



SCIENCE AND
EDUCATION **FOR**
SUSTAINABLE
LIFE

Economic considerations of cow-calf contact systems in dairy production

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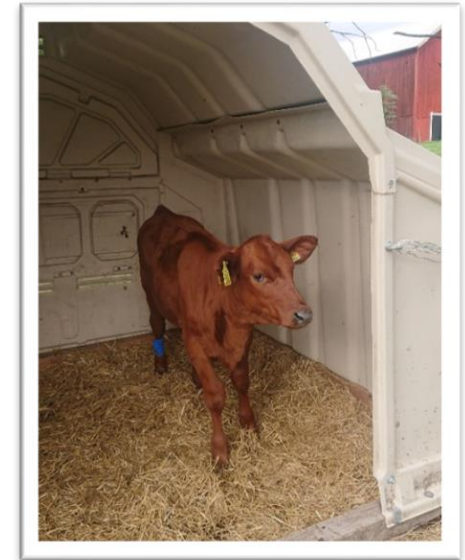
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Calf rearing

- Routine practice to separate cow and calf within 24h
- Cow-calf contact (CCC)-systems = Any type of housing or management system allowing calves contact with their dam or with foster cows during early life (Sirovnik et al., 2020)
- Type of strategies allowing CCC?



On-farm strategies allowing CCC

- **Survey goal:** describe the type of housing and management used on European farms with CCC-systems
- **Prerequisite:** calves kept with lactating cow at least 7 days
- Interviews with 104 farmers from six countries (Austria, France, Germany, Italy, Sweden, Switzerland)

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.

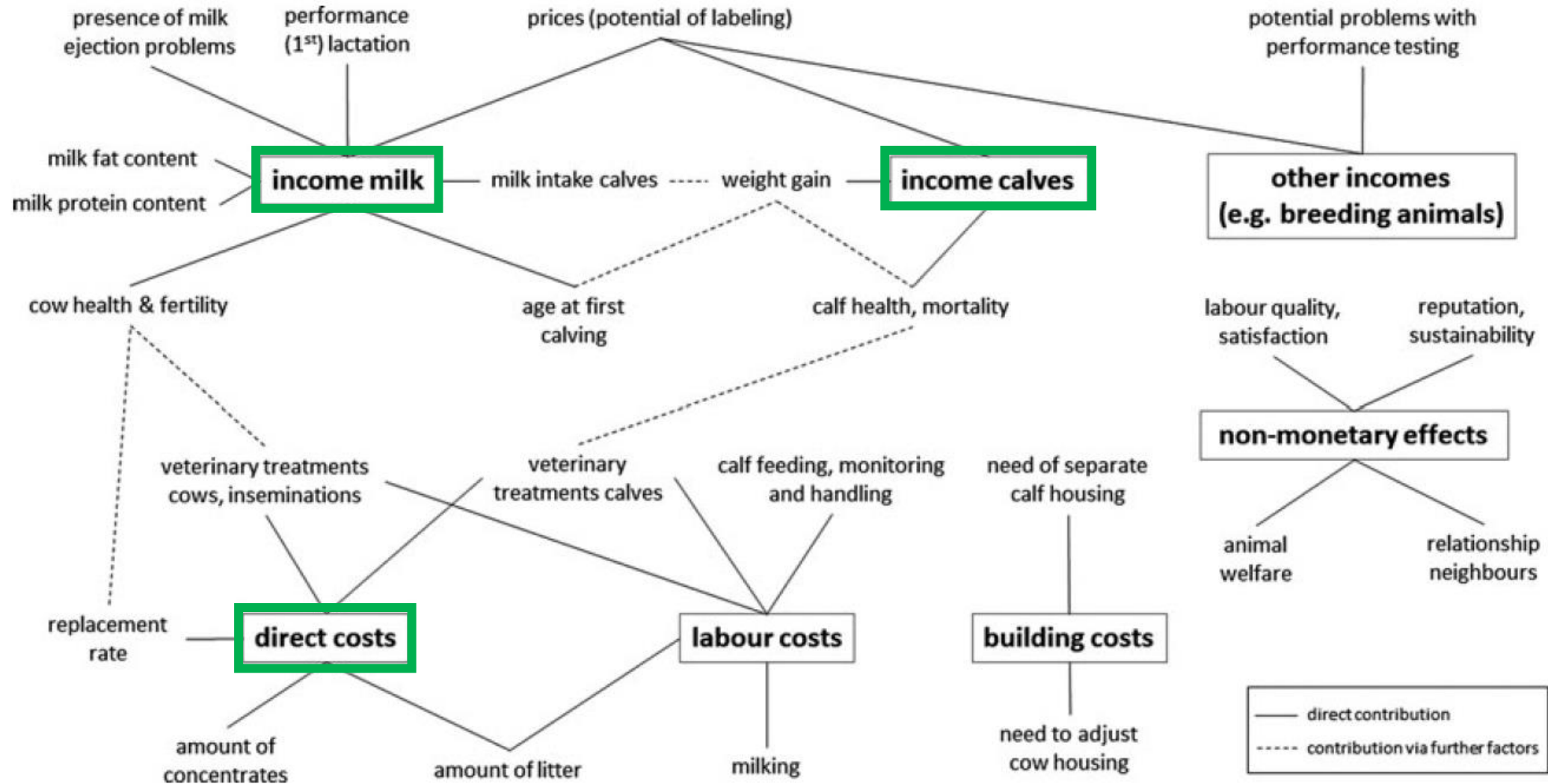


Definition of scenario farms

- 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, at day 9 calves are moved to foster.



Parameters to consider



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

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?

Reduced costs due to change

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

Added costs due to change

- Reconstruction of stalls – calf creep area
- Labour – finding, moving and socializing
- 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: 3-10)	10.9 (Range: 9.2-12)	Dam: 10.9 (Range: 9.2-12) Foster: 8.5 (Range: 7.0-10)
Median mortality, 0-90 days (deaths/100 calf-years)	3.1	0 (Range: 0-14)	2 (Range: 0-14)	0 (Range: 0-4.5)

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.

Input variables - 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 assume changes needed for buildings are negligible.
- Majority of farmers in survey perceived cow and calf health to be same or better in CCC-systems. They also stated that their CCC-system was not more time consuming than a system where cows and calves were separated directly after birth.

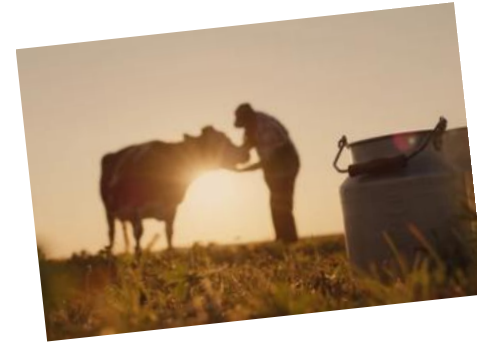
Preliminary results:

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
<i>Costs</i>				
Forage (€)	1408	1515	1504	718
Concentrate (€)	2408	2590	2572	1525
<i>Revenues</i>				
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?
- Long term effects?
 - better weight gain >> more robust cow? >> increased lifetime production?



**Thank you for
your attention!**

