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Animal welfare issues in grazing

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INTRODUCTION

From the very beginning cattle was linked to the pastures and countryside. Development of the animal production and limited land resources pushed producers to keep cattle in places where they would be collected together. That solution helps to run breeding and husbandry procedures more efficiently. However, even with the support of genetics and management, modern agriculture faces problems related to indoor system. There is a dilemma among farmers to keep animals indoor or outdoor. In the following material attempt will be taken to analyse factors related to grazing and cattle welfare issues.

This work will not only focus on Hungarian or European agriculture issues. Experiences and animal policies related to grazing cattle from different countries and regions of the world were also collected. Actions taken in one part of the world might be not applicable in another. However, it is still interesting to see how agricultural production affects nature resources and communities. There is the same background off all stories related to grazing cattle - sustainable development and particular lobby behind. Whether there is a farmer, holding, enterprise or animal welfare organisation. There is only a question if this is going to be more economical or ethical approach.

DEFINITION OF ANIMAL WELFARE

Broom (1988) defined welfare as the state of animals regarding their attempts to cope with their environment. A more useful definition of well-being was provided by Hurnik et al. (1995). The authors state welfare is 'a condition in which physical and psychological harmony exists between the organism and its surroundings'. In the opinion of these authors the most reliable indicators of well-being are good health and manifestation of a normal behavioural repertoire. It is common, that for example lame cow is not able to expressing normal dairy cattle behaviours (Juarez et al., 2003), because of pain caused by weight bearing which is seriously affecting her movements (Galindo and Broom, 2002). Wide range of publications asserts concerns of cattle welfare related to lack of movement in intensive production systems (Logue et al., 1998; Galindo and Broom, 2002). Facilities which are helping to make every day job easier and friendlier for humans should be also friendly for animals. If we represent the same

mammal class, we should ask ourselves how we would feel in the conditions we serve to animals.

Animal welfare contains a lot of complex issues and there have been already many attempts to provide a scientific definition. 'Five Freedoms for Animal Welfare' is an internationally recognized definition first created by the Farm Animal Welfare Council, a body set up by the UK government in 1968. The needs should be met under all circumstances and the same approach is applicable to all types of animals use by humans:

- Freedom from hunger and thirst
- Freedom from thermal and physical discomfort
- Freedom from pain, injury and disease
- Freedom from fear and stress
- Freedom to express normal behaviour

THE IMPORTANCE OF ANIMAL WELFARE

People in modern world more increasingly expect a better quality of life. At the point where all basic needs are satisfied there is an expectation that animals, whether livestock, pets or pests are treated in a humane way (Gill et al., 2010). That means, they do not suffer unreasonable, unnecessary or unjustifiable pain and enjoy reasonable standards of animal welfare. In a professional business the way the animals are treated can be easily open to scrutiny and have an impact on reputation of the peers or trading partners (Seng and Laporte, 2005).

Livestock producers are more focused on animal welfare as it is harder to ensure market acceptance and market access for their products. Consumers are seeking assurances that animals, used for producing fibre and food have been treated humanely (Wathes, 2009). The basic component of ensuring successful market access for livestock products is a positive animal welfare reputation. This can be easily seen in the superstores. Particular farmers are the top faces of the welfare assurance campaigns next to the shelves with the products. The origin location of the product can be easily found. This is a magic tool of advertising and transparency where the product comes from. The picture usually shows smiley, tidy farmer, sometimes with his or her family and a lot of grassland. In the statement we can read that the producer is doing all his or her best to ensure the products meet the supermarket standards. In the perfect world all of that is true. Public pressure and consumers' behaviour changed production methods. That need was recognised by retailers and processors



who responded by demanding better animal welfare standards in the production chains.

There are intricate interactions between processes regulating growth, reproduction, product quality and hormonal changes associated. A massive impact of poor welfare on animals' performance can be found, especially in livestock production. In the majority of circumstances this can lead to reduced economic and biological outputs (Seng and Laporte, 2005). Majority of British farmers are not interested anymore in high yield short living cows, but in medium milk yield and long living cows. There is a decrease in occurrence of production diseases, cuts in vet bills, animals are not exploited so much. Finally cows can be easily kept outdoor, with use of supplemental components. The solution was found to be the best in the time of economic crisis, pressure of milk plants and lobby of retailers (superstores) (Gill et al., 2010). Welfare has a massive impact on the animal from the moment it is born to the time it is slaughtered. The weak body of the newborn animal needs enormous amount of care and awareness. Infections and basic conditions are the key factors influencing the next months or years of life. In the same time every little lack of welfare actions which are not taken will decrease the profitability of the production. Moving of animals needs to be done with understanding of the animals' preferences and fears. Meat of animals which have bruises on the bodies will not be competitive any more. Stressed animals will produce less meat or milk and the quality will be also compromised. The stress might be minimised, efficiency can be improved and good meat quality can be maintained if gentle handling in well-design facilities is provided. Every additional handling procedure increases stress and bruising. What can be found in the meat of pigs or beef is the pale soft exudative symptom. Pale soft exudative meat syndrome is caused by combination of over heating, stress and rapid decline in meat pH. The similar one is dark cutting characteristic of the meat which is also related to the stress and depletes glycogen (muscle energy source) from its muscles. The main factors are also rapidly fluctuating temperature, rough handling, mixing strange cattle together prior to slaughter at the plant, fighting or holding cattle overnight in the stockyards at the plant. All these issues are recognised by producers and retailers. Positive attitude is with the profit to the animals and processors. If this knowledge is not applied, wide range of bad experiences and frustration can be met, making the job not rewarding and underestimated by others.

ADVANTAGES

Animal welfare

Pasture provides the best surface for cattle hoofs and offers the great opportunity for animals to exercise (Sairanen et al., 2006). Cattle can strengthen legs, hoofs and manifest natural feed searching and feed intake behaviours (Wiktorsson and Spörndly,

2001). What is more, forage reaches the rumen in high quality condition (Aschmann and Cropper, 2007). There is no loss of dry matter by respiration and no shatter, leaf loss, or loss of quality by spoilage or rain damage in comparison with stored forage. Haskell et al. (2006) and Boyle and Olmos (2008) found there were more lame cows on farms without access to pasture than on grazing farms. Toussaint (1985) claimed that reducing the time at grass gives less chance for a natural recovery. Animals' observations and creating the best surfaces for dairy cows should be based on the way how cows are moving on the grass. The best surfaces are those where cattle are making long steps confidently, similar to those on pasture (Benz, 2002).

Krohn (1994) asserted that grazing can determine certain welfare benefits by offering more natural environment and chance for expressing exploration behaviour (Hemsworth et al., 1995). Pasture also gives an opportunity to eat what cows need and desire, unlikely to machines which are cutting all plants. This finding is similar to that of Boyle and Olmos (2008) who reported that cows taken outside experience a lower incidence of mastitis and lower rates of respiratory illness (Leadley, 2009). Farming systems have an impact on the occurrence of wide range of suffering risks, pain, fear and behaviour problems. In the risk welfare assessment of Algers et al. (2009b) estimated values were worst for housing conditions than when cattle was on the pasture. The conclusion of the work of Hernandez-Mendo et al. (2007) includes that the hazard aspects have much lower magnitude of the adverse effect for cows on pasture than indoor. Husbandry management should prevent mixing cattle in order to continue a long-lasting social bonds, provide stability and avoid frequent disruptions. If there is need for regrouping, anxiety should be minimised by giving animals more space. Although, there is still aggression accruing on the pasture Phillips and Rind (2002) asserted it gives the best environment for mixing and regrouping as it offers good flooring and space for decreasing agonistic interactions in the herd. Pasture creation is also linked to the wildlife resources. Best et al. (1995) reported higher number of songbirds on and close to pasturelands than in other habitats on the farm. Finally, it is advisable that grazing should be maximised in organic livestock production (Vaarst et al., 2005).

As assumed by Beetz (2004) managers who observe their animals frequently can identify and treat health problems in their early stages easier when cows are moving on the pasture. Additionally, cattle become easier to work when they see people as the source of fresh pasture. From time to time there is a debate when the calf should be separate from the cow. If animals are kept on the fresh air there is no need to separate them just after the birth. This is very important to keep the link between mother and the young calf. Of course, after some time there will be need to separate them, but until that calf will be more developed. Robbins (2001) estimated, whether dairy or beef cattle kept outdoor, are receiving less

antibiotics. Overuse of some medicines in animals may affect that some bacteria might be antibiotic-resistant. Some crucial aspect of keeping beef cattle on the pastures was pointed out by Brazil et al. (2007) that animals are less likely to get infected with *Escherichia coli* O157:H7. Animals kept in the paddocks only on the ground are spreading the bacteria faster and it is friendlier environment for their surviving. Switching the cattle from the concentrate diet to hay reduces the population of *Escherichia coli* by as much as 70 percent.

Cattle grazing mechanism is different to those of horses and goats. They are tearing grasses using their tongues what combined with their size is making substantial contribution to the natural vegetation management systems. Hampton (2008) insisted if cattle is grazing in these natural conditions there is less selective grazing occurring and greater ability for removing low digestible biomass. Trampling cattle is creating bare ground, so the dense swards can be opened. Cattle outdoor can control development of invasive grasses such as purple moor-grass (*Molinia caerulea*) and mat grass (*Nardus stricta*). Schulte and Lantinga (2002) found moor-grass grazed by yearling heifers helping in sward changes which in turn improve animal performance in the next year.

Protection of natural grassland resources is in interest of many scientists. Mitchell et al. (2008) noticed that animals grazing dissimilarly and laying areas lead to an uneven grasses distribution over the sward. Creation of greater variation of sward structure leads to increased biodiversity. Species such as heather (*Calluna vulgaris*) can germinate thanks to trampling cattle by creation of disturbed soil patches. There is also a positive effect of animals' dung on invertebrate populations. Plants can be also maintained in an early stage of growth by ruminants' digestive system which is breaking woody materials. Finally, Kim et al. (2008) pointed out cattle activity can have a destructive impact on bogs and fens where more sensitive plants are growing. Studies have shown that breeds from grasslands areas like Ireland, Scotland or Welsh are performing better than continental breeds when grazing on rough pastures and dwarf shrub heaths (Hampton, 2008). All determinants collected together help to imagine how housing is limiting expressing natural behaviour. These examples confirm necessity of out door activities and harmony between grazing animals and environment.

Economy

In the animal production calculations grazing is taken into account according to high feeding financial impact. In cattle production systems, these costs represent a high proportion of total production expenses and feeding dairy cows at pasture generally reduces production costs (Dillon et al., 2005). Raun and Rasmussen (2001) concluded that in Danish conditions 24-hour grazing systems resulted in lower

yield and higher labour costs compared with zero grazing or 12-hour grazing systems. However, the income was higher, due to the reduced feeding costs. The profit was even greater when the research model considered calving of cows taken place during the August-March period. That solution helps to milk very high producing cows during the pasture period. The same conclusions reported Kriegel (2000). Grazing-based farms reported herds averages of 10 800 to 11 700 kg of milk per cow per year. However, some farmers found business still profitable producing 6 800 kg of milk per cow per year. The lower costs of production generate higher net profits. This is already more than 15 years when farmers in the USA have turned to managed pastures system, just to reduce input costs during the grazing season (Muller and Holden, 1995). In contrast to corn and alfalfa, grass pastures also require fewer insecticides and herbicides (Leadley, 2009). Some milk companies in Europe, like Friesland Campina (Friesland Campina, 2010) are encouraging farmers to let their cows graze outdoors by paying extra money for the milk.

In the time of the financial crisis there is a different philosophy in dairy businesses. In one of the agricultural innovation centres in the US group of researches is trying to make grazing more popular among farmers. The main aims are to build low cost dairy structures, cut machinery costs, reduce feed input and labour. The goal should not be in producing maximum amount of milk per cow. In the time of low milk prices there should be a cutting-costs policy applied (Dailey, 2009).

Advanced Technologies

Like in any other businesses, investing money in dairy enterprises requires, more then ever, market stabilization, proved demand for the product and professional planning. Next to the economy there is a public opinion mentioned earlier. There is definitely a clash of science, economy and human imagination about collecting the milk. It is suggested that more and more popular milking robots require cows to be kept in the buildings. Cows which are not grazing in summertime could endanger consumer acceptance of using these devices (Mathijs, 2000), because the welfare of cows indoor might be compromised. Cows on the pastures may be considered important to animal welfare and public acceptance. However, this conflict seems to not exist at all. Again in Holland, Parsons and Mottram (2000) believe there is a practical and economical drawback when grazing was combined with automatic milking system. As assumed by Jagtenberg and van Lent (2000) no significant difference can be found in milk yield and milk frequency between the indoor period and pasture season. If so, why bothering cows with staying in buildings and be in trouble with the public opinion and welfare, if the results are similar? The answer can be only given by farmers.

Guidelines and legislation

In most EU countries cows are housed all year round. There are plenty of reports and booklets suggesting the best husbandry solutions for animals. The Swedish Farm Animal Welfare Ordinance (SJVFS, 1998) stipulates that heifers and dairy cows shall be on pasture during the summer season (Landes, 2009). That rule is not absolutely in agreement with Swedish farmers who are not able to compete, for example with cheaper Danish milk. Most of them prefer import of Danish milk to be banned or let Swedish cows to be indoor all year round. In the opinion of the animal welfare groups the average number of cows in the farms in Scandinavia has tripled over the last 30 years. Animals are living under higher production pressure, what might affect occurrence of production-related diseases. Existing Community legislation contains provisions on basic animal welfare considerations. Article 3 of Directive 98/58/EC is stating that 'Member States shall make provision to ensure that the owners or keepers take all reasonable steps to ensure the welfare of animals under their care'. This however does not mean that the Member State must make steps to allow cows grazing. It is all in the decision of the each country (Jørgensen, 2009).

There is also active discussion about the future of grazing animals and their impact on the environment in the UK. British legislation clearly states that 'Native breeds contribute positively in many ways. Their local adaptation on pastureland sequesters carbon and there are benefits for biodiversity' (Alderson, 2008). The Cabinet Office has argued: "Livestock can bring significant benefits to the UK's landscape and biodiversity..." British government is also planning to cut methane emission. It is worth to mention that Methane is over 20 times more effective in trapping heat in the atmosphere than carbon dioxide. Livestock are significant contributors to greenhouse gas emissions (Alderson, 2008). Some British researches believe there is no point to be afraid of methane produced by animals. The focus should be on agricultural processes that use fossil fuels and contribute to deforestation and ploughing up of pasture, rather than on livestock digestive processes. There are researches going on into developing feed additives that cut methane emission by animals. Some lobbies in the UK suggest keeping all animals in giant indoor barns, so the methane can be generated and transformed into energy for farms and biogas for a new generation of tractors. What is more, afforestation programme might be applied to cut farming's carbon footprint. This option is not in agreement with animal welfare groups, farmers and authorities (Hayes, 2010). At the same time, scientists estimated breeding in the pigs and poultry industries had improved feed conversion, so fewer animals are needed to produce the same amount of the final product. For example, one cow producing 10 000 litres of milk a year produces less methane than two cows producing 5 000 litre/year each (Garwes, 2010). This situation will probably exist

only in the perfect world, where farmer who can produce the same amount of product with lower number of animals will keep fewer animals. Reality suggests that farmers might just keep the same number of animals as before just for gaining more profits. The same has to do with sheep and the meet quality. Whether it is a poultry, pig or beef there might be the same scenario. Better performing animal will not replace two lower performing animals, but will be probably put next to the other very good animal. As long there will be no limitation or reasonable contracting in animal industry, producing animals with improved carcasses quality has nothing to do with animal and environment friendly solutions. Scientists insist that grazed livestock make a positive contribution to the UK food security and the management of landscape and environment. On the other hand, high levels of fibre in cattle rations promote methane production. As a result, there is a suggestion for reducing methane production, by reducing grass and forage in the rations and increase cereal based concentrated (Garwes, 2010).

A 2009 Scientific Opinion by the European Food Safety Authority (EFSA) is the latest EU official document (not EU Commission requirement yet) about welfare of dairy cows. The suggestion states that dairy cows should be given access to well managed pastures or other suitable outdoor facilities. The paper highlighted that dairy cattle should be provided with minimum time of movement at least during the summer or dry weather (Lymbery, 2010). Exercise helps to meet their needs to show certain behaviours like social interactions or grooming (Algers et al., 2009b). That will include how cows are managed, fed and housed. Very likely EU Directive on the welfare of dairy cows will be applied in all member states. There will be pressure put on farmers to allow cows access to pasture (Algers et al., 2009a). For example in Ireland cows are outdoor between six to ten months a year. In this typical grazing country, due to the land characteristic, actions were taken to create a new genetic index related to expectations of modern dairy and Irish resources. Next to the general milking traits new index attempts to include selection for higher milk solids. That characteristic is thought to be more relevant than milk yield in grass-based milk production systems which can be found in Ireland (Boyle and Olmos, 2008). There is believe that Irish landscape, index and positive aspects of outdoor grazing will strengthen the potential advantage Irish dairy producers will have over their European counterparts.

Possibilities of dairy grazing

All around the world there is a different type of grasslands management, according to the local conditions. There are studies undertaken to reduce direct faecal and urine deposition to pasture compared with a full-grazing system (Kristensen et al., 2007) or increase grazing efficiency through manipulation of foraging behaviour (Chilibroste

et al., 2007). A grazing-based dairy system was developed as an alternative to a confinement dairy system when animals are kept in the building, given TMR and have a limited access to the grassland (Jackson-Smith et al., 1996). Different skills are required to run the successful pasture fed herd as animals are eating a live, standing crop of forage rather than crop that is cut, stored, cured or fermented. The main concept of grazing-based dairy system is to minimise the feeding costs and maximise the net profit, which can be also positively related to the low milk yield (White et al., 2002). The number of grazing dairy farms is small. It has been reported by Rudstrom (2010) that grazing dairies do better than confinement dairies in periods of low milk prices. Another name of this system is management-intensive rotational grazing (MIG) of pastures. Whatever the name of the system the aims are the same to increase animal production and maintain resilient, diverse and nutritious pastures.

In many locations in Europe farmers found that confined, large herds require more feed storage, handling equipment, greater housing investments and bigger waste management systems. Many times, after investing in business, dairy managers are financially dependent to the costs and increasing the net incomes. Grazing system might be an alternative to the expensive resources needed in the ordinary indoor production. From the academics' and farmers' point of view there are some aspects that have to be taken into consideration before starting the management-intensive rotational grazing. In Ireland there are already actions taken for selecting cows able to graze more effectively. In the time when conventional breeding has been spectacular, fertility and longevity has declined. The long term effort to breed cattle adapted to grazing is needed. For example, in countries like Belgium, Holland and France there is a tendency reported in the public for grass fed beef preference. Local butchers found a niche for slaughtering and selling more grass-fed beef than before. Customers had experienced that this system is affecting better flavour, cooking and handling. The grass-based system opens new challenges to the crop science. Pasture alone is not able to support more than 25-27 kg of milk without using body stores. The question is, are there any new varieties of grasses that can be developed to provide more energy to cattle? We already know that cattle are able to select medicinal herbs from the pasture when they are needed. If this founding is verified, should medicinal herbs be included as pasture components? Increased costs are related to grain usage as a supplemental diet. If appropriate balance production, profit and animal health need to be achieved, what amount of grain is appropriate? Grazing is based on the plants' utilization and finding the best time for letting animals to graze in the best time when the plants are not too young and not too old. Common knowledge is needed about the optimum yields, plant health and animal consumption with less loss to trampling. Cows prefer lush pastures; however the low fibre levels in some seasons make

fat content to decline. This is the other side of the forage energy content problem. Finally, research in grazing is neglected by narrowly focused on limited practical values. Effective application of the scientific methods would advance grazing knowledge and emphasise the grazing practice. Science is also needed to estimate alternative management strategies how to make a benefit using particular animal products.

Beef cattle and extensive production

Finishing beef cattle grazed on *Molinia*-dominated grasslands can have a positive impact on the quality of the meat without any negative impact on cattle maintenance. In another study, conducted by Kissling et al. (2006), growing heifers, eating grass dominated by *Nardus* gained the same live weights as other animals for this class of ruminants (about 0.5 kg/day). In addition to consuming less energy, grass-fed beef has another environmental advantage – it is far less polluting. The animals' wastes drop onto the land, becoming nutrients for the next cycle of crops. In feedlots and other forms of factory farming animals wastes build up in enormous quantities, becoming a staggering source of water and air pollution.

CONTROVERSY ABOUT GRAZING

Cattle in general

There are some disadvantages related to cows grazing. It is well known, cattle is more affected by heat especially in the pasture-based systems where animals are exposed to direct sunlight and humidity (Hemsworth et al., 1995). During the heat cattle do not want to eat. Another factor confirming disadvantage of rising cattle on pasture is quantity of methane they produce. Grazing cows produce more methane than cows eating grain in the feedlots (Matthews and Wassmann, 2009). Grazing cows are associated with highly seasonal calving pattern that means cows are calving within a few weeks of each other. In countries like New Zealand cows usually calve at grass, with no or little supervision. In most of the countries calving is highly managed - cows calve indoors with the human help. Most of the time calving is combined with fewer labour units and increasingly large herd sizes. Cow is likely to get less attention at a time when she is at her most vulnerable (Boyle and Olmos, 2008). Some farmers believe grazing on their farms might be too labour-consuming (Leadley, 2009). Another factor making grazing less attractive is the weather condition which force cows to change their grazing behaviour if needed.

There are more animal welfare-related factors connected to grazing cattle. Jonsson et al. (2008) warn about Red Water Fever (Babesiosis) which is a substantially fatal tick borne disease. There is some degree of immunity possible, even if cattle were bred on already infected farms (pastures). However, the

risk is much higher, if cattle are brought into an infected area. Tick control products might help with achieving positive results. It is very easy to spread the disease, just by moving infected cattle to clean area. Another tick related problem in cattle is Louping III. Wrathall (2000) stated that cattle itself play an important role in maintaining the virus. In conditions where cattle is the part of the nature conservation programme, cattle on wet moorland can get a liver fluke easier than in any other environments. Furthermore, mainly in less developed areas of our globe, the welfare issue included the provision of water and shelter for cattle should be considered. This is also applicable in the wildlife resources, conservation parks and reservations. Proper fencing is the crucial issue. This is not only protection against predators, but also effective way of keeping herd on the grassland. The best example might be Australia, New Zealand, African countries. Basically, grazing offers lower input costs, but also increases opportunities for parasites transmission, compared to confinement facilities. Work of Ciordia et al. (1982) pointed out a general increase in the number of larvae on pasture when cattle appeared and decrease when cattle was moved to the other location. From the old farmers' practice and from the science it is known that one of the solutions might be to graze sheep and cattle one after another (Gettinby et al., 1987). Both species have a susceptibility to different larvae and total infection level can decrease. According to Svensson et al. (1994) grazing a permanent calf pasture is a risk factor for developing *Eimeria alabamensis* coccidiosis and *Eimeria alabamensis*.

Dairy cattle

From the feeding point of view, pasture dry matter intake is often insufficient to achieve high milk yield in grazing systems (Bargo et al., 2003). Grazing cows might be not able to fulfil their nutritional demands what sometimes results cows are getting hungry which is a welfare problem (Charlton et al., 2009). Rego et al. (2008) insisted higher utilization of compound feeds in the modern cattle feeding practices. There is an increase in the genetic potential of the animals in recent years, so pasture does not meet the nutrient requirements for high-producing dairy cows. However, Raun and Rasmussen (2001) and Clark and Kanneganti (1998) highlighted increased profitability and reduced feed costs can be achieved by applying intensive pasture-based systems. What might be of interest of milk producers was found by Schukken et al. (1988). Normal drinking water from the public source was associated with decreased rate of mastitis compared to streams and wells. In some occasions animals have an access to the different water then from the public network. No obvious explanation is existing, however cows consuming stream or well water may have an increased exposure to dirt and undesirable micro organisms.

Beef cattle

The grazing topic was taken for consideration by food and health writers, and environmental forums. Extensive grazing by cattle can create a favourable environment for native forbs and herbs. Nevertheless, in most of the parts of the world, biodiversity is reduced due to overgrazing (Wilson, 2003). There is a debate in the USA about the animal production and its impact on the environment. In the western states there is a huge pollution of water, topsoil is eroded, fish are dying, wildlife is displaced and vegetation is endangered (Robbins, 2001). All of that because of the intensive exploitation of public lands by grazing cattle. There is a Wildlife Services operating and killing all creatures that might compete with the livestock. 1.5 million wild animals annually are poisoned, trapped, snared, denned, burned in the nests and shot (Robbins, 2001). Similar impact of grazing cattle is found in Brazil. The government is seeking to boost its share of the world beef market from 30 per cent to 60 per cent in the next decade McCarthy (2009). That means that more Amazonian rainforest will be razed to make way for cattle and the wildlife can be endangered. Unlike that fear, Rosenthal (2009) discovered for every hectare of rain forest cut down each year, more than 50 hectares of new forest are growing in the tropic. Mainly on the land that was once ravaged by natural disaster, logged or farmed. Others believe that raising cows in pastures is more sustainable than raising cows in feedlots. However, cow in a pasture requires more land on which to live and does not grow as quickly as a grain-fed cow in a feedlot.

Dry cows

In the research of Boyle and Olmos (2008) hoof health of dry cows housed during the winter was in better condition compared to cows out-wintered on deferred grass. There was also reported deterioration in the hoof health of lactating cows that were grazing late in the autumn. Injuries might be explained by extended grazing and inappropriate surface for hooves, like muddy, wet underfoot conditions. Cows are avoiding lying down, what seems to be a major stressor of dairy cows. High levels of rainfall makes hooves soften and they are more susceptible to injuries if the cows have to walk on muddy roadways. The best solution would be to create shelter options at pasture and use alternative materials for farm roadways to minimise lameness.

CONCLUSIONS

Grazing cows on pasture, at least during the summer season, is considered as a very important welfare issue in many countries. This contributes to improved wellbeing and health of animals. It is recognised to be far healthier, more humane, and more environmentally sustainable way of animal production than indoor keeping.

That all depends, who has an interest in grazing – public opinion (consumers), farmers, retailers, processors, politics, wildlife or farm animals protectionists. In light of future constraints on dairying practices, a proactive approach to cow welfare is crucial. There is an increased public awareness about farm animal welfare. Therefore, public acceptance of the breeding, feeding and management practices employed in the dairy industry is needed. This combined with tighter restrictions on

dairying through EU animal welfare legislation, means that there will be a substantially increased need for work on dairy cow welfare in general and, particularly, on dairy cow welfare in pasture-based systems of milk production. In a time when herd sizes are increasing and there is a shortage of people willing to work on dairy farms, labour-efficient systems of production are crucial factors affecting expansion and sustainability.

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