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Lameness and foot lesions in Swiss dairy cows: I. Prevalence

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Summary

Prevalences of foot lesions and lameness were recorded in 1'449 Swiss dairy cows during routine claw-trimming on 78 farms from June 2010 until February 2011. Lameness was present in 14.8 % of cows and on 80.8 % of investigated farms. Highest prevalences were seen for widened white line (80.7 %/100 %), signalling foot lesion (65.6 %/98.7 %), heel-horn erosion (34.2 %/88.5 %), digital dermatitis complex (29.1 %/73.1 %), severe hemorrhages (27.9 %/87.2 %), and Rusterholz' sole ulcers (11.5 %/74.4 %) at cow and herd level, respectively. Lower prevalences were found for subclinical laminitis (5.4 %/47.4 %), chronic laminitis (3.3 %/25.6 %), white line disease (4.7 %/42.3 %), double soles (2.6 %/33.3 %), interdigital hyperplasia (3.1 %/33.3 %), sole ulcers (0.4 %/6.4 %), toe infections caused by faulty claw-trimming (3.9 %/39.7 %) and by injury (0.1 %/2.6 %), deep lacerations (0.4 %/6.4 %), and interdigital phlegmona (0.1 %/1.3 %). Lameness and foot lesions were shown to represent important health problems of dairy cows under the conditions of the typical grass-based production system in Switzerland. Digital dermatitis has developed to the most relevant foot disease with a high impact on welfare of Swiss dairy cows within the past 10 years.

Keywords: claw health, foot lesion, dairy cow, prevalence

Lahmheit und Klauenerkrankungen bei Schweizer Milchkühen: I. Häufigkeit

Zwischen Juni 2010 und Februar 2011 wurden bei 1'449 Milchkühen von 78 Betrieben Klauenerkrankungen und Lahmheit während der routinemässigen Klauenpflege erfasst. 14.8 % der Kühe gingen lahm, auf 80.8 % der Betriebe gab es mindestens eine lahme Kuh. Auf Kuh- sowie auf Herdenebene kamen weisse-Linie Defekt (80.7 %/100 %), signalisierende Klauenerkrankung (65.6 %/98.7 %), Ballenfäule (34.2 %/88.5 %), Dermatitis Digitalis Komplex (29.1 %/73.1 %), schwere Sohlenblutung (27.9 %/87.2 %) und Rusterholz'sches Sohlengeschwür (11.5 %/74.4 %) am häufigsten vor. Seltener wurden subklinische Laminitis (5.4 %/47.4 %), chronische Laminitis (3.3 %/25.6 %), eitrig-hohle Wand (4.7 %/42.3 %), Doppelsohle (2.6 %/33.3 %), Zwischenklauenwarze (3.1 %/33.3 %), Sohlengeschwür (0.4 %/6.4 %), Sohlenspitzeninfektion durch die Klauenpflege (3.9 %/39.7 %) und verletzungsbedingt (0.1 %/2.6 %), tiefergehende Verletzung (0.4 %/6.4 %) und Phlegmona interdigitalis (0.1 %/1.3 %) gefunden. Lahmheit und Klauenerkrankungen sind in der wie für die Schweiz typischen Weide-geprägten Milchwirtschaft ein wichtiges Gesundheitsproblem von Milchkühen. Dermatitis digitalis hat sich in den vergangenen 10 Jahren zur wichtigsten Klauenerkrankung mit immensen negativen Konsequenzen für das Wohlbefinden der Milchkühe in der Schweiz entwickelt.

Schlüsselwörter: Klauengesundheit, Klauenerkrankung, Lahmheit, Milchkuh, Prävalenz

Introduction

Adequate claw health is of utmost importance for grazing dairy cows as they walk considerable distances on sometimes rather impassable territories. To prevent poor animal welfare in Swiss cattle, claw-trimming is regulated by the law and has to be performed regularly and according to good claw-trimming practice (Anonymous, 2008). Lameness is one of the most important animal health topics in dairy farming because of its strong negative impact on cattle's welfare, which is correlated with a severe reduction of productivity, leading to severe economic losses (Kossaibati and Esslemont, 1997; Green et al., 2002). This is predominantly caused by a strong decrease in milk yield, (Green et al., 2002; Amory et al., 2008), impaired fertility (Garbarino et al., 2004, Sogstad et al., 2006; Bicalho et al., 2007) and premature culling or death (Booth et al., 2004; Bicalho et al., 2007). Furthermore, the occur-

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rence of lameness can be seen as the most representative animal-based indicator of poor welfare in dairy cattle (Whay et al., 2003a). Whay et al. (1997) demonstrated the high association between lameness and severe pain perceived by lame cows as well as the appearance of hyperalgesia induced by foot lesions causing lameness, lasting for up to 28 days after treatment (Whay et al., 1998).

Prevalence of lameness in dairy cattle ranged from 5 % in Sweden (Manske et al., 2002a), to 16.5 % in the Netherlands (Amory et al., 2006), 19 % in the United Kingdom (Rutherford et al., 2009), 34 % in England and Wales (Amory et al., 2008), 34 % in Austria and Germany (Dippel et al., 2009a), and up to 48 % in the United States (Bicalho et al., 2009). A study by Regula et al. (2004) focussing on the comparison of health and welfare of dairy cows kept in 3 types of husbandry systems found a prevalence of lameness of 17 % in Switzerland. Data of the mentioned studies are difficult to compare, because different locomotion-scoring systems and definitions of clinical lameness were used. Furthermore, training of investigators was not standardized among studies. Herd managers in particular might not adequately detect lameness, as demonstrated by Espejo et al. (2006) and Whay et al. (2003b). About 90 % of lameness-causing lesions are located at the feet (Weaver et al., 1981). Several studies in various countries (Smits et al., 1992; Manske et al., 2002a; Somers et al., 2003; Holzhauer et al., 2006; Holzhauer et al., 2008) reported the prevalence of different specific foot lesions in dairy cows. In a study by Bielfeldt et al., (2005), claw-trimmers assessed the occurrence of lameness and foot disorders in Swiss cattle, but only diagnosis-complexes were investigated. There is no data about different specific foot lesions available for Switzerland, where husbandry systems differ from those in the countries mentioned above. The objectives of part I of this paper were to assess the prevalence of lameness and specific foot lesions in dairy cows in Switzerland at both cow and herd level.

Animals, Material and Methods

Data of this study were assessed at routine claw-trimming in Switzerland between June 2010 and February 2011. Farms were systematically allocated to the study, i.e. upon randomly establishing contact to the 32 participating claw-trimmers – all of them being active members of the Swiss Claw-Trimmer Federation SKV. The very next farms on their schedule to be visited for routine claw-trimming were included into our study. Figure 1 provides information about the geographic distribution of studied farms. Routine claw-trimming of all cows, whether lame or not, was performed by the claw-trimmer. Cow-related data were collected and gained through examination of the cows and each of their claws by 1 of 4 study investigators during routine claw-trimming. The data were recorded in a highly

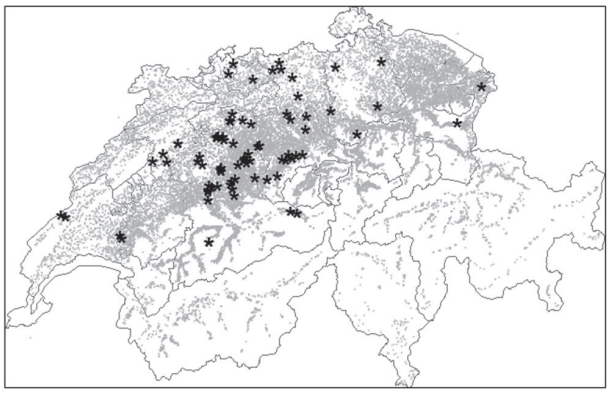

Figure 1: Distribution of dairy farms included in the study (black asterisks). The distribution of Swiss dairy farms is represented in grey color.

standardized manner by means of the software Claw Manager (Klauenmanager, Animal Office, SEG Informationstechnik GMBH, Bad Ischl, Austria) (Kofler et al., 2011), using the ear tag number of each cow to uniquely identify the animal. Information about age and breed were then derived from the Swiss national animal movement database. Only those cows over 30 months of age were included into analysis. Additionally, structured personal interviews on management, housing, feeding and interest in claw health with the associated farmers were arranged to investigate possible risk factors (see part II of this paper). The visited farmers were previously informed about the purpose and method of the study. The 4 investigators were previously trained on at least 2 visits on all examinations and data collection by the principal investigator (first author) to minimize inter and intra observer variability. All examinations and the questionnaire were pre-tested before the start of the study by means of interviews with students of the School of Agricultural, Forest and Food Sciences HAFL of Bern University of Applied Sciences and a test visit of a farm not included into analyses.

Claw health

To evaluate claw health, the surface of the claw was divided into 6 zones (Greenough and Vermunt, 1991). Interdigital space, pastern, and dorsal and abaxial wall of the claw were defined as additional zones (Fig. 2). The software Claw Manager was slightly adapted to allow storage of locomotion score (LS), and the following study-derived foot lesions: sole ulcer (SU), deep laceration (DL), horn grooves (HG), concave dorsal wall (CW), widened white line (WWL), infection of the toe (TI), interdigital phlegmona (IP), hemorrhages (H), digital dermatitis complex (DD), heel-horn erosion (HE), Rusterholz' sole ulcer (RSU), white-line disease (WLD), interdigital hyperplasia (IH), and double sole (DS). The following definitions were generated consecutively: Severe hemorrhages (SH), subclinical lami-

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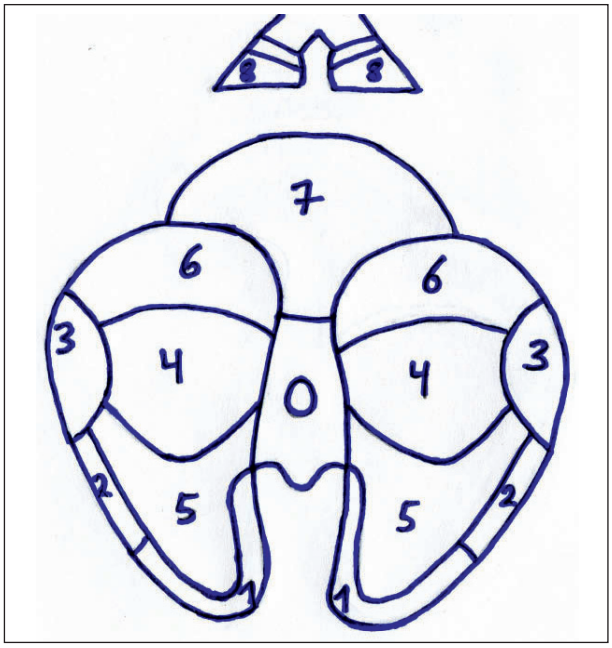

Figure 2: Description of different claw zones (adapted according to Greenough and Vermunt, 1991).
Zone 0: Interdigital space; Zone 1: White zone at the toe; Zone 2: Abaxial zone; Zone 3: Abaxial wall-bulb junction; Zone 4: Sole-bulb junction; Zone 5: Apex of the sole; Zone 6: Bulb; Zone 7: Pastern; Zone 8: Dorsal and abaxial wall.

nitis (SLAM), chronic laminitis (CLAM), and signalling foot lesion (SFL). Precise description of foot lesions and generated definitions are given in Table 1. Locomotion scoring of all trimmed cows of a herd was performed on a subset of farms, using the 5-point locomotion scoring system according to Sprecher et al. (1997), based on posture and gait. A LS ≥ 2 was defined as clinical lameness (Tab. 1). Each cow was body-condition scored according to Edmonson et al. (1989) and evaluated for cleanliness according to Faye and Barnouin (1985) (see Tab. 1, part II of this paper).
Cow examination data recorded by the Claw Manager and data of the questionnaires were exported to Microsoft Office Access 2007 (Microsoft Office, Redmond, USA) and NCSS 2007 (NCSS, LCC, Kaysville, USA). All descriptive statistics were performed with NCSS.

Results

The data set includes 1'449 cows of 78 herds. Lameness scoring was performed on a subset of 52 herds (66.7 %), and 950 cows (65.6 %). Tie-stalls were more often included in the data set (59 herds, i.e. 76 %) than loose-housing systems (19 herds, i.e. 24 %), 54 farms (68 %) produced according to the label RAUS, 5 farms (6 %) according to the label BIO. Precise information on the cow and herd-level prevalences of lameness and foot lesions is given in Figure 3 and Figure 4.

Cow Level Prevalence

Highest prevalences of more than 25 % of affected cows each were found for WWL, SFL, HE, DD and SH, followed by the prevalences of lameness and RSU, of more than 10 % each. Low prevalences were seen for SLAM, WLD, TI1, CLAM, IH, DS, SU, DL, TI2, and IP.

Herd Level Prevalence

Widened white line was present in all herds. High prevalences of more than 75 % of affected herds were seen for SFL, HE, SH, and clinical lameness, followed by the prevalences of RSU, and DD of more than 70 % each. Prevalences of SLAM, WLD, TI1, DS, IH, and CLAM were found to be between 50 % and 25 %. Low prevalences were assessed for SU, DL, TI2, and IP.

Discussion

Representativeness of prevalence

In Switzerland, efforts have been made to promulgate functional claw-trimming according to the Dutch method (Toussaint Raven, 1985) to improve animal health and welfare, as it has positive effects on claw health and lameness (Manske et al., 2002b; van der Tol et al., 2004). All accompanied claw-trimmers were members of the SKV, being trained according to this method. Therefore, prevalences of lameness and foot lesions may be even higher on Swiss dairy farms where no functional claw-trimming is performed. Sound locomotion is of high importance for production systems in alpine areas where cows frequently have to walk on often virtually impassable pathways. Therefore, already a lameness score of 2 (Sprecher et al., 1997) was considered as relevant. Locomotion scores were assessed when animals were led from the stalls to the trimming chutes. Farmers as well as claw-trimmers were willing and able to provide more time for observations than on standard visits. Furthermore, it was always possible to have a second look at each foot before the cow returned to the stable.

Prevalences

Clinical Lameness

Lameness prevalence in Switzerland was similar to those assessed in the Netherlands (Amory et al., 2006) and the United Kingdom (Rutherford et al., 2009) of 16.5 % and 19 %, respectively, but higher than the one assessed in Sweden, where lameness was assessed in 5 % of investigated cows (Manske et al., 2002a). Kofler et al. (2011) assessed 9.4 % of examined heifers in Austria as lame, which is not directly comparable to our results, since heifers are not as exposed to metabolic distress as lactating cows often are. Swiss dairy cows suffered less

Table 1: Description of assessed foot lesions and lameness as well as their categories if used for statistical analysis of herd level risk factors.

Foot lesion and categories	Description
Clinical lameness	Locomotion score ≥ 2, according to Sprecher et al. (1997)
Cat0	No occurrence of clinical lameness in the herd
Cat1	≤ 10 % of lame cows in the herd
Cat2	> 10 % of lame cows in the herd
SU (sole ulcer)	Ulcer in other regions of sole than RSU-region
DL (deep laceration)	Laceration involving deep structures such as bones, articulations, tendons
HG (horn grooves)	Visually assessed
CW (concave dorsal wall)	Visually assessed
WWL (widened white line)	Every single widening, disruption or discoloration except of red of the white line area without involvement of the pododerma
TI (infection of the toe)	Divided into
TI1	Those caused by claw-trimming
TI2	Those caused by spontaneous injury
IP (interdigital phlegmona)	Diffuse infection causing swelling, pain and rubor
H (hemorrhages)	Every single blood-stained area of the different regions of the claw assessed
H1 (degree 1)	< 10 % of the region affected
H2 (degree 2)	10 – 50 % of the region affected
H3 (degree 3)	≥ 50 % of the region affected
SH (severe hemorrhages)	Determined, if a) or b) was present – affections with H at both claws per limb considered and combined:
a) Independent of the region of the claw affected by H:	6x H1; 3x H2; 2x H3; 2x H2 + 2x H1; 1x H2 + 4x H1; 1x H3 + 2x H1; 1x H3 + 1x H2
b) at least 1 RSU-region or bulb affected by H:	2x H1; 1x H2; 1x H3; 1x H1 + 2xH1 (in other region than RSU or bulbs); 1x H1 + 1x H2 (in other region); 1x H1 + 1x H3 (in other region)
Cat0	≤ 10 % of cows in the herd affected by SH
Cat1	11 – 50 % of cows in the herd affected by SH
Cat2	> 50 % of cows in the herd affected by SH
DD (digital dermatitis complex)	Identified independent of its dimension or region (between the bulbs, interdigital space). Both the active form with erosion of the dermis and bloody granulation, and the chronic or verrucous ones with papillomatous alteration of the surface were assessed (Blowey and Sharp, 1988; Döpfer, 1994; Walker et al., 1995; Read and Walker, 1998). Discrimination of the 4 stages M1-M4 according to Döpfer (1994) was not performed
Cat0	No occurrence of DD in the herd
Cat1	≤ 10 % of cows in the herd affected by DD
Cat2	11– 50 % of cows in the herd affected by DD
Cat3	> 50 % of cows in the herd affected by DD
HE (heel-horn erosion)	Cleft heel-horn
Cat0	No occurrence of HE in the herd
Cat1	≤ 10 % of cows in the herd affected by HE
Cat2	11– 50 % of cows in the herd affected by HE
Cat3	> 50 % of cows in the herd affected by HE
RSU (Rusterholz'sole ulcer)	Ulcer affecting the pododerma neighbouring the insertion of deep flexor tendon according to Rusterholz (1920)
Cat0	≤ 5 % of cows in the herd affected by RSU
Cat1	> 5 % of cows in the herd affected by RSU
WLD (white line disease)	Septic lesion of the pododerma originating from an infection ascending along a defect of the white line
Cat0	No occurrence of WLD in the herd
Cat1	≤ 10 % of cows in the herd affected by WLD
Cat2	> 10 % of cows in the herd affected by WLD

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Table 1: Description of assessed foot lesions and lameness as well as their categories if used for statistical analysis of herd level risk factors. (Continuation)

IH (interdigital hyperplasia)	Independent of its dimension and symmetry
Cat0	No occurrence of IH in the herd
Cat1	IH present in the herd
DS (double sole)	Undermined horn in the area of the sole
Cat0	No occurrence of DS in the herd
Cat1	DS present in the herd
SLAM (subclinical laminitis)	Identified if at least 1 claw per limb was affected with H
Cat0	≤ 5 % of cows in the herd affected by SLAM
Cat1	> 5 % of cows in the herd affected by SLAM
CLAM (chronic laminitis)	Identified if HG and/or CW were present at least at 2 claws of different limbs and at least 1 of the following lesions were recorded additionally at these claws: RSU, SU, WLD, WWL, H
Cat0	No occurrence of CLAM in the herd
Cat1	CLAM present in the herd
SFL (signalling foot lesion)	Presence of at least 1 of the following foot lesions: HE, DD, SLAM, CLAM, RSU, SU, DS, WLD, IH, IP, TI2, DL, SH
Cat0	≤ 50 % of cows in the herd affected by SFL
Cat1	> 50 % of cows in the herd affected by SFL

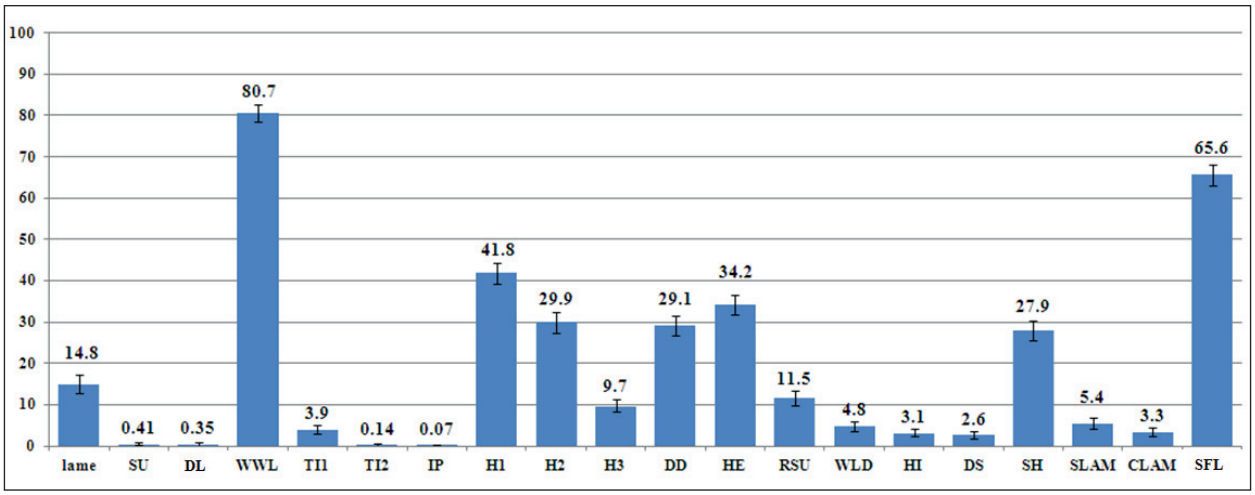

Figure 3: Prevalences (+/– SD) of foot lesions and lameness on the individual cow level. 1'449 cows included for evaluation of foot lesions and 950 for lameness. Abbreviations: SU: sole ulcer; DL: deep laceration; WWL: widened white line; TI1: toe infection caused at claw-trimming; TI2: toe infection caused by injury; IP: interdigital phlegmona; H1: hemorrhage of degree 1; H2: hemorrhage of degree 2; H3: hemorrhage of degree 3; DD: digital dermatits complex; HE: heel-horn erosion; RSU: Rusterholz' sole ulcer; WLD: white line disease; IH: interdigital hyperplasia; DS: double sole; SH: severe hemorrhages; SLAM: subclinical laminitis; CLAM: chronic laminitis; SFL: signalling foot lesion.

from lameness than cows in the United States, England and Wales, Austria and Germany, where prevalences are much higher (Espejo et al., 2006; Bicalho et al., 2009; Dippel et al., 2009a; Dippel et al., 2009b; Rouha-Mulleder et al., 2009; Barker et al., 2010), which might be due to the frequent access to pasture for Swiss cows. Haskell et al. (2006) found a markedly lower prevalence of 15 % in grazing herds compared to 35 % in zero-grazing herds in Great Britain, demonstrating the positive effects of frequent access to pasture. This was confirmed by Hernandez-Mendo et al. (2007) who found improvements in gait scores of about 0.22 units per week in cows given a 4-week period at pasture. The situation in Switzerland has not changed significantly during recent years, as Regula et al. (2004) and Bielfeldt et al. (2005) found similar prevalences in Swiss dairy cows of 10 % to 17 %, and 7.7 % to 13.2 %, respectively, depending on types of husbandry systems.

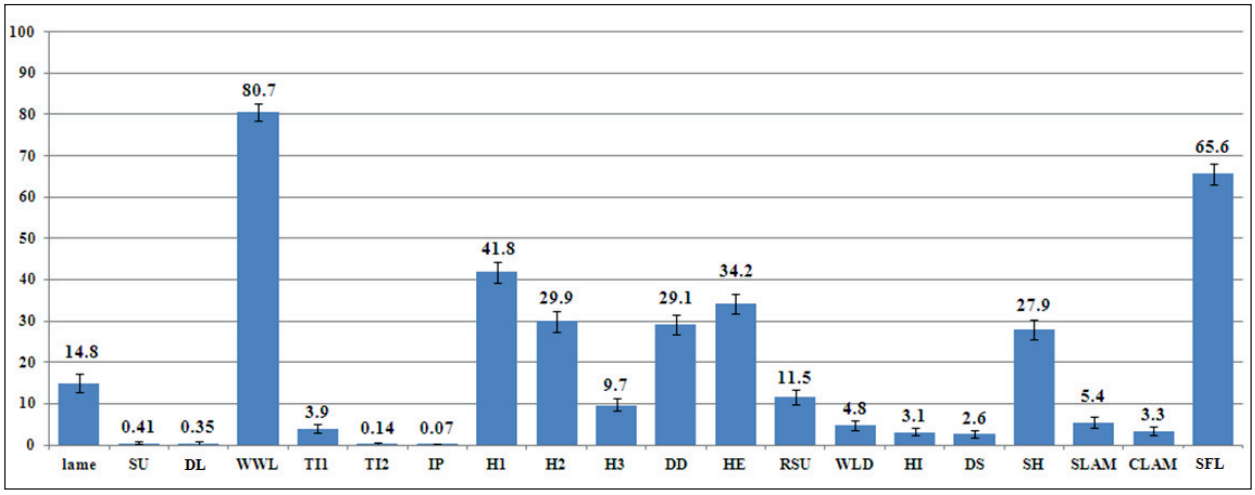

Figure 4: Prevalences (+/– SD) of foot lesions and lameness on herd level. 78 herds included for foot lesions and 52 for lameness. Abbreviations: SU: sole ulcer; DL: deep laceration; WWL: widened white line; TI1: toe infection caused at claw-trimming; TI2: toe infection caused by injury; IP: interdigital phlegmona; H1: hemorrhage of degree 1; H2: hemorrhage of degree 2; H3: hemorrhage of degree 3; DD: digital dermatits; HE: heel-horn erosion; RSU: Rusterholz' sole ulcer; WLD: white line disease; IH: interdigital hyperplasia; DS: double sole; SH: severe hemorrhages; SLAM: subclinical laminitis; CLAM: chronic laminitis; SFL: signalling foot lesion.

Widened White Line

We assessed every single widening and discoloration of the white line area, resulting in a very high WWL prevalence. Results of the present study are similar to the prevalence of 87 % reported in Austrian heifers by Kofler et al. (2011). As WWL was present in almost all investigated Swiss dairy cows, regular functional claw-trimming is needed to prevent severe foot lesions in the area of the white line, which can develop through unbalanced weight-bearing.

Signalling foot lesion

The high prevalences of SFL were not suprising as almost all foot lesions assessed in this study were included. Although not completely comparable because of differences in types of recorded lesions, even higher prevalences of claw disorders of over 70 % and 80 % in Swedish and Dutch dairy cows, and 98 % in Austrian heifers were reported by Manske et al. (2002a), Somers et al. (2003), and Kofler et al. (2011), respectively. As the SFL prevalence in our study was much higher than that of lameness, we conclude that most foot lesions did not result in a noticeably modified locomotion. This demonstrates, however, additionally to the lower figures compared to the mentioned studies, the need and usefulness of regular corrective and functional claw-trimming to prevent further impairment of claw health.

Heel-Horn Erosion and Digital Dermatitis Complex

Neither did we distinguish between the different stages of DD (Döpfer, 1994), nor between the different affected areas, i.e. digital and interdigital region, which might have resulted in a slightly higher prevalence as compared to other studies. However, the high prevalence as found in the current study led to some concern as it is a contagious disease (Walker et al., 1995), can affect over 80 % of cows within a herd (Holzhauer et al., 2006) and has a considerable economic impact by causing lower milk yield and impaired reproductive performance (Garbarino et al., 2004; Losinger, 2006; Amory et al., 2008). In a Swiss study by Bielfeldt et al. (2005), HE was found in 13.6 % of cows, and a prevalence of 5.3 % was reported for claw disorders of the skin and interdigital space. As the latter figure included interdigital and digital dermatitis, IP and IH, and as the recording of lesions was performed by claw-trimmers and not by trained clinical investigators, this prevalence is not comparable to the present study. Nevertheless, the results of the mentioned study show that DD was far less prevalent in Swiss dairy cows a few years ago. The situation of HE and DD on Swiss dairy farms can be compared to that in the Netherlands, Denmark and Austria, where the prevalence of digital dermatitis has also markedly increased within the last years. Somers et al. (2003) reported an increase of digital dermatitis in Dutch dairy cows from about 14 % to 30 %, and the complex of HE and interdigital dermatitis to be the most frequent disorder. Within a decade, herd prevalence of digital dermatitis increased from 4 % to 85 % in Denmark (Capion et al., 2008), and cow prevalence in Austrian cattle from sporadically documented outbreaks to up to about 20 % (Kofler et al., 1997; Huber et al., 2002; Hulek et al., 2010). Kofler et al. (2011) reported the prevalences of HE and digital dermatitis in Austrian heifers to be 84.9 % and 8.6 %, respectively. High prevalences of HE and digital dermatitis were also found in Sweden and the United States (Manske et al., 2002a; Wells et al., 1999; Rodriguez-Lainz et al., 1996).

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Rusterholz' Sole Ulcers

The cow prevalence was comparable to that in Swedish (Manske et al., 2002a) and Dutch cattle (Somers et al., 2003; Holzhauer et al., 2008), whereas the herd prevalence in the Dutch study by Holzhauer et al. (2008) was higher (85 %). The low prevalence of sole ulcers in Austrian heifers, reported by Kofler et al. (2011) in contrast, is not totally comparable, because higher parity was reported to be an important risk factor for RSU (Barker et al., 2009).

Severe Hemorrhages, Laminitis, White Line Disease and Double Sole

Although SH may initially not cause any lameness, such lesions may affect the welfare of dairy cows and their productivity (Whay et al., 1997) and can propagate into early states of more severe lesions such as sole ulcers, white line disorders and DS. Somers et al. (2003) found a prevalence of WLD similar to our figures in Dutch dairy cows. The situation in Swiss cows has slightly improved as Bielfeldt et al. (2005) found white line disorders (purulent wall and seedy toe) in more than 6 % of investigated Swiss cows. The prevalence of SH in Swiss dairy cows was similar to the values reported for Swedish cows (30 % of cows and all herds affected by sole hemorrhages) (Manske et al., 2002a) and Austrian heifers (33 % affected, hemorrhages assessed independently of severity) (Kofler et al., 2011). However, our results present lower prevalences of laminitis, WLD and DS in Swiss dairy cows compared to the results of Kofler et al. (2011) who reported CLAM in at least 15.1 %, WLD in 11.5 %, and DS in 47.5 % of Austrian heifers. The frequent occurrence of SH in Swiss cows and the large difference in the prevalences of CLAM, WLD and DS compared to the one in Austrian heifers indicate that regular functional claw-trimming, as performed in the investigated Swiss herds, certainly is a key-factor in early diagnosis, which prevents more severe lesions.

Interdigital Hyperplasia

Our results are similar to the prevalences reported by Manske et al. (2002a) and to those of Dutch cows examined by Somers et al. (2003).

Toe Infections caused by claw-trimming

TI1 occurred more frequently than expected. Within-herd prevalence had a wide range, leading to some concern relating to the advocated claw-trimming technique. Some claw-trimmers were not aware of the importance to paying particular attention to the thickness of the claw horn at the toe.

Low Prevalences

The prevalences of SU, TI2, DL, and IP were extremely low. The prevalence of IP was similar to results of other studies (Somers et al., 2003; Kofler et al., 2011). The most likely explanation for the low prevalences of TI2, DL, and IP is a possible under-representation in cross-sectional studies. These pathologies are likely to be recognized immediately by the famers and treated effectively by veterinarians, and therefore are mostly of short duration.

Conclusions

It is concluded from the results of this study that lameness and foot lesions, especially the high prevalence of digital dermatitis complex, represent highly relevant health problems of dairy cows in Switzerland.

Boiteries et affections des onglons chez les vaches laitières suisses: I. Fréquence

Entre juin 2010 et février 2011 on a enregistré, lors des soins de routine aux onglons, des affections des onglons et des boiteries chez 1'449 vaches laitières provenant de 78 exploitations. 14.8 % des vaches présentaient une boiterie et dans 80 % des exploitations il y avait au moins une vache boiteuse. Tant au niveau des individus que des troupeaux, les lésions au niveau de la ligne blanche (80.7 %/100 %), les affections des onglons signalisantes (65.6 %/98.7 %), la pourriture des glomes (34.2 %/88.5 %), le complexe de dermatite interdigitale (29.1 %/73.1 %), les saignements solaires graves (27.9 %/87.2 %) et les ulcères de Rusterholz (11.5 %/74.4 %) étaient les plus fréquents. On trouvait plus rarement des fourbures subcliniques (5.4 %/47.4 %), des fourbures chroniques (3.3 %/25.6 %), des fourmilières purulentes

Zoppia e malattie del piede delle mucche svizzere da latte: I. Frequenza

Tra giugno 2010 e febbraio 2011 sono stati raccolti i dati sulle malattie del piede e le zoppie, durante la cura di routine del piede di 1449 mucche da latte provenienti da 78 aziende. Il 14.8 % delle mucche erano affette da zoppia e l'80.8 % delle aziende avevano almeno una mucca sofferente. Di frequente i problemi che si riscontravano nelle mucche e nelle mandrie erano: malattia della linea bianca (80.7 %/100 %), malattie del piede segnalate (65.6 %/98.7 %), erosione dell'unghione (34.2 %/88.5 %), dermatite digitale (29.1 %/73.1 %), forte emorragia della suola (27.9 %/87.2 %) e pododermatite circoscritta (11.5 %/74.4 %). Più raramente invece: laminite subclinica (5.4 %/47.4 %), laminite cronica (3.3 %/25.6 %), pododermatite settica (4.7 %/42.3 %), doppia suola (2.6 %/33.3 %), dermatite verrucosa (3.1 %/33.3 %), pododermite asettica

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(4.7 %/42.3 %), des doubles soles (2.6 %/33.3 %), des verrues interdigitales (3.1 %/33.3 %), des ulcères de sole (0.4 %/6.4 %), des infections de la pointe de la sole suite au parage (3.9 %/39.7 %) ou suite à des blessures (0.1 %/2.6 %), des blessures plus profondes (0.4 %/6.4 %) ou des phlegmons interdigitaux (0.1 %/1.3 %). Dans un pays comme la Suisse, où l'industrie laitière est caractérisée par une forte détention au pâturage, les boiteries et les affections des onglons sont un problème de santé important pour les vaches laitières. La dermatite interdigitale est devenue ces dix dernières années une affection très importante avec de graves conséquences négatives sur le bien être des vaches laitières en Suisse.

circoscritta (0.4 %/6.4 %), infezione della punta del piede durante la cura del piede (3.9 %/39.7 %) ferite (0.1 %/2.6 %), ferite profonde (0.4 %/6.4 %) e phlegmona interdigitalis (0.1 %/1.3 %). Zoppie e malattie del piede sono un problema da non sottovalutare per la salute delle mucche da latte nelle aziende lattifere svizzere tipicamente portate al pascolo. Negli ultimi 10 anni la dermatite digitale è divenuta una malattia del piede importante con enormi conseguenze negative per il benessere delle mucche da latte svizzere.

References

See part II.

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