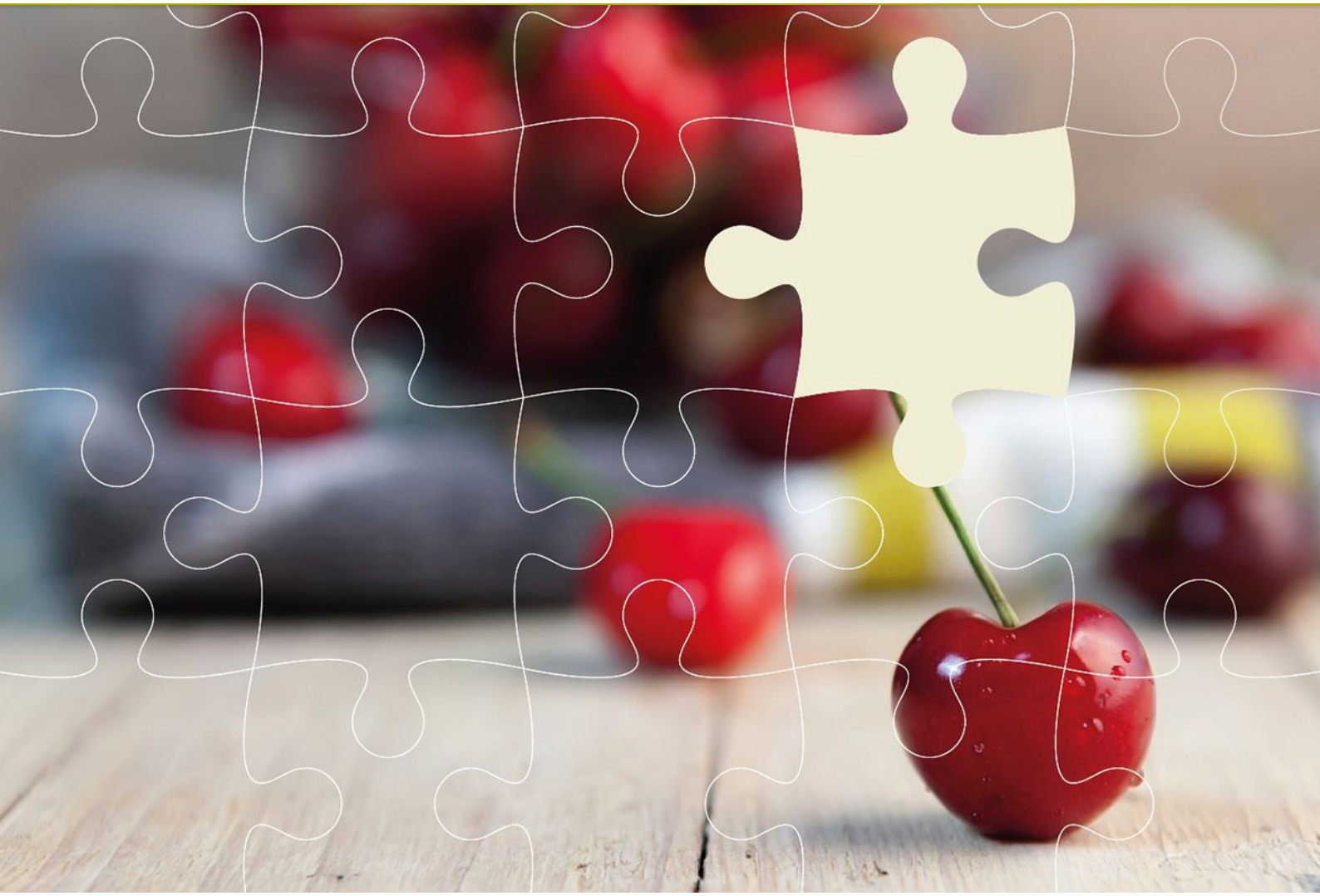
Vitenskapskomiteen for mattrygghet
Norwegian Scientific Committee for Food Safety



VKM Report 2016: 47

Research needs and data gaps of importance for food safety and protection of biodiversity

Summary report from VKM's scientific opinions in the period 2005 - 2015

The Scientific Steering Committee of the Norwegian Scientific Committee for Food Safety (VKM)

Research needs and data gaps of importance for food safety and protection of biodiversity. Summary report from VKM's scientific opinions in the period 2005 – 2015

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Research needs and data gaps of importance for food safety and protection of biodiversity

Summary report from VKM's scientific opinions in the period 2005 – 2015

The aim of the present report is to highlight research needs and data gaps that are of future importance for food safety and protection of biodiversity.

The Norwegian Scientific Committee for Food Safety (VKM) produces and communicates scientific opinions, i.e. risk- and risk-benefit assessments, with the main goal of securing food safety and protection of biodiversity.

Food safety is one of the prerequisites for good health, and is on the agenda both nationally and internationally. Since food production, food products on the market and dietary habits as well as the presence of potential hazards are constantly changing, there is a continuous need for new knowledge to ensure safe food.

Biodiversity is the basis for ecosystem health and functioning, and thus for the provision of a range of ecosystem services essential for human well-being. The wide-ranging decline in biodiversity results largely from habitat loss and degradation, increased rates of invasions by deliberately or accidentally introduced non-native species, over-exploitation of natural resources and other human-caused disturbances. The impact of these processes may be further accelerated by climate changes.

Norwegian conditions may in many respects differ from other countries, e.g. dietary habits and climate. Therefore, research and surveillance data from other countries may be of less or no relevance for Norwegian conditions. This knowledge must therefore be obtained nationally by active research communities.

This report includes only research needs and/or data gaps identified in and related to VKM scientific opinions during the period 2005-2015.

VKM highlights the following research needs and data gaps as they are of great importance for our society:

- Knowledge on possible impacts of climate change and globalization on Norwegian food production and the food safety.
- Knowledge on possible impacts of climate change and globalization on Norwegian nature and biodiversity.
- Knowledge on what we eat, which substances the food contains, and the relationship between intake of various foods and health and disease.
- Knowledge on foodborne pathogens, food production and antibiotic resistance in Norway.
- Knowledge on how to assess simultaneous exposure to multiple chemicals.
- Knowledge on health and environmental effects of nanomaterials in food and cosmetics.

An overview of more specified reported research needs and data gaps follows below:

<u>Agriculture, terrestrial food production and terrestrial animals</u>

- Pesticide fate under Norwegian conditions; degradation, mobility, models for half-lives, and the impact of culture plants.
- Plant pests under Norwegian conditions; epidemiology and population dynamics, monitoring, models for behavior and development, and effects of climate changes and/or globalization.
- Non-traditional feed ingredients; impact on animal health and welfare, production efficiency, product quality, and contaminant and nutritional composition of the final food product.
- Data on content of nutrients, contaminants and pathogens in the food production chain (food ingredients and/or processed food), including knowledge on trends.
- Models predicting transfer of contaminants from animal feed to the food chain.
- Foodborne pathogens, antimicrobial resistance in these.

<u>Fisheries, aquaculture, seafood production and aquatic animals</u>

- Transmission of infectious fish diseases under Norwegian conditions.
- Parameters for fish welfare.
- Effects of water quality on fish health and/or welfare.
- Non-traditional feed ingredients; impact on animal health and welfare, production efficiency, product quality and contaminant and nutritional composition of the final food product.
- Data on nutrients, contaminants and pathogens in the food production chain (food ingredients and/or processed food), including knowledge on trends.

- Models predicting transfer of contaminants from animal feed to the food chain.

Human health

- Data on what we eat, how much, and how often.
- Relationships between food/food groups and the prevention or development of disease.
- Presence and concentration of pathogens in drinking water.
- Diseases caused by foodborne pathogens or contaminants in food and the disease burden (loss of health and mortality).
- The stability and solubility of nanomaterials in food, in the gastrointestinal tract and in biological tissues.
- Negative health effects of organic nanomaterials.
- Skin absorption and metabolism of cosmetic ingredients.
- Exposure and use of cosmetics.
- Toxicological data on nanomaterials in cosmetics.

Biodiversity

- Alien species under Norwegian conditions; epidemiology and population dynamics, surveillance, models for behavior and development, and models for effects of climate changes.
- Effects of pesticides on bees and other pollinating insects.

Combined exposures

- Methods for risk assessment of combined exposures of chemicals.

Surveillance data for food and diet

- A regularly updated food database with data on food intake in the Norwegian population and data on presence and concentrations of nutrients, contaminants and foodborne pathogens in food.

About VKM

VKM's risk assessments are performed at the request of the Norwegian Food Safety Authority and the Norwegian Environment Agency. In addition, VKM may perform self-initiated assessments.

VKM assess risks within the following areas

Food safety	Biodiversity
• Biological Hazards • Plant Protection Products • Genetically Modified Organisms • Food Additives • Flavourings • Processing Aids • Materials in Contact with Food • Cosmetics • Contaminants • Animal Feed • Nutrition • Dietetic Products • Novel Food • Food Allergies • Animal Health and Animal Welfare • Plant Health	• Plant Protection Products • Genetically Modified Organisms • Alien Organisms • Trade in Endangered Species (CITES) • Microbial Ecology

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Assessed and approved

The report has been assessed and approved by the Scientific Steering Committee. Members of the Scientific Steering Committee are: Jan Alexander (chair), Lene Frost Andersen, Edel Oddny Elvevoll, Gro-Ingunn Hemre (vice-chair), Brit Hjeltnes, Merete Hofshagen, Per Ole Iversen, Åshild Krogdahl, Torstein Källqvist, Trond Rafoss, Ida Skaar, Janneche Utne Skåre, Hilde-Gunn Opsahl Sorteberg, Inger-Lise Steffensen, Vigdis Vandvik, Yngvild Wasteson.

(Members in alphabetical order after chair of the panel)

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