

Calf health

November 2025

SimHerd does not simulate risk of diseases in heifers, as for the adult cows. Therefore, if we want to simulate the effects of improved calf health we need to adjust parameters for calf mortality, feed intake, growth and milk yield in first parity.

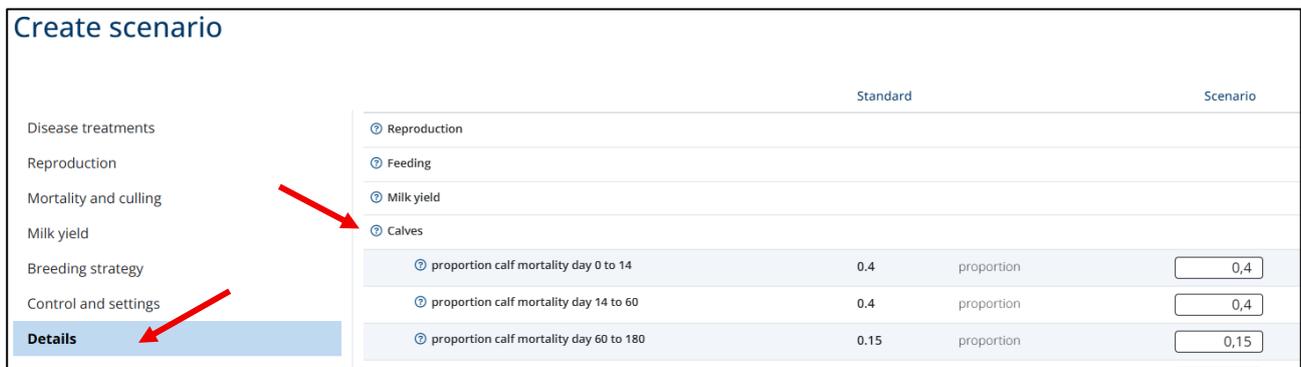
In this guide, you will learn how to make a scenario that simulates improved calf health in your herd.

Step 1: create herd and scenario

Create your own herd or choose a template. Create a scenario and adjust the scenario input as described in the following steps. **Do not run the scenario until you've reached step 6!**

Step 2: increase feed intake for calves

While creating your new herd – go to “Details” and unfold “Calves”.



	Standard	Scenario
Reproduction		
Feeding		
Milk yield		
Calves		
proportion calf mortality day 0 to 14	0.4	proportion <input type="text" value="0,4"/>
proportion calf mortality day 14 to 60	0.4	proportion <input type="text" value="0,4"/>
proportion calf mortality day 60 to 180	0.15	proportion <input type="text" value="0,15"/>

Scroll a bit further and find the parameters concerning feed intake. In the screenshot below, you can see how parameters should be changed to increase feed intake needed to increase the weight of a calving ready heifer by +50 kg.

Feed intake on pasture first year	4.5	Feeding unit per day	<input type="text" value="4,82"/>
Feed intake on pasture second year	7	Feeding unit per day	<input type="text" value="7,98"/>
concentrates for youngstock (group 1, >90 days)	1.4	Feeding unit per day	<input type="text" value="1,456"/>
concentrates for youngstock (group 2, >180 days)	1	Feeding unit per day	<input type="text" value="1,09"/>
concentrates for youngstock (group 3, >273 days)	1	Feeding unit per day	<input type="text" value="1,14"/>
concentrates for youngstock (group 4, >364 days)	1	Feeding unit per day	<input type="text" value="1,16"/>
concentrates for youngstock (group 5, >546 days)	3	Feeding unit per day	<input type="text" value="3,09"/>
roughage for youngstock (group 1, >90 days)	1.8	Feeding unit per day	<input type="text" value="1,872"/>
roughage for youngstock (group 2, >180 days)	3	Feeding unit per day	<input type="text" value="3,27"/>
roughage for youngstock (group 3, >273 days)	3.6	Feeding unit per day	<input type="text" value="4,104"/>
roughage for youngstock (group 4, >364 days)	4.6	Feeding unit per day	<input type="text" value="5,336"/>
roughage for youngstock (group 5, >546 days)	5	Feeding unit per day	<input type="text" value="5,15"/>

Step 3: increase the growth rate

Now, we also make sure that the heifers grow and are 50 kg heavier when they enter the first lactation. Scroll up a bit and unfold the “Feeding” header.

Create scenario

- Disease treatments
- Reproduction
- Mortality and culling
- Milk yield
- Breeding strategy
- Control and settings
- Details**

- ⊙ Reproduction
- ⊙ Feeding
- ⊙ Milk yield
- ⊙ Calves
- ⊙ Dystocia
- ⊙ Milk fever
- ⊙ Retained placenta
- ⊙ Metritis

Find the parameter “Growth rate (Gompertz)” and increase it to 0.00375.

⊙ growth rate (Gompertz)	0.00314	constant	0,00375
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Step 4: increase the milk yield in first parity

As a rule of thumb, healthier calves and heavier heifers increases the milk yield in first parity by 4%. We need to add that to the simulation as well. Go to the category “Milk yield” and take note of the value in “Peak yield of healthy parity 1 cows” (in this example, the value is 32.9).

Create scenario

- Disease treatments
- Reproduction
- Mortality and culling
- Milk yield**
- Breeding strategy
- Control and settings
- Details

	Standard		Scenario
⊙ Peak yield of healthy parity 1 cows	32.9	Liters per day	32,9
⊙ Peak yield of healthy parity 2 cows	44.6	Liters per day	44,6
⊙ Peak yield of healthy parity 3+ cows	47.1	Liters per day	47,1
⊙ Persistency, parity 1	13	% drop from day 60 to day 305	13
⊙ Persistency, parity 2	30	% drop from day 60 to day 305	30
⊙ Persistency, parity 3+	36	% drop from day 60 to day 305	36

Then go to “Details” again, unfold the “Calves” header and find the last parameter called “Peak yield, 1. parity, increase after two years”. Multiply the peak yield you noted above by 1.04 and enter the difference between the two in the parameter. In the example case it would be $32.9 * 1.04 = 34.2 - 32.9 = 1.3$.

Disease treatments	concentrates for youngstock (group 4, >364 days)	1	Feeding unit per day	1,16
Reproduction	concentrates for youngstock (group 5, >546 days)	3	Feeding unit per day	3,09
Mortality and culling	roughage for youngstock (group 1, >90 days)	1.8	Feeding unit per day	1,872
Milk yield	roughage for youngstock (group 2, >180 days)	3	Feeding unit per day	3,27
Breeding strategy	roughage for youngstock (group 3, >273 days)	3.6	Feeding unit per day	4,104
Control and settings	roughage for youngstock (group 4, >364 days)	4.6	Feeding unit per day	5,336
Details	roughage for youngstock (group 5, >546 days)	5	Feeding unit per day	5,15
	Peak yield, 1.parity, increase after two years	0		1,3

Dystocia

By changing this parameter and not just the general peak yield, we assure that the yield only increases when we see the effects of increase growth in the heifers.

Step 5 (optional): reduce the calf mortality rate

Improved calf health may also lead to better survival rates. How much (if) the survival rate is increased depends on the specific reason for better calf health. In this example, we will reduce the calf mortality by 50%.

		Standard		Scenario
Disease treatments	Stillbirth risk	4.9	probability	4,9
Reproduction	Calf mortality after birth	6.7	probability	3,35
Mortality and culling	Mortality, other causes	1.5	base risk	1,5
Milk yield	Other culling	7.2	base risk	7,2
Breeding strategy	Limit for buying heifers.	238	number	238
Control and settings	Strategy for heifer sale	0	0,1 or 2	0
Details	Maximum number of cows	252	number	252

Step 6: run the scenario and check the results

Now, you can run the scenario. When it is done, you can check the results by clicking the three dots (...) next to the scenario and choose "View results". In the screenshot below, you see some of the results from the example case.

Change in contribution margin per year

Better calves	STANDARD	SCENARIO	DIFFERENCE
GM per year	£ 899,197	£ 912,581	£ 13,384
GM per cow-year	£ 3,597	£ 3,650	£ 53
GM per kg ECM	£ 0.312	£ 0.313	£ 0.001

Milk yield, feeding and methane production

Better calves	STANDARD	SCENARIO	DIFFERENCE
Milk yield per cow-year, kg ECM	11522	11669	147
Milk yield per cow-year (only milking days)	12802	12966	164
Bulk tank somatic cell count, delivered	186559	186042	-517
Delivery percentage	97.5	97.5	0.0
Daily yield during first 24 w.a.c., first parity	31.4	32.7	1.3
Daily yield during first 24 w.a.c., older cows	43.5	43.5	0.0
Daily yield during entire lactation, all cows	35.2	35.6	0.5
Daily feed intake in FE (1.1 kg Dry Matter/FE)	21.8	22.0	0.1
Feed intake in FE per cow-year	7490	7536	45
Gram methane per kg ECM	16.74	16.84	0.11
Number of Animal Units (Danish environmental measu)	439	442	3
Milk yield per Animal Unit, kg ECM	6560	6594	34