



DIRECTORATE GENERAL FOR INTERNAL POLICIES
**POLICY DEPARTMENT B: STRUCTURAL AND COHESION
POLICIES**

AGRICULTURE AND RURAL DEVELOPMENT

**COMPARATIVE ANALYSIS OF EU
STANDARDS IN FOOD SAFETY,
ENVIRONMENT, ANIMAL WELFARE AND
OTHER NON-TRADE CONCERNS WITH
SOME SELECTED COUNTRIES**

STUDY

This document was requested by the European Parliament's Committee on Agriculture and Rural Development.

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Abstract:

Standards for food safety, animal and plant health in Brazil, New Zealand and the USA are similar to those in the EU. Ukraine is in transition towards comparable standards. These topics are already incorporated in the framework of trade agreements. Standards for the environment, animal welfare and labour conditions are lower than in the EU or lacking in these countries. These topics are not or only marginally incorporated in the framework of trade agreements.

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LIST OF ABBREVIATIONS

- AA** Association Agreement
- ABCS** Associação Brasileira dos Criadores de Suínos
- Ag Guide** Guide for the Care and Use of Agricultural Animals in Research and Teaching
- AGRI** Agriculture and Rural Development Committee
- Anvisa** Agência Nacional de Vigilância Sanitária
- APA** Animal Products Act 1999
- APHIS** Animal and Plant Health Inspection Service
- AVMA** American Veterinary Medical Association
- AWA** Animal Welfare Act
- AWPA** Migrant and Seasonal Agricultural Worker Protection Act
- BAT** Best Available Techniques
- BMP** Best management practice
- BQA** Beef Quality Assurance
- BCS** Body Condition Scoring
- BSE** Bovine spongiform encephalopathy
- CAFO** Concentrated Animal Feeding Operation
- CAP** Common Agricultural Policy
- CGAL** Coordenação-Geral de Apoio Laboratorial
- CNMP** Comprehensive nutrient management plan
- CPHR** Community Plant Health Regime
- CSF** Classical swine fever
- CSPI** Center for Science in the Public Interest
- CTE** Committee on Trade and Environment
- DOL** Department of Labor
- DCFTA** Deep and Comprehensive Free Trade Area
- DSA** Departamento de Saúde Animal
- DSV** Departamento de sanidade vegetal
- EFSA** European Food Safety Authority
- Embrapa** Empresa Brasileira de Pesquisa Agropecuária
- EP** European Parliament

- EPA** Environmental Protection Agency
- EQIP** Environmental Quality Incentives Program
- EU** European Union
- FARM** Farmers Assuring Responsible Management
- FASS** Federation of Animal Science Societies
- fbo** Food business operator
- FDA** Food and Drug Administration
- FLSA** Fair Labour Standards Act
- FMD** Foot-and-mouth disease
- FSIS** Food Safety and Inspection Service
- FSMA** Food Safety Modernization Act
- FTA** Free Trade Agreement
- FVO** Food and Veterinary Office
- GAEC** Good Agricultural and Environmental Condition
- GAP** Good Agricultural Practice
- GM** Genetically modified
- GMO** Genetically modified organisms
- GOST** Gosudarstvennyy standart
- HACCP** Hazard Analysis Critical Control Points
- I&R** Identification and Registration
- IPPC** International Plant Protection Convention
- IPPC Directive** Integrated Pollution Prevention and Control Directive
- ILO** International Labour Organisation
- ISO** International Organization for Standardization
- ITUC** International Trade Union Confederation
- Lanagro** Laboratório Nacional Agropecuário
- MAF** Ministry of Agriculture and Forestry
- MAPA** Ministério da Agricultura, Pecuária e Abastecimento
- MAPFU** Ministry of Agricultural Policy and Food of Ukraine
- MEA** Multilateral Environmental Agreement
- MENRU** Ministry of Environment and Natural Resources of Ukraine
- MHCU** Ministry of Health Care of Ukraine
- ML** Maximum Level
- MRL** Maximum Residue Level

MSPQIS	Main State Phytosanitary Quarantine Inspection Service
MTR	Mid Term Review
NAIS	National Animal Identification System
NAIT	National Animal Identification and Tracing
NAWAC	National Animal Welfare Advisory Committee
NAWS	National Agricultural Workers Survey
NCAHS	National Centre for Animal Health surveillance
NDAWI	National Dairy Animal Well-being Initiative
NGO	Non-governmental organisation
NPDES	National Pollutant Discharge Elimination System
NTM	Non-Tariff Measure
NVZ	Nitrate Vulnerable Zone
NZFSA	New Zealand Food Safety Authority
OIE	Office International des Epizooties
OMAR	Overseas Market Access Requirements
ONSSA	Office National de Sécurité Sanitaire des Produits Alimentaires
OSHA	Occupational Safety and Health Administration
PRA	Plant Pest Risk Assessment
PCA	Partnership and Cooperation Agreement
PNCRC	Plano Nacional de Controle de Resíduos e Contaminantes
RFID	Radio frequency identification device
RFP	Ractopamine-free production
RIMA	Relatorio Impacto Ambiental
RMA	Resource Management Act
RMP	Risk Management Programme
RTA	Regional Trade Agreement
SCUTRCP	State Committee of Ukraine on Technical Regulations and Consumer Policy
SCVM	State Committee of Veterinary Medicine
SES	State Epidemiological Service
SEIS	State Ecological Inspection Service
SISBOV	Serviço Brasileiro de Rastreabilidade da Cadeia Produtiva de Bovinos e Bubalinos
SMR	Statutory Management Requirement

- SPS** Sanitary and Phytosanitary Standards
- SVPS** State Veterinary and Phytosanitary Service
- TBT** Technical Barrier to Trade
- TBQA** Transportation Beef Quality Assurance
- TEC** Transatlantic Economic Council
- TSE** Transmissible Spongiform Encephalopathy
- UfM** Union for the Mediterranean
- USA** United States of America
- USDA** United States Department of Agriculture
- USAIP** United States Animal Identification Plan
- WFD** Water Framework Directive
- WSPA** World Society for the Protection of Animals
- WTO** World Trade Organization

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EXECUTIVE SUMMARY

Background

The evolution of European Union (EU) agricultural policy, particularly the 2003 Mid-Term Review (MTR), changed the framework of the aims and mechanisms of the public support targeting the primary sector. The main purpose of the MTR was to promote a market-oriented and sustainable agriculture in Europe. This has been implemented by linking direct payments to farmers to compliance with existing mandatory standards in the fields of environment, animal welfare and food safety, as well as requirements of good agricultural and environmental conditions. Such so-called *cross-compliance* mechanisms in the Common Agricultural Policy (CAP) include environmental aspects and an extensive range of public concerns related to food safety, animal welfare and health and good agriculture practice. All these aspects fall into the category of non-trade concerns. Because these *non-trade concerns* were integrated into the CAP, the impact of non-trade concerns on competitiveness of the agricultural sector has become an issue. More recently, they became an issue in the CAP reform proposals from the European Commission for the period beyond 2013.

To mitigate *market failures* such as higher costs resulting from high standards and the inability to assign value to tangible and intangible attributes of the product, governments could attempt corrective action ranging from economic tools (e.g. taxes, subsidies) to regulatory tools (e.g. quality standards, codes of conduct, prohibitions). As each government uses its own combination of tools, different trading partners can have very different standards with regard to food safety, environment, animal welfare and other non-trade concerns. Countries also have varying institutional capacity to enforce compliance with such standards. In the EU, this could subsequently lead to increasing imports of food products which are produced according to standards that differ from the standards that apply in the EU. In a context of declining trade barriers, this could become an element of strong debate in the negotiations paths on international trade. All this makes the theme of so-called non-trade concerns one of the most hotly debated both in relation to the *World Trade Organization (WTO)* and in *multilateral and bilateral trade agreements*. As recently underlined by the European Parliament (EP), the multifunctional role of European agriculture is threatened by the gap in competitiveness resulting from the differences in standards in the fields of food safety, environment, animal welfare and other non-trade concerns. At the same time, the EP also calls for agricultural imports into the EU to provide European consumers with the same guarantees in terms of consumer protection, animal welfare, environmental protection and minimum social standards as those provided by European production methods. Finally, the EP underlines that in the WTO framework, the EU has also been a 'defendant' in major dispute settlement cases. Insight into the differences in standards of non-trade concerns between the EU and third countries can help mitigate these problems.

Aim

This study aims to deliver a *qualitative comparison* of the standards imposed on agricultural production in different countries across the world. EU production standards relating to food safety, the environment and animal welfare, as well as other non-trade concerns, are compared with domestic standards in *five third countries*. A further level of analysis focuses on any perceived differences in standards imposed on EU producers and those in third countries importing their produce into EU markets. Such comparisons take account of the

impact of bilateral trade agreements in defining the standards applicable to goods entering the EU.

Scope

The *case study countries* against which EU production standards are compared are the United States of America, Brazil, New Zealand, Ukraine and Morocco. We chose these countries because the EU has agreements concerning trade in food products or is in the process of negotiating such an agreement with these countries. Furthermore, all these countries are major exporters to the EU of commodities which are also produced within the EU on a large scale. Table 1 presents the range of commodities covered in this study. These commodities currently have or will potentially have in the near future considerable export values from non-EU countries to the EU.

Table 1: Country commodity coverage in the study

Country	beef	dairy products	poultry meat	pork	lamb	cereals	fruit and vegetables
Brazil			X	X		X	
Morocco							X
New Zealand		X			X		
Ukraine						X	
USA	X	X				X	

The study compares standards imposed on agricultural production in the EU in *food safety* (e.g. hygiene requirements, constraints that limit the use of hormones, animal identification and registration requirements), *environment* (e.g. protection of groundwater, quality of water, air and soil), *animal welfare* (e.g. housing conditions), and *other non-trade concerns* (e.g. rules to prevent contagious animal and plant diseases, requirements on labour conditions) with similar standards imposed on domestic production in the selected countries. For *animal diseases*, we focus on foot-and-mouth disease (FMD), classical swine fever (CSF) and Bluetongue. The study will refer to legislation, production standards, trade agreements and on-going negotiations about trade agreements as of January 2012.

Comparative analysis of standards in food safety, environment, animal welfare and other non-trade concerns

The selected third countries have legislation which contains standards for food safety, plant and animal health. For all countries, these are important topics which need to be regulated. A general consensus on goals for food safety, animal health and plant health exists between countries around the world. Standards differ between countries mainly because of local circumstances. Observed differences in standards are only at a rather detailed level. In some countries, the enforcement of food safety, animal health and plant health standards is low. In contrast, standards for the environment, animal welfare and labour conditions are lacking or vary widely in the various countries. This is because problems related to these topics depend on local circumstances, and because these topics are not perceived in each country as being important on a similar level. Conclusions on the differences in standards for each field of interest are presented below.

The selected third countries have many standards concerning *food safety* in line with the *Codex Alimentarius*. Notwithstanding, differences in standards between the EU and the selected third countries exist. These include the type of pesticides and veterinary drugs

allowed and the associated maximum residue levels, the common use of growth hormones in cattle in the USA and in pigs in Brazil, the lactic acid treatment of beef in the USA, approval of genetically modified organisms in third countries like the USA and Brazil but not (yet) in the EU, obsolete legislation and enforcement in Ukraine, and insufficient enforcement of standards.

The selected third countries have standards concerning the *environment*. Such standards differ between countries, since standards are set according to domestic environmental problems. In the EU, measures to meet environmental standards are very restrictive towards farmers, whereas such measures are less restrictive to farmers in the selected third countries. Standards for pollution of livestock farms to water or air are generally lower in Brazil, New Zealand and the USA. In Morocco, insufficient measures are in place to control water resource problems and water pollution. In Ukraine, there is very little legislative control over the use of nutrients and pesticides. In all countries, livestock production is generally more affected than the crop sector.

Only basic requirements relating to *animal welfare* have been laid down in legislation in the selected third countries. These countries mainly rely on standards from voluntary industry-driven systems to control animal welfare. Industry incentives to improve welfare standards could result in a similar welfare level as legal standards for farmers supplying these industries. No general global basis for standards concerning animal welfare exists, except for the fairly general five freedoms. Animal welfare requirements are not taken into account in trade agreements.

The selected third countries have different standards for *animal and plant health*, as standards relate to the domestically prevailing diseases and pests. Because the standards in the selected third countries are governed by the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures (SPS), they have an overall equivalent guarantee of animal and plant health as the EU. Differences in standards between the EU and the selected countries exist with regard to animal identification for sheep (New Zealand) and enforcement issues (Brazil). A discussion remains about the level of implementation of plant health legislation in Morocco. Ukraine has only recently updated its legislation and is in a transition process towards new standards. During this process, obsolete standards from the old legislation often prevail.

Labour standards differ greatly among the selected third countries, although all apply the fundamental conventions of the International Labour Organisation (ILO). New Zealand has standards in line with those of the EU. In the USA, agricultural labour is often exempt from labour legislation, resulting in no standards for minimum wages, overtime and breaks or collective bargaining standards. In Brazil, the main problem is the presence of slave labour. In addition, there are no collective bargaining standards and enforcement of labour legislation is weak. Ukraine does not enforce legislation concerning child labour or safety and health standards and it has no collective bargaining standards. In Morocco, agriculture wages are insufficient to provide a decent living, child labour is common practice and labour standards are insufficiently enforced.

Recommendations to the framework of trade agreements

Food safety, animal health and plant health are already important aspects in trade agreements and negotiations on trade agreements, as laid down in the WTO SPS Agreement. Standards are checked regularly by the Food and Veterinary Office of the EU to assess the equivalence of the control systems in third countries with those in the EU.

Notwithstanding, differences in standards do exist between the EU and the selected third countries at a rather detailed level. Some of those are relevant from an EU perspective, as they imply *non-equivalence*. This especially concerns differences in standards about the use of pesticides, veterinary medicines, decontamination techniques and other techniques not allowed in the EU but allowed in the trade country. Differences between the EU and countries exporting to the EU can occur, because views in the EU on these topics can differ from the views of other countries. Especially for *food safety* aspects of new technologies applied in agriculture or in food processing, for example GMO, growth hormones and lactic acid treatment, the EU often has stricter views than other countries. Furthermore, differences in public acceptance of risks can result in a public health risk being acceptable in a third country but unacceptable in the EU. We recommend starting a dialogue between governments to discuss the rationale and the functioning of the system in each country. Although such items can result in a significant discussion concerning trade, they are already an integral part in the multilateral trade agreement framework.

In contrast, topics like *the environment, animal welfare and labour conditions* are not high or not even on the agenda in negotiations about trade agreements. The fields of environment, animal welfare and labour conditions can be legitimate objectives in the Agreement on Technical Barriers to Trade (TBT). The environment is explicitly mentioned as a legitimate objective to prepare, adopt or apply a standard. No or insufficient animal welfare standards can cause problems concerning the life and health of animals, which are also mentioned as legitimate objectives for standards. Similarly, no or insufficient labour conditions can cause problems concerning the life and health of humans. Since public interest in the environment and animal welfare is growing in the EU, these topics are expected to be put on the agenda in trade agreements.

International standards exist for food safety (*Codex Alimentarius*), plant health (IPPC), animal health (OIE) and labour conditions (ILO) but *not for the environment or animal welfare*. We recommend developing such international standards in international agreements or conventions for the environment and animal welfare. Starting points for standards on these topics could be the industry-driven global good agricultural practices.

For the environment, some initial steps have been taken in the field of international trade. As part of the WTO, the Committee on Trade and Environment (CTE) was established through a Ministerial Decision on Trade and Environment. It aims to promote support between international trade and environmental policies. This applies to *Multilateral Environmental Agreements (MEAs)*, for example the United Nations Framework Convention on Climate Change, but does not target domestic environmental policies. Currently, there is no clear direction on how domestic environmental legislation could be considered in multilateral and bilateral trade agreements. For the environment, the local circumstances such as climate, landscape and intensity of production have a major impact on potential environmental problems and thus on local standards. For the environment, it is therefore difficult to concretise standards at a global level. Specific details at local level addressing local environmental problems will remain necessary.

It will therefore be difficult to concretise environmental standards in multilateral agreements. We recommend first addressing the environment at a high aggregation level in multilateral trade agreements in terms of a general goal to protect the environmental and in terms of what *topics* need to be covered to protect the environment, for example ground and surface water, soil, biodiversity and the sea. A further focus on standards can then be made in a bilateral agreement, because the scope is regionally focused. The environment can be incorporated in the WTO obligations by Codes of Good Process. Ervin (1999)

proposed a seven-item Code of Good Process for the design of environmental programmes that are consistent with WTO obligations:

1. Specify clear environmental objectives for programmes;
2. Clarify property rights in environmental resources to establish applicability of payments, charges and subsidies;
3. Prefer the least trade-distorting agri-environmental management instrument;
4. Establish scientific linkage of the environmental objective with the programme instrument;
5. Implement monitoring and evaluation programmes to document policy/programme efficacy;
6. Apply equal treatment for domestic products and imports;
7. Ensure the transparency of agri-environmental measures.

No steps have yet been taken for *animal welfare* in the field of international trade. A first bottleneck is the lack of a worldwide consensus about animal welfare being an important issue in food production. We recommend putting animal welfare on the agenda in the international context of the WTO to create common support from participating countries under the WTO for animal welfare standards. For animal welfare standards, the five freedoms (freedom from hunger and thirst, from discomfort, from pain, injury or disease, to express normal behaviour and from fear and distress) could be a starting point of the process. Animal welfare then can be incorporated in the WTO obligations by *Codes of Good Process*, comparable to Codes of Good Practice for the environment.

Industry-driven private global good agricultural practice schemes are being developed, that include standards for environment and animal welfare which go beyond legal requirements, for example GlobalGAP. Such private developments also help to create a level playing field for agriculture in the different countries. We recommend considering such developments in negotiations about trade agreements.

For *labour conditions* international standards and conventions do exist, but labour conditions are not an important part of trade agreements. Common support for labour conditions seems to be present, but enforcement of legislation remains weak in many countries.

Compared to multilateral trade agreements, *bilateral agreements* may provide benefits such as development cooperation and political dialogue. As such, bilateral trade agreements can stimulate a level playing field in specific fields of interest. For example, the Agreement between the EU and Morocco contains a specific article on the environment. This article includes specific obligations to prevent environmental deterioration and to improve environmental protection. Environmental obligations are also part of the core text of the *Bilateral Free Trade Agreements* between the USA and Morocco. Both governments agreed to effectively enforce their own domestic environmental laws. This obligation is enforceable through the agreement's dispute settlement procedures. Similarly, obligations concerning animal welfare or labour conditions can be incorporated in bilateral trade agreements. We recommend negotiating the inclusion of an article on these topics in bilateral trade agreements, especially for negotiations about *Deep and Comprehensive Free Trade Areas (DFCTA)*. Such an article could include training modules for good agricultural practices, for good practices on environment, animal welfare and labour conditions considering local circumstances.

We recommend strengthening the use of *programmes* for knowledge sharing concerning protection of the environment, animal welfare and labour conditions, especially in negotiations for bilateral trade agreements. Such programmes should be aimed at dealing with domestic problems related to the environmental, animal welfare and labour conditions that are at stake in the countries concerned.

Specifically, we recommend developing a programme of collaboration to address *water stress* in the Mediterranean region, from which the EU and Morocco could benefit. Although a framework programme on the environment and water already exists within the multilateral Euro-Mediterranean partnership *Union for the Mediterranean* (UfM), this seems to be inadequate given the persisting water resource and pollution problems in Morocco. We recommend strengthening the UfM's actions in this field.

GENERAL INFORMATION

KEY FINDINGS

- This study qualitatively compares standards imposed on agricultural production relating to food safety, environment, animal welfare and other non-trade concerns.
- The commodity-country cases studied are pork, poultry meat and cereals from Brazil, fruit and vegetables from Morocco, dairy products and lamb from New Zealand, cereals from Ukraine and beef, dairy products and cereals from the United States of America.
- In all selected countries legislation contains standards for food safety, plant and animal health. Observed differences in standards are on a detailed level.
- Standards for environment, animal welfare and labour conditions are lacking or vary widely across the selected countries.
- Food safety, animal health and plant health are already important aspects in trade agreements and negotiations on trade agreements.
- Environment, animal welfare and labour conditions are not high or not at all on the agenda in negotiations about trade agreements.

SUCCESS STORY

Ukraine and Morocco had outdated legislation concerning food safety, animal and plant health. In the last decade both countries have updated this legislation to a WTO-compliant system which mimics the EU system. Implementation and enforcement of legislation are the next steps to ensure equivalent guarantees as those in the EU.

Food safety, animal health and plant health are core items in the trade agreement framework. Environmental protection is addressed as a topic in the trade agreement framework, e.g. through Multilateral Environmental Agreements (MEAs) and the Union for the Mediterranean's (UfM) programme on environment and water.

The multifunctional role of European agriculture and the guarantees in terms of protection of human health, animal health, plant health, animal welfare, environment and social standards are threatened by the gap in competitiveness resulting from the differences in standards in food safety, environment, animal welfare and other non-trade concerns between the EU and third countries. Insight into the differences in these standards can help mitigate these problems.

The selected third countries Brazil, New Zealand, Morocco, Ukraine and the USA have many standards for *food safety* laid down in legislation. However, in all countries enforcement of standards is sometimes insufficient. Standards differ between the EU and the selected third countries on the type of pesticides and veterinary drugs permitted, maximum residue levels, the use of growth hormones in cattle (USA) and pigs (Brazil), the use of lactic acid treatment of beef (USA), and approval of genetically modified organisms. Although in transition towards new legislation, Ukraine still has obsolete legislation and enforcement.

The selected third countries have standards concerning *environment* according to domestic environmental problems. Environmental standards in the selected countries are less restrictive to farmers in the third countries than in the EU. The livestock sector is more affected by environmental standards than the crop sector.

Brazil, New Zealand and the USA have less detailed *animal welfare* legislation than the EU. New Zealand has the most detailed legal standards, Brazil only basic legal requirements, and the USA hardly any. Brazil and the USA mainly rely on voluntary systems to control animal welfare.

The selected third countries have different standards for *animal health* and *plant health*, because they have standards according to the domestically prevailing diseases and pests. For all countries the standards are governed by the WTO SPS Agreement. The selected countries have an overall equivalent guarantee of animal and plant health as the EU. Differences in standards between the EU and the selected countries exist on animal identification for sheep (New Zealand) and enforcement issues (Brazil). The level of implementation of plant health legislation in Morocco is unclear. Although in transition, Ukraine still has obsolete plant health legislation.

Standards for *labour conditions* greatly differ across countries. In Brazil, Morocco and Ukraine enforcement issues in child and slave labour have been observed, closely related to lack of inspections and failure to levy penalties.

Food safety, *animal health* and *plant health* are already important aspects in trade agreements and negotiations on trade agreements, whereas *environment*, *animal welfare* and *labour conditions* are not. We recommend negotiating the insertion of articles concerning environmental, animal welfare and labour conditions in trade agreements. We also recommend developing international agreements or conventions for environment and animal welfare as a basis for such articles. Finally, we recommend strengthening the use of programs for knowledge sharing concerning environmental protection, animal welfare and labour conditions considering local circumstances.

1. INTRODUCTION, AIM AND METHODOLOGY

KEY FINDINGS

- Differences in standards in the fields of food safety, environmental, animal welfare and other non-trade concerns between countries will become an element of strong debate in the negotiations paths on international trade.
- This study qualitatively compares standards imposed on agricultural production relating to food safety, environment and animal welfare, as well as other non-trade concerns.
- The commodity-country cases studied are pork, poultry meat and cereals from Brazil, fruit and vegetables from Morocco, dairy products and lamb from New Zealand, cereals from Ukraine and beef, dairy products and cereals from the United States of America.
- Trade agreements focus on breaking down tariff barriers. The control of food safety, animal health and plant health is an integral goal of international trade agreements, protection of the environment, animal welfare and labour conditions is not.
- The EU has an Association Agreement with Morocco, and agreements relating the trade of food products with the USA and New Zealand. Negotiations about agreements concerning trade with Brazil and Ukraine are on-going.

1.1. Introduction

The evolution of European Union (EU) agricultural policy, particularly the 2003 Mid-Term Review (MTR), changed the framework of the aims and mechanisms of public support targeting the primary sector. The main purpose of the MTR was to promote market-oriented and sustainable agriculture in Europe. Both the new paradigm of action and new regulatory framework focus primarily on enhancing the contribution that the agricultural sector and rural areas may provide in the provision of *public goods*. This has been implemented by linking direct payments to compliance with mandatory standards in the fields of the environment, animal welfare and food safety, as well as requirements of *good agricultural and environmental conditions (GAECs)*. Such cross-compliance mechanisms in the Common Agricultural Policy (CAP) strengthened enforcement mechanisms of EU legislation in the fields of environment, animal welfare and food safety. Cross-compliance includes environmental aspects and an extensive range of public concerns related to food safety, animal welfare and health and good agriculture practice. Farmers must comply with 19 *Statutory Management Requirements (SMRs)* and several standards ensuring GAECs of agricultural land. All these aspects fall into the category of non-trade concerns. Because these non-trade concerns were integrated into the CAP, their impact on the competitiveness of the agricultural sector has become an issue. This will remain an issue, because the new CAP for the period 2014-2020 will reform the cross-compliance framework and change GAECs and SMRs (EC, 2011a).

To mitigate market failures such as higher costs due to high standards, governments could attempt corrective action ranging from economic tools (e.g. taxes, subsidies) to regulatory tools (e.g. quality standards, codes of conduct, and prohibitions). As each government uses its own combination of tools, different trading partners can have different standards

relating to food safety, the environment, animal welfare and other non-trade concerns. Countries also have different institutional capacities to enforce compliance with such standards. This can result in increased imports into the EU of food products which are produced according to standards that differ from EU standards. In a context of declining trade barriers, this could become an element of debate in the negotiations on international trade. All this makes so-called *non-trade concerns* a hotly debated theme in the World Trade Organization (WTO) and in multilateral and bilateral trade agreements. In this context, standards ruled by multilateral bodies have an increasing impact on the standardisation policies of Governments. For example, the standards elaborated by the *Codex Alimentarius* Commission are recognised by the WTO and Members of WTO must adapt their standards on the basis of this reference. Voluntary standards elaborated by the *International Organization for Standardization (ISO)* have become an integral part of the international standards.

Public standards related to these policy areas could differ between countries from which the EU imports food and agricultural products. As recently underlined by the European Parliament (EP) in two EP Resolutions (EP, 2010; EP, 2011), the *multifunctional role of European agriculture* is threatened by the gap in competitiveness resulting from the differences in these standards. At the same time, the EP calls for agricultural imports into the EU to provide European consumers with the same guarantees in terms of protection of health, animal welfare, the environment and social standards as those provided by European production methods. Insight into the differences in standards of non-trade concerns between the EU and third countries can help mitigate these problems.

1.2. Aim

This study aims to deliver a *qualitative* comparison of the standards imposed on agricultural production in different countries across the world. EU production standards relating to food safety, the environment and animal welfare, as well as other non-trade concerns, are compared with domestic standards in five third countries. A further level of analysis focuses on any perceived differences in standards imposed on EU producers and those in third countries importing their produce into EU markets. Such comparisons take into account the impact of bilateral trade agreements in defining the standards applicable to goods entering the EU.

1.3. Methodology

1.3.1. Scope

Examination period

The study will refer to the legislation, production standards, trade agreements and on-going negotiations about trade agreements as present in January 2012.

Geographical coverage and agricultural sectors

The case study countries against which EU production standards are compared are the United States of America, Brazil, New Zealand, Ukraine and Morocco. The rationale for selecting these countries is twofold.

- 1) The EU has agreements concerning trade of food products or is currently negotiating such an agreement with these countries. The EU has an association agreement with Morocco and agreements relating to the trade of food products with the USA and New Zealand. Negotiations regarding bilateral agreements concerning trade with Brazil and Ukraine are on-going. For references to these trade agreements, agreements relating to trade, and negotiations, see Annex Appendix A.

- 2) All five countries are exporters to the EU of commodities which are also produced on a large scale within the EU. Any differences in production and processing costs due to standards could therefore be an argument in the debate on competitiveness of EU agriculture.

The study covers a selection of these commodities which have or will potentially have considerable export value in the near future from non-EU countries to the EU-27. Table 2 presents the country commodity coverage of the study.

Table 2: Country commodity coverage in the study

Country	beef	dairy products	poultry meat	pork	lamb	cereals	fruit and vegetables
Brazil			X	X		X	
Morocco							X
New Zealand		X			X		
Ukraine						X	
USA	X	X				X	

Standards

In the *Agreement on Technical Barriers to Trade* (TBT) the WTO distinguishes between technical regulations for rules, guidelines or characteristics for products or related processes and production methods, with which compliance is mandatory, and standards, with which compliance is not mandatory. In this study, we use standards for both mandatory and non-mandatory rules, guidelines and characteristics. We define a standard as a '*document approved by a recognised body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, including the applicable administrative provisions.*'

The study compares standards imposed on agricultural production in the EU in the fields of *food safety* (e.g. hygiene requirements, constraints that limit the use of hormones, labelling requirements, animal identification and registration requirements), *the environment* (e.g. protection of groundwater, quality of water, air and soil), *animal welfare* (e.g. housing conditions), and *other non-trade concerns* (e.g. rules to prevent contagious animal and plant diseases, requirements on labour conditions) with similar standards imposed on domestic production in the selected countries.

In the comparison of non-trade concerns, we focus on *animal health*, *plant health* and *labour conditions*. Requirements for animal health tend to be specific to the combination of the product and disease/pest concerned. The comparison therefore focuses on three relevant diseases from the EU perspective: foot-and-mouth disease (FMD), classical swine fever (CSF) and Bluetongue. All three are *Office International des Epizooties* (OIE) listed diseases. Outbreaks of FMD, CSF and Bluetongue have occurred in several Member States in the last decade and all three diseases are widely present in third countries around the world. FMD affects cloven-hoofed animals such as cattle and pigs, CSF affects pigs and Bluetongue affects sheep, cattle and goats. We consider plant health requirements in general. The focus of the comparison of animal and plant health legislation is on prevention, including process standards (e.g. spraying, fumigation, irradiation, disinfection and traceability requirement), vaccination against animal diseases, plant pest risk assessment (PRA) requirements, and responsibility for reporting of possible outbreaks.

The standards covered in this study are domestic production standards. Standards related to the import of commodities are not covered. For food safety we focus on standards for *food business operators (fbos)* in the primary sector and in the processing industry. For the

other fields of the environment, animal welfare and other non-trade concerns, we focus on standards aimed at *fbos* in primary production. Standards in these fields are also applied in the processing industry. Such standards are addressed in the study to the extent that they put additional constraints to primary producers. Inspection of residues of pesticides in food could introduce on-farm constraints regarding the use of pesticides. Environmental measures that are only targeted beyond primary production (e.g. cleaning of water during processing of food) are not addressed.

The study covers public standards and relevant private and business-driven standards implemented through the agri-food chain. Legal standards are laid down in national or regional legislation. We will address business-driven standards (e.g. *ISO standards*) in case they are important enforcement mechanisms in the fields covered by the study. This report is largely interested in comparing standards and requirements and clarifying any differences among the countries studied.

1.3.2. Approach

In this study we followed four tasks. In *task 1*, we developed a framework for *qualitative comparison of standards*. We therefore provide a brief country description of legislation and compliance with legislation. This provides a general picture of each of the countries, which is sufficient for the purpose of this study.

In *task 2* we identified the relevant *trade agreements* (Annex A), *legislation* (Annex B) and *studies* to be used to compare standards relating to food safety, the environment, animal welfare and other non-trade concerns. Based on literature, we identified the relevant policy goals and public standards from legislation relating to food safety, the environment, animal welfare and other non-trade concerns. We took private standards into account, if they were common in specific countries for specific products. Finally we identified the requirements and constraints on farmers and the food processing industry originating from the relevant public and private standards.

In *task 3* we performed a *comparative analysis of the standards* in legislation. We used a common framework to systematically compare standards in different countries (Rau et al., 2010). The framework concentrates on the main aspects, considering the relevant products selected per country. Thus if animal products are not included in the product-country combination, the animal welfare and animal health legislation of that country is not examined. The EU legislation is studied first and compared with the results of the corresponding domestic legislation of the selected third countries. Annex B provides the selected EU legislation relating to food safety, the environment, animal welfare and other non-trade concerns addressed in the study.

In *task 4* we formulated *recommendations* for changes to the framework of multilateral and bilateral trade agreements.

1.3.3. Background to the EU and the selected third countries

EU

Regulations and Directives are the two most relevant forms of EU legislation. Regulations are the dominant form of legislation in health policy. These are applicable as law in Member States and allow only for limited discretion by Member States to fulfil the obligations set out in the text. Directives are the dominant form of legislation related to the environment and animal welfare in the EU. They are binding with regard to the results to be achieved, but leave Member States free to choose the method or form. Directives can only be enforced

after implementation in the national legislation of a Member State. Each Member State can have additional national legislation.

Enforcement mechanisms for compliance with legislation are implemented by Member States through inspection and sanctioning mechanisms. Operational systems to enforce legislation in the fields of food safety, environment, animal welfare and other non-trade concerns are mainly based on inspections and audits in Member States. These include sanctioning mechanisms. *Cross-compliance* was implemented in 2004 to enforce compliance with Directives in the fields of environment, public health, animal health, plant health and animal welfare. The new CAP for the period 2014-2020 will reform the *cross-compliance* framework by setting new requirements and standards (EC, 2011a). Main concerns in European agriculture relate to the environment, human, animal and plant health, and animal welfare. Concerns include issues related to water quality and quantity (e.g. nutrient enrichment by nitrates and phosphates, sediments in water, pesticides, irrigation), soil quality (e.g. salinization, erosion, contamination and acidification), air quality (e.g. odour, ammonia, noise), nature conservation, biodiversity and landscape (e.g. endangered species and alien species, habitat conservation), animal welfare (housing, transport and slaughter of farm animals) and human health (e.g. hormones and animal feed ingredients, hygiene rules, veterinary requirements and conditions to control animal diseases) (Brouwer et al., 2002).

The '*polluter pays principle*' is a principle that underpins environmental legislation in the EU and clarifies that a polluting party must pay for the damage done to the natural environment. Following the adoption of environmental legislation since the late 1970s, framework directives are designed to address key environmental problems. The Water Framework Directive (WFD), for example, includes checks to ensure that all water bodies achieve good ecological status by 2015 (Annex B).

The EU is a member of the WTO, the Codex Commission, the OIE and the *International Plant Protection Convention* (IPPC), as are the individual Member States.

Brazil

Brazil is a democratic republic, with a presidential system. It is a union of 26 States, a Federal District and many Municipalities. Brazil's legal system is based on a Federal Constitution. States, the Federal District and Municipalities each have their own constitutions, which must not contradict the Federal Constitution. However, they have much less autonomy to create their own laws than for example in the USA. Brazil uses different forms of legislation, such as Law (*Lei*), Decree (*Decreto*), Ordinance (*Portarias*), Normative Instruction (*Instrução Normativa*), and circular (*Carta-Circular*).

Brazil has been undergoing strong economic and social development in recent decades, resulting in growing concerns about the environment. The main environmental problems are air and water pollution and deforestation. Attention to animal welfare is also growing, triggered by both non-governmental organisations (NGOs) and export-oriented companies who want to comply with customers' demands. The government cooperates with NGOs, research organisations and farmers' organisations to set up volatile good agricultural practice programmes, rather than forcing it by law. In recent years, Brazil has devoted more attention to the issue of food safety with new legislation. Plant health legislation is in line with the standards set by the IPPC. Brazil is member of the WTO, the Codex Commission, the OIE and the IPPC.

The *Departamento de Saúde Animal* (DSA) of the Ministry of Agriculture, Livestock and Food Supply (*Ministério da Agricultura, Pecuária e Abastecimento*, MAPA) is the competent authority at federal level for controls on animal health, public health and animal welfare. The *Departamento de sanidade vegetal* (DSV) of MAPA is the authority for plant health. MAPA has a laboratory network of over 600 laboratory units spread around Brazil, to provide its departments with analytical services in its many fields of inspection and control.

This includes laboratories from the private sector, universities and research institutes, and official laboratories called Lanagros (Laboratório Nacional Agropecuário). Lanagros act as reference for the network. The General-Coordination of Laboratories (*Coordenação-Geral de Apoio Laboratorial, CGAL*) as a representative of the central competent authority monitors this network. With regard to the pork sector, the Food and Veterinary Office (FVO) states that the Brazilian competent authority is well organised and has adequate resources and powers to enforce applicable legislation (EC, 2009). NGOs are engaged to inspect the implementation of codes of good agricultural practice.

Morocco

The Kingdom of Morocco is a constitutional monarchy with an elected parliament. The King of Morocco and the government hold the executive powers. Legislation in Morocco applies to the country as a whole. Legislation in Morocco is arranged nationally in "*Lois*" (laws) and "*Dahirs*" and "*Décrets*" (decrees). "*Décrets*" have a similar legislative power as laws. A "*Dahir*", or a royal decree, is a royal discretionary act in the regulatory, administrative and legislative domain. A "*Dahir*", for example, can be used to implement a new law.

Morocco has significantly updated its food safety, plant health and environmental legislation in the past decade to comply with EU requirements. However, improvements are still necessary in plant health and in water usage for the cultivation of cereals in unfavourable areas (EU-EEAS, 2007). Other environmental issues concern land degradation and desertification resulting from farming of marginal areas, overgrazing, destruction of vegetation, contamination of water supplies by raw sewage, salinization of water reservoirs and oil pollution of coastal waters (Indexmundi, 2012). Morocco is a member of the WTO, the Codex Commission, the OIE and the IPPC.

Legislation is enforced at national level. Much legislation has been updated recently, but the growth in enforcement capacity has been slower. Enforcement of the legislation is therefore low, also resulting in lower compliance with the standards mentioned in legislation. Because of the FTA with the USA, the USA's Environmental Protection Agency helps Morocco establish enhanced enforcement of laws and higher compliance with laws.

New Zealand

New Zealand is a constitutional monarchy with a parliamentary democracy. Acts, Bills and Regulations are the most relevant forms of legislation in New Zealand. *Acts* are laws made by Parliament, *Bills* are proposed Acts and *Regulations* are laws made under Acts.

Although farming in New Zealand is generally much less intensive than in other countries, it has contributed to environmental issues. The most important environmental issues are soil erosion, nutrients in surface and groundwater and declining biodiversity.

The management of natural resources has been implemented under the *Resource Management Act* of 1991 (RMA). This Act is an effects-based legislation. Communities are responsible for implementing the RMA. Beyond the areas of discharge and erosion control, few mandatory standards exist with regard to environmental management. The environmental impact is managed through voluntary action, advice and education. New Zealand is a member of the WTO, the OIE and the IPPC.

Concerning food safety and animal health, the EU has an agreement on the equivalence of sanitary measures aimed at protecting public and animal health (Decision 97/132/EC). With regard to animal welfare, New Zealand mainly relies on voluntary programmes. New Zealand is a member of the WTO, the Codex Commission and the OIE.

The main environmental concerns operate under the RMA, which is the central act to promote sustainable management of natural and physical resources. Communities that are most affected by the resource use are responsible for the implementation of the RMA. Permits regarding discharge of farm effluents require consent from the council and must be

granted if the applicant demonstrates that the activity will comply with standards. Enforcement of the animal welfare Codes is carried out by the Ministry of Agriculture and Forestry (MAF) and the Royal New Zealand Society for the Prevention of Cruelty to Animals.

Ukraine

Ukraine is a presidential-parliamentary republic. Ukraine is a unitary state of 24 *oblasts* (provinces), one autonomous republic (Crimea), and two cities Kiev and Sevastopol with special status. Legislation is unified in legal and administrative regimes for each unit, mainly in laws. National legislation concerning agriculture and food are Law No. N 771/97-VR on the safety of food products and food raw materials (1997), Law No. 3447-IV on the protection of animals from cruelty (2006), Law No.1264-XXII, VVR on environmental protection (1995), and Law N 3369-IV (2006) concerning the quarantine of plants. The Ukrainian legislative system is based on both mandatory Technical Regulations and voluntary State Standards (USDA-FAS, 2010). Technical Regulations establish mandatory requirements for product, service, or production processes to protect human life and health, animals, plants and environment. State Standards are documents approved by the competent authority, which provide non-mandatory guidelines for products, production processes or services. The Autonomous Republic of Crimea exercises normative regulation on agriculture and forestry amongst others.

The main environmental concerns caused by agriculture in Ukraine include soil erosion and degradation, loss of biodiversity, water contamination (both surface and groundwater), mismanaged agricultural waste, soil contamination, inadequate storage of obsolete pesticides, and the radiation contamination following the 1986 Chernobyl disaster (The World Bank, 2007a). The focus of food safety and plant health legislation was on "*end-of-pipe*" measures rather than on hazards and prevention (Nitsevych, 2009). Currently, food safety and plant health legislation is slowly evolving from a system based on *Gosudarstvennyy standart* (GOST), or state standard, from the former Soviet Union era, towards a WTO-compliant system which mimics the EU system. This change involves a great deal of work, time and money (The World Bank, 2007b) to adapt laws and regulations, build capacity for risk assessment, define new inspection and monitoring programmes, adjust testing facilities and train staff. However, at the end of 2010 most food safety and plant health standards were still the same as those at the breakup of the Soviet Union in 1991 (USDA-FAS, 2010). Ukraine is a member of the WTO, the Codex Commission, the OIE and the IPPC.

Although steps are being taken to improve implementation and compliance with legislation, this is still weak in the Ukraine. Inspection of compliance with legislation is often limited. Performance measurement of state controlling bodies is mainly in the number of inspections, investigated violations and number of penalties gathered rather than in indicators that ensure compliance with legislation. Efficiency and effectiveness of policies are poorly understood.

USA

Acts are the major forms of legislation at federal level in the USA. For many legislative fields, individual States have more detailed local legislation, for example for animal welfare and labour conditions.

Agriculture has been exempted from environmental regulations for a long time, but this has been changing recently. Environmental legislation in the US primarily seeks voluntary participation by the private sector, offering funding for all costs of participation. The policy and programme approach towards managing the environmental impact of farming in the US has been largely voluntary or with compliance being a condition for cost-sharing assistance with best management practices (*BMPs*). Although regulations have been in place for several decades, it is only in the last few years that action has been taken to implement regulations. This is largely a response by environmental groups to perceived hazards resulting from trends towards increasingly large livestock operations.

Food safety legislation in the USA is based on flexible and science-based federal and state laws and basic responsibility of industry to produce safe foods. A risk-based precautionary approach is built into the system. For meat, poultry and egg products, this is based on the implementation of HACCP. In other sectors, food business operators (*fbos*) must implement the requirements of the new *Food Safety Modernization Act* (FSMA) within 24 months after entering the law book on 4 January 2011. The cornerstones are record inspections, registration of *fbos*, hazard analysis and risk-based preventive controls, performance standards, standards for produce safety, and sanitary transportation of food. For traceability of animals, *the National Animal Identification System* (NAIS) is currently being developed as a mandatory standard. The *Animal Welfare Act* (AWA) does not apply to farm animals and therefore has minimum impact on agriculture. However, a multitude of federal and State regulations have developed in the field of animal welfare. Recommended practices or voluntary industry-based standards have been developed by industry leaders, scientists, and activists. Guidelines are developed separately for each individual sector. The USA is a member of the WTO, the Codex Commission, the OIE and the IPPC.

The European Community has a trade Agreement with the USA on sanitary measures to protect public and animal health in the trade of live animals and animal products (Council Decision 98/258/EC). No agreement exists for trade in plant products.

Enforcement of federal legislation is at national level and for state legislation at state level. The *Food Safety and Inspection Service* (FSIS) of the United States Department of Agriculture (USDA) enforces compliance with federal legislation concerning the safety of meat, poultry and egg products while the *Food and Drug Administration* (FDA) of the US Department of Health & Human Services is concerned with compliance with the safety of other food products. The *Environmental Protection Agency* (EPA) is responsible for compliance with federal environmental legislation and the risks posed by pesticides in food, the Department of Labor (DOL) is concerned with federal labour laws, and the USDA Animal and *Plant Health Inspection Service* (APHIS) is responsible for federal legislation concerning animal and plant health and animal welfare.

1.3.4. Trade agreements between the EU and the selected third countries

The main focus of many trade agreements is breaking down tariff barriers. In this study, we focus on domestic production standards mentioned in the agreements. WTO members are encouraged to notify trade agreements to the WTO (see regional trade agreements (RTA) database, http://www.wto.org/english/tratop_e/region_e/rta_pta_e.htm). The main interest at multilateral level is to ensure that trade agreements do not violate WTO rules, in particular the non-discrimination principle which prohibits discrimination against third countries that are not part of the trade agreement. One principle, for example, is that RTA should cover a large share of trade across countries rather than granting one or two countries preferential trade. According to the WTO rules, third countries that are discriminated against and potentially lose trade due to a trade agreement should be compensated by the members of the trade agreement. Besides general multilateral trade agreements, there are different forms of bilateral trade agreements between two countries, depending on the topic.

Members of the WTO have agreed on an *Agreement on the Application of Sanitary and Phytosanitary* (SPS) measures. This Agreement on SPS measures sets out the basic rules to be used in trade agreements concerning food safety and animal and plant health. Members of the WTO are entitled to take SPS measures to protect human, animal or plant life or health. Any SPS measure applied must be based on scientific principles. SPS measures do not discriminate between WTO members, if similar conditions exist, including between their own and other members' territories. Often SPS measures are applied in bilateral Agreements. In the Agreement on SPS, the WTO encourages member countries in an SPS Agreement to use international standards, guidelines and recommendations in setting SPS measures. Such standards, guidelines and recommendations for food safety are set up by the *Codex Alimentarius* Commission of the *Food and Agricultural Organisation* (FAO) and

the *World Health Organisation* (WHO), for animal health by the OIE and for plant health by the IPPC. Members must accept the SPS measures of another member as equivalent, if the exporting country can objectively demonstrate that its SPS measures result in an appropriate level of SPS protection. In assessing the appropriate level of SPS protection, countries must take into account economic factors such as production losses due to an outbreak, control and eradication costs, and preventive measures.

An *Agreement on Technical Barriers to Trade* (TBT) sets out the basic requirements for objectives not covered in an SPS Agreement. An TBT Agreement can thus include requirements for industrial and agricultural products. An TBT Agreement tries to ensure that regulations, standards, testing and certification procedures do not create unnecessary obstacles to international trade. At the same time, they give members the right to implement measures to achieve legitimate policy objectives. Such legitimate objectives include national security requirements; prevention of deceptive practices; the protection of human health and safety, animal and plant health and safety, or the environment; fundamental climate or geographical factors; fundamental technological or infrastructural problems. Legal standards must not be prepared, adopted or applied with a view to creating unnecessary obstacles to international trade. National standardisation bodies of WTO members must comply with the Code of Good Practice for the preparation, adoption and application of standards. Standards should be based on product requirements in terms of performance rather than design or descriptive characteristics.

An Agreement on Agriculture sets out the basic requirements for each member's governmental support of domestic agricultural producers and for export subsidies of agricultural products, except fish and fish products.

Specifically for the environment, the WTO has agreed on negotiations about the relationship between WTO rules and specific trade obligations set out in *Multilateral Environmental Agreements* (MEAs). There are currently over 250 MEAs dealing with various environmental issues, of which about 20 include provisions that can affect trade (http://www.wto.org/english/tratop_e/envir_e/envir_neg_mea_e.htm).

The EU organises most of its trade relations within trade agreements, which go beyond the multilateral trading rules negotiated within the WTO agreements. The EU engages in several different types of trade agreements. The basic trade agreement constitutes bilateral or regional *free trade agreements* (FTAs). FTAs are primarily aimed at tariff liberalisation, bringing down tariffs, tariff rate quotas and other standard trade policy instruments. Thus FTAs include provisions that restrictions in bilateral trade and services are reciprocally removed by the members. Trade policy measures such as border protection measures remain for those countries not included in the agreement. Each member continues to apply its trade policy measures against third countries. FTAs do not involve a customs union, where members apply common border protection measures. Some FTAs go beyond tariff liberalisation, for example the FTA between the EU and Chile which also covers provisions to deal with SPS and TBT issues in very general terms. Such FTAs are, however, exceptional.

As a foreign relations instrument, the EU has signed FTAs with neighbouring partner countries, and in this case such agreements fall under the European neighbourhood policy. There are two types of agreements: a) *Association Agreements* (AA) and b) *Partnership and Cooperation Agreements* (PCA). Both types of agreements contain similar provisions, but the AAs have the ultimate aim of getting partner countries to join the EU. Note that the EU has AAs with some countries that will not necessarily be joining the EU in the near future, but signing an AA creates a framework for close co-operation between the EU and the partner country. The EU agreement with Mediterranean countries includes the AA between the EU and Morocco and the Union for the Mediterranean (UfM). The PCAs signal enhanced cooperation and have been signed with Russia, countries in Eastern Europe, in the Southern Caucasus and in Central Asia. The PCAs aim to strengthen the democracies of

these countries and develop their economies through cooperation in a wide range of areas and through political dialogue.

The EU offers AAs with *Deep and Comprehensive Free Trade Areas* (DCFTA) to those countries that are judged ready to negotiate them. The DCFTAs concern the trade part of the AAs and in particular foresee deeper integration with the EU common market, thereby fostering market access to the EU market and EU investment in the partner country. DCFTAs go beyond removing tariffs and cover all regulatory areas relevant to trade and beyond. The areas of mutual interest include trade facilitation, technical barriers to trade, sanitary and phytosanitary measures, investment protection, public procurement and competition policy. For any regulatory area, the principle for the partner countries is to be in line with the EU standards, as laid down in EU legislation. The partner countries would thus have to apply the EU *acquis communautaire*, even if they do not become EU members.

The EU has an AA with Morocco, and agreements relating to the trade of food products with the USA and New Zealand. Negotiations about agreements concerning trade with Brazil (as member of Mercosur) and Ukraine are on-going. Note that information about agreements under negotiation is not publically available. More information about the agreements with the selected countries is provided below.

Brazil

Brazil is part of *Mercosur*. The EU has been negotiating with Mercosur since 1999. Negotiations with Mercosur were officially relaunched at the EU-Mercosur summit in Madrid on 17 May 2010. Seven negotiation rounds have been held so far, with the last in March 2012. The objective is to negotiate an FTA, covering not only trade in industrial and agricultural goods but also services, government procurement, intellectual property, customs and trade facilitation, technical barriers to trade.

Morocco

The *Euro-Mediterranean Agreement* establishing an association between the European Communities and their Member States, on the one hand, and the Kingdom of Morocco, on the other hand, is laid down in Council and Commission Decision 2000/204/EC and was amended by Council Decision 2000/205/EC. The Association Agreement L/70 between the EU and Morocco was signed in February 1996 and came into force in March 2000. It is an FTA beyond the general system of preferential trade. Agriculture negotiations concluded in December 2009 and the agreement was signed in December 2010. It is currently under ratification by the European Parliament.

The major goal of the AA is to reduce custom duties and charges. It also includes some relevant articles concerning the topic of this study. For example, Article 28 on common provisions states that the AA will not preclude prohibitions and restrictions on imports on grounds of the protection of life of humans, animals or plants, among others. Such prohibitions and restrictions must be in line with the WTO SPS Agreement. Article 25 on common provisions allows countries to take measures to safeguard against the dumping of products, goods being imported in such a quantity or under such conditions that it threatens domestic producers or causes serious disruption to the economy, and against serious local shortage or re-exports to a third country. Article 54 on agriculture and fisheries concerns the modernisation and restructuring of agriculture and fisheries and the achievement of cooperation in health, plant health and growing techniques. The Agreement includes Article 48 on the environment about preventing the deterioration of the environment, improving the quality of the environment, protecting human health and achieving rational use of natural resources. There is cooperation regarding soil and water quality, safety of installations and waste, and sea pollution. Article 71 on cooperation in the social field concerns among others, promoting the role of women, improving the social protection system and enhancing the health cover system.

Furthermore, the EU and Morocco are members of the *Union for the Mediterranean* (UfM). The UfM is a multilateral partnership of the 27 EU Member States, the European Commission and 16 Mediterranean countries with a view to increasing the potential for regional integration and cohesion among Euro-Mediterranean partners. The UfM's mission is "to increase, promote and ensure the coordination of regional, sub-regional and transnational UfM projects in order to improve the socio-economic development, regional integration, sustainable development and the exchange of knowledge among and within the countries of the UfM" (<http://www.ufmsecretariat.org/en/who-we-are/>). Concerning the topics of this study, the UfM has a Division 'Environment and Water' focussing on depolluting the Mediterranean, water governance, water and climate change adaptation, water demand management, water financing and protection of marine environment.

New Zealand

In 1999, the EU and New Zealand signed a bilateral agreement that aims to facilitate trade in industrial products by reducing technical barriers, including assessment procedures.

In 2003, an Agreement came into force between the European Community and New Zealand on sanitary measures applicable to trade in live animals and animal products whilst safeguarding public and animal health (Council Decision 97/132/EC, amended by Council Decision 1999/837/EC, Council Decision 2002/957/EC, Commission Decision 2003/616/EC and Commission Decision 2006/854/EC). The Agreement aims to facilitate trade in live animals and animal products by establishing a mechanism for recognising the equivalence of sanitary measures consistent with the protection of human and animal health. It follows the rights and obligations as laid down in the WTO SPS Agreement. Equivalence concerns legislation, standards, procedures and programmes to allow control and meeting of set requirements, the documented structure of the resources available to the official control system and its performance. Article 13 includes a safeguard clause if public or animal health is seriously threatened.

Ukraine

Currently no trade agreement exists between Ukraine and the EU, but negotiations are ongoing. Negotiations were started in February 2008, with 17 rounds so far. The agreement between the EU and Ukraine falls within the EU's neighbourhood policy such that the Agreement will be a DCFTA.

USA

No trade agreement exists between the EU and the USA, but cooperation exists through the *Transatlantic Economic Council* (TEC). The TEC was set up in 2007 to guide and stimulate the work on transatlantic economic convergence. The rationale of the TEC is to ensure transatlantic convergence by preventing barriers and by creating new opportunities for business and thus contributing to the overall political priorities of generating growth and jobs. The TEC aims at services and industry without a specific focus on agricultural products.

Several EU-USA agreements concerning trade in specific products do exist, such as the Agreement between the European Economic Community and the United States of America with respect to trade in fresh beef and pork (Council Directive 72/462/EEC, Council Decision 93/158/EEC), and the Agreement between the European Community and the United States of America on sanitary measures to protect public and animal health in the trade in live animals and animal products (Council Decision 98/258/EC, amended by Commission Decision 2003/833/EC, Commission Decision 2003/863/EC, Commission Decision 2005/405/EC, and Commission Decision 2006/198/EC). This last Agreement aims to facilitate trade in live animals and animal products by establishing a mechanism to recognise the equivalence of sanitary measures consistent with the protection of human and animal health. It follows the rights and obligations as laid down in the WTO SPS Agreement. Article 6 sets specific requirements for animal health status. Article 12 includes a safeguard clause if public or animal health is seriously threatened.

2. COMPARATIVE ANALYSIS OF STANDARDS IN FOOD SAFETY, ENVIRONMENT, ANIMAL WELFARE AND OTHER NON-TRADE CONCERNS

KEY FINDINGS

- Food safety
 - All selected countries have many food safety standards laid down in legislation. In all countries, enforcement of standards is sometimes insufficient.
 - Standards between the EU and the selected countries differ on the type of pesticides and veterinary drugs allowed, maximum residue levels, the use of growth hormones in cattle (USA) and pigs (Brazil), the use of lactic acid treatment of beef (USA), and approval of genetically modified organisms.
 - Although in transition towards new legislation, Ukraine still has obsolete legislation and enforcement.
- Environment
 - The selected countries have standards according to domestic environmental problems.
 - Environmental standards in the selected countries are less restrictive to farmers than in the EU.
 - The livestock sector is more affected by environmental standards than the crop sector.
- Animal welfare
 - Brazil, New Zealand and the USA have less detailed animal welfare legislation than the EU. New Zealand has the most detailed legal standards, Brazil has only basic legal requirements, and the USA hardly any.
 - Brazil and the USA mainly rely on voluntary systems to control animal welfare.
- Other non-trade concerns
 - The selected countries have different standards for animal and plant health, because they have standards according to the domestically prevailing diseases and pests. For all countries, the standards are governed by the WTO SPS Agreement. The selected countries have an overall equivalent guarantee of animal and plant health as the EU.
 - Standards between the EU and the selected countries differ on animal identification for sheep (New Zealand) and enforcement issues (Brazil). The level of implementation of plant health legislation in Morocco is unclear. Although in transition, Ukraine still has obsolete plant health legislation.
 - Labour standards greatly differ in the different countries. In Brazil, Morocco and Ukraine enforcement issues in child and slave labour have been observed, closely related to lack of inspections and failure to levy penalties.

2.1. Food safety

Table 3 provides a summary of the differences in standards relating to food safety between the selected countries and the EU.

Table 3: Comparison of standards and enforcement of standards related to food safety between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	<ul style="list-style-type: none"> • Types of permitted veterinary medicines. • Use of ractopamine as an additive in feedstuffs for pigs. • Approved genetically modified plants not (yet) approved in the EU. • Lack of enforcement of compliance with legislation concerning pesticide use, maintenance and sanitary issues in poultry and beef slaughterhouses and processing plants, and traceability of pigs.
Morocco	<ul style="list-style-type: none"> • Officially approved self-control systems in vegetable and fruit production are not necessarily based on HACCP. • Types of allowed pesticides. • Lack of maximum residue levels for residues of pesticides
New Zealand	<ul style="list-style-type: none"> • Identification and registration of sheep is not legally required. • Lack of enforcement of compliance with legislation concerning record keeping of medical treatment of dairy cows and sheep.
Ukraine	<ul style="list-style-type: none"> • Obsolete food safety legislation based on mandatory standards, lack of integrated food control system in line with international standards and WTO, and obsolete enforcement of compliance with legislation.
USA	<ul style="list-style-type: none"> • The use of growth promoters in beef cattle. • The use of lactic acid as decontamination step for beef. • Maximum limits and maximum residue limits for mycotoxins and food safety hazards are higher than those in the EU. • Approved genetically modified plants not (yet) approved in the EU.

¹ Food safety standards can differ across EU Member States. Comparison is with the EU as one entity.

2.1.1. EU

The EU has extensive food safety legislation based on risk analysis (see Annex B). The most important food safety legislation are the General Food Law (Regulation (EC) No 178/2002) and the hygiene package (Regulations (EC) No 852/2004, 853/2004, 854/2004 and 882/2004). This legislation regulates *fbos* having the primary responsibility for food safety, implementation of traceability, food safety control throughout the food chain, maintenance of the cold chain, use of procedures based on HACCP principles, and establishment of microbiological criteria and temperature control requirements. The major focus of EU food safety legislation is on food processing and less on farmers. Farmers are affected by legislation concerning the implementation of good agricultural practices, the use of pesticides and veterinary medicinal products and identification and registration of animals.

2.1.2. Brazil

In recent years, Brazil has devoted more attention to food safety legislation with several resolutions and the establishment of the autonomous health surveillance agency *Agência Nacional de Vigilância Sanitária* (Anvisa) with a regulatory mandate.

Cereals

Brazil requires the type, quantities and applications of pesticides to be provided to government agencies before the products are authorised for use. It furthermore requires that the purchase and use of pesticides are documented. Despite these legal requirements, the use of non-authorised active ingredients in pesticides remains common practice for farmers in Brazil (CSPI, 2005; Jardim and Caldas, 2012). Both authorized and non-authorized pesticides are included in the annual monitoring programme of the National Plan for the Control of Residue and Contaminants (*Plano Nacional de Controle de Resíduos e Contaminantes*, PNCRC) in Plant Products laid down in Normative Instruction nº 42 of 31 December 2008.

In Brazil, the approval process of agricultural GM products differs from that in the EU, which can result in specific GM products being approved in Brazil but not in the EU (Nowicki et al., 2010).

Poultry meat, pork and beef

Brazil has a PNCRC in Animal Products laid down in Normative Instruction No 42 of 20 December 1999. The PNCRC does not always reflect usage patterns of veterinary medicinal products, does not include all the relevant substance groups and includes a limited range of substances tested in some groups (EC, 2011d). The availability and use of veterinary medicines is much less restricted than in the EU. Poultry, pig and cattle farms that are not registered in the production chain's traceability system (*Serviço Brasileiro de Rastreabilidade da Cadeia Produtiva de Bovinos e Bubalinos*, SISBOV) do not have a legal requirement to keep medication treatment records (EC, 2011d).

Poultry meat

In Brazil, *fbos* in meat supply chains must have implemented HACCP systems (*Portaria* 46 of 10 February 1998). The control system for the safety of poultry meat and poultry meat products in Brazil is generally adequate, although a 2011 FVO mission detected problems relating to maintenance and sanitary issues in slaughterhouses and chicken processing plants (EC, 2011b).

Pork

Brazilian national legislation broadly provides for relevant legislative provisions in the EU (EC, 2009). However, Brazilian legislation does not contain rules concerning the traceability of pigs (EC, 2009). *Fbos* exporting must have implemented a private traceability system in line with EU requirements. However, these private traceability systems are not all fully in line with EU requirements (Meisinger et al., 2008; EC, 2009). Talmani and Cunha Malafaia (2010) also stated that traceability and transparency assurance systems for food safety in the Brazilian pork supply chain are less effective than those in the United Kingdom and Denmark.

Brazilian legislation allows the use of ractopamine as an additive in feedstuffs for pigs. Brazil has set up dedicated production chains from feed mills to slaughterhouse to guarantee ractopamine-free production (RFP). However, the control and sampling procedures do not cover the entire supply chain and give no satisfactory guarantees for RFP of pork (EC, 2009). Although improvements have been made to the system since 2009, in 2011 the Brazilian competent authorities were still unable to prove to the FVO mission that the scheme could guarantee RFP of pork (EC, 2011d). The USA and Canada also allow the use of ractopamine as an additive in feedstuffs for pigs. Together with these countries, in March 2012 Brazil provided scientific results in a meeting of the WTO's SPS Measures

Committee which they claim proves that ractopamine is safe. These scientific results included findings from the FAO and the WHO.

Beef

In Brazil, *fbos* in meat supply chains must have implemented HACCP systems (Portaria 46 of 10 February 1998). The 2011 FVO mission concluded that operational hygiene was satisfactory, but some significant problems in relation to maintenance issues of slaughterhouses were identified (EC, 2011c).

2.1.3. Morocco

In the last decade, Morocco has updated its food safety legislation substantially. New food safety legislation was implemented with Loi n° 28-07 '*relative à la sécurité sanitaire des produits alimentaires*' in February 2010. It prescribes *fbos* to use self-control systems for food safety authorised by the competent authority, establishes traceability throughout the entire supply chain and requires farmers to record the use of fertilizers and pesticides. The self-control systems need not be based on the principles of HACCP. In 2010, Morocco also established a national food safety authority, '*Office National de Sécurité Sanitaire des Produits Alimentaires*' (ONSSA) with law n° 25-08. No national law on genetically modified organisms (GMO) exists in Morocco for domestic production or imports (USDA-FAS, 2011).

Fruit and vegetables

Currently, the official export control programmes, the auto-controls of *fbos* and the traceability systems in place at pack houses generally provide assurance that food of plant origin exported to the EU complies with EU legal limits for pesticide residues (EC, 2011e). However, exporters and farmers in Morocco are not always sufficiently aware that some of the plant protection products authorised in Morocco are not allowed in the EU and that the lack of *maximum residue levels* (MRLs) in Morocco can lead to residues above EU MRLs (EC, 2011e). Morocco is currently working on establishing MRLs.

2.1.4. New Zealand

New Zealand has implemented a performance-based verification programme for many processed foods (CSPI, 2005). The frequency and intensity of inspections in this programme is based on the food safety risk involved with the product and the performance of the producers. New Zealand has a food safety authority, the *New Zealand Food Safety Authority* (NZFSA). Since July 2010, the NZFSA has been under the MAF. Food safety legislation of meat products is arranged in the Animal Products Act 1999 (APA) and the Food Act 1981. Food safety legislation of dairy products is arranged in APA and in the Animal Products (Dairy) Regulations 2005. The main requirements of the APA are processors using a Risk Management Programme (RMP) and farmers and veterinarians using Hormone Growth Promotants to comply with a Regulated Control Scheme. The Biosecurity (Ruminant Protein) Regulations from 1999 prohibit the feeding of ruminant protein, such as meat meal, bone meal and blood meal, to cattle, sheep, goats, deer, buffalo, llama or other ruminants.

Lamb

There are no legal requirements for the identification and registration of sheep, nor is there a fully functioning traceability system for sheep (EC, 2011f). Furthermore, records of medical treatments that farmers are required to keep are not always complete (EC, 2011f).

Dairy products

Dairy farmers must operate under an RMP that is registered with the MAF. A specific RMP applies to export eligible milk application that meets all the requirements of the destination country. For exports to the EU, this is laid down in Overseas Market Access Requirements (OMAR). A requirement is that only registered and approved veterinary medicines may be used and only when there is a veterinary prescription. Dairy farmers must keep records of

medical treatments. However, a 2011 FVO mission detected that such records of medical treatments are not always complete (EC, 2011f).

The system to identify bovine tuberculosis requires farmers to identify cattle aged 30 days and older prior to movement, using a double ear tag, and to manually record movements using an Animal Status Declaration form. The mandatory *National Animal Identification and Tracing (NAIT) Act 2012* will become a Law on 1 July 2012 for all cattle. Then all cattle must be tagged with approved radio frequency identification device (RFID) ear tags. NAIT will be implemented by MAF in cooperation with industry.

2.1.5. Ukraine

Several governmental institutions are involved in food safety control (USDA-FAS, 2010):

- *State Epidemiological Service (SES)* of the Ministry of Health Care of Ukraine (MHCU) establishes food safety standards and is responsible for food safety;
- *State Committee of Veterinary Medicine (SCVM)* is responsible for animal health, safety and wholesomeness of meat, seafood and other products of animal origin;
- *State Committee of Ukraine on Technical Regulations and Consumer Policy (SCUTRCP)* is responsible for food product compliance with existing quality and safety standards.

The main food safety concerns include obsolete mandatory standards and regulations, mandatory certification of food products, lack of an integrated food control system, only one food control agency in accordance with international best practices, lack of harmonisation of Regulations on "Novel" Food with the provisions of the Ukrainian Law on Safety and Quality of Food Products, lack of harmonisation of Regulations on Permitted Food Additives, Flavourings, Levels of Contaminants, Pesticides, and Veterinary Drug and Pesticide Residues in line with international standards and WTO, and the lack of adoption and proper implementation of risk-based criteria in planning and prescribing inspections by controlling agencies, according to international best practices (IFC, 2009).

Genetically modified (GM) products are not officially allowed in Ukraine, and none are legally registered in the country (USDA-FAS, 2011). However, according to USDA-FAS (2011) some sources indicate that over 60% of soybeans grown in Ukraine are GM and about 30% of corn. These estimates have increased in recent years. A draft law #8494 is intended to introduce a GMO monitoring system in Ukraine which has been developed considering Regulation (EC) No 1830/2003, but has not yet been adopted.

Cereals

Ukraine establishes its own MRLs for chemical and biological contaminants in food products (USDA-FAS, 2010), which can deviate from those in the EU (FAO, 2011). Maximum levels (ML) of heavy metals and radioactive nuclides are generally equal or lower in Ukraine than in the EU, ML for mycotoxins are generally higher and MRL for pesticides vary from higher to lower depending on the specific pesticide (FAO, 2011).

2.1.6. USA

In the USA, the use of HACCP is mandatory for *fbos* in the meat, poultry and egg industry. In 2012 and 2013, *fbos* in other sectors must implement the requirements of the *Food Safety Modernization Act (FSMA)* concerning among others record keeping, registration and application of hazard analysis and risk-based preventive controls.

Currently the *National Animal Identification System (NAIS)* is being developed as a mandatory standard for the identification and registration of animals. The NAIS requires all farms with animals to obtain a 7-digit identification number for each individual animal.

Participation in NAIS was voluntary for some time, but participation will become mandatory for all farms with livestock.

Beef

In the USA, the use of growth-promoting hormones is common in beef production (Berden et al., 2009). Recently the EU made a concession which allows the EU to keep its ban on imports of hormone-treated beef, and in return allows the USA and Canada to import into the EU up to 48,200 tonnes of duty-free high-quality beef from animals not treated with growth-promoting hormones (EP, 2012a).

Another common practice in the USA is the treatment of beef with lactic acid. Currently this practice is not allowed in the EU. The European Food Safety Authority (EFSA) recently provided an opinion declaring that the use of lactic acid for the removal of microbial surface contamination of beef carcasses, cuts and trimmings poses no threat to consumer health (EFSA, 2011).

Dairy products

The veterinary agreement between the EU and USA allows for the USA to export dairy products to the EU from approved establishments. The EU requires component information in labelling regulations with respect to upstream or downstream components in products, whereas the USA does not (Berden et al., 2009).

Cereals

In the USA, a faster approval process for agricultural GM products can result in specific GM products being approved in the USA but not (yet) in the EU (Berden et al., 2009; Nowicki et al., 2010). Similarly, nanotechnology, cloning and other new technologies used in food and feed could result in similar problems, depending on how they are treated in national legislation in the USA and the EU (Berden et al., 2009). The MLs on mycotoxins and other SPS for cereals in the USA are in many cases higher than those in the EU (Berden et al., 2009).

2.2. Environment

Table 4 provides a summary of the differences in standards relating to food safety between the selected countries and the EU.

Table 4: Comparison of standards and enforcement of standards related to the environment between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	<ul style="list-style-type: none"> • Less restrictive targeted measures to control pollution at source as part of a permit system for integrated production systems of poultry and pigs.
Morocco	<ul style="list-style-type: none"> • Insufficient measures in place to control water resource problems in dry and arid regions of the country and to control the quality of resources. • Insufficient measures in place to control pollution of groundwater and surface water resources.
New Zealand	<ul style="list-style-type: none"> • Legislation to manage the natural resources does not include measures to be implemented by farmers. • Legislation has a focus on environmental quality with flexibility on how achieve it. • Economic instruments like nitrogen trading are implemented in some catchment areas to control nitrogen pollution at regional level.
Ukraine	<ul style="list-style-type: none"> • Very little legislative control over the use of nutrients and pesticides.

USA	<ul style="list-style-type: none">• Use of voluntary participation by the private sector.• Large livestock farms must take nutrient management measures to control water quality, which are quite similar to those large EU farms must take. For smaller farms USA standards are less stringent.
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¹ Environmental standards can differ across EU Member States. Comparison is with the EU as one entity.

2.2.1. EU

Beef and dairy products

Beef and dairy production are often combined. Farming systems of beef production in Europe are very diverse, with extensive grazing systems and intensive in-house production units.

The *Nitrates Directive* is a main area of legislation that puts major constraints on livestock production in the EU. This Directive, with an explicit overall objective aimed at water quality, includes specific measures related to the agricultural sector that are to be implemented by Member States. This policy area targets specific environmental objectives, but also identifies the tasks that Member States need to implement. Many intensive farming systems are affected by this Directive. In several countries, up to 80% of the dairy producers face constraints from the Directive (Bezlepkina et al., 2012). Some 10% of the beef producers in the EU produce excess nitrogen from livestock manure (Roest et al., 2012). The amount of nitrogen from livestock manure at such farms exceeds the equivalent of 170 kg nitrogen per hectare, although some derogations are allowed for grassland in Germany and the Netherlands that allow for 250 kg nitrogen per hectare. Implementation of this Directive requires livestock farmers to manage soils (e.g. establish cover crops in the autumn), livestock management (e.g. reduce overall stocking rates on livestock farms), manure management (e.g. increase the capacity to store manure and take measures to dispose of excess amounts of manure in non-growing periods) and farm infrastructures (e.g. fence off rivers and streams from livestock). A comparison of nutrient management plans between the EU, the USA and New Zealand is provided in Box 1.

Box 1: Nutrient management plans in EU, USA and New Zealand

Standards regarding the use and disposal of nutrients are implemented to control nutrient pollution problems to water. Water quality problems are observed in the EU, USA and New Zealand, and nitrogen pollution problems from the use of fertilizer and livestock manure caused eutrophication of lakes and waters and leaching of nitrates to surface and groundwater resources. Some councils in New Zealand introduced stocking rate of around 0.55 dairy cow per hectare of grazing land that is not fertilised (Meister and Beechey, 2012). Consent is required if stocking density exceeds this level or if the application of nitrogen fertilizer exceeds 75 kg per ha. The application procedure for consent includes the preparation of a nutrient management plan. Nutrient management plans are largely based on legislation with a focus on environmental quality, showing flexibility regarding how it is going to be achieved.

More restrictive procedures apply to livestock producers in the EU and the USA. Permits regarding production are operational in both countries, although the permits apply to the large animal feeding units with more than 700 dairy cows, 1,000 beef cows, 2,500 pigs or 100,000 chickens. The nutrient management measures are fairly similar in the EU and the USA, but the measures apply to a much smaller share of livestock systems in the USA compared to the EU.

Standards to control odour and nuisance from livestock production systems are in place in the EU and USA. Measures to reduce emissions in ammonia from policies to reduce national emission ceilings do restrict large production units in the EU.

The *Water Framework Directive* is goal-oriented with regional targets. Compared to the Nitrates Directive, it is less explicit regarding the measures to be implemented by farmers. It does not adopt the limit value approach, but describes the steps to reach this goal. For example, it aims to achieve good ecological status of all waters by 2015 by demanding farmers to develop river basin management plans.

Implementation of the European Directive on national emission ceilings for certain atmospheric pollutions (including ammonia) include the implementation of measures to reduce emissions of ammonia at farm level. Such measures mainly affect dairy and beef producers in the north-west of the EU.

Directives to protect birds and habitats put considerable constraints on European farmers, but compensation programmes are widely available to support farmers taking measures appropriate to protect birds and habitats in rural areas. Areas protected under these two directives are designated as Natura 2000 areas.

Poultry meat and pork

Implementation of the *Nitrates Directive* and the *Integrated Pollution Prevention and Control Directive* (IPPC Directive) are the main areas of environmental legislation affecting the production of pigs and poultry in the EU. Measures need to be taken to control pollution from installations for the rearing of poultry and pigs. The IPPC Directive applies to larger pig and poultry farms with a capacity of more than (i) 750 sows, (ii) 2,000 production pigs over 30 kg, (iii) 40,000 poultry. The aim is to apply the best available techniques to prevent or reduce emissions to air, land and water from these activities. A production permit is required, including an assessment of environmental impact. A fee is charged to cover the costs of the assessment. An odour or noise management plan is required if there is a potential of odour or noise complaints.

Crop production

Quality standards of *surface water* also require measures not to exceed concentration levels of potential harmful chemical substances. Measures include the phase-out of the discharge of certain plant protection products with significant risks to health and the aquatic environment.

2.2.2. Brazil

The *2011 Forest Law* is no real constraint to farming in Brazil. Main concerns relate to the poor infrastructure, delays to get licences for production and access to capital. Land resources are available for the provision of grain to feed the animals, and water resources are available because Brazil has sufficient river networks.

Pork and poultry meat

Integrated production systems are nowadays widely introduced for pigs and poultry. Licences are needed, including an environmental impact report (*Relatorio Impacto Ambiental*, RIMA) throughout the different stages of production. RIMAs need to be presented for new projects and public hearings are organised in local towns. RIMA is a general instrument of Brazil's national environmental policy to license activities that can change the environment.

2.2.3. Morocco

Overexploitation of groundwater, desertification and soil erosion due to farming in marginal areas are the main environmental problems in Morocco. The national Water Code was adopted in 1995, and includes measures to protect and conserve water resources, waste water discharge and the reuse of treated waste water. More recently, instruments were introduced concerning pollution of groundwater and surface water resources. Overexploitation of groundwater resources is observed in the Western Sahara region, which potentially results in the salinization of fresh water. A national action plan has been prepared to deal with desertification. This programme links the control of desertification with poverty alleviation and rural development.

Fruit and vegetables

The fruit and vegetable sectors in the EU and Morocco require large amounts of water and irrigation practices are widely adopted. Irrigation in agriculture is the largest consumer of water. Moroccan growers of fruit and vegetables need to increase the efficiency of irrigation networks and on-farm water use. Growers in the Mediterranean part of the EU increasingly focus on the introduction of GAECs, including the control of water use. They need to have water abstraction permits and water flow meters for wells used on the farm. Such requirements remain limited in Morocco. Water usage in Morocco is therefore significantly higher. According to the EP (2012b), 100 litres of water are needed to produce one kilo of tomatoes in Morocco, compared to 10 litres in France.

2.2.4. New Zealand

Resource users are required to avoid remedying or mitigating any adverse effects of activities on the environment. The RMA entailed a significant shift away from mandatory technologies or discharge standards to protect the environment and towards a focus on ambient environmental quality, with flexibility as to how it is to be achieved. The RMA is implemented at regional and district levels allowing variability among regions and districts in line with differing situations in those areas. Local authorities are offered advice from the National Ministry for the Environment to define the requirements that best achieve the desired environmental outcomes. Implementation of the RMA occurs through policies and rules. Each rule outlines whether an activity is considered as permitted, controlled, restricted, discretionary, non-complying or prohibited. Regional councils impose rules on farmers, especially with regard to effluent discharge and water take. This implies costs in terms of appropriate infrastructure and management of discharges. District councils impose rules and constraints on farmers in terms of vegetation removal and land clearance.

Dairy products and lamb

The RMA requires a move towards a land-based disposal system for dairy shed effluent. The two main methods for meeting the RMA requirements are travelling irrigators and pond storage. So far, effluent controls are still insufficient to deal with the decline in water quality due to nutrient loading (Parliamentary Commissioner for the Environment, 2004). This is mainly due to the increasing intensity of production, and several off-farm impacts were ignored, including run-off from pastoral land, cattle in streams and rivers, over fertilisation and nutrient leaching (Meister and Beechey, 2012). Livestock production in New Zealand currently faces new constraints to control nutrient management practices. Livestock producers in Lake Taupo Catchment, for example, may trade their nitrogen if they have a Nitrogen Management Plan.

2.2.5. Ukraine

The *State Ecological Inspection Service* (SEIS) of the Ministry of Environment and Natural Resources of Ukraine (MENRU) is responsible for radiological and environmental control. Erosion of black soils is a main concern to farming in the Ukraine. Furthermore, land is degraded from uncontrolled and high use of fertilizers and pesticides and the use of low level technologies. Both surface and groundwater are contaminated.

The *Law on Protection of the Natural Environment* is the main area of environmental protection. Among others, it regulates the use of mineral fertilizers. There is very little legislative control over the management of nutrients and pesticides. Mainly for economic reasons, the use of nutrients and pesticides has declined considerably since the early 1990s. Benefits to the environment are a major side effect.

2.2.6. USA

Environmental legislation in the USA primarily looks for voluntary participation from the private sector. The policy and programme approach towards managing the environmental impact from farming in the USA has largely been voluntary or with compliance being a condition for cost-sharing assistance with BMPs. Although regulations have been in place for several decades, it is only in the last few years that action has been taken to implement regulations. This is largely a response by environmental groups to perceived hazards resulting from trends towards increasingly large livestock operations.

Beef and dairy products

Water pollution rules prohibit confined *Concentrated Animal Feeding Operations* (CAFOs) from discharging manure into waters. Producers opting not to obtain a permit must be certain their operations do not discharge. An operator of a CAFO that discharges nutrients to streams, lakes and other waters must apply for a permit under the Clean Water Act. In order to comply with the *National Pollutant Discharge Elimination System* (NPDES), they need a permit. Furthermore, they need to develop and implement *comprehensive nutrient management plans* (CNMPs).

Specific measures on the discharge of nutrients are implemented at state level. Besides nutrient measures, air quality regulations increasingly affect animal feeding operations, with regulations to reduce air emissions from agriculture. Livestock operations below a certain number of animals are eligible for support under the *Environmental Quality Incentives Program* (EQIP). Similar to intensive livestock production systems in the EU, the implementation of a CNMP by CAFOs often result in them seeking additional land to dispose of excess amounts of manure. Compared to measures in the EU resulting from the Nitrates Directive and the WFD, CAFO rules seem less restrictive. Less than 5% of the confined animal livestock operations are affected by the CAFO legislation (Winsten and Knight, 2012). The existing nutrient constraints in the USA mainly affect larger farms, which need to take measures that are rather similar to the EU. Since the CAFO rules affect larger farms, they have a non-negligible share of livestock production in the country.

In February 2012, the *Global Round Table* for Sustainable Beef was founded. This is an action-oriented, international coalition of beef supply chain stakeholders, mainly from the Americas and Oceania, committed to promoting a sustainable global beef system. The key issues include proper care, handling, stunning and euthanasia of animals, in all aspects of production and harvest (Sutton-Vermeulen, 2010).

2.3. Animal Welfare

Table 5 provides a summary of the differences in standards relating to safety between the selected countries and the EU.

Table 5: Comparison of standards and enforcement of standards related to animal welfare between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	<ul style="list-style-type: none"> • Due to the subtropical climate, basic welfare requirements are fulfilled on many farms even without legal standards. • Legislation provides basic welfare goals for farming, transport and slaughter. • Good Practice Recommendations have been or are being developed. • Group housing for pregnant sows is not required.
New Zealand	<ul style="list-style-type: none"> • Based on legislation, codes of welfare have been developed for all species. These include farming, transport and slaughter. Codes contain mandatory minimum standards and recommended best practices. Minimum standards are similar to EU standards, except for permitting tail docking in dairy cattle and sheep. Codes are enforced by government and ngos.
USA	<ul style="list-style-type: none"> • Very little federal relevant legislation on farm animal welfare exists. • Several States have developed their own regulations. • A number of voluntary industry-based animal welfare standards exist.

¹ Animal welfare standards can differ across EU Member States. Comparison is with the EU as one entity.

2.3.1. EU

The EU has extensive animal welfare legislation. This is based on the five freedoms (Brambell, 1965): 1) freedom from hunger and thirst, 2) freedom from discomfort, 3) freedom from pain, injury or disease, 4) freedom to express normal behaviour, and 5) freedom from fear and distress, and on the recognition that animals are sentient beings (EU, 2010; EC, 2012). Council Directive 98/58/EC is the basis for the protection of animals kept for farming purposes. For several species, detailed Directives have been issued. Legislation has been issued for the farming stage, transport, slaughtering and killing. The most important standards are for natural behaviour, space, feed and water supply, lighting, surgeries, veterinarian aid and good stockmanship. Legislation is still partly in the process of implementation, for example group housing of pregnant sows. European legislation forms the basis, partly complemented by national top-ups. Market standards are being developed based on legal standards.

2.3.2. Brazil

Brazil Federal Decree No. 24,645 of 1934 established measures to protect animals from cruelty and ill treatment, especially working animals. Because no clear definition of crimes against animals is provided by the Environmental Crimes Law, a federal bill (Bill 215/2007) was proposed to provide clear definitions of mistreatment and protection of animals, especially domestic animals. But as of 2011, it has not been adopted. It includes requirements on farming, which are partly common practices (like good care or hygiene) and partly go beyond common practices in Brazil, like surface demands, group housing of

all pigs, and the obligation to use straw. It also includes requirements on transport and slaughter, such as the obligation to have an animal welfare officer at the slaughterhouse.

A permanent committee has been installed by the Brazilian Agricultural Ministry to officially recommend and elaborate *Good Agricultural Practices* (GAPs), including measures to further improve animal welfare. Normative Instruction 56 of 6 November 2008 aims to establish Good Practice Recommendations for animal welfare for production animals on the farm and during transport. It includes requirements for handling, food, housing, hygiene, reduction of stress and prevention of suffering, without describing them in detail.

Poultry meat and pork

For poultry and pigs, GAPs are currently being developed in partnership with the Brazilian Poultry Association (*União Brasileira de Avicultura*) and with the Brazilian Association of Swine Breeders (*Associação Brasileira dos Criadores de Suínos, ABCS*). So far no details have been made public. These GAPs target the export market. Since bigger meat companies are more export-oriented than smaller companies, it is mainly the bigger companies that use the GAPs (Kieling, 2011). Welfare issues at farm level include illumination, climate control and feed and water control.

Basic welfare requirements are expected to be fulfilled on many farms, although they are not based on a legal or market standard. Due to the subtropical climate, pigs and poultry are given bigger living areas, protection against hot weather and sufficient feed and water. However, pregnant sows are usually confined to stalls. Ractopamine-free pigs for export are identified by farm specific ear cuts (EC, 2009). This is not forbidden in the EU, but painful and not common practice in the EU.

Regarding slaughter, in 2000 the Brazilian government issued Normative Instruction 3/2010 on Humane Slaughter. Based on this Normative Instruction, the agricultural ministry set up a partnership with the World Society for the Protection of Animals (WSPA) to train veterinary inspectors at federally inspected slaughter plants. This includes pre-slaughter handling and slaughter practices of poultry, beef, cattle and pigs. Requirements include catching, transport (transport time, animal density, lairage and temperature), hanging (speed, workers' training, lesions), stunning (equipment, stunning efficiency) and slaughtering (workers' training, process efficiency). Up to 2010, 2,500 veterinary inspectors had been trained. The ante mortem inspection at broiler slaughter includes an animal welfare check (EC, 2011b).

To conclude, Brazil focuses on implementation of GAP programmes which are market driven, and on technical partnerships with animal welfare NGOs for implementation.

Beef

Programmes focussing on GAPs for cattle farming (in 2007) and beef cattle transport (in 2005) have been developed by organisations like ETCO (*Research Institute for Ethology and animal ecology*) and the agricultural research organisation *Empresa Brasileira de Pesquisa Agropecuária* (Embrapa). Based on Normative Instruction 3/2000, several GAP Codes have been set up for beef production: Birth of calves (2006), Vaccination (2006), Loading (2008), Identification (2009) and Transport (2010). In the Transport GAP, space requirements are expressed as minimum linear length within a truck. If recalculated to area requirements, this seems to meet the area requirements in Council Regulation (EC) 1/2005. For example, cattle weighing 550 kg are required to have a minimum calculated space of 1.3 m² in the Brazilian GAP, whereas EU regulations prescribes 1.3-1.6 m². In practice, the conditions for the transported animals could be worsened by bad roads.

The FVO (EC, 2011c) identified several differences between Brazilian and European legislation, regarding the feeding of animals staying for more than 12 hours in the lairages and electro stimulation during bleeding.

2.3.3. New Zealand

New Zealand's *Animal Welfare Act 1999* is the national welfare law. This Act gives general outlines, based on the Five Freedoms. It provides scope to establish Codes of Welfare, containing both minimum mandatory standards and recommended best practices. The Act requires a National Animal Welfare Advisory Committee, developing and advising the minister on the Codes of welfare. Before being issued, Codes are reviewed by representatives of farmers, the processing industry, veterinarians and animal welfare organisations and public hearings are organised, in order to ensure general support. Until March 2012, 15 Codes were issued, for farm animals, pets, game, circuses, rodeos and zoos, for transport, slaughter and for painful husbandry procedures. Enforcement of the Codes is carried out by the MAF and the Royal New Zealand Society for the Prevention of Cruelty to Animals.

Dairy products

The *Dairy Cattle Code of Welfare* (MAF, 2010a) encourages all farmers to adopt the highest standards of husbandry, care and handling. It sets out general principles of care and will be enhanced by industry good practice guidelines. Developed by the *National Animal Welfare Advisory Committee* (NAWAC), the Code applies to all dairy cattle, including replacement stock and calves sent for slaughter. It covers all aspects of dairy cattle management including calving, milking, housing, food, water and shelter. The Code also addresses the issue of appropriate *Body Condition Scoring* (BCS) for dairy cattle and establishes the lower threshold BCS where urgent action is required to improve condition. The Code provides minimum standards for:

- stockmanship and the requirement for adequate training;
- adequate daily quantities of food and water;
- requirements for adequate shade and shelter;
- appropriate design, construction and maintenance of handling and housing facilities;
- stand-off areas and feed pads;
- requirements for milking and milking equipment;
- requirements for calving;
- appropriate management of calves (including hand rearing and feeding);
- effective prevention and treatment of any ill health (including lameness);
- requirements around pre-transport selection of animals;
- emergency humane destruction procedures.

The Code contains both mandatory standards and recommended best practices. One standard is for example: "*All dairy cattle must have access to a daily supply of drinking water sufficient for their needs and that is not harmful to their health.*" A recommended best practice is: "*Troughs should be cleaned and maintained regularly.*" Overall, the *Dairy Cattle Code* standards are similar to EU Standards on animal welfare. However, some differences exist. In New Zealand, electric goads may be used reticently and tail docking of cows is allowed under the Painful Husbandry Code (MAF, 2005).

Lamb

The *Sheep and Beef Cattle Code of Welfare*, issued June 2010, applies to all sheep and beef cattle farmed for meat, and covers all aspects of stock management (MAF, 2010b). A single Code for both sheep and beef cattle was chosen, since sheep and beef cattle are frequently managed together on the same land. This Code covers:

- stockmanship and animal handling;
- daily food and water requirements;
- requirements for adequate shade and shelter;
- feeding pads and feedlots;
- managing flystrike;
- requirements for shearing, dagging and crutching;

- effective prevention and treatment of any ill health, injury and disease;
- requirements related to pre-transport selection of animals;
- humane destruction procedures.

The *Sheep and Beef Cattle Code* gives standards that are comparable to EU Standards on animal welfare. However, tail docking of sheep is allowed in New Zealand according to the Painful Husbandry Code (MAF, 2005).

2.3.4. USA

Several USA Federal and State regulations have been developed with regard to animal welfare, along with several voluntary industry-based animal welfare standards. Recommended practices or voluntary industry standards have been developed by industry leaders, scientists and activists. Guidelines have been developed for individual industries, for example cattle and poultry.

Animal welfare of farm animals in the USA is not covered by federal legislation, except with regard to transport, slaughter and killing. The *Animal Welfare Act (AWA)* applies to zoo and circus animals and pets but not to farm animals. The 28 Hour Law, enacted in 1873 and amended in 1994, covers farmed animals during transportation only. It states that when animals are being transported for slaughter, the vehicle must stop every 28 hours and the animals must be let out for exercise, food and water. Welfare regulations relating to slaughter and killing are given in the Humane Methods of Slaughter Act. This mainly focuses on stunning and dealing with non-ambulatory livestock. At farm level, state legislation and especially industry standards and retailer requirements are the main driver for controlling animal welfare.

Beef

For beef cattle, no legal on-farm requirements for welfare exist. However, voluntary welfare guidelines are given in the national *Beef Quality Assurance (BQA)* programme. BQA is a voluntary standard, estimated to influence the handling and management of more than 90 percent of the feed yard cattle raised in the USA. Over 7,000 cattle farmers and ranchers have been certified in this system (*National Cattlemen's Beef Association, s.a.*). Associated with the BQA is the Transportation Beef Quality Assurance (TBQA) Programme on cattle handling during transport.

Another standard is the so-called *Ag Guide*, developed by the Federation of Animal Science Societies (FASS, 2010). This encourages the use of science-based management practices and technologies, including housing, feeding and surgical interventions. Federal legislation aimed at slaughter is the Directive Humane Handling and Slaughter of Livestock, enacted by USDA's FSIS. The standards for slaughter and killing are similar between the USA and the EU.

It can be concluded that a different approach exists for the regulation of animal welfare at farm level: in the EU by legislation and in the USA by voluntary industry standards. If the voluntary standards are followed, the welfare of beef cattle is sufficient. Animal welfare during slaughter and killing in the USA and the EU is quite similar.

Dairy products

For dairy cows, no on-farm legal requirements for welfare exist at federal level. The USA relies on voluntary industry standards, such as the *National Dairy FARM Program (Farmers Assuring Responsible Management)*. This programme aims to give reference material for farmers to evaluate their management. The standard is consistent with the science and practice-based National Dairy Animal Well-being Initiative (NDAWI, 2008). Several States have developed their own Dairy Quality Assurance programmes, like California, New Mexico and Pennsylvania (<http://www.cdqa.org/>). As for beef cattle, the Ag Guide gives references

on the needs and requirements for dairy cows. The outreach of implementation of the Ag Guide is unknown.

To conclude, improving dairy cows' welfare is enforced by voluntary industry standards, rather than by legislation. The standards seem to result in a similar welfare level as in the EU. Some differences exist, for example tail docking of cows is legally permitted in the USA. However, the state of California, an important dairy-producing State, has banned tail docking since January 2010 (Senate Bill 135).

2.4. Other non-trade concerns

In this paragraph, *animal health, plant health and labour conditions* are considered.

2.4.1. Animal health

Table 6 provides a summary of the differences in standards related to animal health between the selected countries and the EU.

Table 6: Comparison of standards and enforcement of standards related to animal health between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	<ul style="list-style-type: none"> • Overall equivalent guarantee of animal health as in the EU. • Great progress on traceability, but still enforcement issues due to insufficient inspection.
New Zealand	<ul style="list-style-type: none"> • Overall equivalent guarantee of animal health as in the EU. • Animal identification is not mandatory for sheep. • New Zealand emphasis on disease-free status and no vaccination.
USA	<ul style="list-style-type: none"> • Overall equivalent guarantee of animal health as in the EU.

¹ Animal health standards can differ across EU Member States. Comparison is with the EU as one entity.

EU

The main objective of animal health legislation in the EU is to protect and improve the health status and condition of animals in the EU, in particular food-producing animals, whilst permitting intra-Community trade and imports of animals and animal products in accordance with the appropriate health standards and international obligations (http://ec.europa.eu/food/animal/index_en.htm). Animals that are infected or suspected of being infected with FMD, CSF or Bluetongue must be effectively isolated and the disease outbreak or suspicion must be reported immediately. Sick or suspect animals must not be slaughtered in a slaughterhouse, unless permission has been granted by the competent authority. In that event, the animals must be slaughtered under official supervision and steps taken to prevent contamination and the premises must be cleaned and disinfected before being used again (Regulation (EC) No 853/2004). The meat must be treated at a temperature of 70 to 80 degrees to eliminate the animal health risks. A lower temperature may be possible for combating FMD. Fermentation and maturation does not eliminate animal health risks (Directive 2002/99/EC).

To ensure *traceability* along the supply chain in the case of outbreaks of animal diseases, farmers must provide food chain information to slaughterhouses for animals delivered under normal conditions. This may be provided through electronic data exchange or in the form of a standardised declaration signed by the producer. In the case of a standing arrangement or a quality assurance scheme, less food chain information is required (Regulation (EC) No 853/2004). Furthermore, for traceability purposes all cattle, sheep, goats and pigs must be registered and identifiable by ear tags, tattoos or electronically (Regulation (EC) No 1760/2000).

The *prevention of diseases* is generally based on a non-vaccination policy. However, vaccination is possible if demanded by the animal health situation or if there is a serious threat of diseases. In the EU, vaccination is undertaken in a controlled way, as provided for in legislation. The potency of the vaccine must be approved by a designated reference laboratory. For each animal disease, specific standards are laid down. For FMD, the EU prohibits the prophylactic vaccination against FMD, because such vaccination does not prevent infection and consequently a carrier state, although it protects from disease (Directive 2003/85/EC). For CSF, vaccination can be used as a preventive measure (Directive 2001/89/EC). Vaccinated pigs must be identified by a visible mark and may not leave the vaccination area. For Bluetongue, vaccination can be used, depending on the location of the outbreak (Directive 2000/75/EC).

A farmer who suspects that his animals are infected with FMD, CSF or Bluetongue must immediately report it to the national competent authority. An official veterinarian must verify the presence of the disease at the farm. For this purpose, he implements investigative measures which include taking samples for laboratories. The EU Member State must notify the EU competent authority responsible for carrying out veterinary checks of all cases of diseases without delay. All Member States set out their contingency plans for the measures to be taken in the event of an outbreak. These plans are approved by the Commission and may be amended according to the circumstances.

Brazil

The DSA of the MAPA in Brazil has published a legislative manual concerning Brazilian animal health standards (MAPA, 2011). The DSA is responsible for enforcing regulations on imports and exports of live animals, semen and embryos. In cooperation with state governments, DSA enforces federal laws and regulations to protect and improve animal health, and to control and eradicate animal diseases. The Brazilian animal health system is considered satisfactory by the EU (EC, 2011g). The EU emphasised the progress made by Brazil in quality assurance, traceability and infrastructure. Veterinary services for animal health are well organised. In some cases, the effectiveness is undermined by insufficient and not adequately trained human resources that do not match to the increasing number and complexity of responsibilities, particularly in remote areas of the country.

The *Agriculture and Livestock Health Care Unified System* maintains an animal health promotion service dealing with the prevention, control and eradication of diseases capable of harming animal productivity, the economy, and agriculture and livestock health (Decree No. 5741, 31 March 2006). Enforcement of process standards and control systems does not seem to be fully satisfactory. According to the EU (EC, 2011g), the implementation of surveillance and an early warning system for FMD (including inspections and texting) is problematic and improvements are necessary to increase the effectiveness and quality of measures.

Brazil applies the principle of *traceability* to animal products, agricultural and livestock inputs and their ingredients, and raw materials throughout the production chain (Decree No. 5741). Identification systems that enable traceability exist for pigs and poultry. Normative Instruction No. 17 (13 July 2006) establishes the Cattle Production Chain's Traceability System SISBOV. Recent traceability problems, particularly on smaller and rural farms and firms, have been resolved and more Brazilian farms and firms have been approved to comply with traceability requirements comparable to the EU requirements.

According to Article 73 of Decree No. 24.548 (3 July 1934), veterinary assistance in Brazil consists of vaccination and revaccination of herds, identification and the treatment of contagious, infectious-contagious and internal and external parasitic diseases. The eradication of CSF is regulated by Normative Instruction No. 6 (10 March 2004). The vaccination strategy for FMD is defined by the Official Veterinary Service. FMD vaccination is mandatory in areas specified by MAPA and for cattle of all ages. In contrast, the vaccination of goats, sheep, pigs and other susceptible species is prohibited, except for

exemptions approved by MAPA. FMD vaccination is incumbent on rural producers, who must provide proof of purchase of vaccines in a quantity consistent with their livestock establishment, and report their application according to the prescribed timetable. The information about vaccination must be provided by the producers. For example, dairy processors may only receive fresh milk from farmers who can show proof of vaccination, regardless of whether the establishment is located in an FMD-free area or not. Vaccination against CSF is generally forbidden in Brazil, except for zones defined by the DSA (Normative Instruction No. 6). CSF vaccination is allowed when there is a clearly demonstrated risk of dissemination of the disease, after studying the epidemiological situation, and based on a judgment and decision by the Official Veterinary Service. The DSA may also authorise emergency vaccination, following a specific plan. Bluetongue is prevalent in Brazil. Information about vaccination against Bluetongue was not found.

Brazil has contingency plans with actions and procedures for early and immediate notification and confirmation of suspected outbreaks. Such contingency plans are formulated in the legislation about eradicating individual diseases, for example Normative Instruction No. 27 (20 April 2004) for CSF. In general, every veterinarian, owner and transporter of animals, or any other citizen aware of a suspected outbreak of a particular disease should immediately notify the closest unit of the Official Veterinary Service.

New Zealand

The main aim of New Zealand's animal health legislation is to keep unwanted diseases out of the country, while at the same time controlling prevalent ones. New Zealand is largely free of many of the diseases found in other countries. New Zealand has been free of CSF since 1953, and FMD and Bluetongue have never occurred in the country (Investigation and Diagnostic Centres & Response, 2012). The New Zealand legislation ensures equivalent guarantees to those of EU legislation (EC, 2011f).

Because many diseases are not present in New Zealand, strict requirements and an efficient quarantine schemes are in place to prevent diseases being introduced through trade partner countries. For meat and food waste for pigs, the Biosecurity (Meat and Food waste for Pigs) Regulations were introduced in 2005 to control the spread of diseases like CSF and FMD. The Regulations comprise requirements of heat treatment of meat and food waste that has come into contact with meat. The temperature of the treatment must be 100 degree Celsius for one hour to destroy any bacteria or virus.

Through the *National Animal Identification and Tracing Act 2012*, New Zealand implemented NAIT. NAIT makes identification via electronic ear tags mandatory for cattle from 1 July 2012. Cattle must be identified with two ear tags when older than 30 days or when moved from the holding of origin, whichever is earlier. No legal requirement exists for sheep (EC, 2011f). NAIT is implemented by an industry-owned company. NAIT stores information about each animal's identification number, location and the contact details of the person in charge of the animal in a database. It meets animal tracing requirements, consistent with the guidelines of the OIE. No legal requirement for registering movements of animals or for reporting dead or slaughtered livestock exists. If cattle and sheep are moved, they must be accompanied by a movement document and an Animal Status Declaration. New Zealand is against *vaccinations*.

USA

Bluetongue is present in the USA, although the USA is free from FMD (since 1929) and CSF (since 1976). Animal health standards are important for the USA. Overall, the USA animal health strategy is fairly flexible insofar as States can develop animal health control and traceability systems that work best for them and for producers in their jurisdiction. The USA puts emphasis on its efficient and reliable information system. As part of APHIS, the National Centre for Animal Health surveillance (NCAHS) conducts a series of programmes to monitor and collect information on a variety of animal issues. Animal disease traceability is important to ensure a rapid response in the case of outbreaks.

At federal state level, principles to ensure animal health are described in the Federal Code of Regulation, Title 7, Agriculture, Chapter 109 '*Animal Health Protection*'. The provisions relate to disease-free areas and zoning in case of outbreaks. Details for animal health requirements for import products are provided.

In 2011, USDA issued a proposed rule to establish general regulations to improve the traceability of livestock. Unless specifically exempted, livestock must be officially identified and accompanied by an interstate certificate of veterinary inspection or other documentation, such as owner-shipper statements or brand certificates. Identification applies to cattle aged 18 months or older. Approved forms of official identification for cattle are metal ear tags, brands or tattoos.

2.4.2. Plant health

Table 7 provides a summary of the differences in standards related to plant health between the selected countries and the EU.

Table 7: Comparison of standards and enforcement of standards in the field of plant health between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	• Overall equivalent guarantee of plant health as in the EU.
Morocco	• Overall equivalent legislation of plant health as in the EU. However, the level of implementation of legislation is unclear.
Ukraine	• Obsolete plant health legislation.
USA	• Overall equivalent guarantee of plant health as in the EU.

¹ Plant health standards can differ across EU Member States. Comparison is with the EU as one entity.

EU

The main objective of EU plant health legislation is to protect the safety of food derived from plants and to secure the health and quality status of crops in all Member States (http://ec.europa.eu/food/plant/index_en.htm). Council Directive 2000/29/EC lays down protective measures against the introduction into the EU of organisms harmful to plants or plant products and against their spread within the EU. Each Member State must have a single authority responsible for coordination and contact concerning plant health issues. Plants, plant products and other objects can only be marketed if specific special requirements are met, for example heat treatment, fumigation or chemical treatment. Plants and plant products, their packaging and the vehicles used to transport them are subject to official examinations to ensure there is no contamination. In addition, document inspections must be performed to further ensure compliance with this regulation. Such official controls must be random and include primary production, processing and transport. Each producer must be officially registered. Producers are obliged to notify any abnormalities. Phytosanitary measures in third countries can be adopted as equivalent if appointed experts feel that these measures achieve the EU's level of phytosanitary protection. Note that the EU plant health Directive is currently under review and is expected to be updated and reformed.

Brazil

Decree No. 24.114 of 1934 is the legal basis for legislation to protect Plant Health. Legislation is based on the requirements laid down in international agreements concerning plant health. Edict 641 of 1995 provides guidelines for pest risk assessment. Normative Instruction 23 of 2004 provides for the phytosanitary risk categories, while Normative Instruction 6 of 2005 provides for plants and plant products subjected to phytosanitary legislation. The DSV is responsible within MAPA for plant health. Brazil is also a member of the IPPC, and therefore responsible for the implementation of requirements set out in the IPPC.

Morocco

The Dahir of 20 September 1927 '*portant règlement de police sanitaire des végétaux en zone française de l'Empire Chérifien*', modified by *Dahirs* in 1949, 1950 and 1954 lays down the plant health policy of Morocco. This policy is based on the requirements laid down in international agreements concerning plant health, for example the use of phytosanitary certificates based on the IPPC model. Responsibility for plant health lies with ONSSA. Morocco is a member of the IPPC, and therefore responsible for implementing the requirements set out in the IPPC. However, discussion remains about the level of implementation of plant health legislation for fruit and vegetables in Morocco (e.g. http://www.econostrum.info/Morocco-stands-ground-over-EU-fisheries-and-agriculture-agreements_a9031.html). No information is available that assesses the implementation of plant health legislation in Morocco.

Ukraine

Law N 3369-IV of 2006 of Ukraine concerns the quarantine of plants. It aims to reflect EU plant health regulation. It regulates the authority of government institutions and their personnel and the rights and obligations of legal and private entities concerning the prevention of introduction or spread of regulated plant pests. Officially, the State Veterinary and Phytosanitary Service (SVPS) is in charge of phytosanitary inspections (USDA-FAS, 2010). However, because the authority has not yet been fully transferred, inspections are still conducted by the Main State Phytosanitary Quarantine Inspection Service (MSPQIS) of the Ministry of Agricultural Policy and Food of Ukraine (MAPFU).

Fbos need to be registered, submit information about regulated objects on demand, perform systematic monitoring of their land to identify regulated pests and keep phytosanitary certificates during a predefined period. Phytosanitary measures must be based on scientific principles considering environmental and processing conditions and international standards. Notwithstanding the new legislation, at the end of 2010 most plant health standards were still the same as those at the breakup of the Soviet Union in 1991 (USDA-FAS, 2010).

USA

Plant Health regulation is laid down in the Plant Protection Act. Specific phytosanitary standards are described in the Federal Code of Regulation, Title 7, Agriculture, Part 305 'phytosanitary treatments'. The Federal response agency for plant health emergencies Plant Protection and Quarantine is a programme within the APHIS to safeguard agriculture and natural resources from the entry, establishment and spread of plant pests and noxious weeds. It aims to eradicate, suppress or contain plant pests through various programmes in cooperation with state departments of agriculture and other government agencies. Legislation prohibits or restricts the movement of plants and plant products that pose a threat to plant health. Permits are required to transport designated plants and plant products and to move plant pests through the USA. A recent evaluation study (FCEC, 2010) concerning the *Community Plant Health Regime* (CPHR) mentions that EU and third country stakeholders generally perceive the EU to follow an approach that is more open to trade but also results in higher phytosanitary risk, whereas the approach followed by the USA is perceived to be stricter and more risk based. However, the USA has not defined a comprehensive closed list of harmful organisms in the regulation (FCEC, 2010). It can be concluded that the plant health protection system in the USA is fairly equivalent to that in the EU.

2.4.3. Labour conditions

Labour conditions are set in labour laws. In general, labour law is not specific to agri-food production. Table 8 gives an overview regarding differences in standards for farm labour conditions and main issues in the respective countries.

Table 8: Comparison of standards and enforcement of standards for farm labour conditions between selected countries and the EU¹

Country	Comparison of standards and enforcement of standards
Brazil	<ul style="list-style-type: none"> • Collective bargaining is not in line with ILO Convention. • The working day and week are longer than in the EU. • Forced and slave labour remain, despite efforts to improve. • Enforcement of labour standards is weak, but great progress is being made in inspections and effective penalties.
Morocco	<ul style="list-style-type: none"> • Agricultural labour is not subject to labour regulations. • Agricultural wages are insufficient to provide a decent living standard. • The working day and week are longer than in the EU. • Child labour and gender discrimination are highly prevalent. • Enforcement of labour legislation is lacking. Inspection and penalties are insufficient due to lack of resources and capacity.
New Zealand	<ul style="list-style-type: none"> • A comprehensive labour legislation with tight health and safety standards to protect agricultural and seasonal workers exists.
Ukraine	<ul style="list-style-type: none"> • The right to organise and to collective bargaining is not in line with ILO convention. • The working day and week are longer than in the EU. • Child labour protection is not always effective. • Safety and health standards are not enforced.
USA	<ul style="list-style-type: none"> • Agricultural labour is exempt from the main labour legislation. • No standards exist for minimum agricultural wages, overtime and breaks for farm workers, or for collective bargaining. • Unsafe transportation and substandard housing of agricultural workers working via contractors exists due to enforcement problems.

¹ Labour condition standards can differ across EU Member States. Comparison is with the EU as one entity.

EU

EU employment legislation guarantees minimum levels of protection that apply to anyone living and working in the EU. Each Member State has its own individual labour legislation and this varies considerably among Member States. At EU level, Member States agreed on principles for EU employment legislations, following the fundamental conventions of the International Labour Organisation (ILO):

- Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87);
- Right to Organise and Collective Bargaining Convention, 1949 (No. 98);
- Forced Labour Convention, 1930 (No. 29);
- Abolition of Forced Labour Convention, 1957 (No. 105);
- Minimum Age Convention, 1973 (No. 138);
- Worst Forms of Child Labour Convention, 1999 (No. 182);
- Equal Remuneration Convention, 1951 (No. 100);
- Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

Important aspects covered by the EU employment legislation are (http://europa.eu/legislation_summaries/employment_and_social_policy/index_en.htm):

- Health and safety at work: general rights and obligations, workplaces, work equipment, specific risks and vulnerable workers;
- Equal opportunities for women and men: equal treatment at work, pregnant workers, maternity leave, parental leave;
- Protection against discrimination on grounds of sex, race, religion, age, disability and sexual orientation, prohibition of child labour;

- Labour law: part-time work, fixed-term contracts, working time, young people at work, information and consultation of workers.

The labour information system agri-info provides information on wages and working conditions in agriculture in the EU (http://www.agri-info.eu/english/a_start.php). The wage differences within the EU are large, ranging from about 1 to more than 14 EUR per hour. The statutory minimum wages reflect the economic situation or the cost of living in the country. Many farm workers earn the minimum wage. In most EU countries, the regular working week has 40 working hours. Some countries have a shorter working time, e.g. the Netherlands has 38 hours. In the agricultural sector, working hours are usually longer during the peak season, but working longer should be compensated by leisure time or overtime bonus payments. Differences in the level of contributions to welfare insurance schemes exist. The involvement of the agricultural trade unions at company level is very strong in EU countries, with unions reaching as many as 100% of the employees in agriculture, forestry and horticulture.

Council Directive 89/391/EEC on measures to encourage improvements in the safety and health of workers at work also applies to the agricultural sector. It sets general principles concerning the prevention of occupational risks, the protection of safety and health, the elimination of risk and accident factors, and informing, consultation, balanced participation and training of workers and their representatives. Employment of children is prohibited in EU countries. The minimum age of admission to employment may not be lower than the minimum school-leaving age. Young people admitted to work must have working conditions appropriate to their age and be protected against economic exploitation and any work likely to harm their safety, health or physical, mental, moral or social development or to interfere with their education, as stipulated in Council Directive 94/33/EC on the protection of young people at work, Article 7 of the European Social Charter and the Community Charter of the Fundamental Social Rights of Workers.

Brazil

Brazil generally respects the fundamental ILO conventions. However, the Brazilian government can reject clauses of collective bargaining agreements that conflict with government policy. This is not in accordance with the ILO Convention about the right to organise and collective bargaining. The ILO Committee of Experts has called for this provision's repeal (USSD, 2010a).

The Ministry of Labour and Employment sets occupational, health and safety standards consistent with internationally recognised norms. Labour inspectors usually work closely with the Federal Labour Prosecutor's Office, an independent agency responsible for prosecuting labour infractions. For adequate inspection and enforcement of occupational, health and safety standards, more resources are needed than currently available (USSD, 2010a).

Brazil had a minimum wage of 623 Reais per month (US\$ 344) in 2011. However, this does not always seem to be applied in agriculture. The government adjusts the minimum wage annually through a provisional measure from the president. The Brazilian labour law limits the working week to 44 hours. The law prohibits excessive compulsory overtime and stipulates that hours worked above the weekly limit must be compensated at time-and-a-half pay (USSD, 2010a).

For agriculture, labour income has increased and income inequality fell between 1992, 1997 and 2007 (de Figueiredo and Branchi, 2009). Due to the expansion of pension and retirement benefits, as well as cash transfer of social benefits, a declining poverty rate was recorded for women working in agriculture in the period 1999-2007. However, gender discrimination on the labour market is still present in Brazil.

The minimum working age is 16. Minors under 18 should not be involved in activities that constitute a physical strain or that occurs in nocturnal, unhealthy, dangerous or morally harmful conditions. The law requires parental permission for minors to work. However, authorities rarely enforce labour legislation for minors under age 18. Although child labour is prohibited in Brazil, it continues to be a problem, including in livestock farming (USSD, 2010a).

A main issue in Brazil is *slave labour*. This includes forced and compulsory labour, extremely arduous labour and labour performed in degrading working conditions. Slave labour has occurred in forest clearings to provide cattle pastureland, logging, raising livestock and citrus cultivation (USSD, 2010a). According to the Secretariat of Labour Inspections of the Brazilian Ministry of Labour and Employment, forced labour often involved young men drawn from the impoverished north-eastern states to the northern and central-western regions. Women and adolescents were also involved in forced labour activities. To combat slave labour and enforce labour legislation, the Ministry of Labour and Employment adopted national action plans in 2003 and 2008. A key element is 'Special Mobile Inspection Groups', which investigate complaints, free workers and prosecute owners of estates or other enterprises where workers have been found in inappropriate labour conditions. The groups directly levy fines on estate owners who used forced labour. Placing violators' names on a 'dirty list' on the internet also seemed to have helped combat slave labour. Although the number of labour inspections has increased, there are still deficiencies, such as the failure to impose effective penalties, impunity of those responsible, delays in the judicial procedure and the lack of coordination between various government bodies (USSD, 2010a).

Some private sector initiatives provide labour conditions that go beyond the governmental minimum requirements, because consumers in high income countries are concerned about the conditions of workers. Labour conditions at *fbos* that operate under such initiatives could be better than the general domestic labour condition. Such higher requirements for labour conditions are implemented by certification schemes. An example for agri-food exports to the EU is the certification scheme GlobalGAP, which has a module for assessing and ensuring appropriate labour conditions of the agricultural workers (GRASP, 2010). Additionally, the Bank of Brazil and other banks deny credit to landowners using slave labour, and some sectors of the economy refuse to buy products from such producers.

Morocco

The government of Morocco generally supports the ILO rights and has set conditions governing industrial and human relations and established minimum wage standards. The right to organise and bargain collectively is protected by law, and the government has generally upheld this right. However, the ILO Convention about the right to organise and bargain collectively and the ILO Convention about the freedom of association have not been completely ratified (ITUC, 2009). Agricultural workers are not covered by the labour code and do not have the right to form unions. The minimum wage per day for agricultural workers was 52.50 dirhams or US\$ 6.50 (USSD, 2010b), which is not sufficient to provide a decent standard of living for a worker and family. In addition, informal businesses often ignore the minimum wage requirements (USSD, 2010b). In general, 44 to 48 hours are the maximum working hours per week, with no more than 10 hours in any single day, premium pay for overtime, paid public and annual holidays, and minimum conditions for health and safety.

Women face particularly hard working conditions and their wage is generally a third lower than that of men. Women are overrepresented in less well paid jobs where few qualifications are required, such as jobs in the agriculture. According to ITUC (2009), this is due to the high illiteracy rate of women (60%) compared to men (35%). While Morocco ratified the ILO convention on child labour, children continue to work. In Moroccan labour law, the minimum age for admission to employment is 15. Children between 15 and 16 should not work over 10 hours per day including a one hour break. In agriculture, children

under the age of 16 are not permitted to work between 8 p.m. and 5 a.m. However, seasonal agriculture work is excluded from the law (USSD, 2010b). Most child labour occurs in rural areas where they are mainly employed in agriculture (ITUC, 2009). Morocco has taken several measures to combat child labour, including harmonisation of national legislation with international norms and standards (ITUC, 2009). The Ministry of Employment is responsible for implementing and enforcing child labour laws and regulations. Labour law in Morocco provides for legal sanctions against employers who recruit children under the age of 15. In practice, however, the government did not systematically enforce these sanctions due to a lack of resources (USSD, 2010b). Thus, occupational health and safety standards tend to be rudimentary, except for a prohibition on the employment of women and children in certain dangerous occupations. Labour inspectors attempted to monitor working conditions and investigate accidents, but there are too few of them and they lacked sufficient resources.

In Morocco, similar to Brazil, private sector initiatives such as GlobalGAP provide labour conditions beyond the governmental minimum requirements, because consumers in high income countries are concerned about the conditions of workers.

New Zealand

The government of New Zealand fulfils the ILO workers' rights. For example, law gives workers in public and private sectors the right to form and join organisations of their choice without previous authorisation or certain requirements. Employment of children under the age of 15 is effectively banned in hazardous industries such as manufacturing, mining and forestry. Children under the age of 16 may not work between the hours of 10 p.m. and 6 a.m. Children enrolled in school may not be employed, not even outside school hours, if such employment interferes with their education (USSD, 2010d). The minimum hourly wage since 2010 is NZ\$ 12.75 (US\$ 9.60). Combined with other regularly provided entitlements and welfare benefits for low-income earners, this wage was generally adequate to provide a decent standard of living for a worker and family, (USSD, 2010d). A 40 hour working week is traditional in New Zealand. There are legal limits regarding working hours and hours worked, including premium pay for overtime work. By law, employees are entitled to a minimum four week annual paid holiday and 11 paid public holidays. Even breaks during the working day are laid down by law.

Extensive laws and regulations govern health and safety issues. Employers are obliged to provide a safe and healthy work environment, and employees are responsible for their own health and safety, as well as ensuring that their actions do not harm others. The government mandates employers to provide health insurance for seasonal workers.

Ukraine

In general, the Ukraine applies the ILO conventions for labour. However, implementation of ILO Convention for the Freedom of Association and Protection of the Right to Organise and for the Right to Organise and Collective Bargaining is threatened. A labour union must be registered by the government but this process has been burdensome, for example going to as many as ten different offices and paying high fees (USSD, 2010c). Although the legal registration process did not change, unions reported an increasingly restrictive process. Such restrictions do not comply with the ILO standards.

Ukrainian law generally prohibits all forms of forced or compulsory labour. In particular, law protects children, but the government has not always effectively enforced the law. Although the official minimum age for most working activities is 16, children aged 15 can perform 'light work' with parental consent. The worst forms of child labour have been found in informal sectors, including agriculture and at markets (USSD, 2010c). In 2010, the monthly minimum wage was 992 Ukrainian hryvnas (US\$ 124), but it is not clear whether this also applies to farm work. The maximum working week is 40 hours, and there is a 24 hour period of rest per week. The law provides for double pay for overtime work and regulates the number of overtime hours allowed. Overall, there is no detailed information and

evidence about the enforcement of the regulations about minimum wages, working periods and hours.

Although the law sets occupational safety and health standards, these standards have been frequently ignored in practice, as shown by the high number of workplace injuries. The Confederation of Free Trade Unions of Ukraine signed a memorandum of understanding with the Labour Inspectorate to cooperate more closely on inspections in order to improve on enforcement (USSD, 2010c). Results have not been reported.

USA

At federal level there are legal Acts for minimum labour conditions. The *Fair Labour Standards Act* (FLSA) refers to labour in general, whereas the *Migrant and Seasonal Agricultural Worker Protection Act* (AWPA) specifically targets farm workers. Further labour legislation is at state level.

In general, farm workers are exempt from most minimum wage and hour guarantees laid down in the FLSA and the state employment laws (Bon Appétit Management Company and Foundation, 2011). Farm workers are not entitled to overtime pay or mandatory breaks for rest or meals. Small farms have further exemptions from wage and hour requirements. According to the *National Agricultural Workers Survey* (NAWS), one third of farm workers earned less than US\$7.25 per hour in the period 2005-2009, and one-quarter of farm workers had family incomes below the poverty line.

The agricultural sector has special regulations with regard to unemployment insurance. Often small farms do not have to provide unemployment insurance for their workers. Less than half of hired farm workers and only about a quarter of contract farm workers were covered by unemployment insurance (Bon Appétit Management Company and Foundation, 2011).

Farm workers may be fired for joining a labour union. Farm labour unions have no legal recourse to compel a company or agricultural employer to negotiate employment terms. The majority of state laws do not include any collective bargaining provisions for farm workers. Only one per cent of farm workers reported working under a union contract (Bon Appétit Management Company and Foundation, 2011).

The *Occupational Safety and Health Administration* (OSHA) issues standards for employers and inspects workplaces. Although OSHA has specific safety and health standards for the agricultural sector, agricultural workplaces are excluded from the majority of the standards. Farms with fewer than 11 employees are further exempt. In the end, one-third of all farm employees are not protected by OSHA standards and 88 percent of all farms in the US are not inspected for basic safety and health regulations (Bon Appétit Management Company and Foundation, 2011).

Farm labour contractors act as intermediaries between growers and workers. Such contractors are licensed by the DOL and are regulated by the AWPA. Contractors should provide workers with good housing and transportation. Nevertheless, there is unsafe transportation and substandard housing. Many unregistered contractors operate illegally in the USA with little threat of interference, due to the shortage of AWPA investigators and investigations conducted.

3. CONCLUSIONS AND RECOMMENDATIONS

KEY FINDINGS

- In the selected third countries, legislation contains standards for food safety, plant and animal health. Observed differences in standards are only on a rather detailed level.
- Standards for environment, animal welfare and labour conditions are lacking or vary widely across the selected countries.
- Internationally accepted conventions or standards exist for food safety (Codex Alimentarius), animal health (OIE), plant health (IPPC) and labour conditions (ILO). For environment and animal welfare, such conventions or standards do not exist.
- Food safety, animal health and plant health are already important aspects in trade agreements and negotiations on trade agreements.
- Environment, animal welfare and labour conditions are not high or not on the agenda at all in negotiations about trade agreements.

3.1. Conclusions on the comparative analysis of standards

Legislation in the selected third countries contains standards for food safety, plant and animal health. This is because there is a general consensus on the goals for food safety, animal health and plant health between countries around the world. For all countries these are important topics which need to be regulated. Standards differ between countries due to differences in local circumstances. Observed differences in standards are only on a rather detailed level. In some countries, the enforcement of food safety, animal health and plant health standards is low. In contrast, standards for environment, animal welfare and labour conditions are lacking or vary widely in the different countries. This is because problems related to these topics depend on local circumstances and because these topics are not perceived in each country as being important on a similar level. Conclusions on the differences in standards for each field of interest are presented below.

The selected third countries have many standards concerning *food safety* in line with the *Codex Alimentarius*. Nevertheless, differences in standards between the EU and the selected third countries exist with regard to the type of pesticides and veterinary drugs allowed and the associated maximum residue levels, the common use of growth hormones in cattle in the USA and in pigs in Brazil, the lactic acid treatment of beef in the USA, genetically modified organisms which are already approved in third countries like the USA and Brazil, but not (yet) in the EU, obsolete legislation and enforcement in Ukraine and the insufficient enforcement of standards.

The selected third countries have standards concerning the *environment*. Such standards differ between countries, as standards tend to reflect domestic environmental problems. In the EU, measures to meet environmental standards are very restrictive towards farmers, whereas such measures are less restrictive to farmers in the selected third countries. Standards for water or air pollution generated by livestock farms are generally lower in Brazil, New Zealand and the USA. In Morocco, there are insufficient measures to control water resource problems and water pollution. In Ukraine, there is very little legislative

control over the use of nutrients and pesticides. In all countries, livestock production is generally more affected than the crop sector.

With regard to *animal welfare*, only basic requirements have been laid down in legislation in the selected third countries. These countries mainly rely on standards from voluntary industry-driven systems to control animal welfare. Industry incentives to improve welfare standards could result in a comparable welfare level as legal standards for farmers supplying these industries. No general global basis for standards concerning animal welfare exists, except for the fairly general five freedoms. Animal welfare requirements are not taken into account in trade agreements.

The selected third countries have different standards for *animal and plant health*, because they have standards which reflect the domestically prevailing diseases and pests. Because the standards in all selected third countries are governed by the WTO SPS Agreement, they generally have an overall equivalent guarantee of animal and plant health as the EU. Differences in standards between the EU and the selected countries exist on animal identification for sheep (New Zealand) and enforcement issues (Brazil). The level of implementation of plant health legislation in Morocco is unclear. Ukraine has only recently updated its legislation and is in a transition process towards new standards. During this process, often the obsolete standards from the old legislation prevail.

Labour conditions vary greatly in the different third countries selected, although they all apply the ILO convention. New Zealand has standards in line with those of the EU. In Brazil, the major problem is the presence of slave labour. Furthermore, there are no collective bargaining standards and enforcement of labour legislation is weak. In Morocco, agricultural wages are insufficient to provide a decent living, child labour is a common practice, and there is no enforcement of labour standards. Ukraine has no enforcement of legislation concerning child labour and safety and health standards and there are no collective bargaining standards. In the USA, agricultural labour is often exempt from labour legislation, resulting in a lack of standards for minimum wages, overtime and breaks and lacking collective bargaining standards.

3.2. Recommendations to the framework of multilateral and bilateral trade agreements

Multilateral trade agreements

Food safety, animal health and plant health are already important aspects in trade agreements and negotiations on trade agreements, as laid down in the WTO SPS Agreement, are regularly checked by the FVO to assess the equivalence of the control systems in third countries with that in the EU. Nevertheless, differences in standards do exist between the EU and the selected third countries on a rather detailed level. Some of these are relevant from an EU perspective, as they implicate non-equivalence. This particularly concerns differences in standards regarding the use of pesticides, veterinary medicines, decontamination techniques and other techniques not (yet) allowed in the EU but allowed in the trade country. Differences between the EU and countries exporting to the EU can occur, because the EU's view of these topics may differ from that of other countries. Especially for food safety aspects of new technologies applied in agriculture or in food processing, for example GMO, growth hormones and lactic acid treatment, the EU often has a stricter view than other countries. Furthermore, differences in public acceptance of risks can result in a public health risk being acceptable in a third country but unacceptable in the EU.

We recommend starting a dialogue between governments to discuss the rationale and the functioning of the system in each country. Although such items can result in significant discussion concerning trade, they are already an integral part in the multilateral trade agreement framework.

In contrast, topics like *environment*, *animal welfare* and *labour conditions* are not high or not on the agenda at all in negotiations about trade agreements. The fields of environment, animal welfare and labour conditions can be legitimate objectives according to the WTO TBT Agreement. The environment is explicitly mentioned as a legitimate objective to prepare, adopt or apply a standard. Lacking or insufficient animal welfare standards can result in problems concerning the life and health of animals, which are also mentioned as legitimate objectives for standards. Similarly, lacking or insufficient labour conditions can result in problems concerning the life and health of humans.

International standards exist for food safety (*Codex Alimentarius*), plant health (IPPC), animal health (OIE), labour conditions (ILO) but *not for animal welfare and the environment*. We recommend developing such international standards for the environment and animal welfare. Based on such international standards, a binding agreement or convention on such international standards could be developed.

Since public interest in the environment and animal welfare is growing in the EU, these topics are expected to be placed on the agenda in trade agreements. We recommend starting developing international agreements or conventions for the environment and animal welfare. Starting points for standards on these topics could be industry-driven global good agricultural practices.

For *the environment*, some initial steps have been taken in the field of international trade. As part of the WTO, the Committee on Trade and Environment (CTE) was established through a Ministerial Decision on Trade and Environment. It aims to make international trade and Environmental policies support each other. This applies to Multilateral Environmental Agreements (MEAs), such as the United Nations Framework Convention on Climate Change, but does not target domestic environmental policies. Currently, there is no clear direction on how domestic environmental legislation could be considered in multilateral and bilateral trade agreements. For the environment, the local circumstances such as climate, landscape and intensity of production do have a major impact on the environmental problems that can arise and thus on the local standards. For the environment, it is therefore difficult to concretise standards at a global level. Specific details at local level addressing local environmental problems will remain necessary. It will therefore be difficult to concretise standards in multilateral agreements.

We recommend first addressing the environment at a high aggregation level in multilateral trade agreements in terms of a general goal to protect the environment and in terms of what topics need to be covered to protect the environment, for example ground and surface water, soil, biodiversity and the sea. There can then be a further focus on standards in a bilateral agreement, because the scope is regionally focused. The environment can be implemented in the WTO obligations by Codes of Good Process. Ervin (1999) proposed a seven item Code of Good Process for the design of environmental programmes consistent with WTO obligations:

1. Specify clear environmental objectives for programmes;
2. Clarify property rights in environmental resources to establish applicability of payments, charges and subsidies;
3. Prefer the least trade-distorting agri-environmental management instrument;
4. Establish scientific linkage of the environmental objective with the programme instrument;
5. Implement monitoring and evaluation programmes to document policy/programme efficacy;

6. Apply equal treatment (for domestic products and imports) if applicable; and
7. Ensure the transparency of agri-environmental measures.

No steps have yet been taken for *animal welfare* in the field of international trade. The first bottleneck to overcome is the lack of a worldwide consensus about animal welfare being an important attribute of food production. We recommend putting animal welfare on the agenda in the international context of the WTO to create common support of participating countries under the WTO for animal welfare standards. For animal welfare standards, the five freedoms could be a starting point for the process. Animal welfare can then be implemented in the WTO obligations by *Codes of Good Process*, similar to Codes of Good Practice for the environment.

Industry-driven private global good agricultural practice schemes are being developed that include standards for the environment and animal welfare which go beyond legal requirements, for example GlobalGAP. Such private developments also help create a level playing field for agriculture in the different countries. We recommend considering such developments in negotiations about trade agreements.

Bilateral trade agreements

Compared to multilateral trade agreements, bilateral agreements may provide benefits such as development cooperation and political dialogue. As such, bilateral trade agreements can stimulate a level playing field in specific fields of interest. For example, the *Agreement between the EU and Morocco* contains a specific article on the environment. This article includes specific obligations to prevent environmental deterioration and to improve environmental protection. Environmental obligations are also part of the core text of the Bilateral Free Trade Agreement between the USA and Morocco. Both governments agreed to effectively enforce their own domestic environmental laws. This obligation is enforceable through the agreement's dispute settlement procedures.

Similarly, obligations concerning animal welfare or labour conditions can be implemented in bilateral trade agreements. For labour conditions, international standards and convention do exist, but labour conditions are not an important part of trade agreements. Common support for labour conditions seems to be present, but enforcement of legislation remains weak in many countries. We recommend negotiating the insertion of an article concerning the environment, animal welfare and labour conditions in a bilateral trade agreement. This particularly applies to negotiations about a DFCTA, with third countries that have a lower level of standards concerning these topics. Such an article can include training modules for good agricultural practices, for good practices regarding the environment, animal welfare and labour conditions considering local circumstances.

We recommend strengthening the use of programmes for knowledge sharing concerning protection of the environment, animal welfare and labour conditions especially in negotiations for bilateral trade agreements. Such programmes should aim to deal with domestic problems related to the environment, animal welfare and labour conditions that are at stake in the countries concerned. Specifically, we recommend strengthening the collaboration to address *water stress* in the Mediterranean region, from which the EU and Morocco could benefit. Although within the UfM a framework programme on the environment and water already exists, this seems to be inadequate given the persisting water resource and pollution problems. We recommend strengthening the UfM's actions in this field.

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ANNEX A: REFERENCES TO TRADE AGREEMENTS, AGREEMENTS CONCERNING TRADE AND NEGOTIATIONS ABOUT TRADE AGREEMENTS BETWEEN THE EU AND THE SELECTED COUNTRIES COVERED IN THE STUDY

Brazil

- No trade agreement exists between EU and Brazil. Information about the negotiations can be found at <http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/regions/mercosur/>.

Morocco

- Association Agreement L/70 between the EU and Morocco (Council and Commission Decision 2000/204/EC, amended by Council Decision 2000/205/EC);
- Union of the Mediterranean (<http://www.ufmsecretariat.org/en/>).

New Zealand

- Agreement between the European Community and New Zealand on sanitary measures applicable trade in live animals and animal products while safeguarding public and animal health (Council Decision 97/132/EC, amended by Council Decision 1999/837/EC, Council Decision 2002/957/EC, Commission Decision 2003/616/EC and Commission Decision 2006/854/EC).

Ukraine

- No trade agreement exists between EU and Ukraine. Information about the negotiations can be found at <http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/countries/ukraine/>.

USA

- No trade agreement exists between the EU and the USA, but cooperation exists through the *Transatlantic Economic Council* (TEC) (<http://ec.europa.eu/enterprise/policies/international/cooperating-governments/usa/transatlantic-economic-council/>);
- Agreement between the European Economic Community and the United States of America with respect to trade in fresh bovine and porcine meat (Council Directive 72/462/EEC, Council Decision 93/158/EEC);
- Agreement between the European Community and the United States of America on sanitary measures to protect public and animal health in trade in live animals and animal products (Council Decision 98/258/EC, amended by Commission Decision 2003/833/EC, Commission Decision 2003/863/EC, Commission Decision 2005/405/EC, and Commission Decision 2006/198/EC).

ANNEX B: SELECTED EU LEGISLATION IN THE FIELDS OF FOOD SAFETY, ENVIRONMENT, ANIMAL WELFARE AND OTHER TRADE CONCERNS COVERED IN THE STUDY

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
<p>Regulation (EC) No 178/2002 laying down the general principles and requirements of food hygiene law, procedures in matters of food safety, and establishing the European Food Safety Authority (General Food Law).</p>	<ul style="list-style-type: none"> • Establishes common principles and responsibilities, the means to provide a strong science base, efficient organisational arrangements and procedures to underpin decision-making in matters of food and feed safety; • Lays down the general principles governing food and feed in general, and food and feed safety in particular, at Community and national level; • Establishes the European Food Safety Authority; • Lays down procedures for matters with a direct or indirect impact on food and feed safety. 	<p><i>Fbos</i> will ensure that foods or feed satisfy the requirements of food law which are relevant to their activities and will verify that such requirements are met.</p> <p>This applies to all stages of production, processing and distribution of food and feed. It will not apply to primary production for private domestic use or to the domestic preparation, handling or storage of food for private domestic consumption.</p>
<p>Regulation (EC) 852/2004 on the hygiene of foodstuffs.</p>	<p>Lays down general rules for food business operators on the hygiene of foodstuffs, taking particular account of the following principles:</p> <p>(a) primary responsibility for food safety rests with the food business operator;</p> <p>(b) it is necessary to ensure food safety throughout the food chain, starting with primary production;</p> <p>(c) for food that cannot be stored safely at ambient temperatures, particularly frozen food, it is important to maintain the cold chain;</p> <p>(d) general implementation of procedures based on the HACCP principles, together with the application of good</p>	<p><i>Fbos</i> will implement procedures based on the HACCP principles. <i>Fbos</i> carrying out primary production will comply with general hygiene provisions: control contamination arising from air, soil, water, feed, fertilisers, veterinary medicinal products, storage, handling and disposal of waste; take animal health and welfare measures, including monitoring and control of zoonoses and zoonotic agents; keep facilities, equipment, vehicles etc. clean and disinfect them in an appropriate manner; ensure cleanliness of animals going to slaughter; use potable or clean water; ensure that staff are in good health and undergo training on health risks; prevent animals and pests from causing contamination;</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
	<p>hygiene practice, should reinforce food business operators' responsibility;</p> <p>(e) guides to good practice are a valuable instrument to aid food business operators at all levels of the food chain with compliance with food hygiene rules and with the application of the HACCP principles;</p> <p>(f) it is necessary to establish microbiological criteria and temperature control requirements based on a scientific risk assessment;</p> <p>(g) it is necessary to ensure that imported foods are of at least the same hygiene standard as food produced in the Community, or are of an equivalent standard. This applies to all stages of production, processing and distribution of food and to exports, and regardless of more specific requirements relating to food hygiene.</p>	<p>to store and handle waste and hazardous substances so as to prevent contamination; prevent introduction and spread of contagious diseases; take account of results of relevant analyses; use feed additives veterinary medicinal products, plant protection products and biocides correctly</p> <p><i>Fbos</i> will adopt specific hygiene measures 1) to comply with microbiological criteria for foodstuffs, 2) to meet targets set to achieve the objectives of this Regulation, 3) to comply with temperature control requirements, 4) to maintain the cold chain, and 5) for sampling and analysis.</p> <p><i>Fbos</i> are to keep records relating to measures put in place to control hazards.</p> <p>General requirements for food premises: 1) kept clean and maintained in good repair and condition, 2) requirements for layout, design, construction, siting and size, 3) adequate number of flush toilets, which must not open directly into rooms in which food is handled, 4) adequate number of washbasins, 5) suitable and sufficient means of ventilation, 6) adequate ventilation in sanitary conveniences, 7) adequate lighting, 8) adequate drainage facilities. 9) adequate changing facilities for personnel, 10) cleaning agents and disinfectants are not stored in areas where food is handled.</p> <p>Specific requirements in rooms where foodstuffs are prepared, treated or processed: 1) design and layout permit good food hygiene practices, 2) Adequate facilities for the cleaning, disinfecting and storage of utensils and equipment, 3) Adequate provision is to be made for washing food.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
		<p>Specific requirements for transport, equipment, food waste, water supply, personal hygiene, foodstuffs, wrapping and packaging of foodstuffs, hermetically sealed containers, and training of food handlers</p>
<p>Regulation (EC) No 853/2004 laying down specific hygiene rules for food of animal origin, registration of farmers and approval of slaughterhouses and meat processors.</p>	<p>Lays down specific rules on the hygiene of food of animal origin for food business operators.</p>	<p>Products of animal origin have an identification mark.</p> <p>Requirements for slaughterhouse: implement procedures that the hazard analysis shows to be necessary and specific requirements that each animal or lot of animals (a) is properly identified; (b) is accompanied by relevant information from the holding of provenance; (c) does not come from holding or area subject to movement prohibition or other restriction (d) is clean; (e) is healthy, (f) is in satisfactory state as regards welfare on arrival.</p> <p>Provision of food chain information to buying food business operator and/or competent authority.</p> <p>Slaughterhouses and cutting plants must ensure that construction, layout and equipment in which domestic ungulates are slaughtered meet the specific requirements, hygiene requirements prior to slaughter, at slaughter and after slaughter, and during and after cutting and boning.</p> <p><i>Fbos</i> producing or collecting raw milk must ensure compliance with health requirements to animals, hygiene requirements for premises and equipment, during milking, collection and transport, od for the staff, meet specific criteria for raw milk, requirements for temperature, heat treatment, requirements for wrapping and packaging, and labelling, identification marking.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
Regulation (EC) No 854/2004 laying down specific rules for the organization of official controls on products of animal origin intended for human consumption in slaughterhouses.	Lays down specific rules for the organisation of official controls on products of animal origin.	Control on fbo to check compliance with relevant requirements of Regulations (EC) No 852/2004 and 853/2004 and other requirements of food law.
Regulation (EC) 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.	Lays down general rules for the performance of official controls to verify compliance with rules aiming, in particular, at: (a) preventing, eliminating or reducing to acceptable levels any risks to humans and animals, either directly or through the environment (b) guaranteeing fair practices in feed and food trade and protecting consumer interests, including feed and food labelling and other forms of consumer information.	Official controls on <i>Fbos</i>
Regulation (EC) No 1760/2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products.	Each Member State will establish a system for the identification and registration of bovine animals.	<p>Application of an ear tag in each ear.</p> <p>Keep an up-to-date register.</p> <p>Report all movements to and from the holding and all births and deaths of animals on the holding along with the dates of these events.</p> <p>Complete the passport immediately on arrival and prior to departure of each animal from the holding and ensure that the passport accompanies the animal.</p> <p>Supply, upon request, all information concerning the origin, identification and destination of animals which he has owned, kept, transported, marketed or slaughtered.</p> <p>Member States may charge the costs of the I&R system and of the controls.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
		<p>A fbo marketing beef will label it with animal number (or group number), approval number of slaughterhouse, and approval number of cutting hall.</p>
<p>Directive 2008/71/EC on the identification and registration of pigs.</p>	<p>Lays down the minimum requirements for the identification and registration of pigs.</p>	<p>Identification marks must be applied.</p> <p>Keeping a register stating the number of animals present on the holding.</p> <p>Keeping an up-to-date record of movements at least on the basis of aggregate movements, Stating their origin or destination, and the date of such movements.</p> <p>Supplying all information concerning the origin, identification and the destination of animals which he has owned, kept, transported, marketed or slaughtered.</p> <p>Provides a document, containing details of the animals in question, to the operator, on the market or in the collection centre, who is a keeper of the animals, on a temporary basis.</p>
<p>Regulation (EC) No 21/2004 establishing a system for the identification and registration of ovine and caprine animals.</p>	<p>Each Member State will establish a system for the identification and registration of ovine and caprine animals.</p>	<p>Identification of all animals individually.</p> <p>Keep an up-to-date register.</p> <p>Supply all information concerning the origin, identification and the destination of animals which the keeper has owned, kept, transported, marketed or slaughtered in the last three years.</p> <p>Complete movement document whenever an animal is moved within the national territory between two separate holdings.</p> <p>Keep the movement documents for a minimum period.</p> <p>Provide information relating to movements of animals to competent authority.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
Directive 2003/99/EC on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC.	Ensures that zoonoses, zoonotic agents and related antimicrobial resistance are properly monitored, and that food-borne outbreaks receive proper epidemiological investigation, enables the collection in the Community of the information necessary to evaluate relevant trends and sources.	Monitoring of listed zoonoses and zoonotic agents at most appropriate stage(s) of the food chain. <i>Fbos</i> that carry out examinations for the presence of zoonoses and zoonotic agents keep the results and arrange for the preservation of any relevant isolate for a specified period and communicate results or provide isolates to the competent authority on request.
Regulation (EC) No 2160/2003 on the control of salmonella and other specified food-borne zoonotic agents.	Ensures that proper and effective measures are taken to detect and to control salmonella and other zoonotic agents at all relevant stages of production, processing and distribution, particularly at the level of primary production, including in feed, in order to reduce their prevalence and the risk they pose to public health.	Control of salmonella with public health significance in breeding flocks of <i>Gallus gallus</i> , laying hens, broilers, turkeys and breeding herds of pigs at primary production, and in herds of slaughter pigs at slaughter. Sampling on-farm and in other stages of the supply chain. Implement good animal husbandry practices or other guidelines including at least: <ul style="list-style-type: none"> • Hygiene management at farms and during transport; • Measures to prevent incoming infections carried by animals, feed, drinking water, people working; • Routine veterinary supervision of farms; • Registration of farms; • Record-keeping at farms; • Documents to accompany animals when dispatched; • Other relevant measures to ensure the traceability of animals.
Directive 2001/82/EC on the Community code relating to veterinary medicinal products.	Establishes a Community code for the placing on the market and administering of animal feed with veterinary medicinal products.	Only authorized medication can be used and non-authorized medication is not allowed to be on the premises.
Regulation (EC) No 1830/2003 concerning the traceability and labelling of	Provides a framework for the traceability of products consisting of or containing genetically modified organisms (GMOs), and food	During marketing products consisting of or containing GMO <i>fbos</i> must ensure that the products are accompanied by information about the GMO in writing.

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
genetically modified organisms and the traceability of food and feed products produced from genetically modified organisms and amending Directive 2001/18/EC.	and feed produced from GMOs.	
Regulation (EC) No 1831/2003 on additives for use in animal nutrition.	Establishes a Community procedure for authorising the placing on the market and use of feed additives and to lay down rules for the supervision and labelling of feed additives and premixtures.	Only authorized feed additives can be used and non-authorized feed additives are not allowed to be on the premises.
Regulation (EC) No 999/2001 laying down rules for the prevention, control and eradication of certain transmissible spongiform encephalopathies.	Lays down rules for the prevention, control and eradication of transmissible spongiform encephalopathies (TSEs) in animals.	<p>Presence of guidelines for national measures to be implemented and indicating competences and responsibilities if a case of TSE is confirmed.</p> <p>Feeding to ruminants of protein derived from animals is prohibited.</p> <p>Slaughterhouse personnel, animal breeders, keepers and handlers have been given training in the clinical signs and epidemiology of TSEs.</p> <p>Impact of official movement restriction if a TSE is officially suspected in an animal at a holding.</p> <p>Impact of culling if a TSE is identified in an animal.</p> <p>All bovine animals above the age of 24 months for emergency slaughter, with observations at ante mortem inspections, or fallen stock, and all bovine animals above 30 months of age slaughtered for human consumption are tested for BSE.</p> <p>A representative sample (region, season, age) of ovine and caprine animals over the age of 18 months or of those animals that have more than two permanent incisors erupted through the gum must be tested for TSEs at slaughter.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
		Skull, vertebral column and tonsils, intestines and mesentery of specified bovine animals, and skull, spleen and ileum of ovine and caprine animals are specified risk materials and must be rendered.
Regulation (EC) No 2074/2005 laying down implementing measures for certain products under Regulation (EC) No 853/2004 and for the organisation of official controls under Regulation (EC) No 854/2004 and Regulation (EC) No 882/2004.	Lays down <ul style="list-style-type: none"> • Requirements concerning food chain information; • Requirements concerning fishery products; • Recognised testing methods for marine biotoxins; • calcium content of mechanically separated meat; • Requirements concerning the lists of establishments as referred to in Regulation (EC) No 882/2004; • The model health certificates for imports of frogs' legs, snails, gelatine and collagen; • Derogation from Regulation (EC) No 852/2004 for foods with traditional characteristics. 	<i>Fbos</i> raising animals dispatched for slaughter will ensure that food chain information is included in the documentation relating to these animals
Regulation (EC) No 1831/2003 laying down requirements for feed hygiene.	Lays down <p>(a) general rules on feed hygiene;</p> <p>(b) conditions and arrangements ensuring traceability of feed;</p> <p>(c) conditions and arrangements for registration and approval of establishments.</p>	<p><i>Fbos</i> will ensure that all stages of production, processing and distribution under their control are carried out in accordance with Community legislation, national law compatible therewith, and good practice. They will ensure in particular that they satisfy the relevant hygiene requirements laid down in this Regulation.</p> <p>Primary feed production will comply with the provisions in Annex I concerning hygiene provisions and record keeping.</p> <p>Farmers will use good feeding practices (pasture grazing, requirements for stable and feeding equipment, feeding, feed and water, personnel) when feeding food-producing animals.</p>

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
		<p>Feed business operators and farmers will only use feed from registered and/or approved establishments.</p> <p>Feed producing farmers have to register or be approved by the competent authority.</p>
<p>Recommendation 2006/583/EC on the prevention and reduction of <i>Fusarium</i> toxins in cereals and cereal products.</p>	<p>The cereal chain should be encouraged to adopt good practices to prevent and reduce mycotoxin contamination.</p>	<p>Implementation of good agricultural practices and good manufacturing practices during handling, storage, processing, and distribution of cereals for human food and animal feed to control and manage contamination with <i>Fusarium</i> toxins.</p>
<p>Decision 2001/471/EC laying down rules for the regular checks on the general hygiene carried out by the operators in establishments according to Directive 64/433/EEC and Directive 71/118/EEC.</p>	<ul style="list-style-type: none"> • The operator of a meat establishment will conduct regular checks on the general hygiene conditions of production in his establishment, by implementing and maintaining a permanent procedure developed in accordance with HACCP principles; • The microbiological checks referred to in Article 10(2) of Directive 64/433/EEC will be carried out by the operator in accordance with the procedure laid down in the Annex. 	<p>Operator of a meat establishment will implement and maintain a permanent procedure in accordance with HACCP principles</p> <p>Bacteriological sampling of carcasses (cattle, swine, sheep, goats and horses) in slaughterhouses.</p> <p>Bacteriological sampling for checks of cleaning and disinfection in slaughterhouses and cutting plants.</p>
<p>Directive 91/414/EEC concerning the placing of plant protection products on the market.</p>	<p>Concerns the authorisation, placing on the market, use and control of plant protection products in commercial form and the placing on the market and control of active substances intended for specified uses.</p>	<p>Only active substances authorised for incorporation in plant protection products can be used.</p>
<p>Directive 96/22/EC concerning the prohibition on the use in stock farming of certain substances having a hormonal or thyrostatic action and of beta-agonists, and</p>	<p>Prohibits the placing on the market of listed substances for administering to any animals, the meat and products of which are intended for human consumption.</p>	<p>It is prohibited to use the following substances for administering to animals:</p> <ul style="list-style-type: none"> • Thyrostatic substances; • Stilbenes, stilbene derivatives, their salts and esters; • Oestradiol and its ester-like derivatives; • Beta-agonists (with derogations).

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
repealing Directives 81/602/EEC, 88/146/EEC and 88/299/EEC.		
Directive 96/23/EC on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC.	Lays down measures to monitor the substances and groups of listed residues in live animals, their excrement and body fluids and in tissue, animal products, animal feed and drinking water.	A national plan (including sampling) to control if residues of the specified substances in specified animal types do not exceed specified maximum residue levels. It concerns substances having an anabolic effect, veterinary drugs, organochlorine and organophosphorus compounds, chemical elements, mycotoxins and dyes.
Regulation (EC) No 1881/2006 setting maximum levels for certain contaminants in foodstuffs.	Prohibits placing on the market of listed foodstuffs if they contain a listed contaminant at a level exceeding the provided maximum level.	Maximum levels in specified products for nitrate, mycotoxins, metals, 3-monochloropropane-1,2-diol (3-MCPD), Dioxins and PCBs, Polycyclic aromatic hydrocarbons.
Regulation (EC) No 767/2009 on the placing on the market and use of feed, amending Regulation (EC) No 1831/2003 and repealing Directives 79/373/EEC, 80/511/EEC, 82/471/EEC, 83/228/EEC, 93/74/EEC, 93/113/EC and 96/25/EC and Decision 2004/217/EC.	Lays down rules on marketing and use of feed for both food-producing and non-food producing animals within the Community, including requirements for labelling, packaging and presentation.	<p>Feed may only be marketed and used if it is safe, and it does not have a direct adverse effect on the environment or animal welfare.</p> <p>Feed business operators marketing feed will ensure that the feed is sound, genuine, unadulterated, fit for purpose and of merchantable quality; and is labelled, packaged and presented in accordance with the provided provisions.</p> <p>Feed will comply with the provided technical provisions on impurities and other chemical determinants.</p>
Regulation (EC) No 911/2004 implementing Regulation (EC) No 1760/2000 as regards ear tags, passports and holding registers.	Lays down implementing measures as regards ear tags, passports and holding registers.	Concrete demands on ear tags, passports and holding registers.

Food safety legislation in EU	Key issues the legislation addresses	Standards in the legislation
Regulation (EC) No 2075/2005 laying down specific rules on official controls for Trichinella in meat.	Lays down specific rules on official controls for Trichinella in meat.	<p>Carcases of domestic swine, horses, wild boar and other farmed and wild animal species susceptible to Trichinella infestation will be systematically sampled in slaughterhouses or game-handling establishments as part of the post-mortem examination.</p> <p>Meat of animal species that may be carriers of Trichinella, containing striated muscles and coming from a third country may only be imported into the Community if it has been examined for Trichinella in that third country before export in accordance with the above mentioned method. Also a holding in a third country that has been recognised by the Community as officially free from Trichinella, or has undergone freezing treatment under the supervision of the competent authority in the third country.</p>
Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs.	Lays down the microbiological criteria for certain micro-organisms and the implementing rules to be complied with by food business operators when implementing the general and specific hygiene measures referred to in Regulation (EC) No 852/2004.	<i>Fbos</i> will ensure that foodstuffs comply with the provided relevant microbiological criteria for specified products.
Regulation (EC) No 396/2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC.	Establishes maximum levels of pesticide residues in or on food and feed of plant and animal origin.	Maximum residue levels for specified products and specified pesticides.

Environmental Legislation in EU	Key issues the legislation addresses	Standards in the legislation
Council Directive 79/409/EEC on the conservation of wild birds.	<p>Aims to:</p> <ul style="list-style-type: none"> • Protect, manage and regulate areas where bird species live naturally in the wild within the European territory of the Member States, including the eggs of these birds, their nests and their habitats; • Regulate the exploitation of these species. 	<p>The constraints on farmers are determined at local level according to management plans which are drawn up in accordance with article 4 of the directive. In general, farmers' activities can be constrained in the following ways:</p> <ul style="list-style-type: none"> • Farmers must not adversely affect the habitat or remove landscape elements; • Farmers must not undertake changes in land utilisation and water balance; • Farmers must respect requirements and prescription for land use management; • Farmers must avoid any disturbance affecting the birds.
Directive 2006/118/EC on the protection of groundwater against pollution and deterioration.	<p>Aims to prevent and combat groundwater pollution by:</p> <ul style="list-style-type: none"> • criteria for identifying significant and sustained upward trends in groundwater pollution levels, and for defining starting points for reversing these trends; • preventing and limiting indirect discharges (after percolation through soil or subsoil) of pollutants into groundwater. 	<p>Farmers must:</p> <ul style="list-style-type: none"> • not knowingly permit the entry into groundwater of poisonous, noxious or polluting matter; • not knowingly permit the disposal or tipping to land of any List I (e.g. organohalogen, organophosphorus or organotin compounds, mercury and cadmium and its compounds, mineral oils or cyanides) or List II (e.g. individual substances and the categories of substances of zinc, copper and nickel, certain biocides, toxic or persistent organic compounds of silicon, fluorides) substances which lead to an indirect discharge of that substance into groundwater, unless carried out under a permit granted by the authorities; • take particular care with List I substances, such as sheep dip and pesticides; • comply with notices served by the authorities for the protection of groundwater.
Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates	<p>Aims to protect waters in Europe by preventing nitrates from agricultural sources from polluting groundwater and surface waters by encouraging the</p>	<p>If land is located within a Nitrate Vulnerable Zone (NVZ), the farmer must comply with NVZ Action Programme Measures:</p>

Environmental Legislation in EU	Key issues the legislation addresses	Standards in the legislation
from agricultural sources.	use of good agricultural practices.	<ul style="list-style-type: none"> • General ban on the application of chemical fertiliser or manure during the autumn or winter; • There must be sufficient slurry storage facilities (or alternative arrangements) to cater for the closed period; • Crop requirement limits must be respected by not applying more nitrogen than a crop requires, taking account of crop uptake, soil nitrogen supply, excess winter rainfall, and plant or crop available nitrogen from organic manures; • Any material or fertiliser that contains nitrogen and is applied to the land must be taken account of in the nitrogen fertiliser calculations; • Nitrogen fertiliser and organic manures should be spread as evenly and accurately as possible; • Organic manures or nitrogen fertilisers cannot be applied where the ground is waterlogged, flooded, frozen hard or snow covered; cannot be applied to steeply sloping fields; and in a way that contaminates watercourses (where organic manures cannot be applied within 10m of watercourses); • Farmers must keep farm and field records on cropping, livestock numbers, nitrogen fertiliser usage and manure usage, for a minimum of five years after the relevant activity takes place.
Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.	Aims to address degradation to habitats and threats to species survival.	The constraints on farmers are determined at local level according to management plans which are drawn up in accordance with article 4 of the directive.
Council Directive 91/414/EEC concerning the placing of plant protection products on the market.	Regulates the use of plant protection products which could be damaging to human and animal health and / or the environment.	The constraints on farmers are determined at the local level according to management plans which are created in accordance with article 6 of the directive.

Environmental Legislation in EU	Key issues the legislation addresses	Standards in the legislation
Directive 2000/60/EC establishing a framework for Community action in the field of water policy.	Concerns pollution, promoting sustainable water usage, environmental protection, aquatic ecosystems and the effects of floods and droughts for inland surface waters, groundwater, transitional waters and coastal waters.	The implications of the Water Framework Directive (WFD) for farmers depend on the implementation plans of the Member States. It closely relates to constraints of the Nitrates Directive (although it has a broader focus).
Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants.	Air pollution responsible for acidification, eutrophication and ground-level ozone pollution.	There are no specific farm level constraints. Effects may be felt at farm level through the ceilings which are determined at national level.
GAEC on soil erosion.	Soil erosion leads to loss of soil for agricultural purposes and also damages water bodies.	Implementation can vary between countries but may include options such as gullies to channel water or cover crops.
GAEC on maintenance and prevention of deterioration of habitats; avoiding the encroachment of unwanted vegetation on agricultural land.	Land withdrawn from production can lose its fertility, become a fire risk and lead to reduced visual amenity.	Management regimes for land withdrawn from productive use require farmers to manage the land by methods which can be determined within Member States. These may include mowing and shredding, construction of fire barriers and the application of manures.
GAEC on maintenance and prevention of deterioration of habitats: retention of landscape features.	Certain landscape features provide visual as well as historical and cultural value. The management of these landscape features is an issue.	Different Member States may have different landscape features which require different forms of management.
Directive 2008/1/EC concerning integrated pollution prevention and control.	To use all appropriate pollution-prevention measures, namely the best available techniques (which produce the least waste, use less hazardous substances, enable the substances generated to be recovered and recycled, etc.). Large-scale pollution is addressed as well as the prevention, recycling or disposal of waste in the least polluting way possible. Energy efficiency is addressed, as is	Farms are required to acquire permits for activities with a high pollution potential. This permit can only be issued if certain environmental conditions are met. The specific farm constraints are flexible and are based on local and business specific conditions.

Environmental Legislation in EU	Key issues the legislation addresses	Standards in the legislation
	accident prevention and damage limitation. The need to return sites to their original state when a given activity stops is also addressed.	

Animal Welfare legislation in EU	Key issues the legislation addresses	Standards in the legislation
<p>Council Directive 91/630/EEC laying down minimum standards for the protection of pigs.</p> <p>Council Directive 2001/88/EC amending Directive 91/630/EEC laying down minimum standards for the protection of pigs.</p>	<p>Lays down requirements for the protection of pigs, such as:</p> <ul style="list-style-type: none"> • Ban the use of individual stalls for pregnant sows and gilts during a period starting from 4 weeks after service to 1 week before the expected time of farrowing and the use of tethers; • Improve the quality of the flooring surfaces; • Increase the living space available for sows and gilts; • Allow the sows and gilts to have permanent access to materials for rooting; • Introduce higher level of training and competence on welfare issues for the stockmen and the personnel in charge of the animals; • Request new scientific advice in relation to certain issues of pig farming. 	<p>Farms have to rebuild their housings for pregnant sows.</p> <p>Minimum area of unobstructed floor area is needed depending on the weight of the pigs: Up to 10 kg need at least 0.15m², between 10 and 20 kg 0.20 m², up to 0.65m² for pigs between 85 and 110 kg and 1.00 m² for pigs over 110 kg. Gilts and sows need 1.64 m² and 2.25 m² respectively. In groups of up to 6 animals, this needs to be 10% more and in groups of 40 or more animals, this area may be reduced by 10%. Requirements to slat width of the floors are given as well.</p> <p>Enlarge living space.</p> <p>Rooting material has to be applied.</p>
<p>Commission Directive 2001/93/EC amending Directive 91/630/EEC laying down minimum standards for the protection of pigs.</p>	<p>Lays down requirements for the protection of pigs, such as:</p> <ul style="list-style-type: none"> • Light requirements and maximum noise levels; • Permanent access to materials for rooting and playing; • Permanent access to fresh water; • Additional restrictive conditions to carry out mutilations on pigs; 	<p>In the part of the building where pigs are kept, continuous noise levels as loud as 85 dBA will be avoided. Constant or sudden noise will be avoided. Pigs must be kept in light with an intensity of at least 40 lux for a minimum period of minimum eight hours per day.</p> <p>Pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust,</p>

Animal Welfare legislation in EU	Key issues the legislation addresses	Standards in the legislation
	<ul style="list-style-type: none"> • Minimum weaning age of four weeks. 	<p>mushroom compost, peat or a mixture of such, which does not compromise the health of the animals.</p> <p>All pigs over two weeks of age must have permanent access to a sufficient quantity of fresh water.</p> <p>Neither tail docking nor reduction of corner teeth must be carried out routinely, but only where there is evidence that injuries to sows' teats or to other pigs' ears or tails have occurred. If castration or docking of tails is practised after the seventh day of life, it will only be performed under anaesthetic and additional prolonged analgesia by a veterinarian.</p>
Council Directive 1999/74/EC laying down minimum standards for the protection of laying hens.	<p>Provides requirements for three rearing systems for laying hens, such as:</p> <ul style="list-style-type: none"> • enriched cages where laying hens have at least 750 cm² of cage area per hen; • non-enriched cage systems where hens have at least 550 cm² of cage area per hen. By January 2012 this system is prohibited; • non-cage systems with nests (at least one for 7 hens), adequate perches and where the stocking density does not exceed 9 laying hens per m² usable area. 	<p>The hens kept in the enriched cage systems and the non-cage systems must also have a nest, perching space of 15cm per hen, litter to allow pecking and scratching and unrestricted access to a feed trough measuring at least 12 cm per hen in the cage.</p> <p>Other restrictions in lighting, litter, feeding, and ventilation requirements.</p>
Council Directive 2007/43/CE laying down minimum rules for the protection of chickens kept for meat production.	Lays down requirements for the reduction of overcrowding of chicken holdings and some other conditions to ensure better animal welfare.	Maximum stocking density of 33 kg/m ² , or 39 kg/m ² if stricter welfare standards are met. Other restrictions in lighting, litter, feeding, and ventilation requirements.

Animal Welfare legislation in EU	Key issues the legislation addresses	Standards in the legislation
Council Directive 2008/119/EC laying down minimum standards for the protection of calves.	Group housing of calves and area requirements.	Measures include: <ul style="list-style-type: none"> • Group housing after 8 weeks of age; • Weight dependent minimum space: 1.5 m² per calf up to 150 kilograms, up to 1.8 m² per calf over 220 kg; • Other requirements in lighting, litter, feeding, ventilation, colostrum and iron supply.
Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations.	Safeguard the welfare and health of animals during and after transport.	Appropriate design of means of transport in terms of floor area, height, watering and feeding equipment Journey times dependent on species Intervals for feeding, watering and rest
Council Regulation (EC) No 1099/2009 on the protection of animals at the time of killing.	Measures to avoid pain and to minimise the distress and suffering of animals during the slaughtering or killing process.	Measures include: <ul style="list-style-type: none"> • Stunning before or at the time of killing; • Appointment of an animal welfare officer; • Requirements on watering, slip prevention, restraining and stunning equipment; • Avoidance of administering electric shocks.

Other trade concerns legislation in EU	Key issues the legislation addresses	Standards in the legislation
Animal health		
Regulation EC/853/2004 laying down specific hygiene rules for food of animal origin.	Lays down specific rules on the hygiene of food of animal origin for food business operators.	See the table in this annex concerning food safety legislation.
Council Directive 2002/99/EC laying down the animal health rules governing the production, processing, distribution and introduction of products of animal origin for human consumption.	Lays down the general animal health rules governing all stages of the production, processing and distribution within the Community and the introduction from third countries of products of animal origin and products obtained therefrom intended for human consumption.	Products of animal origin must be obtained from animals which fulfil the animal health conditions laid down by the relevant Community legislation. Products of animal origin will be obtained from animals (1) which do not come from a holding, establishment, territory or part of a territory subject to animal health restrictions applicable to the animals

Other trade concerns legislation in EU	Key issues the legislation addresses	Standards in the legislation
		<p>and products concerned, under the rules set out, (2) which, in the case of meat and meat products, were not slaughtered in an establishment in which animals infected or suspected of being infected with one of the diseases covered by the rules referred to in (a), or carcasses or parts thereof of such animals, were present during the slaughtering or production process, unless such suspicion has been ruled out.</p> <p>Measures to ensure that products of animal origin are introduced from third countries only if they comply with the EU requirements or if they offer equivalent animal health guarantees.</p>
Regulation (EC) No 1760/2000 establishing a system for the identification and registration of bovine animals and regarding the labelling of beef and beef products.	Establishment of a system for the identification and registration of bovine animals.	See the table in this annex concerning food safety legislation.
Council Directive 2003/85/EC on Community measures for the control of foot-and-mouth disease.	<p>Introduces minimum measures to be applied during an outbreak of FMD and certain preventative measures aimed at increasing awareness and preparedness of the competent authorities and farmers for FMD. Key issues addressed are:</p> <ul style="list-style-type: none"> • Foot-and-mouth disease notification; • Establishment and removal of protection and surveillance zones, including temporary control zone; • Tracing and treatment of products and substances derived from or having been in contact with animals of an outbreak of foot-and-mouth disease; 	<p>The presence and suspected presence of FMD must be notified immediately to the competent authority. Putting suspected farms under immediate surveillance.</p> <p>Official means of investigation to confirm or rule out the presence of FMD based on standards and tests for the diagnosis of FMD.</p> <p>Measures to avoid spreading of disease based on standards for diagnostic manual and investigation, for the treatment of farms and other establishments affected in the neighbourhood, for cleaning and disinfection, for transport, and for movement of animals and people.</p> <p>A contingency plan specifying the national measures to be implemented in the event of an outbreak of FMD.</p>

Other trade concerns legislation in EU	Key issues the legislation addresses	Standards in the legislation
	<ul style="list-style-type: none"> • Regionalisation, movement control and identification; • Vaccination; • Laboratories and establishment conduction inspection tests, handling virus. 	
<p>Council Directive 2001/89/EC on Community measures for the control of classical swine fever.</p>	<p>Introduces minimum measures for the control of classical swine fever. Key issues addressed are:</p> <ul style="list-style-type: none"> • Notification; • Measures in case of suspicion of the presence of the disease; • Measures in case of confirmation of the presence of the disease; • Vaccination; • Protection and surveillance zones; • Contingency plans. 	<p>The presence and suspected presence of classical swine fever are compulsorily and immediately notified to the competent authority.</p> <p>Official means of investigation to confirm or rule out the presence of classical swine fever and holding placed under official surveillance.</p> <p>Measures to avoid spreading of disease based on culling and standards for diagnostic manual and investigation, for the treatment of farms and other establishments affected in the neighbourhood, for cleaning and disinfection, for transport, and for movement of people.</p> <p>Use, manufacture and sale of classical swine fever vaccines.</p> <p>A contingency plan specifying the national measures to be implemented in the event of an outbreak of classical swine fever.</p>
<p>Council Directive 2000/75/EC laying down specific provisions for the control and eradication of bluetongue.</p>	<p>Lays down control rules and measures to combat and eradicate bluetongue. Key issues addressed are:</p> <ul style="list-style-type: none"> • Notification; • Measures in case of confirmation of the presence of the disease; • Vaccination; • Protection and surveillance zones; • Contingency plans. 	<p>The immediate, compulsory notification to the competent authority if circulation of the bluetongue virus is suspected or confirmed.</p> <p>Official veterinarian will immediately implement official methods of investigation to confirm or rule out the presence of the disease.</p> <p>Suspect farm(s) will be placed under official surveillance. An inventory of the animals affected will be compiled. Any movement of animals from or to the holding or holdings is prohibited.</p> <p>Minima criteria for contingency plans.</p>

Other trade concerns legislation in EU	Key issues the legislation addresses	Standards in the legislation
<p>Plant health</p> <p>Council Directive 2000/29/EC on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community.</p>	<p>Concerns protective measures against the introduction into the Member States from other Member States or third countries of organisms which are harmful to plants or plant products.</p>	<p>Member States will ban the introduction into their territory and the movement within the protected zones of listed plants, plant products and other objects.</p> <p>Listed plants, plant products and other objects, their packaging and that the vehicles transporting them will be meticulously examined on an official basis.</p> <p>Producers for whom the official examination is required will be listed in an official register under a registration number.</p> <p>Producers will immediately notify the responsible official body of the Member State concerned of any unusual occurrence of harmful organisms, symptoms or any other plant abnormality.</p> <p>Listed plants, plant products and other objects listed may not be moved within the Community, unless a plant passport is issued.</p> <p>Commercial purchasers of plants, plant products or other objects will retain the related plant passports for at least one year and enter the references in their records.</p> <p>Member States will organise official checks.</p> <p>Official measures for plants, plant products or other objects identified to pose a risk for plant health.</p> <p>Member States ensure collection of a phytosanitary fee to cover the costs of documentary, identity and plant health checks.</p> <p>The Commission can organise checks carried out by experts to ensure correct and uniform application of this Directive by Member States.</p>

Other trade concerns legislation in EU	Key issues the legislation addresses	Standards in the legislation
Labour conditions		
Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work.	Introduces measures to encourage improvements in the safety and health of workers at work.	<p>Employers will take all measures necessary for the safety and health of workers, including prevention of occupational risks and provision of information, training, and the necessary organisation and means.</p> <p>Employees will:</p> <ul style="list-style-type: none"> • make correct use of machinery, apparatus, tools, dangerous substances, transport equipment and other means of production; • use protective equipment supplied to them and, after use, return it to its proper place; • refrain from disconnecting, changing or removing arbitrarily safety devices fitted and use such safety devices correctly; • immediately report serious and immediate danger to safety and health and any shortcomings in the protection arrangements; • cooperate on occupational health matters.
Council Directive 94/33/EC on the protection of young people at work.	Concerns the necessary measures to prohibit work by children, lays down requirements that work by adolescents is strictly regulated and protected, and that employers guarantee that young people have working conditions which suit their age.	Work by adolescents should be strictly regulated and protected and child labour is prohibited. For workers under the age of 18, the duration of work must be limited and night work is prohibited, apart from some exceptions. Standards include those for assessment of work-related hazards to the young, the minimum daily, weekly and annual periods of rest, adequate breaks, and appropriate wages.

