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Food Safety situation in Turkey

Note

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Executive summary

1. Considerable efforts have been made, and significant progress has been achieved, in modifying Turkish legislation and regulation in the areas of food standards and food safety towards harmonization with EU standards. However, a large number of **regulatory issues** exist where current requirements differ in Turkey from those stipulated by Community legislation.
2. Implementation of set regulatory standards and of an effective food safety and **control system** still shows major gaps and needs to be strengthened considerably to achieve being in line with established practices in the EU.
3. Difficulties exist in coordination and harmonisation of approaches and activities of the Ministry of Agriculture and Rural Affairs (MARA) and the Ministry of Health (MoH), among which responsibilities for food safety and control are shared. An even greater obstacle for efficient implementation of food safety are shortcomings in coordination of different divisions of the General Directorate of Protection and Control (GDPC) of MARA, the lack of sufficient number of staff, the lack of sufficient training and experience of staff, and the lack of other resources such as adequate information technology.
4. Generally the numbers of and the means available to the inspectors seem less than satisfactory. The number of trained staff and inspectors often is far too limited to ensure adequate supervision and effective controls of marketed foods and feeds. The level of training must be enhanced. There is a lack of sufficient access to information technology which limits rapid and complete information exchange and effective crisis management.
5. **Existing regulations on foodstuffs are often not enforced**. Deficiencies in food processing facilities detected by provincial inspection are often not rectified, and there is lack of documentation of rectification
6. Appropriate control and documentation of levels of contaminants in foodstuffs, including appropriate methods of sampling food products, accreditation and quality control of laboratories has not been achieved. Technology, quality standards and quality control in the laboratories analyzing food samples need considerable improvement.
7. Large industrial food production facilities, such as major dairy, fishery and poultry product companies, seem to have achieved production standards similar to EU standards (e.g. Good Manufacturing Practices [GMP], Good Hygiene Practices [GHP], and Hazard Analysis and Critical Control Points [HACCP] principles). However, such **EU standards are not yet achieved in the large majority of small and medium enterprises**.
8. Freedom from disease in livestock, such as Brucellosis, Tuberculosis or Bovine Spongioform Encephalopathy (BSE), cannot be adequately documented and guaranteed, and effective and comprehensive control measures and eradication programmes have not been implemented.

9. **There is an unacceptably high prevalence of diseases in livestock in Turkey**, including Foot and Mouth Disease, Brucellosis (2 % of the cattle population), Tuberculosis (10 % of the cattle population), Sheep Pox and Goat Pox and Peste de petit ruminants (PPR). This high disease rate causes losses to the livestock production, with significant financial costs, and it endangers food safety and consumer health. The Turkish Ministry of Health has estimated that a very high number of persons in the order of 14.000 people/year acquire Brucellosis by consumption of milk and milk products. There are no sufficient control measures and eradication programmes planned or implemented to reduce and control diseases in livestock. Veterinary administration has not been sufficiently strengthened to achieve such tasks.

10. **There is no effective control of the import and trafficking of animals, and of the use of antibiotics and agrochemicals**. Trade of livestock is not embedded in a supervision system ensuring that only disease free animals from disease free holdings are traded. Key measures have not been implemented such as: a) only officially approved holdings can trade with livestock, animals are accompanied by a cattle passport (or in case of sheep and goats a referring certificate), b) markets have to fulfil certain sanitary conditions, entry and exit control of markets is obligatory, and disobeying the rules shall be punished. Illegal animal movement from southern and eastern neighbouring countries (Iran, Iraq and Syria) introduces highly contagious diseases as Foot and Mouth Disease or Peste de petit ruminants into Turkey.

11. The **Avian Flu (Bird Flu)** spread very rapidly in Turkey, with a large number of affected animals as well as a significant number of affected humans. It appears that measures of food safety and crisis management were not effective. The performance of the veterinary service supervision of the production of poultry and poultry products, in particular regarding certification, verification of own-checks, *ante* and *post mortem* inspection, checks of potable water, and the documentation thereof, has major shortcomings.

12. Food labelling of some products of major manufacturers has achieved EU standards, whereas **labelling of the majority of food products is nowhere near EU standards of food labelling**.

13. It seems very difficult to reach EU standards of food safety in the near future. However, there is the will and determination to achieve adequate standards of food safety at least in some areas, not the least for economic reasons in order to secure export of food products into the EU.

1. Introduction

The European Parliament requested a briefing note in relation to the Food Safety situation in Turkey in preparation of Environment, Public Health and Food Safety Committee Delegation visit to Turkey in October 2008, addressing the following issues:

- A general representation of the situation of food safety in Turkey;
- A presentation of problems related to risk management and risk communication of certain foods diseases/crises;
- Status of preparation of Turkey, based on the *acquis communitaire*, in the area of food safety (i.e. avian flu, food hygiene, and feed hygiene) and forthcoming challenges;
- A series of recommendations of sectors or areas to be discussed with the Turkish authorities.

The sources of information[1] used to address these questions include information published in the scientific literature, as screened by an electronic literature search and data search, information available from different scientific and regulatory authorities, as well as personal communication with experts in regulatory authorities, in food companies with activities both in the EU and in Turkey, and in scientific institutions, including experts with particular insights into the practice of food safety issues in Turkey.

[1] In some cases information was shared based on the condition to the identity of the source of information would not be disclosed. However, every effort has been made to ensure that the information presented here is accurate.

2. Agriculture in Turkey

Agriculture and food production play a major role in the Turkish economy. Turkey has 27 million hectares of agriculture land (excluding pastures and meadows) which represents about 20 % of the EU-25 agriculture land (Screening Report Turkey - Acquis Communautaire - Chapter 11, 2006). Agriculture contributes 11 % of the GDP and provides about 33 % of the country's employment. The total value of Turkish agricultural production reached 29 billion € in 2004 (equivalent to 9 % of total EU-25 agricultural production).

The agricultural sector is characterized by a large number of farms (3 million based on the 2001 census), most of which are small (average farm size 6 hectares) and use production methods that are not highly developed (Demirbas et al 2008).

Turkish agriculture sector is governed mainly by the following legal acts: the *Turkish Constitution*, legislation establishing agriculture related institutions, a number of commodity-laws (cotton, tobacco, sugar, olive, hazelnuts, tea, rice, silkworms, spirits), a "*Law on soil conservation and land use"* (No. 5403), "*Agricultural insurance law"* (No. 5363), "*Law on agricultural credit cooperatives"* (No.1581), "*Law on agricultural sales cooperatives"* (No. 4572), "*Law on producer unions"* (No. 5200), "*Law on chambers of agriculture"* (No.6964), "*Law on registration, control and certification of seeds"* (No. 308), "*Law on organic farming"* (No. 5262), "*Law on production, consumption and control of foodstuffs"* (No. 5179), "*Law on animal breeding"* (No. 4631). A new *Law on agriculture* (No. 5488) was adopted on 25 April 2006 by the Parliament. (Screening Report Turkey - Acquis Communautaire - Chapter 11, 2006).

With respect to legislative alignment, it has been concluded that progress is uneven (Turkey 2006 Progress Report). Turkey adopted a new Agriculture Law to implement its "Agricultural Strategy Paper 2006-2010", which puts emphasis on increasing productivity and ensuring food supply, competitiveness and modernisation of the agricultural sector and rural areas, but it gives lower priority to food safety and consumer related matters. It also moves Turkey further away from the principles of the reformed CAP by defining support linked to production as a key instrument of agriculture policy.

A concern is that the Turkish agricultural sector is governed by a very large number of institutions (Screening Report Turkey - Acquis Communautaire - Chapter 11, 2006). The main political actors in agriculture are the Ministry of Agriculture and Rural Affairs (MARA), State Planning Organization (SPO) (including the High Planning Council Money-Credit Coordination Council), Undersecretariat for Foreign Trade, Undersecretariat of Treasury, Committee on Restructuring and Support in Agriculture. Affiliated to the Ministry of Agriculture and Rural Affairs are the Turkish Grain Board, Directorate General of Agricultural Enterprises, Meat and Fish Company, Tea Company, Agricultural Credit Cooperatives and Agricultural Development Cooperatives. Affiliate to the Ministry of Industry and Trade are the Agricultural Sales Cooperatives, Sugar Authority, Commodity Exchanges, Fresh Fruit and Vegetables Wholesale Markets, Turkish Standards Institute, Turkish Statistics Institute and the Turkish Accreditation Authority.

3. Legal provisions on food safety and the veterinary and phytosanitary sectors

Responsibilities for food safety and control are traditionally shared between the Ministry of Agriculture and Rural Affairs (MARA) and the Ministry of Health (MoH).

The main legal acts governing the food safety, veterinary and phytosanitary sectors include amongst others the *Decree Law no. 441 on Organisation and Duties of MARA (O.G. 09.08.1991, no. 20955), Food Law no. 5179 (O.G. 05.06.2004, no. 25483), Animal Health Control Law no. 3285 (O.G. 16.05.1986, no. 19109), Animal Breeding Law no. 4631 (O.G. 10.03.2001, no. 24338), Feed Law no. 1734 (O.G. 07.07.1973, no. 14557), Fisheries Law no. 1380 (O.G. 04.04.1971, no. 13799), Law of 308 on Registration Control and Certification of Seeds[1] (O.G. 29.08.1963, no. 11493), Law on Protection of Breeder's Rights of New Plant Varieties no. 5042, (O.G. 15.01.2004, no. 25347)* and *Plant Protection and Quarantine Law no. 6968 (O.G. 24.05.1957, no. 9615)* (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007). However, Turkey has currently no comprehensive food safety strategy, and in the legislative field, the "food, feed and veterinary package", foundation for future alignment with EU rules, has still not been adopted (Turkey 2006 Progress Report).

It appears that legislation in the areas of labelling, presentation and advertising, additives and purity criteria, extraction solvents, quick frozen foodstuffs and irradiated food, is mostly in line with the *acquis* and implemented, while alignment in the area of mineral waters is quite advanced (Turkey 2006 Progress Report). Turkey has largely harmonised the legislation relating to food for particular nutritional uses, whereas with respect to flavourings and implementing legislation regarding food contact materials, the transposition of the *acquis* remains to be completed. Transposition of the *acquis* on food supplements has not yet started. Implementation of the *acquis* in the area of hygiene and official control has been limited. The regulation on market control of foodstuffs and packaging material is not fully aligned. Regulations on setting up maximum limits for certain contaminants are in place, but further amendments are needed to follow EU practise. The legislation on official controls of contaminants is in line with the *acquis*. On genetically modified organisms (GMO) and novel foods, no progress can be reported regarding the transposition of the *acquis*.

4. Harmonisation of regulatory approaches in Turkey with those in the European Union

While considerable progress has been made in moving towards a greater degree of harmonisation of legislation and regulation with EU standards (cf. chapters 3-5), a large number of regulatory issues exist where current requirements and practices differ in Turkey from those stipulated by Community legislation. Here some examples related to the particularly sensitive group of dietary products for infants and young children and to other foodstuffs for particular nutritional uses (PARNUTS) are presented.

Measuring spoons in cereal based baby foods

Turkish regulations require that processed cereal-based foods for infants and young children (cereal based baby foods) must have a measuring spoon inside the package, and the weight of one spoonful of the respective cereal based baby food should be declared on the label. However, currently, none of the producers/importers of cereal based baby foods has measuring spoons inside the packages. Therefore, also in the instructions for preparation on the labels, instead of a measuring spoon the unit of a tablespoon is being used. It appears that the existing Turkish regulations requiring the addition of a measuring spoon in the cereal based baby food package are not enforced.

Caramel in cereal based baby foods

Turkish regulations do not allow the addition of "caramel" in cereal based baby foods. The Ministry of Agriculture considers "caramel" as a colorant or aroma and therefore does not allow caramel in cereal based baby foods. Nonetheless, producer/importers are using "caramel" in cereal based baby foods on a regular basis but declare "caramel" as "sucrose".

Long-chain polyunsaturated fatty acids from fermentation oils (single cell oils) in infant formulae and follow-on formulae

In contrast to EU regulations, Turkish regulations had not allowed the addition of long-chain polyunsaturated fatty acids from fermentation oils (single cell oils) in infant formulae and follow-on formulae, under regulations of the MARA, while their addition to foods for special medical purposes for infants (i.e. "infant formulae" given under certain disease conditions) had been accepted under regulations of the MoH. The reason for the restrictive approach applied by MARA has not been made transparent, but it may be due to remaining concerns about safety. Apparently the Turkish authorities did not accept the safety evaluations performed on this issue by the Commissions Scientific Committee for Food as well as the conclusions reflected in Community Legislation on this issue. When asking for the rationale for this divergent approach of the two ministries, officials of the MARA that been approached did not offer an explanation.

Nutrition and Health Claims for Infant Foods

The claim "nutritionally complete" has not been allowed for use on labels of cereal based baby foods. It is considered that the term "nutritionally complete" would mislead the consumer to believe that one could feed a baby only with cereal based baby foods, without other foodstuffs.

Also, the use of the "meal" denomination is not allowed for use on labels of cereal based baby foods. In contrast to the European Union, in Turkey it is considered that a single infant's meal should not be composed only of a cereal based baby food, and therefore such a label statement would mislead consumers. The reasoning for this approach and any possible justification by scientific and risk assessment evaluation is not available.

Foodstuffs Intended for Particular Nutritional Uses

According to Turkish regulations, only the limited number of product groups shown below has been considered to be foodstuffs for particular nutritional uses (PARNUTS), and no other products can be considered as PARNUT. Considered in Turkey as PARNUTS have been: Infant formulae; Follow-up formulae; Baby foods; Low-energy and energy-reduced foods intended for weight control; Foods for special medical purposes (FSMP); Low-sodium foods, including low-sodium or sodium-free dietary salts; Gluten-free foods; Foods intended to meet the expenditure of intense muscular effort, especially for sportsmen; Foods for persons suffering from carbohydrate-metabolism disorders (diabetes).

Nutrition and health claims

According to Turkish Regulation on Labelling, a positive list of health claims has been introduced. Only these claims can be used if the required conditions are met. Other claims are not allowed to be used.

General advice not directly related to the foodstuff

In general, advices and information on food labels on healthy lifestyles, such as encouragement on regular physical activity or exercise, are considered as misleading the consumer and are not allowed.

5. Reports on expert missions and a twinning project

Reports on a limited number of expert missions to Turkey performed by the European Community's Food and Veterinary Office since 2000 are available on Internet pages. They mainly relate to:

- Facilities and measures in place for the determination of aflatoxin levels in hazelnuts, pistachios, and dried figs intended for export into the European Union;
- Conditions of production of fishery products;
- Evaluation of a food irradiation facility;
- Assessment of the control systems in place to prevent aflatoxin contamination in hazelnuts, pistachios, and dried figs intended for export into the European Community;
- Assessment of the conditions of production of fresh poultry meet intended for export to the EU.
- A twining project report points out a very high prevalence of Foot and Mouth Disease, Brucellosis, Tuberculosis, Sheep Pox and Goat Pox and Peste de Petit Ruminants (PPR) among livestock in Turkey.

6. Labelling of foodstuffs

Labelling of foodstuffs is regulated in the Turkish Food Codex – Communiqué on Rules for General Labelling and Nutritional Labelling of Foodstuffs (2002/58), which contains 17 articles, addressing in particular: Labelling of Pre-packaged Foods; Labelling of Small Packaged Foods; Bulk Food; Compliance with EU; Registration and Inspection; Inspection; Provisional Article; Enforcement; Objective; Scope; Legal Basis; Definitions; Rules for Labelling and Marking; Labelling Information; Definitions of Labelling; Information Execution.

Based on this legislation, compulsory information required on the labelling of foodstuffs includes: The name of the foodstuff; List of ingredients; Net quantity; Name, registered mark, address, place of production of manufacturer and packager; Expiry date; Lot number and/or serial number; Date and number of production allowance, registration number or date and number of import control certificate; Country of origin; Instructions for use and storage if necessary; The amount of alcohol for beverages containing more than 1.2% by volume of alcohol.

The communiqué 2006/3 amending 2002/58 added:

- Annex 5. Products which may be indicated by the group name in the ingredient list (2003/89/EC);
- Annex 8. Allergens (2005/26/EC);
- Annex 9. Health claims (not harmonized).

Based on Annex 9, health claims are accepted for calcium; cholesterol, sodium, fat, saturated fatty acids; sugar; and probiotic/prebiotic and fibre.

Considering the current practice of food labelling in Turkey, several large food producers are using food labelling standards that are in line with EU standards. However, the majority does not bear food labelling anywhere close to what would be considered appropriate in the EU. Authorities and consumers seem to attach importance to the Halal-labelling of foods, and to ensuring proper conditions of Halal food production, while other issues seem not to get anywhere near the same level of attention.

Large differences exist across the different provinces in Turkey, where particularly poor standards of food labelling appear to exist in the eastern provinces and in the southeastern region bordering Syria, Iraq and Iran.

7. Avian flu (Bird flu)

Avian influenza, or 'bird flu', is a highly contagious viral infection which can affect all species of birds. While domestic birds are generally highly susceptible to the clinical manifestation of the disease, wild birds, and especially waterfowl, are usually naturally resistant and may not show any sign of illness when carrying the virus. Wild waterfowl therefore represent a natural reservoir for these viruses and can be responsible for the primary introduction of infection into domestic poultry. There are many different strains of the disease, but the type causing current concern is the H5N1 variety, which can be fatal to humans. The rapid spread of avian flu across Asia to Eastern Europe and Turkey had prompted fears that the disease might become endemic in the country and spread across Europe.

The WHO has been investigating how, despite the best efforts of Turkish authorities to contain the disease, Avian Flu has been able to spread so rapidly in Turkey. The WHO reports that initial investigations have found no evidence that the virus has become more transmissible or that it is spreading from person to person. However, this situation has been closely monitored by the food industry, particularly in the light of Turkish news reports attributing the infections to the consumption of infected chicken as food, rather than contact with infected birds.

In July 2008, the Turkish Ministry of Agriculture and Rural Affairs (MARA) informed the Office International des Epizooties at Paris that between 18.01.2008 and 12.04.2008, seven HPAI (H5N1) outbreaks were officially recorded in Turkey (locations shown on figure 12), whereas no new Avian Influenza outbreaks have been registered in Turkey since 12.04.2008[2]. MARA reported that the source of outbreak has been determined as direct or indirect contact with wild birds.

[2] http://www.kkgm.gov.tr/birim/hay_sagl/Hastaliklar/AI/AI_WEB/2008_bildirim/OIEbildirimleri/arilik_basvuru_OIE_bildirim.pdf; last downloaded 28 September 2008

8. Other aspects of animal health

The current animal health situation in Turkey is very critical and risks remain for a long period of time (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007). Foot and Mouth Disease (FMD); Rabies, Bovine Tuberculosis; Bovine Brucellosis and Peste des Petits Ruminants (PPR) are currently endemic in Turkey (cf. Annexe 14.6). Classical Swine Fever is currently not listed as a notifiable disease. The Turkish authorities report that no Bovine Spongiform Encephalopathy (BSE) case has been detected so far, but the number of BSE test conducted in the recent years remains extremely low (ca. 300/year), and hence no firm conclusions can be drawn on BSE cases in Turkey.

Brucellosis is an endemic anthropozoonotic disease in most Middle East countries and represents a serious public health problem particularly in eastern Turkey (Kokoglu et al 2006). The overall prevalence of brucellosis in cattle in Turkey is considered as 2 % (cf. Annnexe 14.6). In a recent study in 626 serum samples of cattle obtained from 27 herds in northeastern Turkey with a history of abortions, Brucella antibodies were found in close to 40 % of animals (Sahin et al 2008). Human infections are common in Turkey. The Turkish Ministry of Health has estimated that a very high number of persons in the order of 14.000 people/year acquire Brucellosis by consumption of milk and milk products (cf. Annexe 14.6). In a recent cross-sectional, community-based study in rural areas of eastern Turkey, blood sera were obtained from 573 peopls and Brucella antibodies were detected in 11.9% with the Rose-Bengal test (Vancelik et al 2008)

Tuberculosis is another zoonotic disease that is spread from infected cattle to humans through the consumption of milk and meat. Tubercolosis is even more widespread in cattle, with an estimated infection rate of 10 % of all cows in Turkey (cf. Annexe 14.6). A considerable risk of human infection (visceral tuberculosis) must be expected, particularly in people consuming raw milk and raw milk cheese.

Adequate administrative capacities to handle control measures for animal diseases are limited. Illegal animal movement from southern and eastern neighbouring countries (Iran, Iraq and Syria) constantly introduces highly contagious diseases as Foot and Mouth Disease or Peste de petit ruminants into Turkey. With respect to legal animal movements, Turkey does not apply EU conformed control systems of imports, but a regime of individual licences. The effort of preparation of secondary legislation and adoption of contingency plans is hampered by the non-adoption of the Veterinary Law. A particular problem causes Foot and Mouth Disease (FMD), which has recently also been discovered in the Trace region, so far considered as free. Recent vaccination campaigns were put at risk due to missing financial and human resources (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007).

9. Observations on the practice of securing food safety in Turkey

Stakeholders from regulatory bodies inside and outside of Turkey and from international food companies with branches in Turkey have provided comments on practical aspects of securing food safety in Turkey. These comments must be regarded as personal views and are not based on accountable data.

It appears that considerable efforts have been made, and great progress has been achieved, in modifying legislation, regulation and inspections and monitoring in the areas of food standards and food safety towards harmonization with EU standards. Many large industrial food production facilities, such as major dairy, fishery and poultry product companies, seem to have achieved standards similar to EU standards, including introduction of Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP), and Hazard Analysis and Critical Control Points (HACCP) principles. However, such standards are not being achieved in the large majority of the numerous small and medium enterprises throughout the country.

In spite of good standards of some large production facilities, even they can oftentimes not meet EU food standards because the conditions of primary production, particularly of livestock, are far from satisfactory. Freedom from disease, such as Brucellosis or Tuberculosis, often cannot be adequately documented and guaranteed, and effective and comprehensive control measures and eradication programmes have not been implemented. There is no effective control of the import and trafficking of animals, particularly from Syria, Iraq and Iran, and of the use of antibiotics and agrochemicals.

Food safety in the Turkish dairy sector is far less than satisfactory, since milk delivered to milk collection centres is generally obtained from small-scale family farms, and it is not of the desired quality from a food safety and food quality perspective. EU milk quality levels are only reached by a limited number of large scale dairy farms (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007). For example, this was documented in a recent study on the role and importance of the milk collection centres in Izmir ((Demirbas et al 2008).). It was found that quality control analysis of raw milk cannot be carried out because of the lack of qualified specialists and equipment inadequacies. The most general test applied on milk delivery is based on the monitoring of the sensory properties of the milk. It is concluded that an effective organizational and educational structure must be established to monitor food safety and related practices in milk collection centres.

The structure, personnel, training and resources of the Competent Authorities in the area of food safety need to be strengthened. The General Directorate of Protection and Control (GDPC) of the Ministry of Agriculture and Rural Affairs (MARA) and its affiliates have not yet fully implemented a sufficient control of marketed foods. Imported food products are controlled to some degree upon entrance into the country. In contrast, locally produced products sold on the Turkish market are said to be only very rarely controlled, usually only upon the receipt of complaints. To achieve the goal to prevent fraud and unsafe food and protect consumers' health, a more efficient and effective food control system needs to be established and implemented.

There is a need to have an even better trained, skilled and motivated staff with both theoretical and practical knowledge of Food Quality Assurance (FQA), Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP), Hazard Analysis and Critical Control Points (HACCP) principles. Moreover, a well-functioning system to register all relevant records and information is needed to assure the efficiency and the practical function of the food safety and control system in Turkey.

The need to improve training, skills and motivation of staff also applies to the implementation of effective food safety measures in food processing companies. Bas et al (2006) determined food safety practices and procedures related to the hazard analysis critical control point (HACCP) programme, prerequisite programme implementation and food safety practices in 109 food businesses in Turkey. Only eight of 109 companies had implemented the HACCP system in food businesses. Directors and employees often have insufficient knowledge regarding the basics of food hygiene. Results indicated that proper food safety practices and prerequisite food safety programmes for HACCP were often not being followed in many food businesses. Time and temperature errors and inadequate hand washing practices were found in most food businesses. The problems of implementing HACCP in food businesses have been namely a low level of food hygiene management training, high staff turnover rate, lack of motivation, lack of financial resources, inadequate equipment and physical conditions of the facility and failure of government supervision and control (Bas et al 2006).

Similar challenges are found in the dairy industry, as recently documented in the Izmir province (Demirbas and Kargözlu 2008). The dairy industry in this area has all the structural characteristics of the dairy sector in Turkey. It was determined to which extent the dairy industry practice conforms to the changes in food legislation in Turkey, in accordance with internal and international trade and agreements. A survey in which dairy plant managers responded to a special questionnaire was used to collect data from 86 dairy plants chosen on the basis of proportional sampling. The study reveals that there are a large number of dairy processors in the Izmir province, which handle rather small volumes of milk and have little control over the raw milk supply. Most managers have a limited education concerning their positions, and resources are too limited in these firms, limiting their ability to adopt most regulations. Few processors apply the regulatory practices imposed by governmental agencies. Again, the study documents that the implementation of food legislation is not ensured by adequate inspection and controls by government agencies, to enhance food safety in the dairy industry in Turkey (Demirbas and Kargözlu 2008).

Several experts have emphasized that there is a major deficiency in availability of modern information technology for rapid exchange and evaluation of information. It appears important to develop a computer network which allows efficient and fast communication between the different services of the administration i.e. the central administration, the decentralized administration, and the laboratories. Such a system would allow to better store, process and exchange information, for example through internet, and to strengthen the interaction of the provincial laboratories with other national or foreign laboratories. Such a computer network linking all Directorates of Provincial Laboratories, the Directorates of the Control Division and the General Directorate would allow higher speed and efficiency and enable a better response to the needs of the Food Control Services Department.

In addition, technology and quality standards in the laboratories analyzing food samples appear necessary. Computer technology for registration of samples at their arrival, for following them during the analysis process, and for final evaluation and exchange of the results should be implemented. Such a system would also make it easier to rapidly exchange quality assurance data, to participate in inter-laboratory comparison programmes, and to assess and enhance the quality and accuracy of measurements.

Generally the means available to the inspectors seem less than satisfactory. They also lack technology in the field of communication and general information. Moreover, the level of training must be enhanced.

Major differences in the practice and implementation of food safety measures seem to exist in different parts of the country. It was pointed out that in the less developed areas of Central and Eastern Anatolia, and particular in southeastern region bordering Syria, Iraq and Iran, implemented quality standards and practices would be far weaker than in the Western, more affluent parts of the country.

The experts who offered insights generally agreed that it will hardly be possible for Turkey to reach EU standards of food safety in the near future, and that this would also known and acknowledged in private conversations by officials of the Ministry of Agriculture and Rural Affairs and the Ministry of Health. However, there is the strong will and determination to achieve adequate standards of food safety at least in some areas, not the least for economic reasons in order to secure export of food products into the EU.

Overall, Turkey has reached a low level of alignment in the preparation for accession with respect to food safety, veterinary and phytosanitary issues (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007). Gaps exist in the harmonisation of legislation, but much greater are the gaps in securing implementation of legislative regulations. There is a lack of mid to long-term strategies for the improvement of the food safety, veterinary and phytosanitary situation which hinders the identification of priorities and subsequently the allocation of appropriate financial and human resources to tackle the problems (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007). There is a lack of strengths of the necessary institutions for implementing and enforcing the *acquis* for food safety and veterinary and phytosanitary legislation, as well as a substantial deficit in administrative capacity, in particular in the case of the various supervisory and inspection bodies foreseen by the *acquis* as well as laboratories and border inspection posts.

The large size of Turkey, the dominance of small holdings and small scale food processing establishments in remote areas, the critical animal health situation of Turkey and certain cultural traditions pose key challenges to the enlargement process in the area of food safety, veterinary and phytosanitary policy (Screening Report Turkey - Acquis Communautaire - Chapter 12, 2007).

10. Recommendations

The following recommendations may provide ideas for a debate/discussion session with the Turkish institutional authorities:

- Which measures are planned and implemented to further reduce the organizational and difficulties arising form the shared and split responsibilities between the MARA and the MoH?

- Which strategies and measures are introduced to ensure that existing regulations on foodstuffs are either enforced or removed (cf. lack of enforcement of the Turkish regulations requiring the addition of a measuring spoon in cereal based baby food packages, or of the non-approved addition of "caramel" to cereal based baby foods under the declaration as "sucrose")?

- Which measures are being taken to ensure appropriate control and documentation of levels of contaminants, such as aflatoxin, in foodstuffs, including appropriate methods of sampling food products, accreditation and quality control of laboratories measuring contaminant levels in foodstuffs, and adequate standards for issuing export certificates by the Ministry of Agriculture and Rural Affairs?

- Which measures are being taken to ensure that deficiencies in food processing facilities detected by provincial inspection are actually rectified, and that rectification is documented?

- How is it explained that Avian Flu (Bird Flu) has been able to spread so rapidly in Turkey, and why has it led to the significant number of human infections observed? Which consequences have evolved out of the experience gained during the recent Avian Flu epidemic? Which measures are being taken to further upgrade and enhance the performance of the veterinary service supervision of the production of poultry and poultry products, in particular regarding certification, verification of own-checks, *ante* and *post mortem* inspection, checks of potable water, and the documentation thereof?

- Which measures are being taken to address the unacceptably high prevalence of diseases in livestock in Turkey, including Foot and Mouth Disease, Brucellosis (2 % of the cattle population), Tuberculosis (10 % of the cattle population), Sheep Pox and Goat Pox and Peste de petit ruminants (PPR)? This unacceptably high disease rate is causing losses to the livestock production, with significant financial costs, and endangers food safety and consumer health. The Turkish Ministry of Health has estimated that a very high number of persons in the order of 14.000 people/year acquire Brucellosis by consumption of milk and milk products. Which control measures and eradication programmes are planned or implemented to reduce and control diseases in livestock? How is veterinary administration at headquarter and local level enabled and authorized to comply with its tasks?

- What measures are taken to enhance the currently inadequate level of surveillance for Bovine Spongioform Encephalopathy (BSE)?

- Which funding and support is foreseen to be invested over the years to come by the Government of Turkey to establish, support and maintain disease control measures and eradication programmes? Is the creation of appropriate compensation schemes for animals to be slaughtered or destroyed during disease control measures foreseen?

- Which options are available, and which measures are considered, to enhance the standards of particularly small and medium size food production facilities, and to introduce standards similar to EU standards (e.g. Good Manufacturing Practices (GMP), Good Hygiene Practices (GHP), and Hazard Analysis and Critical Control Points (HACCP) principles) which appear to have been successfully established in a number of large food production facilities in Turkey, but not in the large majority of small and medium enterprises throughout the country.

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