Short Descriptions of the Work Package Results within the INTERREG IV A Project

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Content

Preface

Dear ladies and gentlemen,

after five years of cross border activities in SafeGuard we a very pleased to welcome you in Wageningen at our final event. Here, all project working groups would like to inform you about their final results and the effects they will have on the quality of cross border cooperation in the agriculture and food sector.

This booklet is to all of you, who would like to overview both the amount and variety of the final results. Here you will find abstracts of all working packages based on the oral presentations that are given during the final event in Wageningen. The presentations will be available on the Safeguard website shortly after our final event. A detailed report about all final results will be published in summer 2013.

The SafeGuard project management team and all project partners and associates would like to wish you an exciting event, interesting conversations and a multitude of new ideas and contacts. We hope that you enjoy your day in Wageningen and that you feel well informed and prepared to start/ continue cross border cooperation in your field of responsibility.

If you have any questions or remarks, please feel free to contact us at our office in Bonn or Wageningen.

With my best regards,

Dr. Oliver Breuer
(SafeGuard project coordination)

1.1 A) Development and coordination on on-farm biosecurity measures for the prevention of outbreaks of epizootics in the German-Dutch border area, and B) Campylobacter Project

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Content:
The goal of WP 1.1 was generating measures for cross-border sharing of on-farm biosecurity measures that reduce the likelihood of outbreaks and the spread of epizootics. For this purpose, terms had to be defined first, and a common basis for categorizing operations and the legal foundations both on the Dutch and on the German side had to be defined. In the end, documents for surveying the biosecurity standards in agricultural operations of the German-Dutch border region were generated, as well as incentive systems that contribute to increasing biosecurity in operations. In the context of a doctoral dissertation, this surveying of the biosecurity standards and their potential suitability for establishing bonus and penalty systems in operations were tested.

'Campylobacter on broilers' sub-project
In addition, a sub-project studied the infection of broilers with campylobacter as an example for factory farming. How, and if so, when do infections occur, and what measures must be taken? In this context, the appendices of 600 hatchlings were examined microbiologically for the presence of Campylobacter spp. at the CVUA-OWL in Detmold in the summer of 2012, and then also at BfR in Berlin in further diagnostic studies using RT-PCR. As a result, these samples were found to be free from Campylobacter jejuni jejuni or coli. In another step, from mid-January 2012 until the end of November 2012, environmental and cloaca swab samples were taken in 16 selected broiler operations at four different times. This process was repeated for three fattening passes each in order to minimize outliers.

However, it turned out that the rate of infection with Campylobacter spp.in broiler flocks is lower than anticipated and that the Campylobacter spp. were sometimes found at unexpected times. Due to the negative samples from empty, clean barns and existing material at the time of bringing in new animals it was determined that the cleaning and disinfection measures performed were sufficient.

If pathogens are present, the probability of finding them is higher during the period from early summer through fall rather than during the cold season. Since the analysis of the lab studies has not yet been completed, it is presently not possible to make specific statements regarding the time and cause of any infection of the existing broilers with Campylobacter.

1.3 Capacity Building
Sub-project „Handling milk within the restricted zones of a foot-and-mouth disease outbreak"

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Content:
Foot-and-mouth disease is among the rarely occurring animal diseases in Europe. But in Africa and Asia, in particular, this highly infectious viral disease is widespread. According to estimates, over 2.6 trillion ungulates are currently living in countries where foot-and-mouth disease is common. At the same time, production of and trade in animal products from areas where foot-and-mouth disease is endemic are constantly increasing. This also carries with it the risk of the virus being reintroduced into countries free from foot-and-mouth disease.

Developing emergency plans for fighting diseases, and regulations for handling milk in areas restricted due to foot-and-mouth disease are of great significance in terms of disease prevention and the economy. Generally, raw milk from areas restricted due to foot-and-mouth disease must not be put into circulation. In Directive 2003/85/EC EU law specifies, however, that milk from areas restricted due to foot-and-mouth disease may be "exported" and processed, as long as certain precautions are taken and there is official control, and it can then be sold freely within the EU. This is to allow using a completely harmless foodstuff.

The goal of the project was supporting and motivating farmers and the dairy industry in creating crisis plans for treating milk from areas restricted due to foot-and-mouth disease. Effective crisis management for raw milk is important for fighting the disease effectively since the milk may already contain the foot-and-mouth disease virus a few days before clinical symptoms show.

The guideline for handling raw milk from areas restricted due to foot-and-mouth disease, which was generated in this process, includes all necessary information. It was created by the Lower Saxony State Office for Consumer Protection and Food Safety (Niedersächsisches Landesamt für Verbraucherschutz und Lebensmittelsicherheit; LAVES) for use both by authorities responsible, as well as milk producers and the dairy industry. It can be used for crisis planning, presents practical solutions for collecting and disposing of or processing raw milk, including materials such as checklists and information pamphlets, and provides the authorities responsible with information and aids for decision-making.

This guideline is also available for downloading from the SafeGuard website: http://safeguard.giqs.org/home/

1.4 „Crisis management instruments for emerging infectious diseases in the NW-NINL Euregio“

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Content:
Above all climate change, but also increased travel and trade, will be contributing factors to an increase in the likelihood that Central Europe will face pathogens causing animal diseases that have been largely unknown so far. In November 2011, the Friedrich-Loeffler-Institut found the so-called “Schmallenberg” virus in cattle for the first time in Germany and in the Netherlands. Since then, this virus has been detected in ruminants in 1,800 operations. It can cause substantial congenital damage, often with time delay, resulting in stillbirths and fertility problems. In addition, the current outbreak of the Usutu virus and its spread show that so-called emerging infectious diseases (EIDs) are spreading also in Northern Europe. For these lesser known pathogens in particular, adequate crisis management measures are currently not yet available.

The goal of this WP was to develop a protocol showing the decision makers and the veterinary administration (Veterinärverwaltung) what risks can be associated with EID’s, as well as to show different scenarios to prepare for a crisis.

The protocol builds on four vector-based ruminant diseases (BTV8, Besnoitiosis, Lumpy-skin disease and Rift Valley fever) for which flowcharts have been developed after comprehensive literature research, showing their different incursion and spread patterns, as well as options for monitoring and controlling the latter. The flowcharts can be used for Nordrhein-Westfalen and the Netherlands and Niedersachsen. In order to better assess the incursion and spread routes, a written survey of experts from science and administration in the Netherlands, Belgium, Niedersachsen and Nordrhein-Westfalen was conducted.

Results from the survey are, e.g., that
- transmission of EID’s via infected vectors plays a large role;
- one of the main incursion routes into the Euregio is the import of domesticated infected ruminants;
- illegal import constitutes a major loophole in the system of controls because it cannot be monitored;
- in the area of legal imports of domesticated infected ruminants, vaccines and sperm / embryos, there are many options for prevention; the options for monitoring should be expanded across borders.

1.6 Towards one economic livestock production Euregio Nederland-Nordrhein-Westfalen-Niedersachsen

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Content:
The combined region of the Netherlands-Nordrhein-Westfalen-Niedersachsen is one large production area of livestock products. With a combined population of 40-45 million people, the region is also an enormous area of consumption. Both production and consumption have a strong transnational character which will only increase in the next years. There is clearly interdependence, in so-called ‘normal’ (meaning disease-free) circumstances as well as in the case of outbreaks of contagious animal diseases.

Yet in spite of this, borders still exist, namely between the Netherlands and Nordrhein-Westfalen-Niedersachsen. The goal of this research was to investigate the economic potential of removing these borders. In doing so, we reviewed two specific situations that offer the best prospects in the short and medium term: (1) the routine situation and (2) situations involving contagious animal diseases.

The research revealed the following findings:
- Enhancing transnational collaboration in the field of contagious animal diseases offers economic benefits for both sides;
- Embedding in a broader sectoral and institutional framework enhances the benefits as well as the level of support from the parties involved;
- In the next ten years, livestock farming on both sides of the border will further intensify. This has a number of consequences for the prevention as well as control of contagious animal diseases;
- Lifting or easing a number of routine measures concerning the cross-border movement of animals can yield considerable savings without having to be at the expense of the prevention and control of contagious animal diseases. This specifically concerns the transport of animals for slaughter;
- The policy on the control of classical swine fever (CSF) must be focused more on reducing economic loss. Transnational collaboration offers additional possibilities in that respect.

1.7 Minimisation of the economic consequences of Aujeszky's Disease outbreaks in the Euregio NL-NRW-NDS

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Content:
The Euregio of the Netherlands-Nordrhein-Westfalen-Niedersachsen is one large area of production and consumption of pig products. These products include slaughter pigs and meat, as well as piglets for further fattening. An important part of the Dutch pig farming sector is focused on the sale of meat-type pigs and piglets in NRW and NS, while pig farming in NRW and NS relies to an important extent on Dutch piglets.

Major economic consequences will ensue should the Netherlands experience a new outbreak of Aujeszky's Disease (AD). These consequences would deviate to a considerable extent from those of other contagious animal diseases such as FMD and CSF. This can be attributed to the control strategy, which is based on vaccination and letting contaminated as well as vaccinated animals live. In most cases, a surplus of (vaccinated) piglets will arise in the contaminated area, causing the prices in this area to fall (considerably). On the other hand, if the outbreak and thus the contaminated area are relatively large, then this can cause a shortfall in piglets outside the AD area in the short and medium term, which in turn will engender housing issues as well as price increases in the Netherlands as well as NRW and NS.

The objective of this research was to offer tools at the tactical level as well as at the strategic level, which serve to minimise the economic impact of AD outbreaks on the Euregio.

The research revealed the following findings:
- If outbreaks of AD occur in areas with a surplus of piglets, then this can quickly cause economic and animal welfare issues;
- A more rapid easing of transport restrictions can reduce these issues, provided that this easing does not engender further spreading of the disease;
- It seems that certain areas in the Netherlands have an above-average sales relationship with certain areas in Nordrhein-Westfalen and Niedersachsen. In the event of an outbreak of AD, this could lead to amplified economic and veterinary consequences;
- In particular, the economic consequences can be reduced in the case of AD through canalisation of flows of piglets and the easing of transport restrictions.

2.1 Improving elimination concepts for salmonella in pig and poultry operations

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WP 2.1 was specifically about how to improve salmonella antibody monitoring implemented in the context of quality and security assurance (QS). In particular, the focus was on informing farmers faster of current results of meat juice testing for salmonella antibodies to allow earlier, faster reactions when OD values are elevated. Veterinarians, advisory organizations and slaughtering operations were integrated into the information chain. For this purpose, an IT system was implemented that provides farmers and advisors with current information on the results of the past three months and automatically generates an alarm if samples have not been taken.

Using the Backbone, the salmonella antibody results are processed such that
- the current sampling results for the past three months are primarily analyzed and highlighted;
- a review is performed whether the data for the planned cut-off at an OD value of 20% should be interpreted;
- it is possible to determine directly for which batch samples have last been taken, and whether operations have had insufficient sampling.

Contrary to the standard process, in which QS sends out a result every four months, thanks to the results of WP 2.1, farmers now have information on their most current sampling results if there are new trends. This information has been and is being observed strongly by farmers. The percentage of operations in Categories II and III was reduced by half during the test phase.

There has been ongoing information about the results both in the German as well as in the Dutch operations during the periodic meetings. Based on the excellent results, additional operations will now be integrated into the system.

2.2A Support tool for advisory organizations in the agricultural and food industries

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Content:
One of the goals of this project was to develop a support tool for rapid identification of risk profiles for individual operations raising animals for food. Due to the large need for advice, the tool currently only deals with the salmonella problem in pigs. This online-based tool is designed for the green side such that it detects the risk potential in agricultural operations for the spread of salmonella, calculating the specific risk assessment for individual operations. In additions, farmers receive a weighted list of defects specifically for their operations, together with recommendations and/or suggestions for improvements. For a field test in 35 German operations, stock with a high salmonella risk (Cat. 3), stock with a medium salmonella risk (Cat. 2) and stock with a low salmonella risk (Cat.1) were included.

On the red side, slaughtering and meat-packing operations are the starting points for producing safe food. The advising tool developed provides these operations with an option to identify and improve weak points in all their production processes and in management. The operations can perform their own monitoring that supports existing security systems such as HACCP and QS. Voluntary use of the advising tool results in a better understanding of the salmonella problem and in higher motivation to improve. This way, economic losses and regulatory sanctions can be avoided. The use of the advising tool is also attractive because all food producers can register for free and use the assessment for their operations.

The tool's questionnaire has so far been administered in 23 meat-packing and eight slaughterhouse operations, initially in a written format (print-outs of a checklist). The results have been continuously entered into the database.

Initial analyses of both sides show that such a tool can have an important function in advising. However, there will continue to be a need to adapt it over the coming months and years. So far it has not yet been finally determined which organization will assume the responsibility for maintaining the tool and managing the related database.

2.2B Coordinated approaches for sampling schedules, monitoring strategies and diagnostics methods

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The focus of this WP was on standardizing the sampling of fattening pigs. While a large number of fattening pigs cross the Dutch-German border every day in order to be further fattened in German operations, a special potential infection and disease risk is inherent in these transports. The most important infectious agents for the pig trade are salmonella, PRRS-V, PCV2, Rhinitis atrophicans, Brachyspira hyodysenteriae and Lawsonia intracellularis. In addition, mycoplasmas, Actinobacillus pleuropneumoniae and Haemophilus parasuis play a major role.

Detailed sampling schedules were developed for sampling in the operations – with regard to sampling frequency, e.g., pig breeders receive the recommendation to randomly sample their sale piglets when they are about ten weeks old. According to statistical calculations by Canon and Roe, 15 individual samples each are required for a security of 95% with a prevalence of at least 20%. Consequently, 15 samples twice a year is considered the minimum sampling frequency. In the field, more frequent sampling with potentially lower sample figures have been proven; e.g., ten samples, three times a year. On this basis, any lower numbers of samples will not be conclusive.

In addition, it was determined that the sampled sale piglets could be given the status "not suspicious" if all samples (at least 30) have had a negative test results over the past twelve months. In case of positive lab results, stock will be classified as "positive," and as "suspicious" if the results have not yet been verified. For test results to be comparable, the test methods must be uniform. In order to come to some coordination with the veterinary labs, the members of the AG met with representatives from leading veterinary medical labs from the following regions: Netherlands (GD-Deventer), Niedersachsen (LuFa-Nord-West – Oldenburg and IVD – Hannover) and Nordrhein-Westfalen (Bioscreen-Münster and SynLab – Köln) in order to work on guidelines for periodic anonymous lab comparison tests.

The result was a brochure that is to be used as a guideline for monitoring piglets. In addition, it includes suggestions for the sampling at the agricultural operation, the mailing of samples to the lab, as well as a description of testing methods at the individual labs.

2.3 Methicillin-Resistent-Staphylococcus-Aureus-(MRSA) in livestock

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While the Netherlands are classically regarded as a low prevalence country regarding the occurrence of MRSA in healthcare facilities, it has been documented that this is not the case for livestock-associated MRSA. In workpackage 2.3 it was documented that the problem of LA-MRSA involves both Dutch and German livestock holdings in a similar manner. However, some differences have been found, because molecular typing of the MRSA isolates obtained in the longitudinal studies and German prevalence investigations revealed an unequal distribution, e.g. of the LA-MRSA clone t108 on both sides of the border (predominance on the Dutch side of t108 and t034 on the German side). The reasons for this discrepancy are still unknown. Similar prevalence rates and distribution patterns stress the need for concerted actions when implementing preventive interventions to forestall spread in livestock holdings.

Moreover, it was found that humans seem to be equally affected by LA-MRSA on both sides of the border, since preliminary results of the PreMa study indicate a similar prevalence of LA-MRSA among patients attending general practitioners on both sides of the border. The high colonisation rates detected among pig farmers (77%) indicate that MRSA poses a risk for infections in this group of persons and reflects the similar exposure rate on both sides of the border. Since it was found (in contrast to previous investigations by other researchers) that MRSA carriage was rather persistent among farmers, it should be recommended to perform active decolonisation treatments prior to special risk interventions (e.g. surgical procedures), because it is unlikely that colonisation will “clear” spontaneously.

Molecular characterisation of the MRSA isolates allowed for developing a rapid test system for the identification of LA-MRSA (ST 398) using melting curve analysis. This test can be applied in line with routine diagnostic procedures in hospitals on both sides of the border.

The results of WP 2.3 documented that in the Dutch-German border region livestock-associated (LA) MRSA, mainly belong to the clonal lineage CC398. Pigs are affected by MRSA equally on both sides of the border (MRSA was found on up to 70% of all pig holdings). Colonisation of livestock is persistent over time and is unlikely to be eliminated spontaneously from herds. LA-MRSA are frequently introduced into regional hospitals (we found that 22% of all MRSA in a German regional hospital were LA-MRSA in 2008 and 21% of all patients admitted to hospitals in the German part of the Ems-Dollart Region in 2011). Mostly, LA-MRSA carriers had livestock contact. However, LA-MRSA seem to cause less frequently invasive disease than HA-MRSA. This might be due to the fact that LA-MRSA carry less virulence factors, on the other hand, we showed that patients carrying LA-MRSA were more healthy, had less ICU-care days and had less severe underlying disease. In contrary to other studies, - although less frequently - nosocomial transmission seems to occur. A reason why nosocomial transmission could be less frequent compared to other MRSA types, could be that until now LA-MRSA carriers were hospitalised shorter, had less severe diagnoses and less intensive care contact; i.e. less risk factors facilitating transmission. Furthermore, LA-MRSA were more susceptible to antibiotics frequently used in hospital healthcare, so a transmission might not be detected.In consequence, future studies on transmission of LA-MRSA need to take into consideration the selective pressure of antibiotics used in single hospitals.

2.4 Campylobacter - Monitoring and Abatement

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The aim of the project was to investigate the path of transmission of microorganisms and parasites in some specific rural locations e.g. local recreations areas, parks and lakesides, in and around the region of Düsseldorf and Duisburg (North Rhine Westphalia, near to the Dutch / German border). One main aspect was to examine the occurrence of highly pathogenic bacteria like Campylobacter sp. and other bacteria like EHEC, EPEC (enterohaemorrhagic Escherichia coli; enterpathogenic Escherichia coli) in rural regions and the role of synanthropic birds and flies (Brachycera) as a vector of diseases.

The longitudinal study showed some expected as well as some unexpected results. The composition of the fly populations at the four sample areas showed to be inhomogeneous: Sarcophaga spp., Lucilia spp., Calliphora spp. as the most frequent species were equally distributed whereas the less frequent genera Musca spp., Tachina spp., Fannia spp., Pollenia spp., Muscina spp and Stomoxys spp. were unequally distributed in the catchings. From bird-feces and flies a broad variety of common gut, soil and water-living bacteria (mostly coliforms) and fungi could be identified. EPEC, molds and Candida spp. were most frequent in bird feces and flies in a nearly equal amount and at all sample areas, showing the strong connection between birds and flies. The more pathogenic bacteria like Campylobacter spp. and EHEC surprisingly could only be found at one sample area in a very small overall percentage (approx. 1% of all samples, n=~250). The number of samples carrying single or multiple bacteria/fungi species showed to be remarkably higher than the number of samples containing parasitic stages.

The excerpts of the collected data show the success in generating a convenient tool for the surveillance of microorganisms and parasites/parasitic stages in bird feces and flies. Most of the isolated germs must not lead directly to any kind of diseases in healthy people but some of these may and some of the found germs will most likely lead to severe diseases in immune suppressed persons and especially in children. The preliminary dataset also shows that antibiotic resistances apparently have not reached the synanthropic birds and flies in at the sample area at recreations sites in Düsseldorf/Duisburg in North Rhine Westphalia. ESBL however could not found to be present in samples taken in the selected areas, whereas other alarming pathogenic factors (e.g. Campylobacter sp.,EHEC, EPEC) could be isolated suggesting the presence of flies as vectors and at least temporal reservoirs.

The control of fly populations in livestock and other food providing institutions as well as in restaurants, school kitchens, retirement homes and warehouses should be executed with special alertness. Also food waste and feces of any kind around schools, retirement homes, restaurants and so on should be stowed away quickly and fly-safe, e.g. In hard plastic or metal trashcans and not in smooth plastic sacks etc., so that birds and flies is not given the chance to emerge to even stronger vectors of diseases as they already are.

3.1 D-NL Forum for continued development of the „regulatory control of organizational self-control systems

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Content:
In its ratification of EU Regulations (EC) Nos. 178/2002, 852-, 853-, 854- and 882/2004, the EU provided Member States with new options for monitoring food safety in conjunction with more flexible responsibility of food producers. Following an integrated "from stable to table" approach, the focus of this AP was risk-based meat inspection. So far, only few meat-packing operations and authorities are using this new process. The center of the activities was a comparison of existing regulatory monitoring systems, self-control systems developed in individual operations, as well as their shared continued development in Niedersachsen, Nordrhein-Westfalen, and the Netherlands.

A first step in implementing this task was to generate an analysis of a comparison conducted on the existing different systems and structures in authorities and meat-packing operations in Niedersachsen, NRW, and the Netherlands. At the same time, a pilot project was conducted in a meat-packing operation in the county of Rotenburg/Wümme implementing risk-based meat inspection without cutting in pigs. Experiences from a pilot project that had already been completed at that time in the Netherlands were accessible for this WP thanks to the cooperation of the Dutch food safety authority nVWA (nieuwe Voedsel en Waren Autoriteit). In the context of this pilot project, a study was also conducted to establish verification methods in quality management.

In order to generate concrete recommendations for the intersection between official monitoring and operational self-control, a guideline was developed for Niedersachsen (entitled "Risk-based meat inspection without cutting in pigs – Niedersachsen guideline for official monitoring"). Meanwhile, this guideline is being used in Germany by a working group of the Federal states (AFFL- Working group for meat and poultry meat hygiene and specific issues of foodstuffs of animal origin) as a basis for a country-wide concept. This guideline also takes into account fundamental aspects of cross-border recognition for auditing results from private-industry quality assurance systems at QS-GmbH (D) and IKBNV/ IKB Varken (NL).

3.2 Cross-border reporting procedure for raw milk exceeding control limits

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Within this project, suggestions for improving the cross-border reporting procedure in raw milk control were generated after significant differences were detected regarding how results were reported, and required measures were initiated in cases where the criteria (cell and bacterial count or verification of inhibitors) were not met.

The applicable legal regulations, the structures in the project's regions including monitoring facilities, testing authorities and methods, as well as the currently used reporting procedures in the Netherlands, Niedersachsen, and Nordrhein-Westfalen were thoroughly examined as the basis for suggestions for improvement.

Particular weak points were the differences in reporting procedures, the lack of knowledge of the structures and responsibilities in the project's regions, and the differences in report formats. The project team generated proposals for simplified and uniform reporting routes, and options for introducing a uniform data standard.

Improving cross-border reporting procedures shall ensure continuous monitoring of raw milk, the food quality of the milk, and an increase in the competitiveness of the dairy industry in the border region. The project findings have already helped in the field in a number of counties to successfully conduct a cross-border reporting process. Beyond this, long-term contact has been established between the testing entity in Nordrhein-Westfalen and the Dutch monitoring organization (COKZ).

3.3 Procedures and forecasting models in risk-oriented feed and food analysis and monitoring

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Content:
Consumer health protection does not end at the border, but needs a coordinated monitoring procedure. The safe trade of high-quality foods across the border requires appropriate analytical methods for the detection of undesirable substances in food. In order to permit the food monitoring at the boundary regions, new analytical methods for food of animal origin with a high consumption rate (food produced by cattle, pig, poultry) were developed and validated. Since the production and use of PFOA and PFOS decline in the industry and it is newly focused on PFC other chain length, it was important to develop analytical methods for PFC with chain lengths of C4 to C12.

At present, the re-use of organic waste is of concern across the EU. However, the use of some products may results in increased input of undesirable substances to soil. The model derived in this work package can be used at different scale levels and requires little soil specific information other than the soil organic matter. At present most processes included in the model are based on linear transfer factors that need no further country or site specific calibration which enables the user to assess the impact of a specific product for soil, water and product quality regardless the area of application.

The model was used to discuss consequences of the undesirable substance PFOS for animal and human exposure, locally and for regional agriculture. In the past, the contaminant has been released in the environment and cross-border consequences were suspected. The chain model can be used to calculated consequences for different scenarios for such a release.

Cross-border quality assurance systems require prompt identification of health relevant toxic substances. The aim of an impact based analytic was the development and the application of biological screening methods for target or rather non-target analyses.

This new valuation strategy is already implemented in Germany, based on §64 LFGB Lebensmittel- und Futtermittelgesetzbuch-working group impact based analytic. In the Netherlands, this approach is already practiced for many years, for example from RIKILT in Wagenigen.

3.4 Public-private concept for risk-oriented control of agricultural operations

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Content:
This project compared the results of private-industry audits with the results of official controls in agricultural operations raising pigs. Based on the private-industry audits, the operations were divided into two risk categories. The official controls confirmed that this risk classification was plausible for the official control personnel with regard to compliance with regulations for animal disease prevention (biosecurity), animal protection, and food safety. It would make a lot of sense for official risk assessment to use the risk categories created by private-industry audits. It is extremely easy for official authorities to generate the classification because the risk assessment can be found in a table.

Unfortunately, it is still very difficult to resolve the data privacy issues. The core idea of Project 3.4. “Private-public partnerships for risk-oriented controls of agricultural operations” was included as a goal in the Coalition Agreement of the Federal government in 2009.

The expert opinion on the feasibility of organizing health-related consumer protection (2011), which, following the E. coli crisis, was ordered by Minister Aigner from the President of the Bundesrechnungshof, also positively highlights the pilot projects for integrating regulatory and private-industry control. But solutions for the high data privacy hurdles cannot be found here either. For the medium term, the written consent of each farmer will continue to be required for allowing the regulatory authority to use the private-industry audit results.

In the Nordrhein-Westfalen counties of Borken, Coesfeld, Paderborn, and Minden-Lübbecke, as well as in the Niedersachsen counties of Leer and Aurich, the farmers associated with QS have allowed the corresponding veterinary authorities to access the QS audit results by individual query. In the listed counties, the results of the QS audit are used by the veterinary authorities for the purposes of risk assessment and selecting specific operations for controls according to Regulation (EC) 882 / 2004.

In the county of Osnabrück, the farmers have allowed accessing the biosecurity index generated by QS. The local veterinary authority also uses this information for generating a risk assessment for performing regulatory controls regarding biosecurity and/or the pig-keeping hygiene regulation.

3.5 Bioinvasion of the Pacific Oyster (Crassostrea gigas) in the Wadden Sea - microbial and chemical risks for the consumer

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Content:
The blue mussel (Mytilus (M.) edulis) was increasingly suppressed by the spread of the Pacific Oyster (Crassostrea (C.) gigas) in the Lower Saxony and Dutch Wadden Sea in the past three decades. The concerns hereby occurred are both, regarding the blue mussel industry as well as food safety aspects of blue mussels and pacific oysters for human consumption. C. gigas settles predominantly on intertidal Mytilus·beds and subsequently create rigid reef·like structures. Consequently, C. gigas may have directly or indirectly influence on cultivated areas of blue mussels in the wadden region, by the invasion process itself and by microbial and/or chemical risks. Whereas the primary production of classified blue mussel culture areas is regularly controlled by state laboratories according to the EU regulation VO(EG) 854/2004 the wild reefs of Pacific Oysters are not under control of official control programmes for food safety aspects. Moreover, since an increasing temptation of an uncontrolled collecting and marketing of pacific oysters in the wadden sea has been observed, a risk assessment of microbial and chemical hazards in Pacific Oysters is needed. The aim of the Safe Guard Project “WP 3.5” is to elaborate actual data on the status of the bioinvasion process in the wadden and to create a suitable database on consisting of relevant biological, microbial, and chemical parameters, analyzed in oysters and adjacent mussel beds for comparison. A sampling scheme was therefore designed which regards both spatial and seasonal distribution to attain a representative coverage.

During 2010 and 2011 samples have been taken from 13 designated localisations in the Lower Saxony Wadden Sea region for ecological, chemical and microbiological investigations. According to the characterized spatial distribution of oyster beds in the Dutch Wadden Sea 8 locations have been selected for mussel and oyster collection. The ecological data on the abundance, biomass and population dynamics of C. gigas and M. edulis at each location were elaborated. With respect to the food safety parameters a total number of n=325 samples in the Lower Saxony Wadden sea and a total number of n=45 samples the Dutch Wadden Sea area, resp., have been collected. With respect to the Dutch Wadden Sea additional data from the National monitoring for Shellfish Food Safety has been used in this project.

The samples were analyzed according to EU·Regulations for shellfish (e.g. 854/2004/EG) using standardized methods. Besides metric data on size and weight the parameters of aerobic plate count at 30°C, E. coli, Salmonella, Vibrio spp., Clostridium spp., viruses (Noro, hepatitis A), chemical contaminants (PCBs, CKW, heavy metals), Biotoxins (Algae Toxins PSP, DSP, ASP) and shellfish diseases (Marteiliosis, Bonamiosis) were analysed.

Some of the data will be presented in more details. For instance, during the two year sampling period no marine biotoxins have been detected, neither in mussels nor in oysters. With respect to the chemical contaminants indications for spatial variation with higher contaminant levels at individual sampling areas, considering metals in oysters and PCBs in both oysters and mussels (e.g., SG8 and SG1, resp., in the Dutch Wadden Sea). have been observed. Overall contaminant levels seem to be slightly higher considering some PAH’s and metals in mussels compared to oysters. More markedly, zinc and copper concentrations are higher in oysters. Considering the microbial contamination of, e.g. Vibrio (V.) species, the presence of V. alginolyticus in different seasons and at different location in oyster and mussel matrix demonstrate its wide spread distribution in the Wadden Sea. With respect to V. parahaemolyticus as a potential pathogen Vibrio species its prevalence data reveal differences between sample locations in the Dutch as well as in Lower Saxony Wadden Sea. But it could be shown in both Wadden Sea regions, that V. parahaemolyticus could not been found during the Winter and Spring periods. Therefore, the presence of V. parahaemolyticus in bivalve mussels indicates a potential health risk when consuming raw oysters from the Wadden Sea.

4.1 Integrated public-private information and communication systems to exchange in the event of a crisis

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Content:
The different phases of a crisis can be reduced effectively, if managers and stakeholders receive as soon as possible the information needed for their respective decisions in crisis management. The aim of this cross-thematic work package has been to develop a generic process model for joint implementation and use of the engage and exchange model. This model is a combination of organizational and technological innovation to support actors in crisis prevention and crisis management. The model determines which information is needed and which data are shared in which way between private and governmental organizations constantly or for a limited time.

An inventory was conducted using interviews with experts. In this context, the communication and information systems and databases which the private and public stakeholders of the participating countries already use were identified considering technical and organizational barriers. In the analysis phase a categorization and evaluation of potential improvement and expansion measures took place regarding various aspects: content, technology, organization and implementation.

Further improvements and amendments of existing systems were compared, the need for development of new systems / components of the system for crisis situations identified, the most important interfaces with and between existing information and communication systems prioritized and a benefit analysis of system functions carried out using a utility index.

Furthermore, concrete proposals for the improvement of existing and developing systems in close cooperation with representatives of public authorities and the private sector were developed an expert workshop to select specific proposals for the cross-border implementation performed. In the trial phase, a test run of the developed concept was carried out in a pilot test. The organizational implementation of the approach was tested based on existing systems of government and private sector engage–exchange-model.

Quality and trust of cross border communication 4.2

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Content:
The region along the border of Germany and the Netherlands displays an outstanding network of modern agri-food industry and particularly of the production of meat products. A high level of food safety and a better public image of the meat industry are central to the future competitiveness of this region. Functioning communication concepts play an important preventative role in everyday affairs, whereas they become a key element of crisis management in times of crisis. However, a systematic analysis of strengths and weaknesses of the actual communication concept in businesses and agencies in regard to the intensity and quality of communication has not yet been undertaken. This is especially true for cross-border communication which must take into consideration additional or differing administrative organizational concepts and cultures.

The goal of this work package was to analyze the status quo of the communication of German and Dutch agencies and businesses with each other and then utilizing this information in a pilot implementation and verified communication concept in order to improve the communication intensity and quality in these agencies and businesses.

The WP 4.2 consists of four work phases. The first step was to analyze literature in order to determine the status quo of the communication between agencies, businesses, and the public at large. The articles could be grouped according to their subject of study (business, agency, or the public at large) and which situation they dealt with (crisis or everyday affairs). The literature analysis showed a research deficit regarding the quality of communication between the above-named stakeholders, which provided the basis for the ensuing empirical studies. In the second step, a model was developed to test the determinants of communication quality. The model took care to differentiate between the levels of influence of informational and personal factors on the quality of communication. This model was then used to survey employees of regional, state, and national government administrations, businesses, branch organisations, and consumer protection agencies in both Germany and the Netherlands (N = 167). In the third step, in cooperation with the University of Bonn a communication concept was designed, the so-called intrusion and exchange model (IEM). The fourth step consisted of doing a pilot test of the IEM. According to the information gathered to this point, it can be assumed that a cross-border installation of the IEM would have a positive effect on cross-border communication.

Thus, a model was developed which could be applied across borders. Important results reveal:

- The quality of communication depends much more heavily on the personal dimension than the actual content. Therefore, personal contact between communication partners should be encouraged by appropriate measures.
- Results of simulations show that a functional communication system can very quickly inhibit the spread of highly infectious animal epidemics, accordingly enabling the financial loss to be kept within limits.
- The results support an economic evaluation of alternative strategies in case of an animal epidemic ("to cull or to observe").

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Content:
Within livestock production and processing as well as trade of products from animal origin there exist a large number of monitoring and surveillance systems (MOSS). Also there is a wide variety of applications of these MOSS, e.g. highly contagious diseases (such as Classical Swine Fever and Avian Influenza), zoonoses (such as Salmonelosis and BSE), contaminations (such as PCBs and heavy metals) and early warning or identification of pathogen or contaminant introduction. Each application has its own features with regard to the aim the system is used for, e.g. reduction of the High-Risk Period (contagious livestock diseases), safeguarding products (from contamination) and trend watching (e.g. in some endogenous diseases and zoonoses). Finally, some systems can have different levels of 'alert': routine, increased and high alert.

In both Nordrhine-Westphalia (Nordrhein-Westfalen, NRW), Lower-Saxony (Niedersachsen, NDS) and The Netherlands (NL), different authorities are involved in monitoring and surveillance. In NL these are predominantly the Food and Consumer Product Safety Authority (VWA) and the Animal Health Service (GD), and to a lesser extend the Productboards for Meat, Livestock and Eggs (PVE). In Germany particularly the Federal and State Ministries of Environment and Conservation, Agriculture and Consumer Protection and their respective subordinated agencies such as the Animal Disease Funds (TSK) are involved.

From the combined viewpoint of (1) performance of monitoring and surveillance, and (2) limited resources (financial and others, e.g. manpower), the need for an optimized tool for monitoring and surveillance is recognized, aimed at achieving the highest performance with lowest resources. This optimization problem is valid for both (1) single MOSS, and (2) a portfolio of MOSS.

This study resulted in:

- The development of a practical framework for economic analysis and optimization of different surveillance systems;
- An approach to evaluate surveillance portfolios taking into account non-quantifiable impacts such as human health, animal welfare and other aspects;
- A generic model for analysis and comparison of various surveillance options.

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