Building better welfare for farm animals

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In 2011, more than 140 scientists and stakeholders from nine countries started cooperating to improve the welfare of farmed animals. Four years later, they have produced a lot of new knowledge and developed innovative ways to disseminate their results. You can even download apps that help in deciding if animals are in pain or good welfare.

When the international research project Animal Welfare Indicators (AWIN) started four years ago, the aim was to develop practical, science-based, easy-to-recognise indicators of animal welfare applicable to sheep, goats, horses, donkeys and turkeys. The results that were presented on the project’s final conference in Brussels in April 2015 clearly show that the project has been successful.

“I am proud to say that we have achieved our goals, and that we have made great progress in integrating a lot of important stakeholders in the animal welfare debate. This is an important achievement, because science won’t improve the welfare of farm animals unless the results become useful for the people that really are working with animals», says project coordinator Adroaldo Jose Zanella. He is a professor at the School of Veterinary and Animal Science at the University of São Paulo in Brazil.

Zanella adds that the AWIN project has come to an end, but the consortium behind the project will continue as a Network of Excellence in Animal Welfare.

Fearful animals is less profitable
Animal welfare is not only beneficial from an ethical point of view, and because veterinary authorities demand that farmers treat their animals well, but also because it makes for more profitable husbandry practices. Professor Inger-Lise Andersen from the Norwegian University of Life Sciences (NMBU) has done research on goats and collaborated in similar work in sheep, in the context of AWIN, and her results indicate that stressed animals are less productive.

«We have shown that both kids and lambs become more fearful if their mothers live in high density situations during the pregnancy. We have also shown that more fearful animals are more difficult to handle, and they are likely to urinate and defecate more. They are also less likely to adapt to changes in the environment and less likely to reproduce as adults”, Andersen said during her presentation.

Professor Andersen was the leader of AWIN’s work package 3 (WP 3), focusing on the connections between animal welfare and the prenatal and early-postnatal environment.

The Animal Welfare Science Hub
AWINs WP 4 aimed to build competence in animal welfare science through the development of a global research and teaching content management system that integrates applied and fundamental aspects of animal welfare research to create a long-lasting relationship with
stakeholders in both the animal industry and legislators. To attain this, Positivo University in Brazil developed the Animal Welfare Science Hub, which is now up and running as a “one-stop-shop” for information on animal welfare education worldwide.

In addition to the portal, AWIN scientists have even developed a number of learning objects and applications that can be downloaded and installed on Android tablets and smartphones. The Apps created a lot of interest at the technology desk of the final conference in Brussels.

One of the Apps, the Horse Grimace Scale (HGS), was developed in order to give veterinarians and other horse professionals a practical way of assessing if a horse is in pain after castration or for other reasons. Many experienced horse people have some idea about how to spot if a horse is in pain, but the App presents pain indicators that have been studied and confirmed by scientists. The application also presents the different indicators, such as stiffly backwards ears and prominent strained chewing muscles, in such a way that it becomes possible to estimate the degree of pain the horse is experiencing.

The development of the HGS App was based on the scientific findings published by the German Havelland Equine Clinic and University of Milan teams, and produced by University Positivo Group in Brazil. The AWIN researchers have also developed a number of other apps and learning objects, such as the WelGoat App for assessing lameness and claw overgrowth in dairy goats. All learning objects can be downloaded freely from the Animal Welfare Science Hub or the Google Playstore.

“We put a lot of effort into the development of our Apps and other learning materials, in order to make them scientifically valid and easy to use. The Apps are so easy to use that any experienced “tweeter” or Facebook user should be able to use them after going through the training session”, says Dr. Fritha Langford from Scotland’s Rural College in the UK. She led AWIN’s WP4 together with Dr. Andreia De Paula Vieira from Positivo University.

**Protocols for assessing animal welfare**

The AWIN project’s WP1 aimed to develop and refine welfare assessment protocols using animal-based indicators, including pain, in sheep, goats, horses, donkeys and turkeys.

AWIN protocols are designed to enable comparisons among similar production and management systems and are intended to assess animal welfare in order to guide its improvement throughout Europe and elsewhere in the world. A two level approach (with the exception of turkey assessment on one level) is adopted for animal welfare assessment at farm level to increase feasibility and acceptability without losing scientific validity.

The protocols offer, as a first level, a quick screening, consisting of a selection of robust and feasible animal-based indicators, which can be readily applied and require no or minimal handling of animals. Depending on the outcome of the first level assessment, a second level, consisting of more comprehensive and in depth assessment, may be recommended.

“The protocols are developed for animal welfare assessment at farm level. The outcome of the protocols aims to give a clear and immediate visual feedback to the farmers about the welfare of the animals, explains Dr. Elisabetta Canali from the University of Milan in Italy.

WP1 also developed apps to collect welfare data for turkeys (IWatchTurkey) horses (AWINHorse) and goats (AWINGoat).

AWIN’s WP 2 used a combination of surveys and experimental data collection to assess relationships between animal welfare and some commonly occurring painful conditions, with a special focus on behavioural and physiological indicators of pain and discomfort.
The work package leader, Dr. Dirk Lebelt from Havelland Equine Clinic in Germany, had observed that there has been surprisingly little information about adequate pain control in stallions after castration, so his team of researchers together with WP1 (Milan group) focused on assessing equine pain based on facial expressions. The findings were incorporated into the Horse Grimace Scale App that was developed in WP4.

Development in Norway
AWIN was the brainchild of the Brazilian-born Professor Adroaldo Zanella and was developed when he worked as a professor at the Norwegian School of Veterinary Science and the Department of Animal and Aquacultural Sciences at the Norwegian University of Life Sciences (UMB, now NMBU) from 2006 to 2011. Zanella and his NMBU colleague, the ethologist professor Bjarne Braastad, received a grant from the university to plan an application to the 7th Framework programme for European Research and Technological Development.

Zanella had studied animal welfare for more than 20 years in the UK, Germany and USA, before he came to Norway. In Norway, he studied how positive and negative human-animal interactions affected the organization of the developing brain in lambs. Zanella also developed welfare assessment protocols and studied tail-biting behaviour in domestic pigs and attitudes towards pain and diseases in cattle.

Professor Zanella left Norway in 2011, to start working as Chair in Animal Health and Animal Welfare at the SRUC in Edinburgh. In 2013, he was hired by the School of Veterinary and Animal Science (FMVZ) at the University of São Paulo (USP) in his homeland.

Welfare should be a core competence
“One of the motivations behind this project was that veterinarians in a lot of countries traditionally have not been properly educated in animal welfare, because most of their education focuses on the prevention and treatment of disease. Therefore, it was very good news when World Organisation for Animal Health (OIE) changed its guidelines in 2012 and stated that animal welfare should be a core competence for veterinarians”, says Zanella.

Animal welfare defined
But what exactly is animal welfare? Professor Bjarne Braastad explains that it is all about the situation in which the animal in question tries to master its environment.

“Animal welfare is about mental and physical health and the absence of pain, but it is of course also about a good environment. The animal needs good relations towards the keeper and towards the other animals. It is also important that the interactions between the physical and the social environment are working well”, Braastad explains.

“The AWIN project has been unique in several ways. This is by all means not the first research project on animal welfare, but this was a large project involving many countries, research organisations and stakeholder groups. But the most unique aspect of the whole project is the output in terms of the new learning objects and the Animal Welfare Hub, which is going to be updated with new materials and partnerships for a lot of years ahead. That is really good news for a lot of sheep, goats, horses, donkeys and turkeys around the world”, says Braastad.
The AWIN leaders: Dr. Fritha Langford from Scotland’s Rural College in the UK, Dr. Andreia De Paula Vieira from Positivo University in Brazil, Professor Elisabetta Canali from the University of Milan in Italy, Professor Adroaldo Jose Zanella of the University of São Paulo in Brazil, Dr. med. vet. Dirk Lebelt from Havelland Equine Clinic in Germany, and Professor Inger-Lise Andersen from the Norwegian University of Life Sciences.
The researcher Judit Vas from the Norwegian University of Life Sciences showed the Horse Grimace Scale App, developed for Android smartphones and tablets, to a lot of people at the conference in Brussels.
The final conference of the AWIN research project gathered 91 scientists and stakeholders from 15 countries, in the Lower Saxony representation at the European Union in Brussels.
If sheep live their whole lives in a safe and peaceful environment, they can grow up to be trusting and friendly animals. The picture shows Professor Adroaldo Zanella at the Norwegian University of Life sciences in 2010, with four cuddly sheep and fellow researchers Sophie Hild and Marjorie Coulon.