

## Need for applied research and development for increased animal protection and animal welfare

- **A compilation of received input from industry, interest organisations and academia**

Keeping animals entails a great responsibility for us humans to ensure that the animals' specific needs for housing, feed, care and biosecurity are secured. Sweden has a long tradition of having good animal welfare, but it must constantly be developed together with changing external factors. In the beginning of 2020 Formas had contact with industry, interest organisations and academia to find out in which areas they see that there is a need for research and development. The input was compiled in the summary below.

In the end of March 2021 the industry was given a new opportunity to present research needs at a workshop organised by Sweden Food Arena, the Federation of Swedish Farmers and Formas. The summary below has then been updated. Several proposed needs concern all species, while others are more species-specific. The compilation should not be seen as an order list but as a guide with regard to areas that are considered prioritised for the benefit of society.

### Common to several animal species

- Research to clarify the correlation between animal welfare / measures and economy.
- Sustainable breeding and reproductive health.
- Link sustainability and animal welfare. There are indicators that there is a link between achieving the Sustainable Development Goals and improved animal welfare.
- Digital tools, integration of technology and Big Data for increased animal welfare.
- Solutions for water supply and quality, supply need of water.
- Improvement of animal welfare in organic production by reducing the risk of predator attacks.
- Research on the impact of climate change on animal welfare.
- The feed of the future with regard to climate change and sustainability.
- New solutions for production systems to better meet the needs of the animals and generate increased animal welfare, for example, increased housing enrichment.
- Increased biosecurity for increased animal welfare.
- Impact of social conditions / gender and socio-economic status on animal protection and animal welfare.
- Development of positive animal welfare parameters.
- The impact of animal pandemics.

### Slaughter and transport (common to several animal species)

- Improved animal protection and animal welfare during transport (clean animals, optimal space/animal and temperature)

- The effect of delayed logistics on animal welfare.
- Improved animal protection and animal welfare at slaughter (driving and stunning).
- Improved animal protection and animal welfare when loading on farm and unloading at slaughter.
- Improved animal protection and animal welfare when housed at slaughterhouses (access to water, feed and housing system).
- Improved system for communication in the event of noted welfare problems

## Pig

- Increased welfare of the sow with regard to factors such as culling, hoof health and increased litter size.
- Increased piglet survival: management routines.
- Reduced diarrhea in piglets at weaning.
- Follow-up studies of weaning at 3 or 4 weeks - long-term effects on animal welfare and production.
- Research on feed- and behavior related injuries for example osteochondrosis
- Improved methods for marking pigs to slaughter

## Cattle

- Increased animal welfare in calves, for example development of feed
- Increased animal welfare in dry cows
- Access to water in loose housing for dairy cows and calves
- Ensuring the quality and quantity of colostrum.
- Practical solutions for optimal pasture management linked to increased welfare, for example digital techniques for supervision.
- Measures to reduce the spread of infections and thereby increase health and welfare.
- Reduced spread of *Mycoplasma bovis*.
- Animal welfare in steers for meat production

## Sheep

- Solutions to prevent predator attacks.
- Improved hoof health.
- Welfare in sheep on pasture without access to shelter

## Horses

- Research and development for good orthopedic health.
- Develop indicators to better assess the health and welfare of the horse when housed, trained and at competitions.

- Development of technical measurement methods for evaluation of workload linked to animal welfare.
- Solutions to better meet functional requirements such as social needs, eating time and air quality.
- Further development of methods for monitoring foaling and increase welfare of foals.
- Measures for increased animal welfare in foals.
- Increased and assured competence and knowledge implementation when keeping horses.

### **Poultry (Egg)**

- Reduced feather pecking.
- Research and development for increased welfare in chicks.
- Identification of indicators for good welfare.

### **Poultry (Meat)**

- Identification of indicators for good welfare.
- Development of animal welfare control with new types of techniques.
- New techniques for ventilation of stables
- Development of feed with alternatives to soy

### **Insects**

- Increased animal welfare in insect production.

### **Fish**

- Improved welfare in the breeding of different fish species. This should be done species-specific or at least focused on smaller fish groups with similar conditions and needs as there are different anatomical differences between fish species.
- Research and development for increased animal protection and welfare during stunning and slaughter.
- Development of methods and routines for early detection and mapping of the presence of pathogens and identification of transmission routes. Development of guidelines for infection prevention measures and treatment covering all types of pathogens.
- Improve biosecurity and diagnostics.
- Preventive measures against Saprolegniasis
- Research for the identification of physiological mechanisms behind health and welfare problems, for example, cardiovascular diseases, susceptibility to infections and reproductive disorders to be able to relate the welfare status of fish to operational welfare indicators.
- Development of sustainable feed (with alternative raw materials) that promotes good fish welfare and development of species- and life-stage-specific feed with a focus on good intestinal health and overall health status.

## **Mink**

- Development of an optimal feed composition during all cycles of the year.
- Measures for increased animal welfare related to enrichment and movement needs.

## **Dogs and cats**

- Reduce the spread of infection in dogs and cats during import and export.
- Ethical issues and consequences for animal welfare in breeding with a focus on exterior exaggerations.