

Sand bedding

3 January 2024

Changing from mattress to sand bedding can improve cow welfare and milk production. The largest effects can be seen on claw and leg health in combination with an improved udder health. Due to the sand bedding the amount of time lying is often increased substantially which results in an increased milk yield. All these effects need to be captured, to simulate the effect of sand bedding.

When you have created your herd and calibrated the data, you can **create a scenario**.

(NB: It is very important that the correct number of diseases is entered in the herd data. If no or a low level of diseases is entered the effect of sand bedding will be underestimated)

- 1) Reduce the risk of “claw and leg problems”, “Digital Dermatitis” and “foul in the foot” with **42%** (multiply the key figures with 0,58).

Create scenario

	Standard		Scenario
Disease treatments			
Reproduction			
Mortality and culling			
Milk yield			
Breeding strategy			
Control and settings			
Details			
	Udder diseases		
	Reproduction diseases		
	Metabolic diseases		
	Hoof and leg diseases		
	Digital Dermatitis	43.2	base risk <input type="text" value="25,1"/>
	Foul in the foot	4.4	base risk <input type="text" value="2,6"/>
	Claw and leg problems	26.7	base risk <input type="text" value="15,5"/>

- 2) Reduce the risk of mastitis with **27 %** (multiply with 0,73)

	Standard		Scenario
Disease treatments			
Reproduction			
Mortality and culling			
Milk yield			
Breeding strategy			
Control and settings			
Details			
	Udder diseases		
	Mastitis	35.5	base risk <input type="text" value="25,9"/>
	Somatic Cell Count	245	cells per ml (x 1000) <input type="text" value="245"/>
	Reproduction diseases		
	Metabolic diseases		
	Hoof and leg diseases		
	Digital Dermatitis	43.2	base risk <input type="text" value="25,1"/>
	Foul in the foot	4.4	base risk <input type="text" value="2,6"/>
	Claw and leg problems	26.7	base risk <input type="text" value="15,5"/>

3) Increase the peak yield of all parities with 4 % (multiply 1,04)

Create scenario

	Standard	Scenario	
Disease treatments	⊕ Peak yield of healthy parity 1 cows	31.7 kg ECM per day	33
Reproduction	⊕ Peak yield of healthy parity 2 cows	42.8 kg ECM per day	44,5
Mortality and culling	⊕ Peak yield of healthy parity 3+ cows	45.2 kg ECM per day	47
Milk yield	⊕ Persistency, parity 1	13 % drop from day 60 to day 305	13
Breeding strategy	⊕ Persistency, parity 2	30 % drop from day 60 to day 305	30
Control and settings	⊕ Persistency, parity 3+	36 % drop from day 60 to day 305	36
Details			

4) Go to “check prices” -> press use different prices in scenario and standard -> increase “other cost per cow-year” with 9,5 euros (70 DKK)

Create scenario

Use different prices in standard and scenario

	Standard	Scenario	
Milk and livestock	⊕ Other costs per cow-year	164.43 €	173.93 €
Feed	⊕ Other costs per heifer-year	58.52 €	58.52 €
Disease treatment (veterinary)	⊕ Interest %	4.00 %	4.00 %
Other	⊕ Cows per "animal unit"	0.75 Stk	0.75 Stk
Reproduction	⊕ Calves (0-6 months) per "animal unit"	3.70 Stk	3.70 Stk
Specific mastitis pathogens	⊕ Calves/heifers (>6 months) per "animal unit"	2.00 Stk	2.00 Stk
Balance values	⊕ Kapacitet	972.89 Kr	972.89 Kr
Labour Requirement	⊕ Kapital	580.94 Kr	580.94 Kr
	⊕ Intervention (not used)	0.00 €	0.00 €
	⊕ Genomic test	23.49 €	23.49 €

All estimates are based on the following literature:

<https://sp.landbrugsinfo.dk/Tvaerfaglige-emner/FarmTest/Sider/FarmTest-93-Sand-i-sengebaase.pdf>

Cook, N. B. 2003. Prevalence of lameness among dairy cattle in Wisconsin as a function of housing type and stall surface. Journal of American Veterinary Medical Association 223: 1324 – 1328.

Cook, N. B. 2011. Cow comfort and health. (Online). Milkproduction.com. (Dato for citering: 7.12.2012). Dato for revision 18.04.2011. <http://www.milkproduction.com/Library/Scientific-articles/Housing/Cow-comfort-and-health/>.

Cook, N. B., T. B. Bennet & K. V. Norlund. 2004. Effect of free stall surface on daily activity patterns in dairy cows, with relevance to lameness prevalence. J. Dairy Sci. 87:2912-2922.