

3 x milking

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There can be several positive effects when milking three times a day instead of 2, but the effects can vary greatly. It is very important, that the infrastructure of the farm is adapted, so the cows wait as short as possible to be milked. The holding area should be large enough that waiting is minimized. If the cows have to wait too long for milking three times a day, more feet and leg problems will occur, which will counteract the positive effects. Another problem if the waiting period is too long is that the cows do not have a sufficient amount of time to eat and rest between milkings, also causing a decrease in milk yield.

Main findings from scientific papers:

- Milk yield increase 5-15 %. A realistic estimate is 9 % (Smith et al . 2002)
- The somatic cell count is decreased with 30.000 (Klei et al., 1997).
- A positive effect on udder health is found in some, but not all papers (Klei et al., 1997).
- Some studies have found the yield increase, to have a detrimental effect on the reproduction. 5% decrease in conception rate. Some but not all studies found a detrimental effect on reproduction (Allen et al. 1986).
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References:

Allen DB, DePeters EJ, Laben RC. Three times a day milking: effects on milk production, reproductive efficiency, and udder health. J Dairy Sci. 1986 May;69(5):1441-6.

Klei, L. R., J. M. Lynch, D. M. Barbano, P. A. Oltenacu, A. J. Lednor, and D. K. Bandler. 1997. Influence of milking three times a day on milk quality. J Dairy Sci 80: 427-436.

Smith, J. W., L. O. Ely, W. M. Graves, and W. D. Gilson. 2002. Effect of milking frequency on DHI performance measures. J Dairy Sci 85: 3526-3533.

Estimation of increased costs:

When milking 3 times, several additional costs are expected. These costs may vary between farms, so it is very important to discuss this thoroughly with the farmer. When you have estimated the increased costs, this figure should be used in the further calculations (step 2).

Consumption per milking	Herringbone (2x12)	Carroussel (36 spaces)
Water	0,8 m ³	1,9 m ³
Electricity	0,26 kWh	0,4 kWh
Udder dip	50 kr. per cow	50 kr. per cow
Maintenance	100 kr. per cow	100 kr. per cow
Labour (calculate separately)	Herd specific	Herd specific

When simulating the effect of 3 times milking in SimHerd, it is important to use your knowledge of the herd to estimate the potential effects. A good method can be to estimate several levels to facilitate a discussion with the farmer.

4 suggested scenarios:

- 1) Worst case – e.g. 5 % increase in milk yield
- 2) Realistic estimate - e.g. 10 % increase in milk yield
- 3) Best case – e.g. 15 % increase in milk yield
- 4) Combination - 10 % increase in milk yield + 10 % decrease in somatic cell count + other expected effects (reduction of conception rate, increased longevity, better claw and leg health)

Simulate all 4 scenarios in SimHerd, and then compare:

Step 1) – Enter the scenario

Overview Herds
Average
11111
[Edit](#)

Standard Scenario

Simulation : status

Standard ID: SHI_26038
Created by: rbd@simherd.com
Date: 9/4/2020 10:02:19 AM
Herd file: Scenario no.: SHI_218382
Created by: rbd@simherd.com
Date: 9/24/2020 1:21:19 PM

Comments
+5% - Milk yield increased with 5 %

Key figure	Standard	Scenario	Unit
27 Peak yield of healthy parity 1 cows	32.8	34.4	kg ECM per day
28 Peak yield of healthy parity 2 cows	42.5	44.6	kg ECM per day
29 Peak yield of healthy parity 3+ cows	44.8	47	kg ECM per day
30 Persistency, parity 1	13	13	% drop from day 60 to day 305
31 Persistency, parity 2	30	30	% drop from day 60 to day 305
32 Persistency, parity 3+	36	36	% drop from day 60 to day 305

Step 2) Enter the new price for other costs per cow-year (remember -> use different prices in scenario and standard)

Overview Herds

Average

11111

[Edit](#)

Overview

01
10

Data

Calibration

Scenario

Prices

Report

Standard Scenarie

Standard ID: SHI_26038

Created by: rbd@simherd.com

Date: 9/4/2020 10:02:19 AM

Scenario no.: SHI_218382

Herd file: rbd@simherd.com

Created by: rbd@simherd.com

Date: 9/24/2020 1:21:19 PM

Use prices in report

Simulation: status ✔

Comments

+5% - Milk yield increased with 5%

Milk and livestock

Feed

Disease treatment (veterinary)

Reproduction

Balance values

Other

Labour Requirement

Alle

Save to userprofile

Upload user prices

Upload system prices

Prices	Standard	Scenario	Unit
Kapacitet	972,89	972,89	€
Kapital	580,94	580,94	€
Other costs per cow-year	164,43	215	€
Labor, youngstock	0,00	0,00	€
Housing, youngstock	23,49	23,49	€
Other costs per heifer-year	58,52	58,52	€
Interest %	4,00	4,00	%
Cows per "animal unit"	0,75	0,75	Number
Calves (0-6 months) per "animal unit"	3,70	3,70	Number
Calves/heifers (>6 months) per "animal unit"	2,00	2,00	Number

Use different prices in scenario and standard

Step 3) Repeat for the other scenarios

Step 4) Compare the scenarios (tick all boxes and create PDF)

SH_26038
9/4/2020 10:02:19 AM

Created by: rbd@simherd.com
Other information: Klon af nudrift SH_19953
Herd file:



Calibration



Create
NEW
scenario

Create PDF (general)

Create PDF

Scenario
Scenario no.: SHI_218387
Created by: rbd@simherd.com
Date: 9/24/2020 1:35:33 PM
Comments: SCC+10% - Milk yield increased with 10 %, SCC -30.000



Scenario



Prices



Report

Scenario
Scenario no.: SHI_218385
Created by: rbd@simherd.com
Date: 9/24/2020 1:27:23 PM
Comments: +15% - Milk yield increased with 15 %



Scenario



Prices



Report

Scenario
Scenario no.: SHI_218384
Created by: rbd@simherd.com
Date: 9/24/2020 1:22:54 PM
Comments: +10% - Milk yield increased with 10 %



Scenario



Prices



Report

Scenario
Scenario no.: SHI_218382
Created by: rbd@simherd.com
Date: 9/24/2020 1:21:19 PM
Comments: +5% - Milk yield increased with 5 %



Scenario



Prices



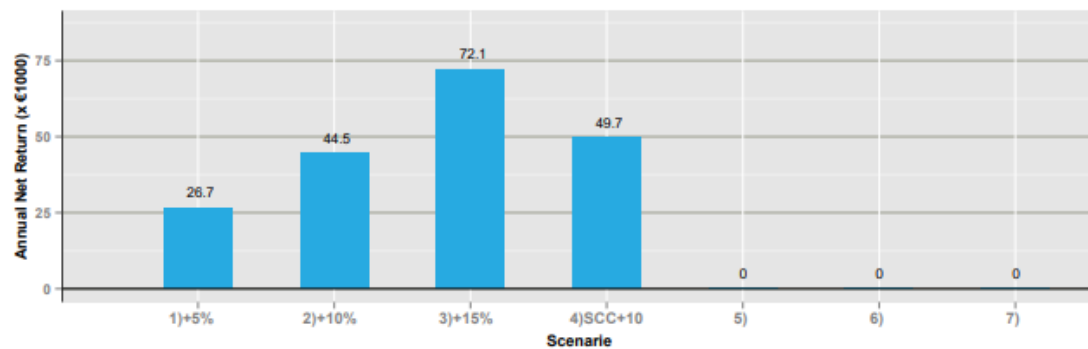
Report

Economics of management changes

CHR: 11111

24th September 2020

The bar chart shows changes in Net Return (NR) per year for up to 7 scenarios compared to the Standard (status quo). Changes are presented for simulation years 6 to 10.



Comments to the Standard Klon af nudrift SH_19953

A few technical results of the simulation

	Standard	1)+5%	2)+10%	3)+15%	4)SCC+10	5)	6)	7)
Cow-years #	200	0	0	0	0	0	0	0
Calvings #	217	0	1	0	1	0	0	0
Replace %	38	-0	0	0	0	0	0	0
ECM / cow-year	11119	546	1111	1666	1153	0	0	0
Sold heifers #	6	0	0	0	0	0	0	0
Sold crossbred calves #	0	0	0	0	0	0	0	0
Youngstock #	191	-0	-0	-0	0	0	0	0
Animal Units* #	350	-0	-0	-0	0	0	0	0
Need for labor**	129.3	-0.0	0.0	-0.1	0.0	0.0	0.0	0.0