

## APPENDIX

Table 6. Information about and the studies from 1990-1999 regarding prevalence of hoof disorders

<b>Authors</b>	<b>Info about the study</b>	<b>Prevalence (%)</b>
Alban 1995. Denmark	1990-1991, 165 dairy herds, total 9762 cows, mean herd size 62.1 (20-185), parity 1-4. Study based on the cows need for veterinary treatments (yes/no), each cow observed just once and the obs. period was 30 days before calving and 305 days after. Breeds; Red Danish, Danish Black and White, Danish Jersey, Danish Red and White, mixed breeds. Housing system; tied up or loose. Summer, pasture (May-Sept.) winter (Oct.-April). Lameness defined as: foul in the foot, SU, interdigital dermatitis, contusion, laminitis, arthritis, foot rot, swollen hock and other lameness.	<b>Incidence: Lameness 6.92</b>
Brown et al., 2000. Southeastern USA. PDD	Study on slaughterhouse on 739 beef cattle and 76 culled dairy cattle. Included four visits during one year were the left hind leg, from approximately 200 animals/visit, were taken and examined. The slaughterhouse was almost only handling adult culled cattle.	Cow level PDD: <b>29</b>
Clarkson et al., 1996. Murray et al., 1996 United Kingdom.	1989-1991, 37 dairy farms, total mean of 4230 cows, varying herd sizes from 35 to 204. Cows on pasture during summer (may-october) winter (november- april). Incidence- cow treated with preventive claw trimming or examined for lameness. Locomotion was scored with grade 1-5, lame cows had 3-5. Operators- Vet, stockman, contractor or student. Herds were scored at approximately monthly intervals except for some farms which a long distance that were scored thrice a year.	Cow-level Lameness: <b>20.6</b> DD: <b>8</b> HHE: <b>4</b> SU: <b>28</b>
Frankena et al., 1991 Netherlands.	1989-1990, 59 dairy farms during pasture period and 59 dairy farms during the housing period, the farms was not always the same in the two studies. The farms were clients to two professional hoof trimmers whom at least once per year trimmed the hoofs of the cows. Loose housing type, during pasture 3048 cows were examined and during housing 3208 cows were examined, mainly Holstein Friesian and Dutch Friesian.	Cow level DD -Pasture: <b>8.1</b> -Housing: <b>13.8</b> SU -Pasture: <b>4.4</b> -Housing: <b>5.5</b>
Frankena et al., 1992. Netherlands.	1991, 123 dairy breeding farms, 1141 female calves in ages between 2.5-12 months, breed; 95% Holstein/Friesian and/or Dutch Friesian (or cross-breeds), housing; tie stalls, slatted floors, straw yards. Feed; milk, concentrate, roughage/maize/silage and hay. Each farm was visited once by 3 specifically trained claw examiners.	Heifers DD: <b>0.16</b>
Hedges et al., 2001 United Kingdom.	1997-1999, 5 farms, 900 dairy cows, overall herd size of 90 cows, breed Holstein Friesian, cubicles in winter, conserved forage (grass or maize and grass silage) and concentrate during winter, pasture and concentrate during summer, parity 1-4+, autumn calving, mean herd lact. 305 days, MY 5500-7500kg/cow, 1-2 lact. in the study. Farmer identified clinical lameness and one of the six vets diagnosed and treated it. A veterinary also observed every second month the herds locomotion. Clinical lameness caused by some lesion (most frequent: SU, DD, white line separation or interdigital necrobacillosis).	<b>Incidence: Lameness 68.9</b>

Manske et al., 2002a. Sweden.	1996-1998, 101 dairy farms, 4899 heifers and cows, pregnant heifers-parity 4+, SRB, SLB or SRB/SLB or others, housing system: tied up short/long (mean exam. 42 animals) or cubicles (mean exam. 71 animals). Lying surface: littered concrete or rubber mats. Flooring: solid concrete or slatted concrete. Feed: based on roughages and concentrate were calculated individually, standardized or some other. Before study herds were trimmed when needed or 1-2 times/year. Hoof lesions were recorded by one of the authors or specifically trained technicians when hoofs were trimmed (spring or autumn), each animal were examined once. Lameness caused by some lesion, scored 0-1.	Cow level Lameness: <b>5.1</b> HHE: <b>41</b> SU: <b>8.6</b>
Rodriguez-Lainz et al., 1996. USA, California. PDD	1993-1994. Based on answers on a questioner from 458 dairy managers out of 1429 who was sent out. Mostly dry lots in the south and central regions and in the north there was mainly free stalls and pasture systems used. The prevalence were significantly higher in the central and south regions than in the north and north coastal regions, central and south dairies had larger herds and higher mean milk production than the dairies from the north regions.	Cow level / Herds affected : PDD: <b>11.6 / 23.1-73.5</b>
Wells et al., 1999. USA. PDD	Performed in 1996, including 79% of the dairy cows in USA with more than 30 cows, tie and free stalls,	Cow level / Herds affected PDD: <b>11.9 / 43.5</b>
Wells <i>et al.</i> , 1993. Minnesota and Wisconsin, USA. Lameness	Average herd size 50 cows range from 24-102, 17 herds in the study, Holstein as main breed, stanchions or tie stalls (TS) (14) and free stalls or dry lots (FS) (3), scoring system 0-4, clinically lame $\geq 2$ , the same two investigators for all herds, summer and spring, concrete floor in the barn, in summer 10 of 17 herds had access to pasture and in spring 3 of 16, mean parity were 2,67-2,77 and for lame cows 3,27-3,35,	Cow level- Lameness TS, Summer: <b>14.1</b> Spring: <b>15.3</b> FS, Summer: <b>12.2</b> Spring: <b>21.9</b>
Whitaker et al., 2000 United Kingdom	1998-1999, 340 farms, 45 220 cows and heifers with a total mean herd size of 133 cows (33-432). The milk production was in average 6620 kg cow/year (4000-9200 kg). Not mentioned if cows allowed pasturing during summer (april-september) A record sheet was made every month by the farmer and the veterinary surgeon of health, productivity, culling, disease, pregnancy diagnoses and inseminations. Lameness was not counted if cows received routine claw trimming or repeated incidents in same month in same hoof. Scoring system of lameness not mentioned.	<b>Incidence-Lameness</b> Average: <b>23.7</b> Cubicles: <b>25.5</b> Straw yards: <b>17.7</b>

Table 7. Information about and the studies from 2000-2011 regarding prevalence of hoof disorders

<b>Authors</b>	<b>Info about the study</b>	<b>Prevalence (%)</b>
Amory et al., 2008. United Kingdom	2003-2004, 30 dairy farms, 1824 dairy cows, mean herd size 113 (41-395), parity 2-5+, lact. 300 days, mean MY 7073 (4983-8885) kg. Clinical lameness caused by lesions was recorded by trained farmers. Obs.period 300 DIM and when the first type of lesion was recorded. Lameness- SU, DD, white-line disease or other lesion.	Cow level Lameness: <b>34.6</b> DD: <b>7.5</b> SU: <b>12.6</b>
Barker et al., 2010. United Kingdom.	2006-2007, 205 dairy farms, mean herd size 163 cows (37-642), average MY 7202 L (2500-11200 L). Breed: mainly Holstein Friesian. Main type of housing free-stall house and deep straw yard. One or more of 4 trained researchers made a single visit to the farms they scored 0-4.	Cow Level Lameness: <b>36.8</b>
Capion et al., 2008. Denmark	2002-2003, 55 herds, 6240 cows with mean herd size of 127 cows (73-450), mean MY 8919 kg (6382-10384). Breed: 90 % Danish Holstein. Housing: loose in cubicle or straw yard. Four trained claw trimmers collected data about the foot health during routine hoof trimming. Bad locomotion was scored as lameness 0-2 (2 represents score 4 and 5).	Cow level/Herds affected Lameness: <b>5</b> DD: <b>19 / 85</b> SU: <b>6</b>
Cook, 2003. Wisconsin, USA. Lameness	30 herds, a total of 3621 cows, Holstein as main breed, stanchions or tie stalls (13), free stalls (15) and access to both (2), scoring system 1-4, clinically lame $\geq 3$ , severe lame $\geq 4$ , the author scored the cows with help from an investigator in some of the cases, summer and winter, sand stalls (12) or non-sand stalls (16) the non-sand stalls used rubber mat or mattresses with some organic bedding material e.g. sawdust, access to pasture ?, mean parity ?, visited by hoof-trimmers at least once a year, mean milk-yield were 10.482 kg,	Cow level- Lameness Summer: <b>21.1</b> Winter: <b>23.9</b>
Cramer et al., 2008. Ontario, Canada. Examined 11 claw/hoof problems	Study conducted from march 2004 until May 2005, 204 herds, 13530 cows, 93 herds and 3967 cows had records from multiple examinations, both tie (142) and free (38) stalls and combinations (3) and one used a bedded pack, no information of housing type from the 20 remaining, five hoof trimmers recorded lesions in the farms, for free-stall herds the average herd size were 86 lactating cows and MY were 9254 kg, for the tie-stalls the numbers were 42 cows and 9179 kg,	Cow level/Herds aff. DD: TS- <b>9.3 / 69.7</b> FS- <b>22.9 / 92.1</b> HHE: TS- <b>8.3 / 67.6</b> FS- <b>8.4 / 68.4</b> SU: TS- <b>4.7 / 70.4</b> FS- <b>9.3 / 89.5</b>
Espejo <i>et al.</i> , 2006 Minnesota, USA. Lameness	Farms were visited once between June and October in 2004, average daily milk production were 37,6 kg FCM/cow (3,5% fat), 50 herds, divided in 53 groups, a total of 5626 high producing Holstein dairy cattle, only free stalls, scoring system 1-5, clinically lame $\geq 3$ , severe lameness $\geq 4$ , one trained investigator did all the scoring except from 3 farms were a second trained investigator did the scoring, herds having 150 or more cows were selected to be in the study,	Cow level Lameness: <b>24.6</b>
Fjeeldas et al., 2011 Norway	2008-2010. Claw disorders: 66 dairy herds, 2709 lactating or dry cows. Locomotion: 54 herds, 2216 cows. Breed: mainly Norwegian Red. Parity 1- $\geq 3$ and mean milk production varied between 6104-6753kg. Feed	Cow level Lameness: <b>7.7</b>

	based on concentrate, silage and/or pasture. Housing: free stalls with alleys of solid concrete or slatted concrete or solid rubber flooring. One visit by one of the 15 trained claw trimmers. Lameness scored 3-5, (1-2 not lame). Prevalence of hind claw lesions were calculated as affected hind claw pairs divided by total cows examined.	HHE: <b>18.1</b> SU: <b>2.9</b>
Holzhauser et al., 2006. Netherland. Holzhauser et al. 2008. Netherland.	2002-2003, 383 herds, mean herd size 58,6 cows, totally 22 454 dairy cows, breeds 90 % pure or crossbreeds with Holstein Friesian, Meuse Rhine Ijssel, parity 1-5+, 92 % on slatted floor in free stalls, trimming intervals before study; <6- ≥12 months. 20 trained claw trimmers recorded in one occasion lesions in hind hooves as present or absent.	Cow level DD: <b>21.2</b> SU: <b>5.6</b>
Kujala et al., 2009. Finland	2003-2004, 703 herds, 16 792 dairy cows, breed Ayrshire, Holstein or Finnish, parity 1-4+, lact. period 305 days, claws trimmed 1-8 times, housing; loose (mean 50, 13-180) or tie (mean 26,8, 5-85). Flooring in loose housing: heavy straw beddings, slatted floor or with scraper. Type of bedding in all stalls: hard (little straw), mats or deep bedding. Feed: commercial full, commercial half, grain or TMR. Mean yield free housing 8400 kg (4700-10600 kg), mean tie 8600 kg (67000-11400kg). Many hoof trimmers participate in this study and recorded lesions, 37 trimmers in tie stalls and 33 claw trimmers in loose, cow-level data were used.	Cow level HHE: TS- <b>2.7</b> FS- <b>23.9</b> SU: TS- <b>3.9</b> FS- <b>4.1</b>
Nielsen et al., in press. Denmark	3 dairy herds, 742 cows, main breed Danish Holstein, parity 1-3+. Milking carousel, mean milkproduction varied between 9007-9511 kg ECM/cow/year. Loose housing with slatted or solid concrete floor. One or two of the four authors or a research technician from Aarhus University made the observations on approximately 12 occasions in hind hooves.	Cow level DD: <b>62</b>
Sanders et al., 2009. South-eastern USA. SU	A 2100-cow dairy, data collected between 2004-2007, sand-bedded free stalls, fed TMR, milked twice daily, primarily rubber floor but the lane to the parlor were concrete floor, if the cow were lame they were presented to 1 of 2 hoof trimmers which recorded the hoof lesion,	Cow level SU: <b>16</b>
Sogstad et al., 2005a. Norway	2002, 55 tie herds (1118 cows), 57 loose herds (1547cows), mean yield production in tie 6210kg, mean milkprod. in loose 6359kg. Feed: silage, concentrate and or pasture, feed ratios almost the same between tie and loose. Stall base; rubber mats, wood, concrete or deep litter. Alleys; solid concrete or slatted. Trimming of claws before study occasionally, 1-2/ year or not at all, trimmed once in the study. Claw lesion were diagnosed and recorded by 13 trained claw trimmers. Total number for hoof lesion prevalence were record from the highest score for front and hind claws and the prevalence of claw lesions was calculated as hoof lesion in any claw or foot with one or more lesion. The prevalence for front and hind hooves was also calculated. Lameness was scored 1 (moderate)-2 (severe) and 0 as not lame.	Cow / Herds affected Lameness: TS- <b>0.7</b> FS- <b>1.6/5</b> HHE: TS- <b>8.1</b> FS- <b>39.6</b> SU: TS- <b>2.6</b> FS- <b>3.0</b>
Sogstad et al., 2005b. Norway	This study was a part of the study Sogstad et al. (2005a) did.  2002, 57 free stalls herds, mainly Norwegian red breed, 1547 dairy cows, 403 heifers (<1,5years). Milk production 6359 kg/cow year, fed 40,4 % silage, 37,3 % concentrate and/or 16,4 % pasture. Alleys: solid	

	concrete slatted. Stall base: concrete, rubber mats, wood or deep litter straw beds. Trimming of claws before study occasionally, 1-2/ year or not at all, trimmed once in the study. Claw lesion were diagnosed and recorded by 13 trained claw trimmers on one occasion.	
Somers et al., 2003. Netherland	1999-2000, 86 dairy farms, >25 cows/herd, 6909 dairy cows in 112 herds, mean herd yield 7000kg/cow and year, parity 1-4+ and 305 day lact. period. Before study; trimming 2 times/year, straw yards trimmed 1/year or when need, in study; trimming between pasture/housing period and the opposite. Solid concrete floor (SCF), slatted floor (SL), slatted floor with manure scraper (SL-SCR), straw yard (SY), zero-grazing pasture period (ZG). Breeds on concrete floor systems were Holstein and Holstein crossbreeds, breeds on straw yard herds were Jersey, Holstein, Mont Beliardes and Dutch Friesian. Claw lesions in hind limbs were reg. by one author together with an trained animal science student group at the same time when the claws were trimmed.	Cow level DD: <b>37.4</b> SU: <b>4.8</b>
Van der Waaij, 2005 Netherland	2002-2003, 430 herds, 21 611 dairy cows and heifers, breed 75% Holstein Friesian. Thirty-nine professional claw trimmers collected data about the presence or absence of claw disorders. Cows were recorded once but they could have more than one disorder at that time.	Cow level DD: <b>21.7</b> SU: <b>5.4</b>

Table 8. Information about the studies regarding risk factors for hoof disorders.

<b>Authors</b>	<b>Info about the study</b>
Alban 1995. Denmark.	1990-1991, 165 dairy herds, total 9762 cows, mean herd size 62.1 (20-185), parity 1-4. Study based on the cows need for veterinary treatments (yes/no), each cow observed just once and the obs. period was 30 days before calving and 305 days after. Breeds; Red Danish, Danish Black and White, Danish Jersey, Danish Red and White, mixed breeds. Housing system; tied up or loose. Summer (May-Sept.) winter (Oct.-April). Lameness defined as: foul in the foot, SU, interdigital dermatitis, contusion, laminitis, arthritis, foot rot, swollen hock and other lameness.
Alban <i>et al.</i> , 1996. Denmark.	A retrospective longitudinal study. 2148 dairy herds, Danish Black and White, Red Danish and Danish Jersey. Tied-stalls. 2148 dairy herds. Cows which calved from July 1993 to January 1994 and disease incidents 1 month before to two months after parturition were included.
Barker <i>et al.</i> , 2008. England.	February 2003 - February 2004, 27 farms, 3074 dairy cows, Holstein-Friesian breed, data collected using a combination of milk recording data, interviews with farmers and direct observations, cows evaluated by using a 3-point scale. 1 = normal and 3 = definitely lame. The animals were assessed for hair loss, abrasion or swelling where 1 = no hair loss, swelling or abscesses, 2= mild hair loss and swelling but no abscesses and 3 = severe abscesses, swelling or both. The data included nutritional management, general farm information, heifer and dry cow management, lameness treatment and control and cattle breed and replacement management. Mixed housing.
Bielfeldt <i>et al.</i> , 2004.	September 2001 – June 2002, 4621 cows from 290 farms, 82 of these had tie-stall barns without exercise, 166 farms had tie-stall

Switzerland.	barns with exercise and 42 were loose housing with exercise. The lameness was examined during routine hoof trimming. The lameness was evaluated by using a 6-point scale: 0 = normal gait, 1 = splayfoot, 2 = uneven gait, 3 = mildly lame, possibly arched back, 4 = obviously lame, movement impaired, arched back and 5 = severely lame with difficulty in getting up, extremely arched back.
Cramer <i>et al.</i> , 2009. Canada.	March 2004 – May 2005, 5582 cows in 134 tie-stalls and 2603 cows in 38 free-stalls, Holstein cattle, tie stalls and free stalls. Cross-sectional observational study. Hoof trimmers examined the claw lesions.
Faye, B. & Lescourret, F.. 1989. France.	1 January 1979 – 31 December 1980, 80 French Dairy farms, loose housing and tied housing, the analysis was performed using a $\chi^2$ test of independence and one-way analysis of variance, farmers were chosen according to their capacity to identify the lesion efficiently.
Green <i>et al.</i> , 2002. United Kingdom.	1997 – 1999 (18 months), 900 cows, five farms, Friesian/Holstein breed, autumn calving herds, cows housed in cubicles during the winter. Included factors that affected MY were stage of lactation, parity, farm of origin, and whether a cow ever became lame. The lameness was recognized by the farmer and diagnosed by a veterinarian.
Groehn <i>et al.</i> , 1992. USA.	June 1986 – August 1987, 45 herds, 3610 cows, Holstein and Holstein crossbreeds, a prospective cohort design was used, cows that was lactating and not lame in the beginning of the study were included. Lameness was defined as “any abnormality in locomotion”.
Gustafson, G.M. 1993. Sweden.	4 year experiment starting in July 1985, 65 cows, first and second calvers, Swedish Red and White dual-purpose breed. Tied stall, half of the group were exercised outdoors and the rest were always tied. Floor covered with rubber mats and a mixture of sawdust and chopped straw. Feeding: grass silage, a concentrate mixture and hay.
Hedges <i>et al.</i> , 2001. United Kingdom.	1997-1999, 5 farms, 900 dairy cows, overall herd size of 90 cows, breed Holstein Friesian, cubicles in winter, conserved forage (grass or maize and grass silage) and concentrate during winter, pasture and concentrate during summer, parity 1-4+, autumn calving, mean herd lact. 305 days, MYs 5500-7500kg/cow, 1-2 lact. in the study. Farmer identified clinical lameness and one of the six vets diagnosed and treated it. A veterinary also observed every second month the herds locomotion. Clinical lameness caused by some lesion (most frequent: SU, DD, white line separation or interdigital necrobacillosis).
Holzhauser <i>et al.</i> , 2006. Netherlands.	May 2002 – December 2003, dairy cows in 383 herds, medium herd size of 50 to 65 cows, 90 % of the cows were crossbred and purebred Holstein-Friesian breed and Meuse Rhine Ijssel breed, ca 90 % were housed on slatted floor in free stalls, data collected by 20 hoof trimmers during claw trimming. Scoring for DD based on visual inspection, pain reactions of the cows and smell, lesions noted as present or absent on the hind claws.
Holzhauser <i>et al.</i> , 2008. Netherlands.	May 2002 – December 2003, 22454 cows, 383 herds, a cross-sectional study, 90 % were crossbred or purebred Holstein Friesian. Ca. 90 % were housed in a free stall with slatted floor. The majority of the cows were grazing during the summer period and the rest housed their cows all the year. The data was collected by claw trimmers during claw trimming. Scoring for SU based on visual inspection, pain reactions and smell. The year was divided into 4 periods: early winter, late winter, early summer and late summer.
Manske <i>et al.</i> , 2002. Sweden.	2-year experiment, 77 dairy herds, 3444 cows, SRB and SLB breeds and a few crossbreeds, different housing systems (cubicles and short and long tie-stalls). The stall surface in tie-stalls was either bedded rubber mats or bedded concrete and in free-stalls it was either scraped solid concrete or slatted concrete.
Onyiro <i>et al.</i> , 2008. United Kingdom.	Heritability for DD in Holstein-Friesian breed and the correlation between hoof and leg exterior and risk of DD were studied in first-lactation cows.

Rodriguez-Lainz <i>et al.</i> , 1999. Chile.	January – March 1996, 3265 cows, 22 farms, lactating dairy and dual-purpose cows, German Red- Pied, German Black- Pied and Holstein crossbreeds. Different types of housing systems (loose (straw) yards, open corrals or free stalls. On a few diaries the cows were kept on pasture the whole year). Cross-sectional study. A PDD-positive cow had a alopecic foot lesion which was well-demarcated with a distinguished exterior.
Sanders <i>et al.</i> , 2009. USA.	This study was a part of the study Sogstad et al. (2005a) 2002, 57 free stalls herds, mainly Norwegian red breed, 1547 dairy cows, 403 heifers (<1,5years). Milk production 6359 kg/cow year, fed 40,4 % silage, 37,3 % concentrate and/or 16,4 % pasture. Alleys: solid concrete slatted. Stall base: concrete, rubber mats, wood or deep litter straw beds. Trimming of claws before study occasionally, 1-2/ year or not at all, trimmed once in the study. Claw lesion were diagnosed and recorded by 13 trained claw trimmers on one occasion.
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Somers <i>et al.</i> , 2003. Netherlands.	1999-2000, 86 dairy farms, <25 cows/herd, 6909 dairy cows in 112 herds, mean herd yield 7000kg/cow and year, parity 1-4+ and 305 day lact. period. Before study; trimming 2 times/year, straw yards trimmed 1/year or when need, in study; trimming between pasture/housing period and the opposite. Solid concrete floor (SCF), slatted floor (SL), slatted floor with manure scraper (SL-SCR), straw yard (SY), zero-grazing pasture period (ZG). Breeds on concrete floor systems were Holstein and Holstein crossbreeds, breeds on straw yard herds were Jersey, Holstein, Mont Beliardes and Dutch Friesian. Claw lesions in hind limbs were reg. by one author together with an trained animal science student group at the same time when the claws were trimmed.
Somers <i>et al.</i> , 2005a. Netherlands.	September 1999 - June 2000, 5026 cows in 84 herds, housed on different flooring systems in cubicle houses, Holstein or Holstein crossbreeds, a cross-sectional study, lesions of DD were examined during claw trimming. Early stage of DD defined as an ulcerative lesion with a granular, red, strawberry –like surface. Stage 2 defined as a wider granular area or two or more “stage-1-areas” on the same foot. DD-positive cow had stage 1 or stage 2 on both or one of the hind feet. The observation was divided into housing and a pasture study.
Somers <i>et al.</i> , 2005b.	October 2002 – May 2003, 12 farms, monthly controls, cows housed on different types of floors, more than 35 cows in the herds,

Netherlands.	Holstein-Friesian breed, and pasture during the summer. The cows were trimmed two weeks before the fist inspection.
Somers <i>et al.</i> , 2005c. Netherlands.	September 1999 – June 2000, 2751 cows (46 herds) and 2326 (41 herds) were studied for the housing and pasture seasons, respectively. Cross-sectional study, cubicle-houses. To distinguish between winter and summer conditions, the study period was divided into a housing and pasture study.
Tranter <i>et al.</i> , 1992. New Zealand.	March 1990, 8 herds, case-control study, almost only Friesian cattle and some crossbreeds. All cows were examined by a veterinarian.



Table 9. Number of cows and frequency of remarks at claw trimmings

Trimdate	Nr of cows	Claw remarks, % of the cows						
		IH	HHE	H	Ulcers	Eczema	Foot rot	No remark
2006-01-30	29	0	55	10	0	17	0	41
2006-04-24	26	0	62	4	4	19	0	38
2006-10-16	24	0	21	25	4	0	0	58
2007-01-29	37	3	59	22	0	8	0	35
2007-04-10	31	3	58	6	3	3	0	39
2007-10-24	44	0	41	14	2	5	0	59
2008-01-28	49	0	37	4	0	8	0	55
2008-04-14	40	0	40	15	5	5	0	53
2008-10-27	36	0	25	17	0	0	0	69
2009-01-29	46	2	26	9	0	0	0	67
2009-04-15	36	3	42	8	3	0	0	50
2009-10-19	36	3	14	25	0	0	0	61
Average	36,2	1,1	39,9	13,2	1,8	5,5	0,0	52,2

Table 10. Total number of cows in first, second or later lactation at claw trimming and frequency of remarks

Lactation	Nr of trimmings	Claw remarks, % of the trimmings						
		IH	HHE	H	Ulcers	Eczema	Foot rot	No remark
1	164	0	39	20	2	9	0	51
2	137	1	36	7	1	4	0	58
3-	134	2	43	11	1	1	0	51

Table 11. Number of cows with 3-6 trimmings and frequency of remarks

Trimmings without remarks	Nr of cows	Nr of trimmings	Claw remarks, % of the cows						
			IH	HHE	H	Ulcers	Eczema	Foot rot	No remark
0%	10	38	5	95	24	5	13	0	0
1-55%	22	91	1	56	15	1	10	0	35
56-99%	24	121	0	25	4	0	1	0	70
100%	12	44	0	0	0	0	0	0	100

Table 12. Effect of HHE and effect of interaction of parity or lactation period and HHE on MY (kg/day), number of visits to the FA per day, and time in HA (min/day). S<sup>2</sup> for MI and number of visits to FA. NS = no significance

	MY	S <sup>2</sup> MI	Visits FA	S <sup>2</sup> visits FA	Time in HA
	NS	P < 0.0761	P < 0.0001	P < 0.0820	NS
HHE	-	2.11	6.27	38.29	-
No HHE	-	2.17	6.17	37.19	-
<b>Parity * HHE</b>	P < 0.0001	P < 0.00314	NS	NS	P < 0.0053
Parity 1; HHE	27.57	2.20	-	-	57.25
Parity 1; No HHE	28.53	2.21	-	-	60.40
Parity 2; HHE	35.77	2.03	-	-	47.16
Parity 2; No HHE	34.46	2.13	-	-	45.07
<b>Period * HHE</b>	NS	NS	NS	NS	P < 0.0041
Period 1; HHE	-	-	-	-	58.67
Period 1; No HHE	-	-	-	-	65.96
Period 2; HHE	-	-	-	-	51.75
Period 2; No HHE	-	-	-	-	47.63
Period 3; HHE	-	-	-	-	46.20
Period 3; No HHE	-	-	-	-	44.62

Table 13. Effect of H and effect of interaction of parity or lactation period and H on MY (kg/day), MI (min/day), number of visits to the FA per day, time in FA (min/day) and time in HA (min/day). S<sup>2</sup> for MI and number of visits to FA. NS = no significance

	MY	Milking interval	S <sup>2</sup> milking interval	Visits FA	S <sup>2</sup> visits FA	Time in FA	Time in HA
	P < 0.0001	NS	P < 0.0205	P < 0.0001	P < 0.0150	P < 0.0328	P < 0.0930
H	30.00	-	2.28	6.20	34.96	51.76	53.17
No H	31.70	-	2.12	6.26	37.99	54.52	52.04
<b>Parity * H</b>	P < 0.0838	P < 0.1000	P < 0.0175	P < 0.0667	NS	P < 0.0050	P < 0.0055
Parity 1; H	27.36	9.23	2.29	6.28	-	52.23	61.09
Parity 1; No H	28.29	9.35	2.18	6.07	-	59.06	58.20
Parity 2; H	32.63	9.53	2.27	6.25	-	51.29	45.25
Parity 2; No H	35.11	9.15	2.08	6.33	-	49.99	45.88
<b>Period * H</b>	P < 0.0087	NS	NS	NS	P < 0.0060	P < 0.0015	P < 0.0288
Period 1; H	29.47	-	-	-	38.44	55.87	69.66
Period 1; No H	31.45	-	-	-	36.00	52.67	61.71
Period 2; H	32.54	-	-	-	34.70	53.78	50.57
Period 2; No H	33.04	-	-	-	37.28	53.97	48.90
Period 3; H	27.98	-	-	-	31.75	45.62	39.28
Period 3; No H	30.61	-	-	-	40.70	56.93	45.50

Table 14. Effect of AL and effects of interaction of parity or lactation period and AL on MY (kg/day), MI (min/day), number of visits to the FA per day, time in FA (min/day) and time in HA (min/day). S<sup>2</sup> for MI and number of visits to FA. NS = no significance

	<b>MY</b>	<b>Milking interval</b>	<b>S<sup>2</sup> milking interval</b>	<b>Visits FA</b>	<b>S<sup>2</sup> visits FA</b>	<b>Time in FA</b>	<b>Time in HA</b>
	NS	NS	P < 0.0260	P < 0.0001	NS	NS	P < 0.0961
AL		-	2.10	6.25	-	-	51.32
No AL	-	-	2.19	6.18	-	-	53.24
<b>Parity * AL</b>	P < 0.0004	NS	P < 0.0676	NS	NS	-	P < 0.0045
Parity 1; AL	27.74	-	2.16	-	-	-	56.53
Parity 1; No AL	28.55	-	2.25	-	-	-	61.18
Parity 2; AL	35.41	-	2.04	-	-	-	46.10
Parity 2; No AL	34.59	-	2.12	-	-	-	45.29
<b>Period * AL</b>	P < 0.0690	NS	NS	NS	NS	NS	P < 0.0162
Period 1; AL	31.45	-	-	-	-	-	59.56
Period 1; No AL	31.17	-	-	-	-	-	65.62
Period 2; AL	33.22	-	-	-	-	-	50.66
Period 2; No AL	32.94	-	-	-	-	-	48.20
Period 3; AL	30.06	-	-	-	-	-	43.73
Period 3; No AL	30.61	-	-	-	-	-	45.89