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Review

Enhanced Animal Welfare and Labeling in Cattle, Sheep, and Goats

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Simple Summary: For a sustainable tomorrow, the welfare of humans, animals, and the environment must be considered as a whole. Nowadays, animal welfare has become a public concern, with consumers becoming increasingly aware of the quality of food products and husbandry practices, and willing to pay more for animal products that prioritize animal welfare. Thus, there is need for transparent communication of the animal welfare level through product labeling. Cattle, sheep, and goats account for nearly all dairy production and are among the primary species raised for meat. In Europe, there is increasing development of animal welfare labeling schemes by private or public initiatives. All these schemes exceed the welfare level of conventionl systems and sometimes even that of organic systems, particularly when they were developed by animal welfare organization initiatives. The few standards developed for evaluating animal welfare in intensive systems, although mainly reinforcing the regulations for conventional husbandry, enhance welfare by analyzing the regulations in detail, reducing ambuigity and ensuring clear guidance. The standards developed for extensive systems promote a higher welfare level by promoting access to pasture, comfort, social bonding, and environmental enrichment, thus promoting positive aspects in the animals' lives by evaluating animal welfare in a more comprehensive way.

Abstract: In 2020, the European Union endorsed its "Farm-to-Fork" strategy, emphasizing the need for transparency in the food production chain and communication of the sustainability level and nutritional value of food products to the consumer through labeling. For animal-based products, this also includes information about the husbandry systems under which the animals are raised. At the same time, people are becoming increasingly concerned both as citizens and as consumers about animal welfare issues in production species, as animal welfare is considered an integral part of sustainability and food security. This has led to the development of various enhanced animal welfare labeling schemes, initiated by public or private entities, or even as a partnership of both. Specifically for cattle, sheep, and goats, various standards have been developed and implemented in Europe, all establishing higher welfare standards compared to conventional farming, and in some cases exceeding the minimum requirements for organic farming as set by Regulation (EU) 2018/848. Most of these standards, especially those developed by NGOs advocating for animal welfare or through public initiative, were developed for semi-intensive to extensive systems. They primarily incorporate animal-based measures, including positive welfare indicators, offering a holistic approach to animal welfare evaluation. Although there is significant heterogeneity in European animal welfare standards, nearly all of them promote access to pasture, comfort, environmental enrichment, and, in some cases, even mother–young bonding.

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1. Introduction

Nowadays, animal welfare is a fundamental component of agricultural development, gaining increasing concern on a worldwide basis [1,2]. In 2016, the United Nations Committee on World Food Security formally denoted animal welfare as a key pillar of sustainable agricultural development, recognizing its link to food security and emphasizing that animals, humans, and the environment should be considered interconnected [3]. In other words, a production system cannot be considered sustainable today if the animals are kept below a minimum welfare level deemed acceptable by society [1,4]. Gradually, this level is getting higher, particularly in developed countries, where people as citizens advocate for stricter legislation for animal protection and as consumers for ethical production practices for animal-derived products [5]. Animal welfare is considered a common good that is beneficial for society, and animal-derived products originating from animals raised under an adequate, societally acceptable welfare level are perceived as products of high quality [1,6]. Thus, consumers are willing to pay a premium for products from animals kept under enhanced welfare standards [7,8]. In the EU, 90% of citizens consider animal welfare a key factor that influences their decision to purchase animal-derived products, believing that products that are more friendly and ethical to animals are also healthier and more friendly to the environment [9]. This trend is a result not only of ethical concerns, but also of pressure from animal welfare non-governmental organizations (NGOs) demanding improved animal welfare practices in livestock systems [10].

On the other hand, the pressure for improved animal welfare standards for production animals contrasts with the growing international demand for products of animal origin, especially milk and meat [7,8]. It can be challenging for a farming system to balance animal and environmental sustainability with economic viability, since, although consumers are willing to pay more for animal-derived products from animals kept at an improved welfare level, this willingness is complex and influenced by various factors [10–15]. Additionally, improved animal welfare often results in an increased price of the final product, which can be unaffordable for some consumers [8,11]. Considering the rising global population and the increasing demand for animal-derived products, especially in developing countries, this challenge becomes even more complex [8–12]. As a result, there is still intensification in livestock production, and the welfare of the animals is severely compromised in some farming systems.

Cattle, sheep, and goats are livestock species whose welfare raises high concern among consumers. According to the Food and Agriculture Organization (FAO), 81% percent of the world's milk supply is produced by dairy cattle, 15% by buffalo, and 4% by sheep, goats, and camels [16]. In 2024, the EU's milk output reached approximately 235 million tons, increased by 0.6% compared to 2023 [17]. This growth was primarily driven by yield improvements rather than an increase in animal numbers, which shows the intensification of breeding that could lead to welfare impairment of highly productive animals [16,17]. Moreover, goat and sheep herds are expected to expand at a faster rate. World milk production is expected to rise by 1.7% by 2030 compared to 2019, outpacing the growth of other agricultural commodities. Per-capita consumption of both fresh and processed dairy products is estimated to increase in the EU from 23.6 kg in 2018 to 25.2 kg (milk solids) by 2030, including mainly milk, cheese, and yogurt. The production and consumption of meat from cattle and small ruminants follow the same trend as dairy products [16].

Although meat consumption has been shifting towards poultry, growth in beef and sheep meat consumption is expected to increase by 5.9% and 15.7%, respectively, by 2030 on a global basis, representing 20% and 5%, respectively, as a source of meat protein [18].

These numbers underscore how challenging it is to achieve a sufficient animal welfare level for livestock ruminants in the various existing production systems, from purely extensive to highly intensive, and at the same time to satisfy the various consumer demands and the price that they can afford for the final animal-derived product. In 2020, the European Union emphasized the need for transparency in food labeling through its "Farm-to-Fork" strategy [19]. This strategy highlights the importance of informing consumers about the sustainability level of food production, the nutritional value of food products, and the level of animal welfare in farming systems [19]. This initiative is an effort to inform consumers through product labeling and communicate not only the quality of the products but also the husbandry systems under which the animals are raised [18,20].

In Europe, consumers are increasingly concerned about animal welfare and husbandry practices in cattle [14,15], sheep [10,13,21], and goat [13,21] farming systems; thus, transparent labeling to communicate this information is crucial. Consumers are willing to and do pay a higher price for milk when cattle are raised with access to pasture [14]. Veal meat is considered a product of added value when the welfare of the animals is enhanced, and consumers are particularly concerned about the provision of painkillers during the castration of calves and bulls [15]. Labeling influences consumer decisions for choosing beef, exhibiting a preference to organic or animal welfare labels [14,15,22]. Organic bovine products are considered a socially responsible and ethical consumption choice [23,24]. Positive animal welfare information on labeling affects the emotional responses of consumers towards milk [25,26] and yogurt [27], who perceive them as tastier and healthier than conventional dairy products [25,27] and a more conscious choice [26,27]. Sheep and goat milk consumption is rising in Southern Europe, since in consumers' minds small ruminants are often raised in extensive systems and their husbandry is more environmentally friendly compared to cattle husbandry [13,21]. Additionally, the European public perception of sheep and goat dairy products is affected by the origin and the impact of the product on the environment and the welfare level of the animals [10,13,21]. For example, in Greece, one out of three consumers will pay more for organic-labeled products [21], while in the UK, 93% of consumers would pay more for a product with a label that indicates improved animal welfare [28]. Consumers are also becoming concerned about cow–calf separation and are willing to pay more for meat from calves reared by their mothers or milk by cattle that have suckled the calf, even for a limited period [29].

The above outcomes highlight the importance of informing consumers about the animal welfare practices in farming systems. As part of this effort, new welfare protocols are being developed through the initiative of private, public, and non-profit organizations [20,30–33]. These protocols include animal welfare provisions that exceed the minimum legal requirements of an acceptable animal welfare level [20,30–33]. Also, they establish standards that often go beyond the standards of organic farming as laid down by Regulation (EU) 2018/848 on organic production and labeling [32,33]. Not only do they include standards that ensure the protection of animals from negative welfare aspects, but also often positive welfare indicators that promote the experience of positive emotional states in animals [20,32,33].

This paper aims to identify and review the main European protocols regarding the assessment and labeling of welfare in cattle, sheep, and goats, covering both dairy and meat production systems. We will analyze and compare the retrieved animal welfare standards in terms of their structure, content, geographical origin and extent, initiation, and audit frequency. In addition, we will examine the additional provisions included in these

standards that go beyond those of conventional husbandry systems, enhancing animal welfare in relation to husbandry practices, transport, and slaughter. A special focus will be also placed on the environmental enrichment criteria and the positive welfare indicators that are incorporated into the standards and improve animal welfare. After reviewing all these factors, we will discuss whether the retrieved labeling schemes require a higher level of animal welfare not only compared to conventional systems but also in relation to organic husbandry. Finally, we will reflect on current implementations and challenges and propose directions for future research and development of animal welfare labeling schemes.

2. Materials and Methods

All the labeling schemes were retrieved through Google and Google Scholar. Some of them were already known, while the rest were identified by using the following combinations of keywords: "animal welfare" AND "labelling scheme*" OR "labeling scheme", "animal welfare" AND "labelling" OR "labeling", "animal welfare" AND "protocol*" OR "standard*", "dairy" OR "milk" OR "yogurt" OR "cheese" OR "butter" AND "animal welfare" AND "labelling" OR "labeling", "meat" OR "beef" OR "bovine" OR "veal" OR "lamb*" AND "animal welfare" AND "labelling" OR "labeling", "cattle" OR "sheep" OR "goat*" AND "animal welfare" AND "labelling" OR "labeling".

In total, 19 labeling schemes were identified. We selected only labeling schemes that are used in Europe but were not necessarily developed by European countries. Then, we visited each scheme's official website to examine and download their standards and policy for the audits. Sixteen labeling schemes had their full standards publicly available online, which we downloaded, analyzed, and included in the review. Three labeling schemes (Für Mehr Tierschutz, Compromiso Bienestar Animal PAWS, and Animal Welfare Interovic Spain) only had selected criteria available online rather than the full list of standards, so they were not included in our review.

3. Overview of Enhanced Animal Welfare Labeling Schemes in Cattle, Sheep, and Goats in Europe

In Table 1, we present the selected animal welfare labeling schemes. As shown in the table, fifteen standards have been developed for the welfare assessment of dairy cattle, eight for dairy sheep, and seven for dairy goats. Regarding meat husbandry systems, fourteen, eleven, and eight schemes address the welfare evaluation of beef cattle, sheep, and goats, respectively.

Table 1. Labeling schemes with enhanced animal welfare standards in Europe and information about geographical scope, country of origin, and initiation (private or public). The table also indicates the number of tiers of each scheme (single or multiple), the species covered, and the audit frequency.

Labeling Scheme	Species	Country	Territorial Extent	Initiation	Number of Tiers (Single/Multiple)	Frequency of Audits	References
KRAV	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	Sweden	National (also Germany, Spain, Latvia, Denmark, Bulgaria)	Private	1	Annual	[34]
Svensk Sigill	Cattle (dairy, beef), sheep (dairy, meat)	Sweden	National	Private	3—IP Sigill Grundcertifier-ing/naturbeteskött/ klimatcertifiering	Annual	[35–37]
Bedre Dyrevelfaerd	Cattle (dairy, beef)	Denmark	National (also Baltic region, Norway, Sweden)	Public–private	3	Annual	[38]

Table 1. *Cont.*

Labeling Scheme	Species	Country	Territorial Extent	Initiation	Number of Tiers (Single/Multiple)	Frequency of Audits	References
Anbefalet af Fyrenrs Beskyttelse	Cattle (dairy, beef), sheep (dairy, meat)	Denmark	National (also Norway, Sweden)	Private	1	At least annual (different times of year)	[39–41]
Beter Leven	Cattle (dairy, beef)	Netherlands	National	Public–private	3	Annual	[42–47]
Meadow Milk	Dairy cattle	Netherlands	National	Private	1	Annual	[48]
EKO	Cattle (dairy), goats (dairy)	Netherlands	National	Public–private	3	Once every two years, maximum 30-month interval	[49,50]
AMA Gütesiegel	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	Austria	National	Public–private	3 (dairy: basic, plus, plus outdoors/beef: basic, Mer Tierwohl, bio/Freiland/ Aim/Weidehaltung)	Annual	[51–53]
Demeter	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	Germany	National (also international)	Private	1	Annual	[54]
Bio Suisse	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	Switzerland	National (also international)	Private	1	Annual	[55]
Red Tractor	Cattle (dairy, beef), sheep (meat), goats (dairy)	UK	National	Private	1	Annual (max 18 months)	[56–58]
RSPCA Approved	Cattle (dairy, beef)	UK	National (also Ireland, Australia)	Private	1	Annual	[59–61]
Scotch Assured	Cattle (beef), sheep (meat)	UK (RSPCA)	National	Private	1	Annual (different times of year)	[62]
Bienestar Animal Welfair	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	Spain	National (also Spain, Portugal)	Public (research institutes)	1	Minimum annual	[63–67]
Animal Welfare Certified by GAP	Cattle (dairy, beef), sheep (meat), goats (meat)	Global GAP	International	Private	6 (1–5, 5+)	Every 15 months (to cover all seasons)	[68–71]
Animal Welfare Approved by AGW	Cattle (dairy, beef), sheep (dairy, meat), goats (dairy, meat)	A Greener World	International	Private	1	Minimum annual and on all farms	[72–77]

3.1. Structure, Content, Geography, Initiation, and Audits

3.1.1. Number of Tiers

The labeling schemes can follow either a single- or a multi-tiered structure. The higher the tier, the more provisions and enrichments are required and the more improved the animal welfare level is. As shown in Table 1, the majority of schemes are single-

tiered, meaning that a farming system either passes or fails to pass a certification audit. However, some labeling schemes employ a multi-tiered structure, certifying animal welfare at ascending levels. The number of tiers ranges from three [38,42–47] to six [68–71]. In these cases, the tier is indicated on the label either numerically [68–71] or symbolically with a corresponding number of shapes, such as hearts for Bedre Dyrevelfaerd [38] and stars for Beter Leven [42–47].

3.1.2. Country of Origin and Geographical Extent

Almost all animal welfare standards have been developed in Central and Northern Europe. Only one scheme, Welfair, originates from Southern Europe. Countries in Central and Northern Europe often implement national regulations that are stricter than those of the EU regarding animal welfare. This can be explained by the fact that the debate on animal welfare, as well as the concern of consumers about husbandry practices, is more intense in these countries [20].

The geographical scope of most schemes is mainly national [35–37,42–53,56–58,62]. However, it is also common for a standard to be applied beyond its country of origin, in neighboring countries (KRAV [34], Bedre Dyrevelfaerd [38], Anbefalet af Fyrenrs Beskyttelse [39–41], RSPCA Approved [60,61], Welfair [63–67]).

3.1.3. Initiation

Most of the standards were developed through private initiatives. However, the Bedre Dyrevelfaerd [38], Beter Leven [42–47], EKO [49,50], and AMA Gütesiegel [51–53] schemes are a result of public and private collaboration. For these four standards, all audits are conducted and overseen by private control bodies. The only exception is Bedre Dyrevelfaerd [38]. Although inspections under this scheme are carried out by private inspection bodies, the audit oversight is managed by public authorities [20,38]. So far, Denmark remains the only European country that certifies animal welfare at the public level. Nonetheless, efforts are currently underway to develop a public certification system also in Italy and Germany [20]. The Welfair standards were developed by academic institutions. Their criteria are based on the Welfare Quality animal welfare assessment protocols for dairy cows [63], fattening cattle [64], and veal calves [65]. These protocols are the outcome of collaborative research within the Welfare Quality Network, involving multiple European universities [78]. Although the network does not have its own labeling system, it provides standardized certification protocols that can serve as a basis for the development of national-level schemes [78]. The AWIN protocols for sheep [66] and goats [67] were developed on the same philosophy and form the basis of Welfair standards for small ruminants.

Private initiators of improved animal welfare standards are often non-government organizations (NGOs). RSPCA Approved, spread throughout England and Ireland, was established by the non-profit animal protection organization Royal Society for the Prevention of Cruelty to Animals—one of the oldest organizations advocating for animal welfare [79]. Anbefalet af Fyrenrs Beskyttelse is an NGO focusing on animal protection with a territorial scope mainly in the Baltic and Scandinavian regions [80]. Global GAP [81] and A Greener World have an international scope and presence [82]. In some cases, animal welfare labeling schemes are also designed to support product differentiation in the market by associating improved animal welfare with high-quality products. For example, Scotch Assured was developed by the collaboration of Quality Meat Scotland and the Scottish Society for the Prevention of Cruelty to Animals to differentiate Scottish red meat of cattle and sheep in the market. Meat products carrying the Scotch Assured logo originate from animals that

have not only been raised under improved animal welfare conditions but have also been born, raised, and slaughtered in Scotland [83].

3.1.4. Frequency of Audits

For all labeling schemes, audits are conducted annually. The only exception is EKO, requiring auditing of farms every two years (with a maximum interval of 30 months). This standard focuses on promoting access to pasture for dairy cattle and goats and is the only scheme that mandates farms to be both organic and non-GMO certified [49,50]. Organic certification requires annual audits according to Regulation (EU) 2018/848 and already sets high animal welfare standards. This may explain the less frequent audits for EKO compared to other standards. Some standards require the audits to be conducted at different times of the year (Anbefalet af Fyrenrs Beskyttelse [39–41], Scotch Assures [62]) or every 15 months to cover all seasons (Animal Welfare Certified by GAP [68–71]). This variation highlights the importance of evaluating animal welfare during different seasonal conditions, particularly those that may pose additional challenges to animal well-being.

3.1.5. Type of Production Systems Covered

As analyzed in Table 2, the standards vary significantly in terms of the type of system that they address, ranging from purely intensive to purely extensive. Most schemes were developed for semi-extensive to extensive systems, since the level of animal welfare is improved when ruminants have access to pasture or the outdoors. Red Tractor [56–58] and Welfair [63–67] are the only schemes developed for evaluating animal welfare in intensive systems.

Table 2. Labeling schemes with information about the conversion period, the main type of production system that they assess (extensive or intensive), whether they focus exclusively on promoting animal welfare and not other sustainable aspects, and whether they require organic certification according to Regulation (EU) 2018/848 on organic production and labeling of organic products.

Labeling Scheme	Production System Types	Focusing Exclusively on Animal Welfare	Mandatory Organic Certification	Conversion Period	Breed	References
KRAV	Extensive	No	No	Cattle: 6 months milk, 12 meat, sheep, goats: 6 months milk/meat	Suitable for organic	[34]
Svensk Sigill	Extensive	No	No	One season on pasture (“naturbeteskött”), 60 days lamn IP, up to 120 days cattle)	All (natural calving)	[35–37]
Bedre Dyrevelfaerd	Semi-intensive–extensive	Yes	No	No	All	[38]
Anbefalet af Fyrenrs Beskyttelse	Extensive	Yes	No	Animals born and raised in the herd	Sheep: all, 75% documented beef cattle breeds and crosses thereof (natural calving)	[39–41]
Beter Leven	Extensive	Yes	No	No	Breeds with a high incidence of caesarean section and stress during transport excluded	[42–47]
Meadow Milk	Extensive	No	No	No	All	[48]
EKO	Extensive	No	Yes	No	All	[50,59]

Table 2. *Cont.*

Labeling Scheme	Production System Types	Focusing Exclusively on Animal Welfare	Mandatory Organic Certification	Conversion Period	Breed	References
AMA Gütesiegel	Extensive	No	No	6 months, 2 months calves (organic time credited)	All (animals purchased from farm's local region)	[51–53]
Demeter	Extensive	No	No	Milk, all: 6 months, meat sheep, lamb: 6 months organic, 12 conv. beef: 1/3 of their lives if organic, 2/3 if conv.	Suitable for organic farming	[54]
Bio Suisse	Extensive	No	No	6 months	Suitable for organic farming	[55]
Red Tractor	Intensive	No	No	No	All	[56–58]
RSPCA Approved	Semi-extensive–extensive	Yes	No	No	All	[59–61]
Scotch Assured	Extensive	No	No	Born, reared, slaughtered in Scotland—entire life under standard	All	[62]
Bienestar Animal Welfair	Intensive	Yes	No	No	All	[63–67]
Animal Welfare Certified by GAP	All—extensive	Yes	No	A mimuim of 2 years in tier 4 is required to reach tier 5 in tier 4 to reach t	All—animals selective to adapt, easy calving, polled	[68–71]
Animal Welfare Approved by AGW	Extensive	Yes	No	No	All—easy calving, closed herd, polled animals	[72–77]

3.1.6. Exclusive Focus on Promoting Animal Welfare

As shown in Table 2, standards developed by NGOs prioritize the promotion of animal welfare, without addressing other aspects of sustainability (Bedre Dyrevelfaerd [38], Anbefalet af Fyrenrs Beskyttelse [39–41], Beter Leven [42–47], RSPCA Approved [59–61], Animal Welfare Certified by GAP [68–71], Animal Welfare Approved by AGW [72–77]). However, it is also common for some standards to promote environmental sustainability alongside animal welfare, especially those that have been developed for the evaluation of animal welfare in extensive systems and require access to pasture (Meadow Milk [48], EKO [49,50], Demeter [54], Bisuisse [55]). In certain cases, social sustainability is also promoted (KRAV [34], Svensk Sigill [35–37]).

3.1.7. Conversion Period

Nine out of sixteen animal welfare schemes do not require any conversion period. When a conversion period is mandatory, it is usually six months for all dairy ruminants and for small ruminants raised for meat and one year for beef cattle (KRAV [34], Demeter [54]). In these cases, the length of the mandated conversion period is the same as the one imposed by the standards of organic agriculture according to Regulation (EU) 2018/848. Some schemes, such as AMA Gütesiegel [51–53] and Demeter [54], also allow organic time to be credited. Anbefalet af Fyrenrs Beskyttelse [39–41] requires a close herd and Scotch Assured specifies that animals must have spent their entire life under the conditions of the standard [62].

3.1.8. Breeds

Regarding the breeds permitted by the standards, almost all schemes impose no specific restrictions. However, they all emphasize that breed selection should prioritize natural calving, excluding breeds or animals with a high incidence of caesarean sections. Maximum thresholds for caesarean sections and dystocia rates within the herd can also be established (Animal Welfare Approved by GAP [68,69]). Certain standards developed mainly for welfare assessment in extensive systems allow breeds suitable for organic farming (KRAV [34], Demeter [54], BioSuisse [55]), while others allow only animals from local breeds (AMA Gütesiegel [51–53], Scotch Assured [62]).

3.2. Husbandry Practices

3.2.1. Tail Docking

Tail docking of sheep is prohibited under most standards (although it is still permitted for veterinary reasons), as shown in Table 3. Demeter [54] states that this practice is permitted but not systematically. However, in labeling schemes created for intensive systems (Red Tractor [55], Welfair [65]) or for meat quality (Scotch Assured [61]), tail docking is allowed. Welfair [65] explains that the length of the tail must cover the anus/vulva.

Table 3. Handling practices regarding tethering, tail docking, castration of males, and dehorning/disbudding under the selected animal welfare standards.

Labeling Scheme	Tail Docking (Sheep)	Castration of Males	Specific Identification/Dehorning/ Disbudding Practices	Tethering (Cattle)	References
KRAV	No	Yes (calves under 8 weeks)	Only hot dehorning methods permitted	Yes (max 50 animals, during the stable period, routine exercise)	[34]
Svensk Sigill	No (yes for veterinary reasons)	Yes	Identification in an acceptable way for animal's welfare	Not mentioned	[35–37]
Bedre Dyrevelfaerd	No	Not mentioned/as conventional	Not mentioned/as conventional	No	[38]
Anbefalet af Fyrenrs Beskyttelse	No	Yes (bulls under 10 months)	Not mentioned/as conventional	No	[39–41]
Beter Leven	No	Yes (anesthetic up to at least e days)	Freeze branding, disbudding paste not permitted	No	[42–47]
Meadow Milk	Not mentioned	Not mentioned	Not mentioned	Not mentioned	[48]
EKO	Not mentioned	Not mentioned	Not mentioned	Not mentioned	[49,50]
AMA Gütesiege	Not mentioned	Not mentioned	Not mentioned	As of 1 January 2024, tethered housing with access to pasture less than 90 days not permitted	[51–53]
Demeter	Yes (not systematically)	Yes (to improve the health, welfare, hygiene of animals)	Dehorning not permitted (annual review)	No	[54]
Bio Suisse	No (yes for veterinary reasons)	Yes (if prescribed by a veterinarian)	Not mentioned/ as conventional	No (bovines yes if regular access to range and/or pasture according to Article 75 of the Direct Payments Ordinance)	[55]
Red Tractor	Yes	Yes	Cutting/sawing horn (must not be used routinely	No	[56–58]
RSPCA Approved	Permitted only if the calf is intended to be raised beyond 12 months of age		Not mentioned/ as conventional	No	[59–61]

Table 3. *Cont.*

Labeling Scheme	Tail Docking (Sheep)	Castration of Males	Specific Identification/Dehorning/ Disbudding Practices	Tethering (Cattle)	References
Scotch Assured	Yes	Yes	Chemical cauterization not recommended	Yes (recommended no, untethered exercise must be provided daily)	[62]
Bienestar Animal Welfair	Yes (must cover the anus/vulva)	Yes	Not mentioned/ as conventional	No	[63–67]
Animal Welfare Certified by GAP	Yes for tiers 1–4, no tiers for 5, 5+	Yes (tiers 2–5+, not only pain relief, also non-steroidal anti-inflammatory drug)	Disbudding is prohibited in tiers 5, 5+, dehorning prohibited in all tiers	No	[68–71]
Animal Welfare Approved by AGW	Not permitted	Yes	Caustic paste may be used to disbud calves by 7 days of age (instructions of use)/hot branding prohibited	Not permitted	[72–77]

3.2.2. Castration

Castration of males is permitted by all schemes, with the exceptions of Animal Welfare Certified by GAP, which forbids the practice in tiers 5, 5+ [68–71], and RSPCA Approved, which allows castration and tail docking only for animals that will be raised beyond the age of twelve months [59–61].

3.2.3. Dehorning

When it comes to dehorning, Beter Leven prohibits the use of caustic paste [42,43]. Scotch Assured [63] and Animal Welfare Approved by AGW [72,73] permit its use but distinctly mention that the practice is not recommended. Also, the scheme provides detailed instructions on its use since it can be dangerous for the animals. Demeter [54] underscores the need for dehorning and genetic hornless breeding of cattle, having also the strategy of "horns belong to the cow" [84].

3.2.4. Tethering

Tethering of cattle is not allowed by most standards, and the few that allow it (KRAV on farms with less than fifty animals [34], BioSuisse [55], Scotch Assured [62]) require that the animals be provided with routine exercise.

3.2.5. Husbandry Practices Concerning Dairy Calves

A common practice in dairy farming is the immediate separation of newborn animals from their mothers after birth. As shown in Table 4, some animal welfare evaluation schemes require that the mother have licked the newborn before the separation (Beter Leven [42–47]), while others mandate that the newborn be allowed to suckle for 6–12 h (Animal Welfare Certified by GAP [73,74,76] tiers 2–4) or up to one day (KRAV [34], Bedre Dyrevelfaerd [38] tier 3, Anbefalet af Fyrenrs Beskyttelse [40,41]). Animal Welfare Certified by GAP in tiers 5, 5+ requires that the newborn stay with the mother until weaning. The duration of individual housing for calves also varies considerably between standards from one week (KRAV [35], Bedre Dyrevelfaerd [38], Anbefalet af Fyrenrs Beskyttelse [40,41], Demeter [54]) to up to eight weeks (Red Tractor [56–58], Scotch Assured [62], BioSuisse [55], Svesk Sigill [35,36]). Animal Welfare Certified by GAP permits individual housing of

calves only in the lowest tiers. Weaning time differs from a minimum of 5 weeks (Red Tractor [56–58], Scotch Assured [62]) to natural weaning (Animal Welfare Certified by GAP [73,74,76] in tiers 5, 5+) for all dairy animals.

Table 4. Handling practices regarding dairy calf welfare in the selected animal welfare labeling schemes.

Labeling Scheme	Do Dairy Newborns Suckle? (Min Time)	Minimum Weaning Age	Housing of Calves in Individual Pens	References
KRAV	Calves: 1 day, lambs/ kids: 3 days	Calves: 3 months, lambs: 8 weeks, kids: 45 days	Up to 1 week	[34]
Svensk Sigill	Not mentioned	Calves: 3 months, lambs: 8 weeks (25 kgs min)	Up to 8 weeks	[35–37]
Bedre Dyrevelfaerd	Tier 3: calves for 1 day	Calves tier 1: min 8 weeks, tier 2: 10 weeks, tier 3: 12 weeks	Up to 1 week	[38]
Anbefalet af Fyrenrs Beskyttelse	At least 1 day	Calves: 5 months, lambs: 3 months	Up to 1 week	[39–41]
Beter Leven	Separation after the mother has licked the newborn	Calves: 3 months tier 1, 6 months tier 3	Up to 2 weeks	[42–47]
Meadow Milk	Not mentioned	Not mentioned	Not mentioned	[48]
EKO	Not mentioned	Not mentioned	Not mentioned	[49,50]
AMA Gütesiege	Not mentioned	Calves: 3 months	Up to 8 weeks	[51–53]
Demeter	Not mentioned	Not mentioned/ as conventional	Up to 1 week	[54]
Bio Suisse	Not mentioned	Calves: 3 months, lambs/ kids: 35 days	Up to 8 weeks	[55]
Red Tractor	No	Calves: 5 weeks, lambs/ kids: 5 weeks	Up to 8 weeks	[56–58]
RSPCA Approved	Not mentioned	Calves: 8 weeks	Not mentioned/ as conventional	[59–61]
Bienestar Animal Welfair	Not mentioned	Not mentioned	Not mentioned	[63–67]
Animal Welfare Certified by GAP	6 h tier 1, 12 h tiers 2–4, until weaning 5, 5+	Calves: 6 months, tiers 1–4, 8 months tiers 5, 5+ natural weaning step 5, lambs/kids: 12 weeks tiers 1–4, 16 weeks tiers 5, 5+	Up to 2 weeks tier 1, not permitted in other tiers	[68–71]
Animal Welfare Approved by AGW	Recommended: calves should be reared by their mothers	Calves: 6 months/dairy calves 6 weeks from milk	Up to 4 weeks	[72–77]

3.2.6. Access to Pasture and Stocking Density on Pasture

Access to pasture is a mandatory animal welfare provision in all labeling schemes except for Red Tractor [56–58] and Welfair [63–67], as these two were developed for animal welfare assessment in intensive systems. Nevertheless, the Welfare Quality Assessment protocol for fattening cattle includes as a positive welfare indicator access to pasture or to an outdoor loafing area [64]. This is also incorporated in the Welfair standards. Table 5 provides a detailed analysis of the pasture requirements specified by each scheme. Usually, the requirements are defined by the minimum days per year/grazing period and/or the minimum hours of pasture access per day. For calves older than six months and cows, access requirements vary from 120 days per year and 6 h per day (Bedre Dyrevelfaerd [38] tier 1, Meadow Milk [48]) to 180 days per year and 8 h (EKO [49]) or 6 h per day (Anbefalet af Fyrenrs Beskyttelse [40]). Animal Welfare Certified by GAP [73,74,76] in tiers 5, 5+ again sets the highest welfare standard, requiring 200 days per year and unrestricted access in tier 5+. For sheep and goats, continuous grazing is promoted (KRAV [34], Animal Welfare Certified by GAP [70,71]). Standards like Meadow Milk [48] and EKO [49,50] were specifically developed to promote natural grazing. Additionally, Animal Welfare Approved

by AGW certifies dairy cattle as grassfed certified if the animals have grazed continuously for one year prior to slaughter [85]. Most labeling schemes also define maximum stocking density on pasture so that the coverage will not be denuded, and the animals will have space to move freely and synchronize their behaviors (Table 5).

Table 5. Access to pasture, stocking density on pasture, daylight provision, and maximum allowed mortality rates in the selected standards.

Labeling Scheme	Pasture	Stocking Density on Pasture	Daylight/Day–Night Rhythm	Mortality	References
KRAV	Cattle over six months: outdoors most of the day during the grazing period (min 12 h), sheep/goats: around the clock in grazing period	Not mentioned	Daylight must be let in via an area equivalent to at least 3% of the floor area	Suckling calf mortality 0–24 h: 11%, calf mortality 1–180 days: 10%, young animal mortality 6–15 months (heifers) 4%, cows that die natural death/euthanized 10%	[34]
Svensk Sigill	"Grundcertifering" or "naturbeteskött" certified: minimum half of the grazing period (for animals older than 6 months), dairy cattle: min 10 h/day, beef: whole day	Low, not harming the pasture	Windows or openings for light to enter	Not specified	[35–37]
Bedre Dyrevelfaerd	Tier 1: no; tier 2: cattle min 150 days, cattle more than 6 months 1 May–1 November, calves less than 6 months, 1 May–1 September; tier 3: all more than 4 months 1 May–1 November, calves less than 4 months 1/5–1/9	Not mentioned	Not mentioned	As of 1 January 2028, max 8% for cattle and 10% for calves under the last 24 months	[38]
Anbefalet af Fyrenrs Beskyttelse	Sheep: min 7 months, beef cattle: min 5½ months, dairy cattle: min 6 h/day from 1 April–1 November	Beef cattle: min 0.2 ha/animal, dairy cattle: min 1 ha/animal	Light area must be at least 5% of the floor area	Not mentioned	[39–41]
Beter Leven	Beef cattle tier 1: 8 h/day for 150 day/year or 24 h/day for 115 days/year, tier 3: 210 days of 12 h/day or 160 days of 24 h/day, dairy cattle tier 1: 6 h/day for 120 days/year, tier 3: 8 h/day for 180 days	All cattle tier 1: 10 cows/ha, tier 3: 6.5 cows/ha	Beef cattle: daylight-permeable area covers at least 6.7%, dairy: 10% of the floor area	Not mentioned	[42–47]
Meadow Milk	Dairy cattle: 6 h/day for 120 days/year or 720 h in total, min 120 days/year	10 cows/ha	Not mentioned	Not mentioned	[48]
EKO	Dairy cattle: 8 h/day for 180 days (15 April – 12 October), dairy goats: 5 h/day for 120 days	6.5 cows/ha, 100 goats/ha	Not mentioned	Not mentioned	[49,50]
AMA Gütesiegel	Dairy cattle: 120 days/year, 2 h/day dairy plus standard and 6 h/day dairy plus outdoors standard	No	Sizes of the surface of the windows min 3% of the floor area	Not mentioned	[51–53]
Demeter	All access to pasture during the summer half-year	2 livestock units/ha (1.4 manure units/ha)	Not mentioned	Not mentioned	[54]
Bio Suisse	Cattle: regular (exception bulls, fattening calves), sheep, goats: every day during the growing season	2.5 livestock units/ha	Natural light	Not mentioned	[55]

Table 5. *Cont.*

Labeling Scheme	Pasture	Stocking Density on Pasture	Daylight/Day–Night Rhythm	Mortality	References
Red Tractor	No	No	Normal daylight hours (natural or artificial), night hours not specified	Not specified	[56–58]
RSPCA Approved	Calves older than 8 weeks must be given continuous access to paddock	Not mentioned	Min 100 lux during daylight hours	Not specified	[59–61]
Scotch Assured	Yes, not specified	Not mentioned	Natural, so that animals can see clearly	Not mentioned	[62]
Bienestar Animal Welfair	No—but in cattle access to outdoor loafing area or pasture (in days per year or hours per day) and access to pasture in expression of other behaviors (appropriate behavior)	No	Not mentioned	Not mentioned—but criterion score lamb mortality (appropriate nutrition), veal mortality	[63–67]
Animal Welfare Certified by GAP	Beef cattle: 2/3 of their lives in tiers 1–2, 3/4 of their lives in tier 4/all their lives on range or pasture in tiers 5, 5+, dairy cattle 6 h/day in tiers 4, 5 and min 200 days/year in tier 5+, sheep/goats: unrestricted daily access	So that vegetation coverage not denuded more than 20%	Not specified, due to continuous access to pasture	Pre-weaning calf mortality max 6% per 12-month period in steps 1–3 and 4% in 4–5+/mortality for weaned heifers to 3-weeks pre-calving max 2% per 12 months all steps, sheep/goats pre-weaning 8%	[68–71]
Animal Welfare Approved by AGW	Beef cattle: continuous (calves only growing season), dairy if 1 year prior to slaughter continuously then grassfed certified	Not mentioned	Maximum day-length 16 h	Not specified	[72–77]

3.2.7. Mortality Rates

In addition to the previously mentioned provisions and practices that enhance animal well-being, another important factor that varies between the retrieved animal welfare standards is mortality. Although mortality rates are influenced by various management and breeding factors, high mortality generally indicates poor welfare conditions. Thus, three of the selective schemes establish maximum acceptable mortality rates for different animal groups. KRAV [34] permits a maximum calf mortality rate of 10% for calves aged 1–180 days and 4% for older animals. Bedre Dyrevelfaerd [38] allows a maximum mortality rate of 8% for cattle and 10% for calves (<180 days of age) based on data from the past two years (this criterion will come into effect on 1 January 2028). Animal Welfare Certified by GAP [68,69] imposes the strictest limits, even at low tiers, allowing a maximum pre-weaning calf mortality rate of 6% at tiers 1–3 and 4% at higher tiers. Notable, it is also the only standard that sets a mortality threshold for sheep and goats, limiting pre-weaning mortality to 8% [70,71].

3.2.8. Day–Night Rhythm and Daylight Provision

As presented in Table 5, almost all schemes promote natural lighting and day–night rhythm, especially those that require access to pasture (Biosuisse [55], Animal Welfare Certified by GAP [68–71]). Although Red Tractor [56–58] was developed for animal welfare assessment in intensive systems, it still requires normal daylight hours, either through natural or artificial light. Additionally, most standards set explicit standards regarding the

amount of natural light that must enter the facilities by specifying the minimum size of window surface area as a percentage of the total floor area. This requirement varies from 3% (KRAV [34], AMA Gütesiegel [51–53]) to up to 10% (Beter Leven [44,45]) in the standards.

3.3. Transport and Slaughter

The rearing of the animals is described with details in all standards; however, it is equally important to also assess animal welfare during transport and slaughter. As shown in Table 6, transport and slaughter are not typically analyzed as separate sections or standards. In most cases, even when transport criteria are addressed, the requirements are those included in the conventional Regulation (EC) 1/2005 on the protection of animals during transport. Although all standards recommend keeping transport time to a minimum, ideally less than 8 h if possible, only Animal Welfare Certified by GAP 5+ [68,69] sets a stricter requirement, prohibiting transport and demanding on-farm slaughter. Regarding slaughter conditions, only Red Tractor [86], Animal Welfare Approved by AGW [87], and Welfair [88,89] provide separate detailed standards, with the latter incorporating various animal-based indicators to evaluate welfare.

Table 6. Labeling schemes with information on whether they include a separation section/standard about animal welfare evaluation during transport and slaughter. The table also presents the maximum allowed transport time under each standard.

Labeling Scheme	Separate Section/Standard About:		Maximum Transport Time	References
	Transport	Slaughter		
KRAV	No	No	The ideal minimum, but not specified	[34]
Svensk Sigill	Yes (“naturbeteskött”, “klimatcertifiering”)	No	Not mentioned (8 h)	[35–38]
Bedre Dyrevelfaerd	No	No	8 h	[38]
Anbefalet af Fyrenrs Beskyttelse	Yes	No	8 h (including loading/unloading)	[39–41]
Beter Leven	Yes	No	8 h	[42–47]
Meadow Milk	No	No	Not mentioned	[48]
EKO	No	No	Not mentioned	[49,50]
AMA Gütesiegel	Yes	No	Not mentioned	[51–53]
Demeter	No	No	Minimized, on-farm slaughter recommended	[54]
Bio Suisse	No	No	8 h	[55]
Red Tractor	Yes	Yes (meat and poultry processing scheme standards section [86])	8 h	[56–58]
RSPCA Approved	Yes	Yes	8 h	[59–61]
Scotch Assured	Yes	No	8 h	[62]
Bienestar Animal Welfair	No	Yes (system of integration of measures for the welfare assessment protocol for cattle [88]/sheep and goats [89] at the slaughterhouse)	Not mentioned	[63–67]
Animal Welfare Certified by GAP	Yes	Yes	All meat tiers 5+ on farm slaughter, beef cattle: tier 1: 25 h, tiers 2–4: 16 h, tier 5: 8 h, sheep: 18 h, goats: 12 h, dairy 1–4: 8 h, tier 5, 5+: 2 h	[68–71]
Animal Welfare Approved by AGW	Yes	Yes (guidelines for red meat slaughter facilities [87])	8 h	[72–77]

3.4. Environmental Enrichment and Positive Welfare Indicators

A holistic, comprehensive approach to evaluating animal welfare includes resource, management-, and animal-based indicators. Among these, animal-based indicators are the main category used in animal welfare assessment schemes and considered the most reliable, since they focus directly on the animal, evaluating its welfare through direct observation [90]. Moreover, all five aspects of animal welfare should be quantified and assessed for a holistic welfare evaluation [91]: nutrition, natural environment, health, behavior, and mental state. To ensure an acceptable welfare level, it is necessary not only to protect the animals from negative experiences by keeping these experiences below a minimum, but also to actively promote positive affective states in animals' lives [92,93].

Table 7 summarizes the positive welfare indicators identified in the selective protocols. The most common indicators are access to pasture and comfort. Access to pasture not only fulfills the strong behavioral motivational need of ruminants to graze and/or browse, but also promotes exploration, behavioral synchronization, and comfort [94,95]. Comfort is further promoted in certain standards through mandatory provision of grooming brushes and/or rubbing devices (Svensk Sigill [35,36], Anbefalet af Fyrenrs Beskyttelse [39,40], Beter Leven [42–47], Meadow Milk [48], AMA Gütesiegel [51], Animal Welfare Certified by GAP [68,69]). Bedding material requirements are often described in detail (e.g., RSPCA Approved [61]), and animals are provided with additional space through pasture or outdoor access (Table 5). Under these conditions, positive social interactions, positive affiliative behaviors, and play in young animals are also promoted [94]. In addition, structural environmental enrichment is promoted for sheep and goats, primarily by elevated platforms (Biosuisse [55], Animal Welfare Certified by GAP [71,72]). Another positive welfare indicator included in the schemes is positive human–animal interaction. While generally mentioned across standards, Welfair has gone a step further by measuring it at the farm level using the human approach test [63–67]. Finally, mother–young bonding is gaining attention, as described previously (Table 4), along with the provision of places for seclusion (KRAV [34], Animal Welfare Certified by GAP [68–71]).

Table 7. Positive welfare indicators and requirements for environmental enrichment included in the selected standards.

Labeling Scheme	Specific Environmental Enrichment	Positive Welfare Indicators Promoted	Positive Human–Animal Interaction	References
KRAV	Not specified	Access to pasture, comfort, calving in seclusion	General	[34]
Svensk Sigill	All free-range cattle in loose systems must have access to a grooming brush or similar	Access to pasture, comfort	General	[34–37]
Bedre Dyrevelfaerd	Not specified	Access to pasture, comfort	General	[38]
Anbefalet af Fyrenrs Beskyttelse	1 stationary brush per 50 cows in stables; scratching post, trees, or similar on pasture; detailed description of shelter, shade outdoors	Access to pasture, comfort, social interactions, behavioral synchronization, mother–young bonding	General	[39–41]
Beter Leven	Rubbing devices permanently in each pen	Access to pasture, comfort, mother–young bonding, social interactions	For all tiers, the farm manager must have followed a human–animal interaction workshop approved by the Society for the Protection of Animals	[42–47]

Table 7. *Cont.*

Labeling Scheme	Specific Environmental Enrichment	Positive Welfare Indicators Promoted	Positive Human–Animal Interaction	References
Meadow Milk	All cows should be able to graze simultaneously, partial herd grazing not permitted	Access to pasture, comfort, social interactions, behavioral synchronization	Not mentioned	[48]
EKO	Bedding comfort, at least 10 cm thick and brushing facilities for all cattle	Access to pasture, comfort, social interactions	Not mentioned	[49,50]
AMA Gütesiegel	Not specific, but "enhanced animal welfare" for beef requires 40% more space and scratching posts than basic requirements	Access to pasture, comfort, social interactions	Not mentioned	[51–53]
Demeter	Systems must allow animals free contact with their natural environment (sun, rain, earth underfoot, etc.).	Access to pasture, comfort, social interactions, behavioral synchronization	General	[54]
Bio Suisse	For goats, outdoor pens and pastures should be appropriately structurally enriched, e.g., with elevated areas, places of retreat	Access to pasture, comfort, play, positive social interactions, places for animals to rest and hide	General	[55]
Red Tractor	Not specified—emphasis on adequate, dry bedding	Comfort, social interactions	Analyzed in detail (appendix on good handling)	[56–58]
RSPCA Approved	Emphasis on roughage provision, explained and described in detail as bedding and enrichment	Access to pasture, comfort, positive social interactions, play, behavioral synchronization	General	[59–61]
Scotch Assured	Enough space for behavioral synchronization	Access to pasture, comfort, behavioral synchronization	General	[62]
Bienestar Animal Welfair	Not specified	Exploration, access to pasture, comfort, play, QBA, positive social interactions/affiliative behaviors, behavioral synchronization, cohesion	Analyzed and measured as indicator (avoidance distance test)	[63–67]
Animal Welfare Certified by GAP	For tier 2, objects on which beef cattle can scratch or groom, detailed environmental enrichment appendix for all species, detailed bedding description and score for calves, criterion for bullied animals' protection, one enrichment item for meat sheep/goats (1/50 animals) when moved from pasture	Access to pasture, comfort, mother–young bonding, social interactions and synchronization, play, places where animals can hide	Analyzed in detail	[68–71]
Animal Welfare Approved by AGW	Not specific, but houses conditions analyzed in detail, e.g., bedding material	Access to pasture, comfort, social interactions, mother–young bonding	Analyzed in detail, mentions that efforts must be made to develop positive relationships between the farmers–animals	[72–77]

3.5. How Improved Is Animal Welfare in the European Labeling Schemes?

Is the welfare of production animals actually enhanced according to the selective standards? To answer this question, we must set a comparison baseline as the welfare in conventional husbandry systems, as set by EU Directives 98/58/EC, 91/629/EEC and Regulations (EC) 1/2005 and (EC) 1099/2009. In this context, the answer is yes. All labeling schemes set higher welfare standards compared to conventional farming. Still, some of them just repeat the conventional regulations with slight modifications. These are mostly schemes developed for intensive and semi-intensive systems. Nevertheless, it is important that they explain in detail and precisely the management and handling practices, reducing

ambiguities and minimizing the risk of misinterpretation. For example, Red Tractor has a separate appendix specifying the accepted practices for handling animals during movement and provides detailed requirements regarding bedding material and its condition [56–58]. Thus, although developed for intensive systems, it sets high standards for management and health-related animal-based indicators. The Welfair standards are also developed for intensive systems but include many animal-based indicators, including positive ones, that enhance animal welfare level [63–67]. These schemes even assess the positive emotional states of animals by QBA [63–67].

When comparing the standards of the selected schemes to those in organic husbandry systems, as defined by Regulation (EU) 2018/848, again, in this case, some schemes do not significantly differ from the Regulation. However, they set detailed criteria for various practices, such as pasture and stocking density on pasture (Meadow Milk [48], EKO [49,50], AMA Gütesiegel [51–53]). Additionally, considering that most of the labeling schemes require environmental enrichment and promote comfort, the overall animal welfare level is improved. It is the standards developed by NGOs that advocate for animal welfare, such as Anbefalet af Fyrenrs Beskyttelse [39–41], RSPCA Approved [59–61], Animal Welfare Certified by GAP [68–71], and Animal Welfare Approved by AGW [72–77], that set the highest animal welfare conditions. Likewise, standards developed by public–private initiatives, like Beter Leven [42–47] in the Netherlands and Bedre Dyrevelfaerd [38] in Denmark, establish a high animal welfare level, exceeding conventional EU regulations in the low tiers and even EU organic standards in the higher tiers. Notably, these standards focus on promoting animal welfare and do not issue other sustainability aspects. Table 8 summarizes the key points regarding how stringent each labeling scheme is compared to conventional and organic systems and whether they address certain animal welfare husbandry issues.

Table 8. Summary of the main points that indicate whether each standard is stricter than Regulation (EU) 2018/848 on organic production and sets a relatively high animal welfare standard, compared to both organic and conventional EU regulations.

Labeling Scheme	Is It Stricter Than EU Organic as a Standard and in General Does It Set a High Animal Welfare Level?	References
KRAV	Promotes access to pasture but also allows tethering on farms with less than 50 cows, good welfare standards, strict regarding feedstuff.	[34]
Svensk Sigill	Svensk Sigill “naturbeteskött” is strict regarding pasture criteria. All three standards have a good welfare level for animals but focus a lot on environment, biodiversity, and use of energy.	[35–37]
Bedre Dyrevelfaerd	If the animals are already organic, no conversion period is needed. Tiers 2 and 3 set a good welfare level. Max mortality level is established. Dairy calves stay with the mother 24 h after birth. Calves are in individuals pens up to 1 week in all tiers.	[38]
Anbefalet af Fyrenrs Beskyttelse	Requires an enhanced animal welfare level, with environmental complexity and positive indicators, castration of male rams prohibited, and dairy calves staying with mothers 24 h after birth.	[39–41]
Beter Leven	All tiers analyze the criteria in detail, with a higher animal welfare level for dairy cattle in all tiers (separation after mother licks the calf, as of 2030 groups kept together for 5 days, cubicle systems prohibited starting in 2040), and disbudding paste not permitted.	[42–47]
Meadow Milk	Yes, regarding pasture.	[48]
EKO	Yes, regarding pasture, but requires also a few other provisions for animals, like brushes.	[49,50]
AMA Gütesiegel	The basic AMA Gütesiegel certificates are for more intensive systems. For dairy plus and plus outdoors and for beef “enhanced animal welfare,” the animal welfare is higher.	[51–53]

Table 8. *Cont.*

Labeling Scheme	Is It Stricter Than EU Organic as a Standard and in General Does It Set a High Animal Welfare Level?	References
Demeter	Although giving emphasis to the environment and feedstuffs, it is strict regarding pasture and promotes the expression of natural behaviors and keeping animals loose and horned.	[54]
Bio Suisse	It is more complex that EU organic standards, also emphasizing the environment, but sets a good animal welfare standard with environmental enrichment.	[55]
Red Tractor	Mainly for intensive systems, including mainly management-based and animal-based measures that have to do mostly with health. Still, there are very detailed criteria for management and high standards for conditions for this type of system.	[56–58]
RSPCA Approved	Sets high animal welfare standards, with complex, enriched environments, particularly for dairy calves.	[59–61]
Scotch Assured	Developed mainly to promote meat products from Scotland, not animal welfare, but has a good animal welfare level.	[62]
Bienestar Animal Welfair	Developed for intensive systems, has a holistic and high animal welfare level, and many animal-based indicators, including positive ones.	[63–67]
Animal Welfare Certified by GAP	Very high animal welfare standards starting from tier 2 and especially in tier 5,5+. Tier 5+ requires on-farm slaughter, access to pasture for the duration of the animals' lives, natural weaning for all animals, and breastfeeding by their mothers—even dairy cattle, and castration is not permitted. Very detailed way to measure animal-based indicators. The environmental enrichment analyzed is detailed in the appendix.	[68–71]
Animal Welfare Approved by AGW	High animal welfare standards, various animal-based indicators, explained in detail. Separate detailed section for transport and standards for slaughter. "Grassfed" standards require natural grassfed feeding for a minimum of one year.	[72–77]

4. Discussion

Considering the results of our review, it can be argued that the retrieved European animal welfare labeling schemes differ in various aspects, but all require an improved animal welfare level, not only compared to conventional but in many cases also compared to organic husbandry. A crucial factor contributing to this welfare amelioration is the detailed analysis of the criteria included in each scheme, which leaves no space for misinterpretation. The more specific and detailed the standard, the easier it is for the farmers to understand and implement, reducing the likelihood of practices that could negatively impact welfare. For example, it is not enough to mention that analgesia is needed after a treatment; the length of time must be precisely described [39–47,68–77]. Similarly, it is not enough to merely mention the requirement for bedding material; the standard should provide clear guidelines regarding its thickness and cleanliness [69]. Moreover, it is recommended that the standards be accompanied by detailed manuals for farmers and consumers, as well as self-evaluation checklists or a farm-specific information scheme in the form of notes. These resources should explain not only the application of each criterion but also how and why it enhances the well-being of the animals [96]. Additionally, mandatory training for the personnel, potentially performed by the initiator of the standard, can educate the farmers further, ensuring that they fully understand the welfare objectives [51–53].

When it comes to husbandry practices that enhance animal welfare, almost all labeling schemes prohibit tail docking and tethering, and promote access to pasture and day–night rhythm and daylight provision. However, castration of males is either allowed or not explicitly addressed in most standards [48–50]. The welfare of male animals is often compromised in husbandry systems. Reproduction is primarily carried out through artificial insemination, and only a few males are retained in the herd, as nearly all male calves, lambs, and kids are slaughtered for meat after weaning. To improve welfare, it is

important to use castration as an animal welfare indicator in all standards and develop and incorporate more indicators that evaluate the welfare of male ruminants. Another important indicator for animal welfare assessment, though only incorporated in a few standards, is mortality [34,38,63–71]. In the future, animal welfare schemes should establish accepted mortality levels for both young and adult animals. Additionally, to further enhance the welfare of animals, it would be beneficial for labeling schemes to incorporate maximum acceptable levels for assisted calvings and caesarean sections [39–47,56–58,68–77].

Husbandry practices concerning the welfare of dairy newborn ruminants should be given greater emphasis in animal welfare schemes. In a farming system, it is often the animals in the productive stage that experience the highest welfare level. Attention must also be focused on unweaned animals, especially dairy ruminants, which are often separated from their mothers immediately after birth and, in intensive systems, kept in individual pens. Animal welfare labeling schemes should mandate a minimum mother–young contact period after calving, even if it is just for one day [34,38]. Further to this, the duration for keeping calves in separate pens should be minimized, and the provision of clean, dry bedding material of adequate height should be made a strict requirement. Based on the authors' personal observations, inadequate height of bedding material and insufficient cleanliness, which compromise comfort and thermoregulation, are common issues in dairy calf management.

Also, we propose that standards developed for labeling and communicating animal welfare in farming systems should define not only the timeline but also the specific time intervals for interventive handling practices that pose significant physical and mental stress to the animals. For example, RSPCA Approved requires that weaning from colostrum not coincide with castration and/or disbudding since both practices are significantly stressful for the animals [61]. Additionally, animal welfare standards should set a maximum number of individual animals that can be kept in a group [38,42–47,68–71] and impose stricter criteria on the regrouping of animals, as both factors negatively impact welfare.

Another aspect of animal welfare that should be thoroughly evaluated in the labeling schemes is thermal comfort. Animal Welfare Certified by GAP has incorporated a heat stress [69] and Welfair a panting score [66,67]. While the standards provide extensive analysis of shelter and shed requirements, especially for pasture-based systems [34–47,63–71], thermal comfort is often not assessed in dept within the facilities. This is particularly crucial for Mediterranean countries when the temperature is high. It also underscores the importance of performing audits during different parts of the year to cover all seasonal phases of a farming system [39–41,62,68–71] and always during a period when welfare is at risk.

According to our analysis, all animal welfare assessment schemes include positive welfare indicators, primarily access to pasture and comfort, and demand environmental enrichment, which is described in detail. However, a positive human–animal relationship is usually only generally mentioned in the standards, with Welfair being the exception by measuring it with a human approach test [63–67]. A positive human–animal relationship is valuable both for animal welfare and for productivity [95,97–100], and should be promoted in the labeling schemes more systematically. Incorporating a human-approach test as a tool for measuring animals' fearfulness towards humans would be both feasible and effective [97]. Another positive welfare indicator that should be emphasized more in the standards is behavioral synchronization, as it not only indicates positive affective states but also the adequate availability of space and resources. A practical way to measure it during an audit would be to assess how many animals in a herd can lie down in a natural body posture, eat, or drink simultaneously [39–41,63–67].

We also recommend the use of scoring tools during audits to measure indicators. Scoring scales are practical and feasible methods for assessing welfare, as they consist of a limited number of levels, accompanied by photos and explanations. Body condition and lameness scoring scales are commonly used in most standards. Notably, Animal Welfare Approved by GAP sets a nesting scoring for calves and a simple evaluation of air quality for all animals [69]. Scoring tools enhance repeatability and inter- and intra-observer reliability, making welfare assessment more effective. Moreover, scoring sheets with pictures explaining each score can serve as a feasible way to train auditors.

It is also important to develop standards for assessing animal welfare during transport and slaughter, as these production stages are not covered by most labeling schemes. Additionally, there is lack of standards for dairy sheep in intensive systems. Red Tractor [70] evaluates welfare only for sheep raised for meat. The AWIN Welfare assessment protocol for sheep is the only scheme developed for intensive dairy farming [66]. Furthermore, there is a need for animal welfare labeling schemes for buffalos and bison. No dedicated animal welfare labeling schemes were retrieved for these species, except for one standard for bison [101] developed by GAP and one for water buffaloes [102] developed by Certified Humane, an NGO based in the USA but with an international presence. According to the FAO, 15% of the world's milk production comes from buffaloes [16], so the population of buffaloes in Europe is growing and milk production is becoming more intensive.

Nowadays, consumers are willing to pay a premium price for products originating from improved animal welfare farming systems. Although this willingness to pay is complicated and the exact premium consumers are willing to pay even more so [10–15], various studies indicate that consumers do indeed pay more [13–15,21–29]. Keeping the labeling standards open to the public strengthens consumer's trust and transparency, which can influence both the willingness to pay and the economical sustainability of enhanced animal welfare farming systems. Credibility can also be reinforced by incorporating a minimum required conversion period for the farms before they are allowed to label their products under a given standard [34,35,52,54,55]. Further to this, auditing all farms rather than just a sample in a company [68–71] would strengthen this credibility, since group certification in most standards requires only sample auditing.

Moreover, we should emphasize that it is essential to communicate the farming criteria set by each labeling system to consumers through strategic promotion by the system initiators and even certification bodies. Achieving this requires collaboration between private and public entities and can be achieved through consumer and farmer demand, stricter animal welfare legislation from the state, and cooperation between private (both for-profit and non-profit) and public organizations [103]. It is also crucial to link animal welfare with the quality of animal-derived products. A notable example is the Scotch Assured labeling scheme, developed through collaboration between commercial and animal welfare NGOs, which promotes locally produced red meat of high quality [83]. Animal welfare credibility is strengthened by the fact that the Prevention of Cruelty to Animals can be present during the audits and has been involved in the development of the standard. Additionally, economic studies can further support this type of initiative, studying the economical sustainability and profitability of this type of enhanced animal welfare products.

Further to this, many labeling schemes, such as the Dutch Beter Leven [42–47] and the Danish Bedre Dyrevelfærd [38], focus solely on improving animal welfare conditions rather than addressing other aspects of sustainability. As a result, their requirements exceed the EU legislation for conventional farming but remain lower than those of organic production. However, at the third and highest level in both systems, the welfare requirements for animals reach or even surpass those of organic farming [38,43,45]. Since these systems

prioritize animal welfare, it is generally easier for a producer to adapt its husbandry practices to meet certification standards compared to the more extensive changes required for organic certification. This means that a farm can enhance animal welfare with a lower financial investment than would be needed for a full transition to organic farming.

However, certification requirements vary significantly, making it challenging to compare different protocols both from a scientific perspective and from a consumer standpoint [12–15,20]. To prevent consumer confusion, the development of a pan-European labeling system has been proposed to ensure a unified policy across countries [20,104]. This approach is supported by non-profit organizations [20,105]. Nonetheless, in practice, it could pose challenges, as not all countries would be able to meet the common requirements while remaining economically viable and competitive in the European market [20]. Additionally, the existence of various protocols—and, consequently, different farming management practices—results in animal-based products of a wide cost range, and thus being affordable for a wide group of consumers.

Finally, elaboration on how these schemes compare in terms of real-world effectiveness or consumer impact is beyond the scope of this review. Still, future studies focusing on these aspects could contribute significantly to the development of animal welfare labeling schemes not only by improving welfare assessment but also by enhancing their credibility among consumers.

Despite the variation in the requirements of animal welfare standards, the trend toward raising animals under better welfare conditions—and the corresponding consumer demand in Europe—is clear and is even supported by state-led labeling initiatives. Targeted consumer and farmer education, strategic promotional efforts, and research supporting the quality of higher-welfare products of animal origin can contribute to advancing this movement.

5. Conclusions

Animal welfare labeling serves as an important tool for informing consumers and enhancing the credibility of the production chain. Globally, consumers are increasingly concerned about the rearing conditions of production animals, driving the development of more and more labeling systems that certify improved welfare conditions. These systems vary in their structure, content, and the level of welfare they ensure. However, they all require conditions superior to those of conventional and, in many cases, even to organic farming, especially those developed by NGOs. The criteria included in these impose improved husbandry practices, particularly regarding tail docking for sheep and management of dairy calves. Dairy calves are often allowed to suckle for a period, and the maximum permitted duration for keeping calves in individual pens is shorter compared to conventional systems. Positive welfare indicators are also incorporated into the protocols, with the most common being access to pasture and comfort. The improvement in animal welfare in these schemes is largely due to the detailed and specific analysis of required practices and provisions, which minimizes the risk of misinterpretation. Nonetheless, certain limitations do remain. Specific parameters like thermal comfort, mortality, and positive human–animal relationships are not incorporated into all standards. Furthermore, there is a need for more comprehensive animal welfare evaluation during transport and slaughter. Effectively communicating the standards to consumers and strengthening their credibility can enhance consumer willingness to pay, thereby improving the economic viability of systems with improved animal welfare standards.

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