

# An Historical Account of the Development of the Animal Needs Index ANI-35L as Part of the Attempt to Promote and Regulate Farm Animal Welfare in Austria: An Example of the Interaction Between Animal Welfare Science and Society

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In order to define minimum legal standards of animal protection and lay down welfare-related regulations for livestock products it is important to define standards which meet two conflicting criteria: the standards should be simple, unequivocal and easily applicable, and yet they should match the huge variety of local circumstances and welfare conditions existing at farm level. The approach pursued in Austria to resolve this problem involves the so-called 'animal needs index' ANI-35. (In German this is known as 'Tiergerechtheitsindex' TGI-35.) This is an instrument for assuring defined welfare standards in livestock housing. The scoring of defined conditions leads to a sum total of points. The ANI totals are divided into ascending housing-condition grades. In this paper the historical interaction between the development of the ANI-35 system and various public attempts to regulate and promote farm animal welfare in Austria are described. It is shown how the ANI-system influenced the emergence of animal welfare norms in Austria and, in a process of feedback, how public discussion strongly improved the broad acceptance of the index. Weak points and possible improvements are discussed.

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## Introduction

In the German-speaking countries public discussion about regulating farm animal welfare by law started in the early 1970s. However, it was long after the introduction of the new German and Swiss animal protection laws (TschG, 1972, 1978) that corresponding legislation was passed in Austria in 1996 (see below). Since the late 1980s producers of organic livestock products, as well as animal welfare organisations and two of the biggest marketing chains in Austria, have been promoting proprietary products whose preparation respects animals' needs (e.g. Spar: 'natur pur', and Billa: 'ja natürlich'). Since 1998 McDonalds Austria has used only free-range eggs with an animal protection label (McDonalds, 1999). In order to protect consumers from deception, controllable production methods must be defined, and the definition in question must be based either on an analysis of the consumers' expectations, or on scientific research about what animals require for their own well-being.

For both fields of practical animal protection – defining legal minimum thresholds and devising regulations covering welfare products – it appears to be important to define standards which meet two conflicting criteria: the standards should be simple, unequivocal and easily applicable, and yet they should match the huge variety of local situations existing at farm level. It is the aim of this paper to describe, historically, the interaction between the development of the so-called 'animal needs index' (in the Austrian version ANI-35L: see Bartussek, 1999a) and the various attempts to regulate and promote farm animal welfare in Austria. The paper seeks to establish (i) to what extent this index system resolves the problem of conflicting criteria in defining animal welfare standards described above; and (ii) in what way the index system has influenced the emergence of animal welfare norms in Austria. It is also explained (iii) that the public discussion has strongly encouraged broad acceptance of the ANI-system. In this respect the paper should contribute to greater understanding of how animal welfare science interacts with society. With this intention in mind, it seems necessary to describe more clearly the problem of conflicting criteria, and to give a short overview of the principles of the animal needs index ANI-35L.

In existing label production, welfare requirements are usually defined by a list of quantitatively expressed minimum housing conditions. These are commonly supplemented with several qualitative management requirements – for example, the directive that cattle must be provided with a dry, clean and resilient bed to lie on. Both the list of minimum conditions and the set of general standards normally

result from negotiations among the participants of a programme, although sometimes they are dictated by the owner of the label. They thus reflect these parties' opinion as to what is essential for the animals' well-being. A typical recent example is the EC regulation 1804/1999 on Livestock Production in Organic Agriculture (VO 1804/1999).

This approach is threatened by a dual dilemma: first, qualitative directives, such as thresholds of acceptability relating to the wetness, dirtiness and the hardness of the lying area, are difficult to define and regulate. Second, quantitative criteria can be measured, but it is implausible to claim that every item on a compulsory list is an essential part of the animals' optimal welfare conditions, in view of the fact that animals can adapt to a wide range of changing situations. It is therefore unacceptable to outlaw a narrow failure to meet any one of them. On the other hand, if the list of measurable conditions comprises only a number of minimum requirements the violation of which very likely means damage or suffering of the animals, then it cannot be argued that the fulfilment of just these minimum conditions together assures the animals' well-being.

To achieve three goals – (a) to avoid the dilemma lined out above, (b) to meet the market demand and regulatory need for a unique and conclusive assessment tool which could be used for all species and all production systems in any location, and (c) to permit results to be graded to allow different standards of welfare products to be plotted – an animal needs index, or ANI (in German Tiergerechtheitsindex, or TGI), has been being developed in Austria over the last 14 years (Bartussek, 1991a, 1999a). ANI-35L-systems are in use for cows and calves, heifers and beef cattle, laying hens, fattening pigs and pregnant sows. The ANI reflects five aspects of the animal's environment: (i) the possibility of mobility, (ii) social contact, (iii) condition of flooring for lying, standing and walking, (iv) ambient climate (including ventilation, light and noise), and (v) the quality of human care. Within each field several species-specific criteria are graded, using points. Conditions which are considered to improve animal welfare are awarded more points. The overall sum of the points gives the ANI-value. Thus, poor conditions within one area can be compensated by a better situation within another field, and stockmen have different ways of improving an ANI evaluation. But where certain minimal conditions whose fulfilment is clearly necessary to prevent harm to the animals are not fulfilled, the ANI-score will be valid *only* provided that the deficiency is remedied within a reasonable time. This proviso clause is an indispensable element of the system.

To sort the ANI-values into several, for the animals increasingly beneficial categories, six welfare

categories were proposed, as illustrated in Table 1. (The last column uses an increasing number of symbols, such as animal heads, to characterise the categories, rather along the lines that stars are used in the marketing of restaurants and hotel accommodation.)

It was originally intended that the newer, more detailed ANI-35L-systems (of 1995 and later) would be similar to this first proposal in respect of the numerical thresholds separating the welfare categories, but in fact the range of points was extended in both directions, i.e. downwards and upwards. The new ANI-L (L = long) versions grade low-ranking husbandry systems (gradings 4 and 5) better, and the premium systems (E) slightly worse, than the ANI of 1985/88; but gradings 1-3, the categories of greatest practical importance for animal welfare, are approximately the same.

### The evolution and application of the Austrian ANI-system and its interaction with other attempts to improve farm animal welfare

Animal welfare legislation in Austria is a matter for the nine federal provinces. According to the fifth paragraph of Styrian's animal protection law of 1984 (TschG 1984) the government had to lay down minimum requirements for farm animals in "intensive farming systems". Bartussek (1985) submitted a proposal on regulation in which an ANI-system was set out for three reasons: first, to legally define the term 'intensive farming systems', thus identifying holdings that should not be subject to the regulation (ANI > 28 points). Second, to propose variable legal minimum requirements, depending on the overall welfare state of the holdings, because the majority of cases would concern the renewal of existing old houses with invariable measurements. If the husbandry system was found to be treating animals' needs badly (as expressed by a low ANI-value), the spatial requirements in the house should be less restrictive of the animals as compared with those in animal-friendly holdings, and vice versa. Third, to encourage wider

concern about the needs of farm animals by publicising the main factors involved in animal welfare.

Government experts on constitutional law were unable to justify legally binding thresholds relating to ANI-values, but the published idea of the concept (Bartussek 1985, 1988) started a broad discussion that had eight far-reaching effects:

1. Between November 1990 and July 1991 the present author and delegates of all institutes and major organisations for organic animal husbandry in Germany tested the practicability and evidence of the first ANI-35-version of 1985/88 on 129 organic cattle farms in several provinces of Germany and Austria. A total of 122 cow houses and 137 stables for young and beef cattle were included in the investigation. The working group decided not to publish the results worked out by Bartussek (1991b), Hencke-Maschkowski et al. (1991) and Sinreich (1991). They wished to avoid possible damage to the image of organic husbandry, as the findings at that time were in general not very flattering. After further deliberation, the group declared the ANI-system to be a promising tool to describe and define in principle what consumers expect of animal-friendly husbandry, but they also said that a more detailed system was needed to describe more precisely the situation at farm level. Bartussek (1992) worked out a new 'long' version of the ANI-system which, following consultation with the group, was published in 1992 (Andersson et al., 1992). Finally, in an attempt to meet the assumed demand to justify the ANI-system more unassailably by ethological argument, part of the group (which in 1991 constituted itself in Germany as the Society for Organic Animal Husbandry, or GÖT) established a system which was in many details quite different from the Austrian type but used the same idea of summing up points to an overall index value. To distinguish between these versions the maximum number of points was added to the general name TGI, thus giving the names TGI-200 (Sundrum et al., 1994) and TGI-35L in Austria.

2. In 1992 the government veterinary office of the province of Vorarlberg introduced a shortened

Table 1. ANI-welfare categories on the basis of the ANI-35-system of 1985/88 with a range of 7 to 35 points

Sum of ANI points	Naming of categories with respect to welfare	Percentage of range of points	School grades	Verbal school grades	Symbols
< 11	Not suitable	0-15	5	Not sufficient	No label
11-<16	Scarcely suitable	16-30	4	Sufficient	*
16-<21	Somewhat suitable	31-50	3	Satisfactory	**
21-<24	Fairly suitable	51-60	2	Good	***
24-28	Suitable	61-70	1	Very good	****
> 28	Very suitable	> 70	E	Excellent	*****

version of the original ANI-35 and used it as an instrument in executing animal protection law. In each of the five fields of influence, five steps were established, and the regulators had to enforce the obligation that the animal holdings in any field of influence must be better than 'not sufficient' (grade 5). This Vorarlbergian ANI was developed to be used in connection with the main species of farm animal (cattle, pigs and poultry) and for several species of wild animals kept in zoos as well (Schmid, 1992).

3. Article II of the Styrian animal protection law (TschG 1984) forced the government to reach an agreement with the other nine provinces of Austria enabling certain methods of husbandry, like cages for laying hens, to be banned. Therefore in 1985 negotiations began which brought up, in September 1993, the issue of the "agreement of the federal provinces of Austria according to Article 15a-BVG (federal constitutional law) about the protection of farm animals". This agreement forced the legislators of the provinces to translate the negotiated requirements into provincial law – something which was not finally done until September 1996. According to Article II, Paragraph (1) of the agreement, the provinces had to include in their laws certain minimum requirements concerning (i) the possibility of mobility, (ii) social contact, (iii) the condition of flooring, (iv) the stable climate and (v) the intensity of human care. Thus the five fields of the ANI-system for determining animal welfare had become legally accepted in Austria.

4. In a 1996 referendum 459 096 people – 7.96% of those entitled to vote – were in favour of introducing federal animal protection law in Austria (Nationalrat, 1996). Following this, the Austrian Socialdemocratic Party (SPÖ) submitted a proposal (Kostelka et al., 1996) which repeated exactly the aims of the ANI. Paragraph 14 (1) of this proposal states: "To ensure a sufficient fulfilment of the needs of farm animals the Federal Ministry of Health and Consumer Protection, considering the aims (§1) and general regulations of this law, and the state of scientific knowledge and experiences, has to issue a regulation with more detailed provisions. This regulation must lay down criteria, according to which the conditions that are decisive for the animal's well-being, like the possibility of mobility, social contact, the condition of flooring, ambient climate including light, and the intensity of human care, as a whole and as they interplay with each other, are to be assessed. The assessment has to be achieved by a system of points, built up in a way that more points are assigned the better the husbandry meets the needs of the animals. The sum of the points is the measure for the extent of animal protection (animal needs index)". Paragraph 14 (2) says: "The regulation has to define minimum requirements for the keeping of farm animals as well as a

minimum number of points that must be achieved according to the animals needs index. If a holding does not catch up with this minimum number of points, it is prohibited". Paragraph 17 specifies provisions for a federal and legally protected animal protection label for animal-friendly products. To reach this standard in a certain husbandry system such a number of ANI-points must be achieved that "...the idea of animal protection in farm animals is realised in the best possible way". It was suggested that the Federal Ministry of Health and Consumer Protection should define this threshold by regulation. The SPÖ-proposal failed to find majority support in parliament, but public discussion of the referendum further promoted the idea of the ANI-system.

5. In 1995 – pushed by the EEC-regulation 2092/91 on organic farming towards objective, external control of organic farms, and acknowledging the wide variety of situations at farm level – the Austrian Commission on Codex Alimentarius at the Federal Ministry of Health and Consumer Protection exchanged the rigid standards for organic animal production which had existed since 1988 for the system of ANI-35-L and established the following minimum thresholds for ANI-values: at least 21 ANI-points (= fairly suitable for welfare: see Table 1) must be achieved for existing stables, and more than 24 ANI-points must be achieved for new or reconstructed animal houses (= suitable for welfare). This stimulated the development and further applications of the ANI-35L-system. Within the Animal Housing subgroup of the working group for organic agriculture of the Austrian Commission on Codex Alimentarius, the ANI-35L-version for cattle of 1992 (Andersson et al., 1992) was tested at several farms. A slightly amended version was worked out in 1995, followed by ANI-35L-papers for pigs (1995), laying hens (1995), calves (1996) and pregnant sows (1999). The ANI-system for cattle was amended once more in 1996 (see below). In 1996 and in 1997 about 200 people with relevant practical and theoretical education (mostly practical farmers, agricultural engineers and teachers) were also trained by the author to use the ANI-system. These trainees were destined to work in 11 firms constituted to control organic farming. During the following years, several standardised papers, together with any comments and supplements needed to use the ANI-system correctly, were issued and distributed among all users. The whole package is now regarded as part of the official regulations of the Austrian Commission on Codex Alimentarius. As shown in Bartussek (1999a) the practical application of the ANI-35L-system has been extensive: since 1995 about 20 000 organic cattle farms and more than 1 000 layer houses have been evaluated using this method one or more times. The importance of the

system for organic farming will probably decline now, since the EC regulation 1804/1999 on animal husbandry in organic farms will apply directly in all member states from August 2000. But as this regulation does not cover all important conditions and contains general statements that need interpretation, it is to be expected that the Austrian authorities will continue to use the ANI-system to some extent. Furthermore, the EU-regulation tolerates existing organic holdings that do not yet meet the new requirements for a transition period until the end of 2010, so long as they have fulfilled national standards to date. Obviously, the ANI-system will apply to these enterprises until the end of the transition period. Finally, while tied housing will generally be abolished, the European regulation makes an exception for small cattle holdings. Here, the ANI-assessment tool will continue to apply in Austria as well, because the EC regulation does not define minimum requirements for tied housing. Calf houses with fewer than six calves will be treated similarly until 2006.

6. A private firm owned by four animal protection organisations (Kontrollstelle für artgemäße Nutztierhaltung) has been controlling egg production under private law since 1995 using the ANI-35L-system. According to the regulations of this firm at least 21 ANI-points (fairly suitable) must be earned in layer housing without outside exercise, and more than 28 ANI-points (very suitable for welfare) must be earned in free-range systems. These standards go well beyond the minimum requirements required by EEC egg-marketing legislation (regulation Nr. 1274/91 EEC) and are well established for so-called "animal protection proved" products. In the first half of 1999 the firm controlled 17 egg packaging and marketing firms and 654 egg producers. Fully 732 stables with 660 942 laying hens were ANI-controlled (Kontrollbericht, 1999). 5.8% of the 621 free-range husbandry systems were found to have fewer points than the required threshold (ANI > 28 points), but no farm was assessed at less than 25 points. The respective figures for deep litter housing are 27.9% of 111 stables (ANI > 21 points, but not less than 17 points). Farms not meeting the requirements must quit the programme or improve their holdings within a period of one year.

7. The Salzburg Farm Animal Welfare Act (NTschG, 1997) integrates the idea of the ANI (see §§ 7, 28, 31) and establishes a general minimum standard of welfare expressed by an ANI-threshold. It also defines higher levels of welfare for the public support of investments into animal housing and provides a higher general standard of animal welfare for existing buildings which fail to fulfil certain legal requirements. Defined ANIs have to be issued by government regulation, and this has not occurred yet. It is politically agreed that versions of ANI-35L shall be used

(Salzburger Landtag, 1996). The reservations expressed by Styrian law experts in 1985 can, apparently, be overcome.

8. In Paragraph 6 of Animal Welfare Regulation according to the Animal Welfare Act of Tirol (THVO, 1997) the ANI, with its five fields of influence, is used in a more simple form. Five steps in each field are defined in an annex similar to the system in Vorarlberg, according Schmid (1992). The lack of fulfilment of legal requirements in one field can be compensated for by better conditions within another field.

## Discussion

The index can appear to have a rather complicated structure to somebody not familiar with its use. This makes it more easily susceptible to political influence than simple lists of single requirements, and in fact an intervention in the ANI-35L for cattle was made within a year of its official introduction for organic farming. It had become apparent that many of the existing tying houses for cows on organic farms in the high alps could not get enough points with the ANI 1995 owing to the restrictive outdoor areas and poor conditions within the old stables. Pressure groups enforced a slightly higher weighting of some of the ANI-parameters that could be met more easily by a majority of existing farms (ANI 1996). This procedure was justly criticised (Sciarra, 1998), throwing the whole, so far well-tryed, system into some doubt. To prevent later alterations of that kind, certain provisions must be met. Consumer representatives and animal protection organisations now have to be involved more extensively in the political control of issued regulations. The negative consequences of the one alteration that took place in ANI-35L-cattle so far were successfully invoked to reject similar demands by the producers of the ANI-35L-laying hens.

Within the last few decades it has been mainly psychologists and social scientists who have come up with scientifically justified tests. Their aim has been to develop routine, standardised methods of 'measuring' one or several characteristics, or performances, that can be assessed empirically (Lienert & Raatz, 1994). According to these standards a measurement tool like the ANI should be valid, reliable, sensitive, concise and simple to use (Scott et al. 2001). The ANI-system fails to meet most of these standards sufficiently. Only the simplicity of its use could be clearly established, as an investigation by a questionnaire sent to the controlling personnel at all the officially certified firms working with the ANI-system confirmed (Bartussek, 1999a). Nevertheless, further research is under way to fill the gap in scientific justification: Beyer (1998) showed the way to develop an assessment tool for horses on the

same fundamental basis, observing the demand for scientific objectivity, validity, reliability and formal standards. Getting to a final system with broad acceptance and wide application, however, will require a lot of negotiating and research time. The sensitivity of ANI was examined by Schatz (1996), Amon et al. (1997a,b). They compared the ANI-35-system with the ANI-200-system (developed with the aim of targeting the ethological needs of animals more successfully). Both systems noticed, on average, slightly more than half of all relevant criteria of animal welfare known by literature within an optimal model for cattle husbandry. During an international workshop in September 1998 13 experienced ethologists and husbandry experts of the International Society for Livestock Husbandry (IGN) assessed the welfare standard of 16 different housing systems for pregnant sows commonly used throughout Europe. They used a method of concerted action of experts (IGN 2000; Bartussek 1999b). The working group devised an assessment system using 22 keywords of the seven major functional domains of behaviour: social behaviour, feed intake behaviour, resting behaviour, eliminative behaviour, comfort behaviour & thermoregulation, exploratory behaviour and locomotive behaviour (Zeeb, 1974). Weighting factors were introduced, according to their assumed importance for normal behaviour, and five points were assigned for the functional domains and three points for every keyword, so that conditions which enable the animals to carry out more normal behavioural elements earn more points. After detailed descriptions of each husbandry system, the experts separately recorded their judgments by filling out evaluation lists with the number of assigned points. Mean values of the 13 individual judgments for the 16 housing systems were calculated for all functional circles and keywords (IGN, 2000). A summary of the points, with a minimum of 19 and a maximum of 95, gives a ranking of the 16 housing systems assessed by the IGN-experts (Bartussek, 1999b) which can be compared to a grading prepared using the ANI-35L for sows. As the IGN-method assumed best hygienic and health management in all housing systems, the ANI-field 'human care', which measures management quality, was left aside in comparing the results. When plotting the ANI-values and the IGN-values, expressed as a percentage of the maximum score of both methods, a highly significant positive correlation between the two ranking systems was found ( $r = 0.85$ ). This proves that ANI-35L for sows really does depict the animals' ethological needs, even though it evaluates housing criteria. Since several investigations tested the reliability of the ANI-values in cow housing, measured as repeatability (i.e. the relative similarity of repeated observations as a numerical value between 0 and 1), proving acceptable results (Amon et al., 1998, 1999a;

Amon & Boxberger, 1999b; Amon et al., 2001; Kummernecker, 1999; Ofner, 1999), it is clear that the selected criteria to be assessed had been clearly defined and that the controlling personnel involved in these investigations were trained sufficiently.

In Austria, the ANI-35L-system is broadly accepted by the farm animal protection organisations, by producer organisations, and by marketing chains of organic farming and legislative authorities. There is evidence that a similar assessment tool could be effective as long as the criteria considered primarily reflect the animals' needs. Further development should be focused especially on reducing deficiencies concerning the demands of test science. It should also develop better parameters for assessing the human-animal relationship. On the other hand, widespread introduction of the tool for routine use will hinder too rapid a change. Because of the demand for standardised production methods within the EU, the ANI-system should be discussed amongst relevant European authorities. Its flexibility suits it to the extremely wide variety of practical situations at farm level throughout the member states. In this respect it is superior to strict observance of each of the numerous isolated housing characteristics.

Finally, when we consider methods for the assessment of welfare in food-animal systems and farm assurance schemes designed to assure the consumer that animal welfare is protected (Main et al., 2001) developed outside Austria and Germany (see also other contributions in this volume), it becomes obvious that providing an assurance on animal welfare merely by assessing environmental conditions and criteria of stockman care, rather than by combining such an approach with records of animal based parameters, will always be an unsatisfactory guide to the real welfare status of the animals (Johnsen et al., 2001). But direct assessment of animal welfare by examining the animals themselves and recording negative factors – for example, the incidence or prevalence of damage, injuries and disease, the occurrence of abnormal behaviour and conspicuous reactions to humans – is a very time consuming task even for highly trained people. The desire to have a practical and cheap assurance system and the desire to describe the real welfare situation of the herd by an appropriate assessment method are to a large extent mutually exclusive. The decision to use a specific system will therefore always involve compromise.

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