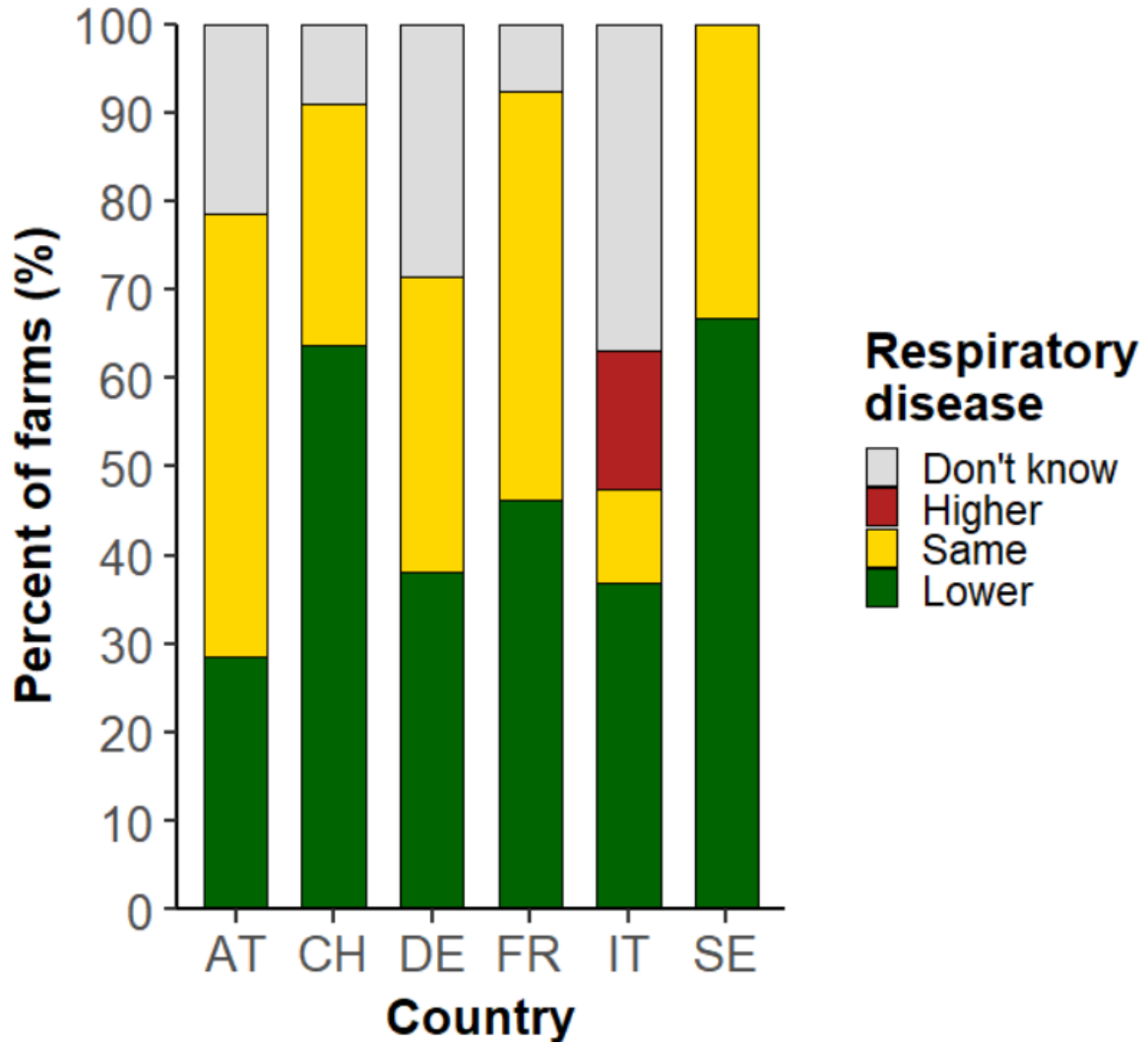


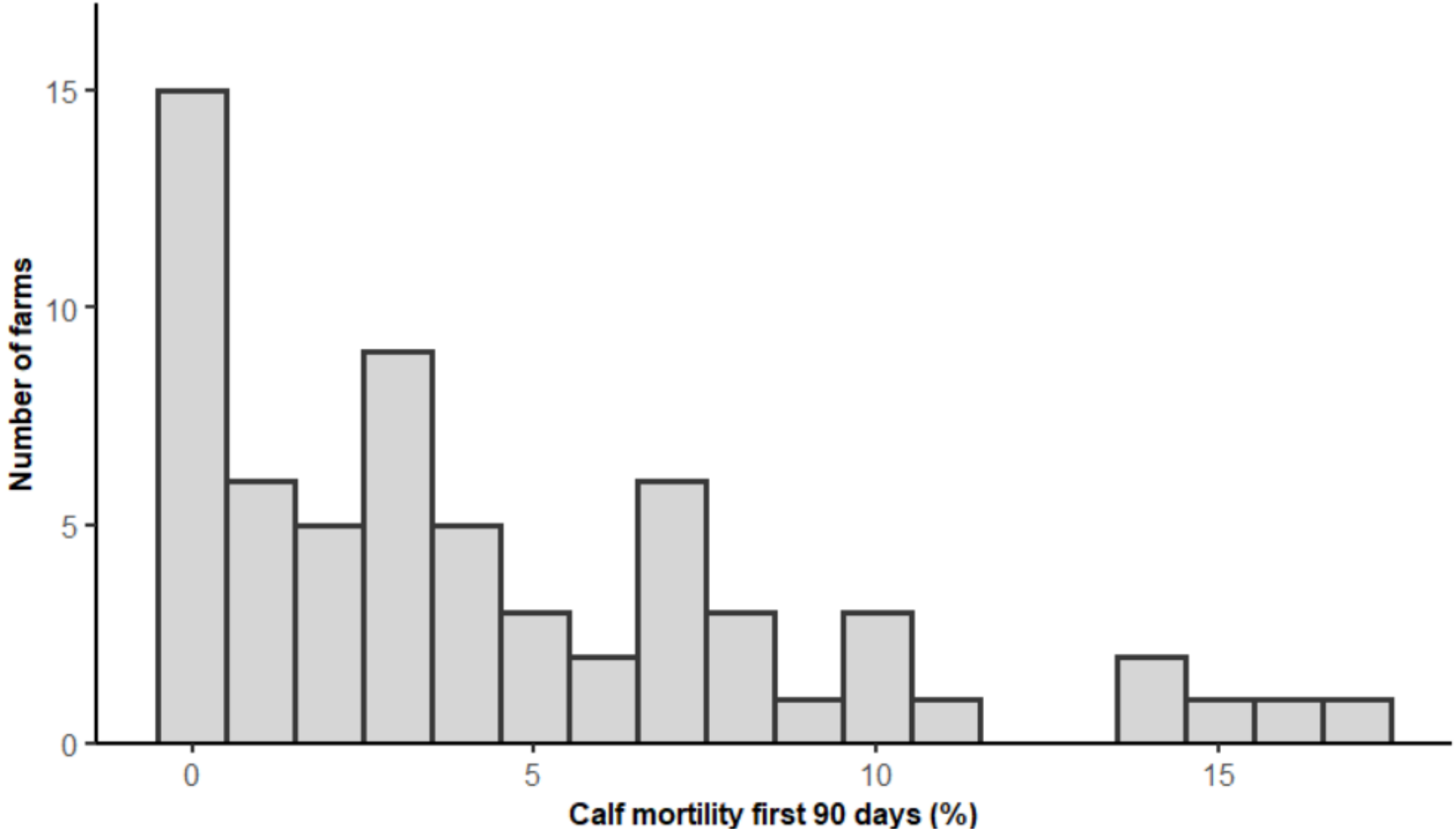



Percent of farms (%)
100
90
80
70
60
50
40
30
20
10
0
AT
CH
DE
FR
IT
SE
Country
Calf health
Don't know
Worse
Same
Better

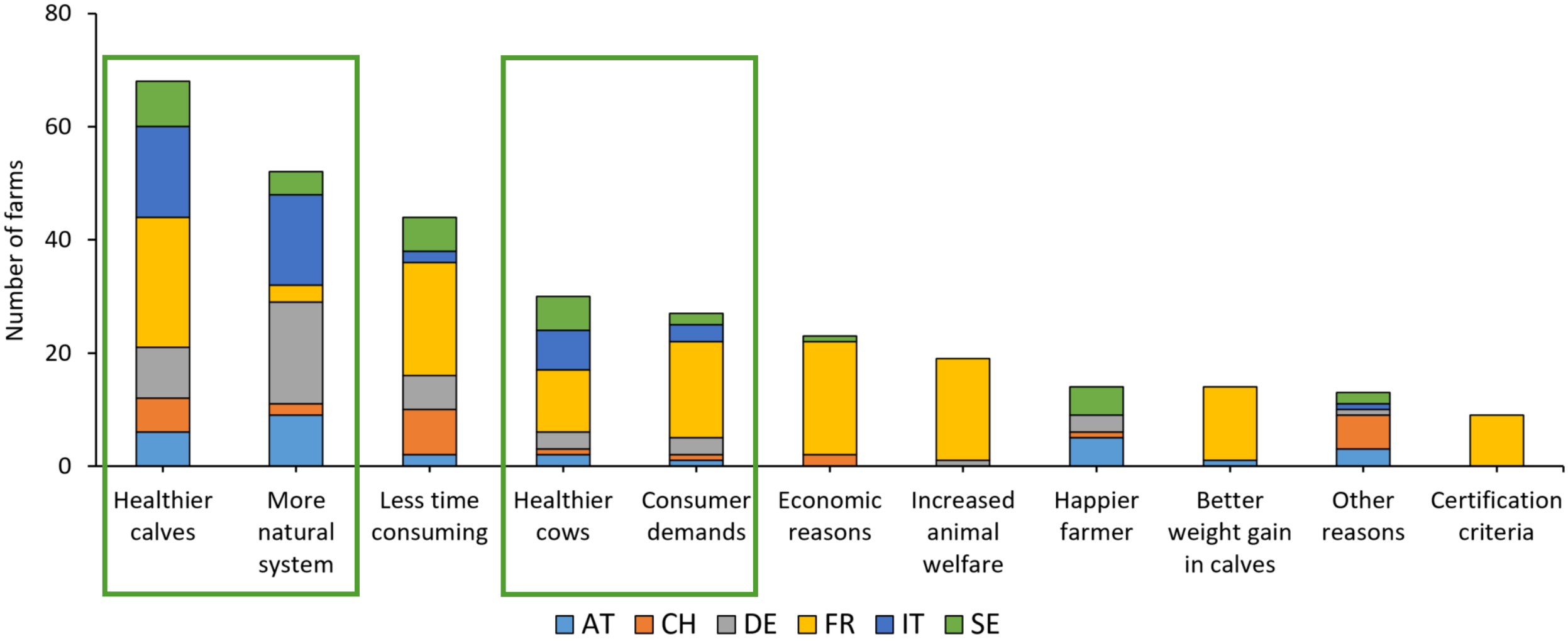

Percent of farms (%)
100
90
80
70
60
50
40
30
20
10
0
AT
CH
DE
FR
IT
SE
Country
Weight gain
Don't know
Lower
Same
Higher


Percent of farms (%)
100
90
80
70
60
50
40
30
20
10
0
AT
CH
DE
FR
IT
SE
Country
Diarrhoea
Don't know
Higher
Same
Lower

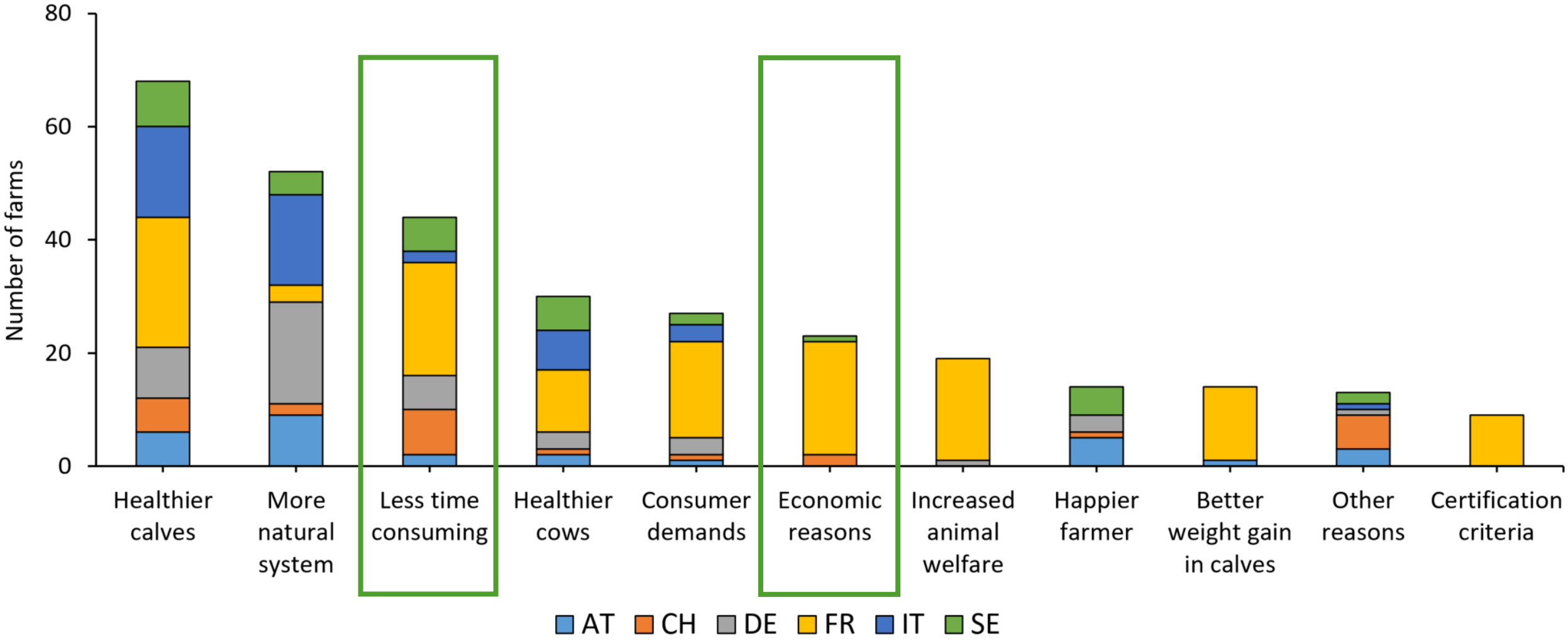

Percent of farms (%)
100
90
80
70
60
50
40
30
20
10
0
AT
CH
DE
FR
IT
SE
Country
Respiratory disease
Don't know
Higher
Same
Lower


Number of farms
15
10
5
0
0
5
10
15
Calf mortility first 90 days (%)

Results – drivers and barriers



Results – drivers and barriers



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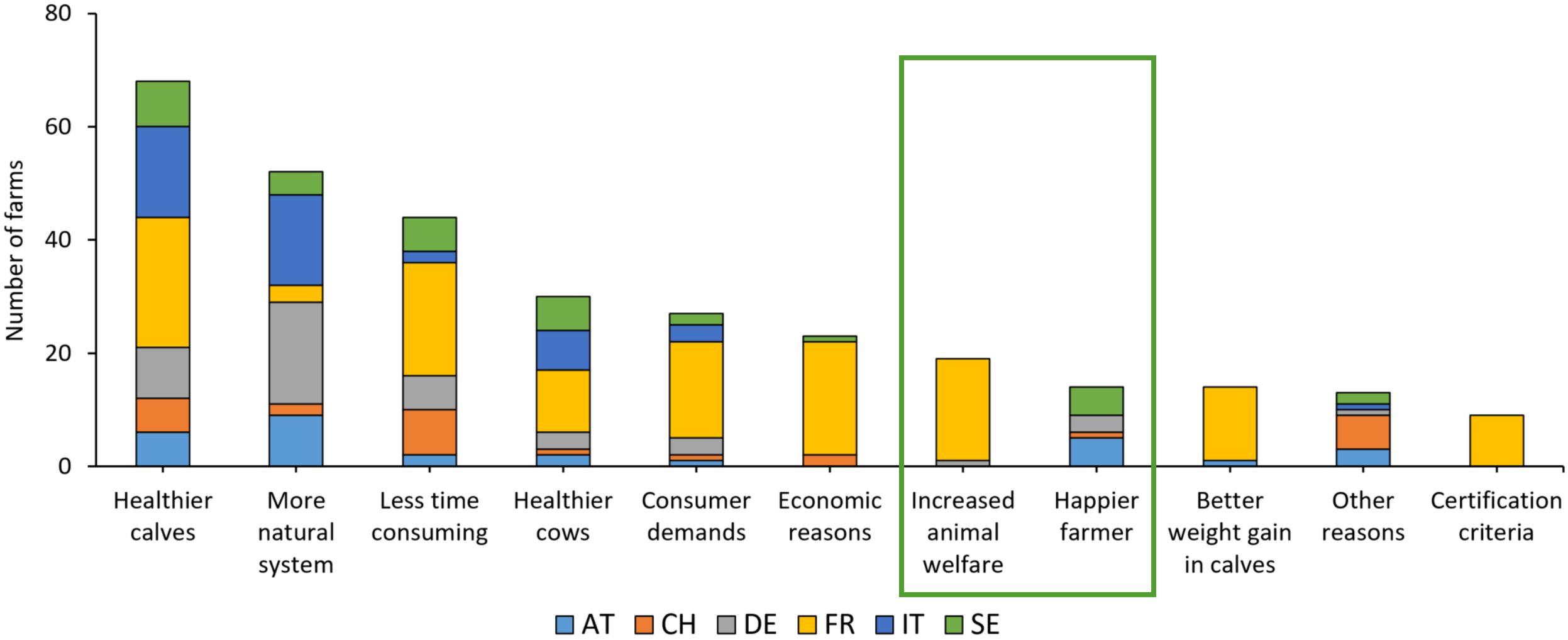
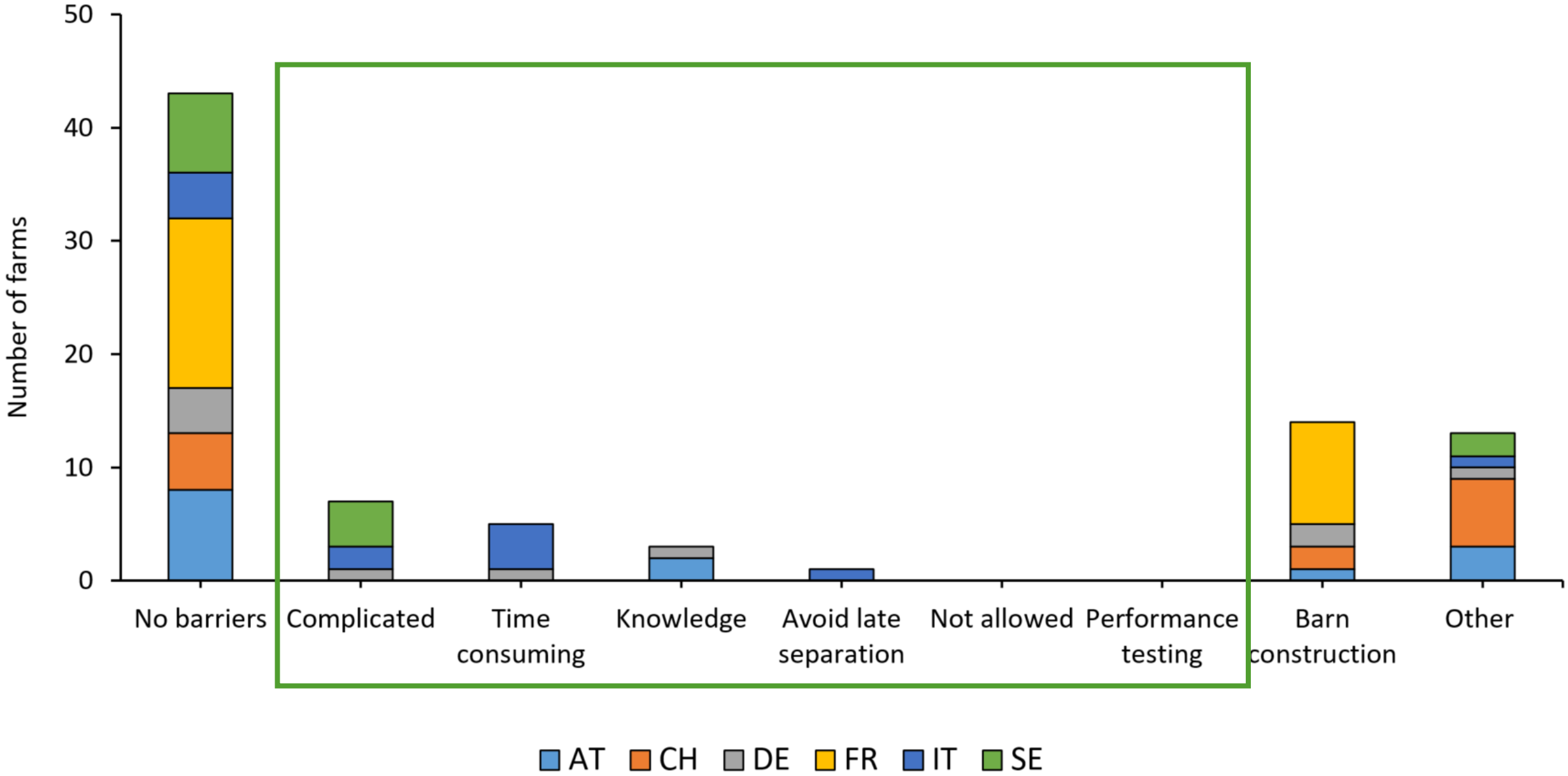
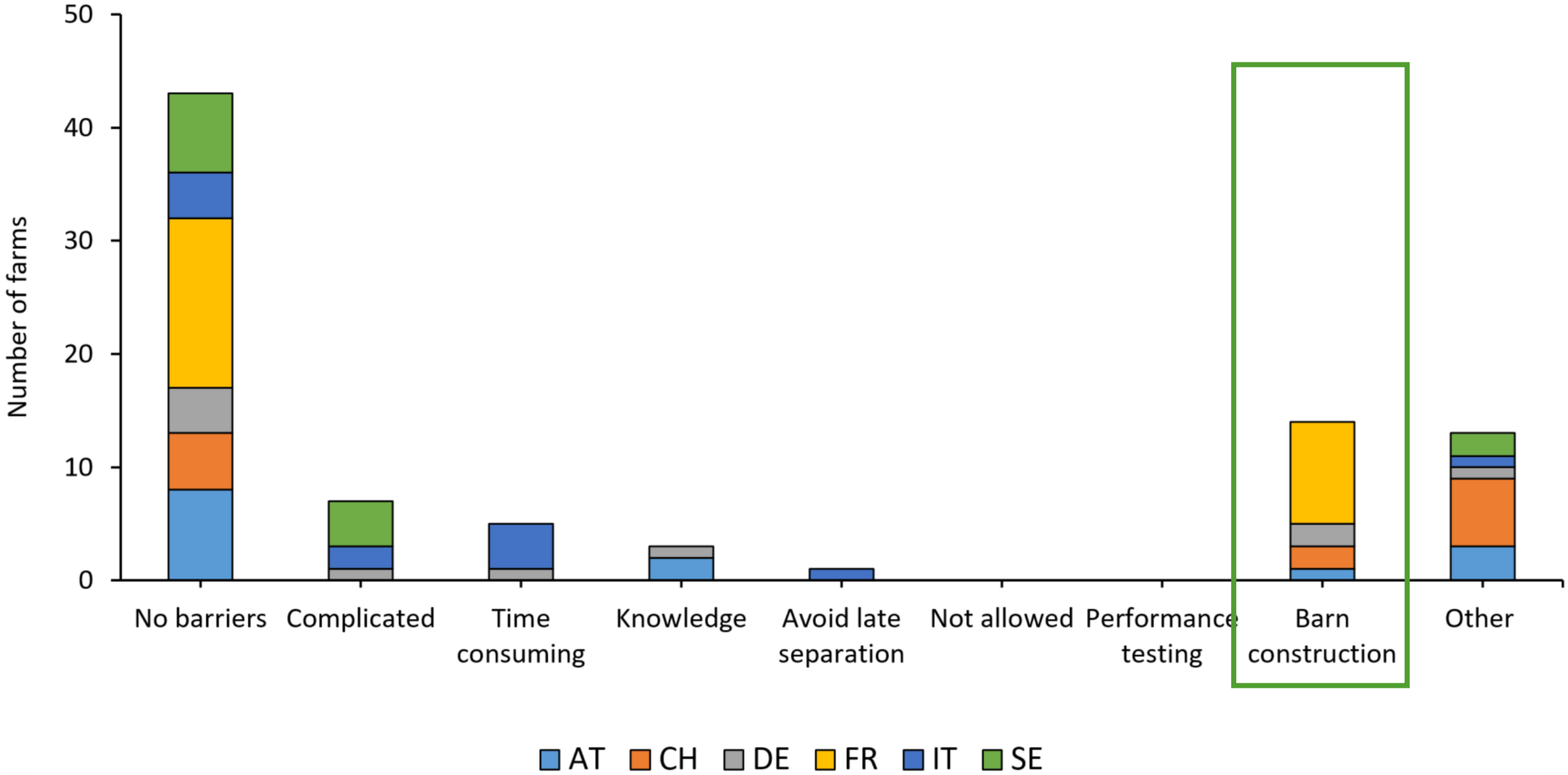



50
40
30
20
10
0
Number of farms
No barriers
Complicated
Time consuming
Knowledge
Avoid late separation
Not allowed
Performance testing
Barn construction
Other
AT
CH
DE
FR
IT
SE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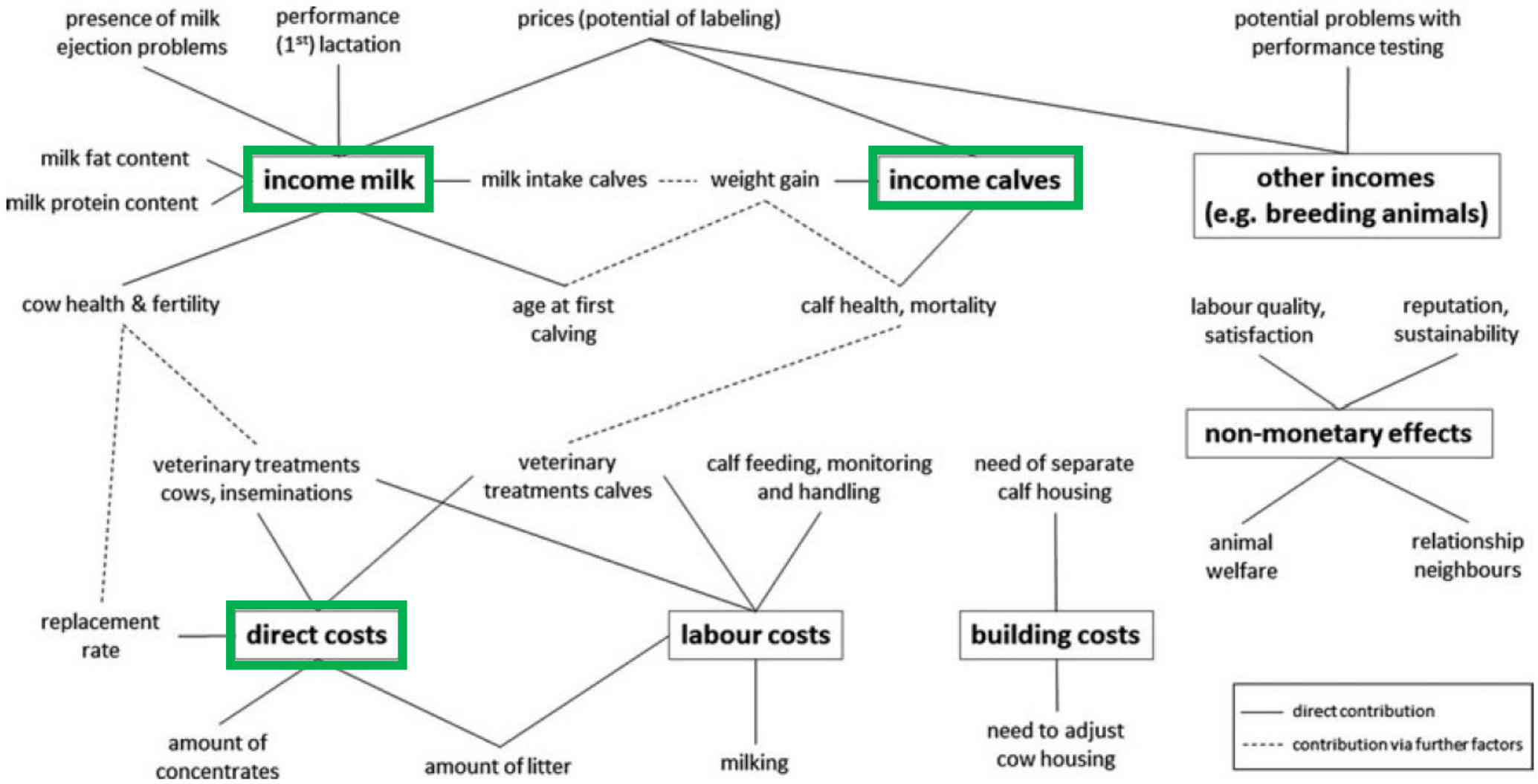
Conclusions

- Non-random farm selection
- CCC is practiced under very variable conditions on European farms
- Large differences in breed choices, housing systems, milking systems, and calf rearing practice between countries
- What is optimal weaning practice?
- Challenges with indoor housing

Economic consequences of cow-calf contact systems

Photo: Emma Tegler

Parameters to consider



Framework for the socio-economic evaluation of rearing systems of dairy calves with or without cow contact.

(Knierim et al., 2020)

Definition of generic study farm

Organic management, dual-purpose breed,

41 annual cows (incl 8 dry cows), 7000 kg ECM per cow and lactation

All calves are reared on farm. Heifers kept as recruitment. Surplus heifers and bull calves are fattened on farm and sold for slaughter at 16 months.

Definition of scenario farms

Baseline: Early separation from dam at day 1 and fed 8L whole milk for 90 days.

S1: Dam rearing with contact at milking (15 mins x twice a day) for 115 days.

S2: Initial dam rearing with full contact, at day 21 group housed with manual milk feeding.

S3: Mixed rearing with full contact. Calves are initially kept with dams. Calves moved to foster cows at day 9.

Change in net income

Added income due to change

Daily weight gain (calves) – earlier semination or slaughter?
Increased productivity and robustness (future adult cow)
Sold calf pens and other equipment not needed in CCC-system
Beef sales - premium value if better meat quality?
Natural behaviour
Joy of seeing cow and calf together

Added costs due to change

Reconstruction of stalls – calf creep area
Labour – finding, moving and socializing
Fallen stock
Disease events – veterinary costs

Reduced costs due to change

Labour – no milk feeding and cleaning of buckets
Fallen stock
Disease events – veterinary costs

Reduced income due to change

Delivered milk?

Input variables and assumptions

Item	Baseline	S1	S2	S3
Suckled dam (days)	1	115	21	9
Suckled foster (days)	0	0	0	106
Milk feeding (days)	90	0	94	0
Manually fed milk (kg/d)	8	0	8	0
Suckled milk (kg/d)	0	5.1 (Range: 2-10)	10.9 (Range: 9.2-12)	Dam: 10.9 (Range: 9.2-12) Foster: 8.5 (Range: 7.0-10)
Mortality, 0-90 days (deaths/100 calf-years)	0.031	0 (Range: 0-0.14)	0.02 (Range: 0-0.14)	0 (Range: 0-0.045)

S1: Dam rearing with contact at milking (15 min x 2 per day)
S2: Dam rearing with full contact, from day 21 manual milk feeding
S3: Mixed rearing. Initially kept with dams, moved to foster cows at day 9.

Prices

Item	Data	Source
Milk price (€/kg)	0.44	Agriwise, 2020
Forage (€/kg DM)	0.12	Agriwise, 2020
Concentrate (€/kg)	0.29	Agriwise, 2020
Youngstock sales (€/kg), 16 months	3.94	HK Scan, 2021

- We suppose that the changes needed in the building are negligible.
- Majority of farmers in survey percieved cow and calf health to be same or better in CCC-systems. They also stated that they their CCC-system was not more time consuming than a system where cows and calves were separated directly after birth.

Preliminary results:

Contribution margin for the different CCC-scenarios

	Baseline	S1: Dam rearing with contact at milking	S2: Dam rearing, then manual milk feeding	S3: Mixed rearing. Kept with dam then foster cow
Milk consumed by calves (kg)	25 536	22 734	33 632	35 621
Costs				
Forage (€)	1408	1515	1504	718
Concentrate (€)	2408	2590	2572	1525
Revenues				
Sold milk (€)	105 563	106 788	102 022	101 152
Contribution margin (€)	101 746	102 683	97 946	98 909
Change		+937	-3800	-2837

Economic consequences

- Consumers – willing to pay more?
- Marketing possibility – depending on CCC-system?

- Calves in CCC systems – better performance as adult cows?

- What are the long term effects?
  - better weight gain >> robust cow? increased longevity and yield?
  - hygiene and disease problems?

Thank you for your attention!