

## Knowledge transfer regarding animal health

SUSANNE HOISCHEN-TAUBNER<sup>1</sup>, ALEXANDRA BIELECKE<sup>2</sup>, ALBERT SUNDRUM<sup>1</sup>

**Key words:** conflicting areas, stakeholder analysis, system justification, organic livestock farming, reflection, conflicting areas

### Abstract

*Barriers in the process of knowledge transfer in terms of animal health have been the topic of a study taking different stakeholder perspectives into account. Using instruments of communication science, the perspectives of farmers, agricultural and veterinarian advisors as well as animal scientists were brought together and discussed. The process revealed the following obstacles in the transfer of knowledge concerning animal health: diverging understanding of animal health, complexity of the processes leading to diseases, unclear responsibilities, and role conflicts. In face of these barriers we conclude that the targeted transfer of knowledge is considerably aggravated. Hence, restructuring of the communication process and framework conditions of knowledge transfer is required.*

### Introduction

Animal health is an issue of increasing interest by consumers in search of "healthy" products from animals' origin. Contrary to consumer expectations organic farms in general do not provide a higher animal health status than conventional (Cicconi-Hogan et al. 2013; Sundrum et al. 2010). Several studies revealed an unsatisfactory animal health status, varying more between single farms than production methods (Vaarst et al. 2008). Correspondingly, farm management plays a key role for improvements of the animal health status, relying on the perception of diseases and targets as well as on the decisions and implementations.

The enduring high level of production diseases questions the effectiveness of the previous approach of knowledge transfer with respect to animal health. Therefore, barriers in the process have been the topic of a study taking different stakeholder perspectives into account. The communication process was analysed using instruments of communication science.

### Material and methods

Farmers, agricultural and veterinarian advisors as well as animal scientists were identified as primary stakeholder in the process of knowledge transfer on the topic of animal health. To assess their specific perspectives, separate workshops for each stakeholder group were held to start with and complemented in due time by a common workshop with all participants. To foster unbiased debates, the project team limited itself to an observer role, leaving the moderation of the workshops to a skilled and impartial communication expert.

Workshop topics included a brief estimation of different animal health situations by a questionnaire, discussions on sources of knowledge, individual environmental (stakeholder) analysis, and reflections on obstacles within the process of knowledge transfer.

In the final common workshop interim results from the first workshops, as well as a brief reflection from the communication expert were reported and discussed. Thereafter the participants worked in small groups on topics identified during the separate workshops and reflected on options of activity. Altogether 26 farmers, agricultural and veterinary advisors, and animal scientists participated in the project.

The outcome of the workshops was evaluated by qualitative content analysis, descriptive statistics, and inter-rater reliability, focussing on the communication structure including role models.

#### Assessment of herd health situations:

Five different animal health situations were presented to the participants by pictures (2), video (1), and data sheets (2). Questions on the situations were answered by the participants individually. Among others, one situation was presented by data on somatic cell counts, another situation by the results of the meat inspection at the slaughterhouse on lung affections in fattening pigs. The participants were asked to give an

<sup>1</sup>Department of Animal Nutrition and Animal Health, Faculty of Organic Agricultural Science, University of Kassel, Germany, [www.uni-kassel.de/agrar/tiereg](http://www.uni-kassel.de/agrar/tiereg), [susanne.hoischen@uni-kassel.de](mailto:susanne.hoischen@uni-kassel.de)

<sup>2</sup>Schulz von Thun Institute for Communication, Hamburg, Germany

assessment on the herd health status on a visual analogue scale (VAS) by marking a point on a line between the end-points “very good” (0) and “very bad” (10).

Ranking of measures to improve a situation:

For each of the five situations a set of six to eight measures was ranked by the participants according to their estimation of importance. The ranking of measures was compared by Kendall's coefficient of concordance within and between the workshop groups.

Environmental stakeholder analysis:

All participants elaborated individual environmental stakeholder analysis (ESA) on the topic on animal health, showing stakeholders and environmental factors. Items were written on cards in three different sizes, referring to their importance. The cards were placed on posters showing their relation to the topic and each other. Following the steps of qualitative content analysis the items were condensed in categories and evaluated according to their size and position.

**Results**

Assessment of herd health situations:

The tables 1 and 2 show the assessments of the presented udder and respiratory health situations. For both the estimations differed considerably within the groups, showing more variation in the workshop groups of the advisors and scientists than the group of farmers.

**Table 1: Assessment of a herd health status concerning udder health on a visual analogue scale (VAS)**

Workshop	N	Min.	25 <sup>th</sup> percentile	Median	75 <sup>th</sup> percentile	Max
Advisors'	9	3,7	6,5	8,2	8,9	9,6
Farmers'	8	3,4	5,8	6,6	6,8	8,3
Researchers'	9	3,3	7,0	7,4	8,3	8,8

VAS end-points: 0 = very good, 10 = very bad

**Table 2: Assessment of a herd health status concerning respiratory health on a visual analogue scale (VAS)**

Workshop	N	Min.	25 <sup>th</sup> percentile	Median	75 <sup>th</sup> percentile	Max
Advisors'	9	2,9	4,9	7,8	8,5	10,0
Farmers'	7	5,3	6,4	6,7	7,0	7,5
Researchers'	9	3,8	6,3	6,9	7,6	8,2

VAS end-points: 0 = very good, 10 = very bad

Ranking of measures to improve a situation:

The level of agreement of the participants concerning the ranking of measures was assessed by Kendall's coefficient of concordance, which ranges from 0 (no agreement) to 1 (total agreement). The results presented in table 3 show varying agreement among all participants for different situations ranging from 0,129 to 0,435. Within workshop groups the ranking of measures in some situations was indistinguishable from coincidental accordance indicated by  $p > 0.05$ .

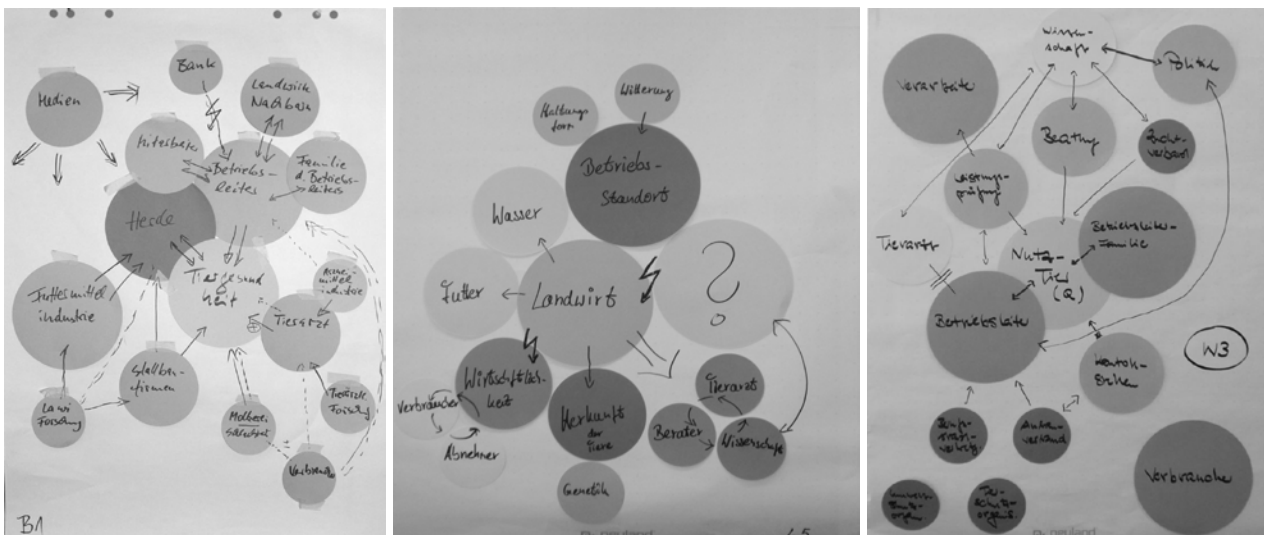
**Table 3: Agreement on importance of measures**

Workshop	All			Advisors'			Farmers'			Researchers'		
	Situation	N	W <sup>1</sup>	p	N	W <sup>1</sup>	p	N	W <sup>1</sup>	p	N	W <sup>1</sup>
1	26	0,129	0,01	9	0,221	0,08	8	0,248	0,78	9	0,118	0,38
2	24	0,435	0,00	8	0,566	0,00	7	0,517	0,00	9	0,372	0,01
3	26	0,350	0,00	9	0,448	0,00	8	0,281	0,03	9	0,440	0,00
4	25	0,265	0,00	9	0,299	0,02	7	0,331	0,04	9	0,232	0,06
5	26	0,300	0,00	9	0,376	0,01	8	0,269	0,06	9	0,437	0,00

1 = Kendall's W

**Environmental stakeholder analysis:**

In the ESAs (figure1) a total of 391 factors, institutions, groups and persons were named of which 300 (77%) were related to stakeholders. Beside the participating farmers, advisors, veterinarians, and researchers other important groups were families and neighbours, colleagues, consumers, suppliers, policy and administration, processors, and farmers organisations. In all workshops veterinarians, farmers and animals were identified as the most important actors. Advisors were located with some and researchers with big distance to the topic of animal health. While the pictures from the farmers' workshop included less terms and were focused on the farm situation, those from the advisors' and the researchers' workshop represented a broader environment including further actors and the farms business environment whereas factors on the farm level were missing.



**Figure 1. Examples for environmental stakeholder analysis from the workshops of farmers, advisors and researchers**

In all three stakeholder workshops, animal health was identified as a significant value, desirable for all participants. Nonetheless, during the workshop process three main areas of conflict were identified (table 4).

**Table 4: Fault lines in connection with animal health**

Animal health	↔	Economy
Detailed knowledge	↔	Holistic view
Individual autonomy	↔	Public interest

The conflict area of animal health and economy is an issue especially for the group of farmers. Striving for detailed knowledge and objectivity, a topic addressed to the researchers, contradicts with the complexity of individual farm conditions and impedes the applicability of findings. The farmers' claim to autonomy in form of independent decisions in their business conflicts with the public interest on animal health as a common good.

Aiming to resolve the conflicts and considering the opposite opinions simultaneously was expected to lead to intense discussions in the common workshop. However, the participants seemed to avoid to discuss the conflict areas and to change perspectives but persisted in previous argumentation lines.

## Discussion

Findings from the workshop process revealed a quite complex situation due to the plurality of stakeholders, huge variation in statements between and within stakeholder groups, and the manifold parameters to be considered within the farm system.

The theoretical construct “animal health” was understood quite differently by the stakeholders emphasising the absence of accepted thresholds for prevalence and morbidity rates. Differences in role expectations and vague perception of responsibilities were identified as obstacles in the system of communication structures and conditions, depicted in the environmental (stakeholder) analysis. The analysis of communication processes uncovered a lack of leadership, self-referential und self-justifying judgements and role conflicts.

While the separate workshops were quite reflective, the common workshop gave hints for a relapse into self-referential perspectives on individual and group level. Confronted with other perspectives, the participants seemed to seek coherence within their corresponding peer groups to underpin their positions. This observation matches with the importance of coherence revealed for example by Kahneman (2012).

Discussions along fault lines deriving from different understanding of animal health and specific perspectives indicated the impossibility to solve the problem from “inside” the group of primary stakeholders, partly explaining why various efforts implemented in the past to improve animal health status largely failed so far.

We conclude that the current communication structure is not appropriate to enable a targeting transfer of knowledge on the topic of animal health. Hence, we assume that an impulse from “outside” is required to irritate the deadlocked situation and provide leadership and orientation.

## Acknowledgements

The project was supported by funds of the Federal Ministry of Food and Agriculture (BMEL) based on a decision of the Parliament of the Federal Republic of Germany via the Federal Office for Agriculture and Food (BLE) under the innovation support programme.

## References

- Cicconi-Hogan KM, Gamroth M, Richert R, Ruegg PL, Stiglbauer KE, Schukken YH (2013) Associations of risk factors with somatic cell count in bulk tank milk on organic and conventional dairy farms in the United States. *J Dairy Sci* 96:3689–3702.
- Kahneman D (2012) *Thinking, Fast and Slow*. Penguin Books, London.
- Sundrum A, Goebel A, Bochicchio D, Bonde M, Bourgoin A, Dietze K, Dippel S, Hegelund L, Leeb T, Lindgren K, Prunier A, Wiberg S (2010) Health status in organic pig herds in Europe. In: *Int. Pig Veterinary Society (IPVS) (ed) Proceed. 21st Int. Pig Veterinary Society (IPVS) Congress*.
- Vaarst M, Padel S, Younie D, Hovi M, Sundrum A (2008) Animal health challenges and veterinary aspects of organic livestock farming identified through a 3 year EU network project. *Open Veterinary Science Journal* 2:111–116. <http://centaur.reading.ac.uk/17925/1/111TOVSJ.pdf>.