EUROPEAN COMMISSION
HEALTH AND CONSUMERS DIRECTORATE-GENERAL

Directorate F - Food and Veterinary Office

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FINAL REPORT OF AN AUDIT

CARRIED OUT IN

BOSNIA AND HERZEGOVINA

FROM 25 MARCH TO 03 APRIL 2014

IN ORDER TO EVALUATE THE PLANT HEALTH SITUATION AND THE OFFICIAL CONTROLS OF POTATOES IN VIEW OF POTENTIAL EXPORT TO THE EUROPEAN UNION

Executive Summary

This report describes the outcome of an audit carried out by the Food and Veterinary Office (FVO) in Bosnia and Herzegovina from 25 March to 3 April 2014.

The main objective of the audit was to evaluate the system of official plant health controls related to potato production and the certification of potatoes for export to the European Union (EU), according to the requirements of Council Directive 2000/29/EC, with particular focus on the situation of and controls for Clavibacter michiganensis *spp.* sepedonicus *(causing potato ring rot),* Ralstonia solanacearum *(causing potato brown rot), potato cyst nematodes (*Globodera *spp.) and* Synchytrium endobioticum *(causing potato wart disease).*

Overall the report concludes that the picture regarding the situation and official controls of the main potato harmful organisms in Bosnia and Herzegovina is positive. Official diagnostic laboratories are working well and detection methods are equivalent to those applied in the EU. Seed potato plots are subject to an official surveillance programme which includes soil sampling prior to planting, visual surveys of the growing crop and tuber sampling during harvest and storage. Available data indicate that so far there has been no incidence of ring rot and brown rot. However, the surveillance methods applied to confirm this, are not fully in line with EU requirements. Sampling is not fully representative as the samples are mainly taken in the fields of large scale commercial producers of certified seed and ware potatoes. Potatoes destined for local markets or the domestic household consumption are not surveyed. S. endobioticum *has not been detected and the presence of potato cyst nematodes is very limited.*

Although ring rot and brown rot have not been detected, Bosnia and Herzegovina cannot be regarded as free from these bacteria as there are problems in the methodology of sampling and in the number of tuber samples analysed.

The report makes recommendations to the competent authorities aimed at addressing areas in which further improvements are required.

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Abbreviations and definitions used in this report

Abbreviation	Explanation
BD	Brčko District
BIP	Border Inspection Post
Brown rot	Disease caused by the bacterium *Ralstonia solanacearum* (Smith) Yabuuchi *et al*.
Cms	*Clavibacter michiganensis* ssp. *sepedonicus*
EC	European Community
EPPO	European and Mediterranean Plant Protection Organisation
EU	European Union
FBIH	Federation of Bosnia and Herzegovina
FVO	Food and Veterinary Office
ha	hectares
IPPC	International Plant Protection Convention
ISPM	International Standards on Phytosanitary Measures
NPPO	National Plant Protection Organisation
PCN	Potato cyst nematode
PCR	Polymerase chain reaction
PHPA	Plant Health Protection Administration of Bosnia and Herzegovina
PHYTO-Register	Registration database for plant health
PSTVd	Potato spindle tuber viroid
PWD	Potato wart disease caused by the fungus *Synchytrium endobioticum*
RAH	Register of Agricultural Holdings
Ring rot	Disease caused by the bacterium *Clavibacter michiganensis* (Smith) Davis *et al*. ssp. *sepedonicus* (Spieckermann et Kotthoff) Davis *et al*.
RS	Republic of Srpska
Rs	*Ralstonia solanacearum*
t	tons

1 Introduction

The audit took place in Bosnia and Herzegovina from 25 March to 3 April 2014 and was undertaken in addition to the Food and Veterinary Office's (FVO) planned audit programme. The FVO team consisted of two officials from the FVO and one national expert from a Member State. Representatives from the Plant Health Protection Administration (PHPA) of Bosnia and Herzegovina, accompanied the FVO team during the audit.

An opening meeting was held on 25 March 2014 in Sarajevo at the headquarters of the PHPA. The FVO team confirmed the objectives, scope and itinerary of the audit and requested additional information for the successful completion of the audit.

2 Objectives

The main objective of the audit was to evaluate the phytosanitary situation of the potato production in Bosnia and Herzegovina, in view of a possible lifting of the prohibition on imports into the EU, laid down in Annex III point 12 to Council Directive 2000/29/EC.

The audit team gathered relevant information on phytosanitary aspects of potato production and certification and focused on the situation and controls for *Clavibacter michiganensis* ssp. *sepedonicus, Ralstonia solanacearum, Globodera* spp. and *Synchytrium endobioticum*.

In pursuit of this objective, the following competent authorities were contacted and the following plant health control sites were visited:

Competent authority visits (Nº)	**Comments**
Central office (1)	NPPO, Plant Health Protection Administration, Sarajevo
Government offices (2)	Federation of Bosnia and Herzegovina, Sarajevo Republic of Srpska, Banja Luka
Agricultural Inspectorates (2)	Federation of Bosnia and Herzegovina, Sarajevo Republic of Srpska, Banja Luka
Laboratory visits	
Nematology and Bacteriology / Agricultural Institute in Sarajevo (2)	
Nematology / Agro-Mediterranean Institute in Mostar (1)	
Nematology / Faculty of Agriculture in Banja Luka (1)	
Bacteriology / Agricultural Institute in Banja Luka (1)	
Plant health control sites	
Potato warehouses / packing / despatch stations (2)	Laktasi, Capljina
Potato producers (4)	Ljubuskom, Glamoc, Gradiska, Laktasi
Potato processing facility (1)	Laktasi
Border Inspection Posts (2)	Bijaca, Gradiska

3 Legal Basis

The audit was carried out under the general provisions of EU legislation and in particular Articles 21 and 27a of Council Directive 2000/29/EC, and with the agreement of the NPPO of Bosnia and Herzegovina.

3.1 Relevant legislation

All EU legislation relevant for this audit is listed in Annex 1. Legal acts quoted refer, where applicable, to the last amended version.

3.2 Relevant standards

International Standards for Phytosanitary Measures (ISPMs) issued by the International Plant Protection Convention (IPPC) of relevance for this audit are listed in Annex 2.

4 Background

This was the first audit carried out by the FVO to Bosnia and Herzegovina for plant health matters. The import into the EU of potatoes other than seed potatoes from most third countries is prohibited by point 12 of Part A of Annex III to Council Directive 2000/29/EC. However, in accordance with the same point, imports may be permitted from European third countries which are either recognised as being free from *Clavibacter michiganensis* ssp. *sepedonicus* (*Cms,* causal agent of ring rot), or in which provisions recognised as being equivalent to the EU provisions on combating the disease have been complied with.

There are additional requirements, included in Annex IV, Part A, Section I of the same Directive, relating to other harmful organisms of potato that must be complied with in order for potatoes to be imported into the EU. In particular, Point 25.1 of the Annex relates to *S. endobioticum* (causal agent of potato wart disease, PWD). Point 25.4 of the same Annex relates to *Globodera rostochiensis* and *G. pallida* (potato cyst nematodes, PCN) and *Ralstonia solanacearum* (*Rs,* causal agent of brown rot).

The status of these and other harmful organisms of potatoes of concern to the EU is detailed in section 5.3 below.

In 2012, the NPPO of Bosnia and Herzegovina, submitted a request for recognition of the country as being free from ring rot. The European Commission requested further technical information on potato production and the phytosanitary situation in Bosnia and Herzegovina which was provided in their response to a questionnaire. This information was assessed by the Standing Committee on Plant Health in July 2013, which recommended that the FVO carry out an audit in order to assess the situation on the spot.

Unless otherwise stated, statistical data in the following chapters were provided by the NPPO.

5 Findings And Conclusions

5.1 Organisational aspects of plant health controls

Legal requirements

Article 2(1)(i) of Council Directive 2000/29/EC establishes the requirements for a measure or statement, to be considered as 'official'. In particular, '…if it is made by representatives of the official NPPO of a third country, or, under their responsibility, by other public officers who are technically qualified and duly authorised…'

ISPM 7 describes the basic elements of the phytosanitary certification process and the requirements for a certification system to fulfil these functions. Sections 1 (Legal Authority), 2 (NPPO administrative and operational responsibilities), 3 (Resources and Infrastructure), 4 (Documentation), 5 (Communication) and 6 (Phytosanitary Certification System Review) are of particular relevance.

ISPM 23 describes the objectives and requirements for inspections. Of particular relevance here, are sections 1.3 (Responsibility for inspection) and 1.4 (Requirements for inspectors).

5.1.1 National Plant Protection Organisation - Human resources

Findings

The State of Bosnia and Herzegovina consists of two entities – the Federation of Bosnia and Herzegovina (FBIH) and the Republic of Srpska (RS), and one district - Brčko District (BD). The competent authority at central (State) level is the Bosnia and Herzegovina Plant Health Protection Administration (PHPA, - 3 plant health staff) which is part of the Ministry of Foreign Trade and Economic Relations. Under the IPPC, PHPA is the NPPO of Bosnia and Herzegovina.

The competent authorities at the entity- and district-level are the FBIH Ministry of Agriculture Water Management and Forestry (2 plant health staff), the RS Ministry of Agriculture, Forestry and Water Management (3 plant health staff) and the BD Department of Agriculture, Forestry and Water Management (1 plant health staff). These competent authorities have mainly administrative tasks and deal with policy and regulatory matters within the entity/district level.

Official annual surveillance and plant health monitoring is carried out by the Agricultural Research Institutions of the entities of FBIH and RS. These are the FBIH Agricultural Institute in Sarajevo (with 6 professional staff), the FBIH Agro-Mediterranean Institute in Mostar (with 4 professional and 1 support staff), the Agricultural Institute of RS in Banja Luka (with 7 professional and 2 support staff) and the RS Faculty of Agriculture of Banja Luka Univeristy (with 1 professional and 1 support staff). The Institutions receive authorisation by PHPA to carry out general and specific surveillance activities for plant health. Sampling and analysis of samples for the detection and identification of the main quarantine harmful organisms of potato is carried out by nematology and bacteriology laboratories operating within the structure of the entity research institutes (see also section 5.1.7). Institute staff have legal powers associated to growing crops in fields.

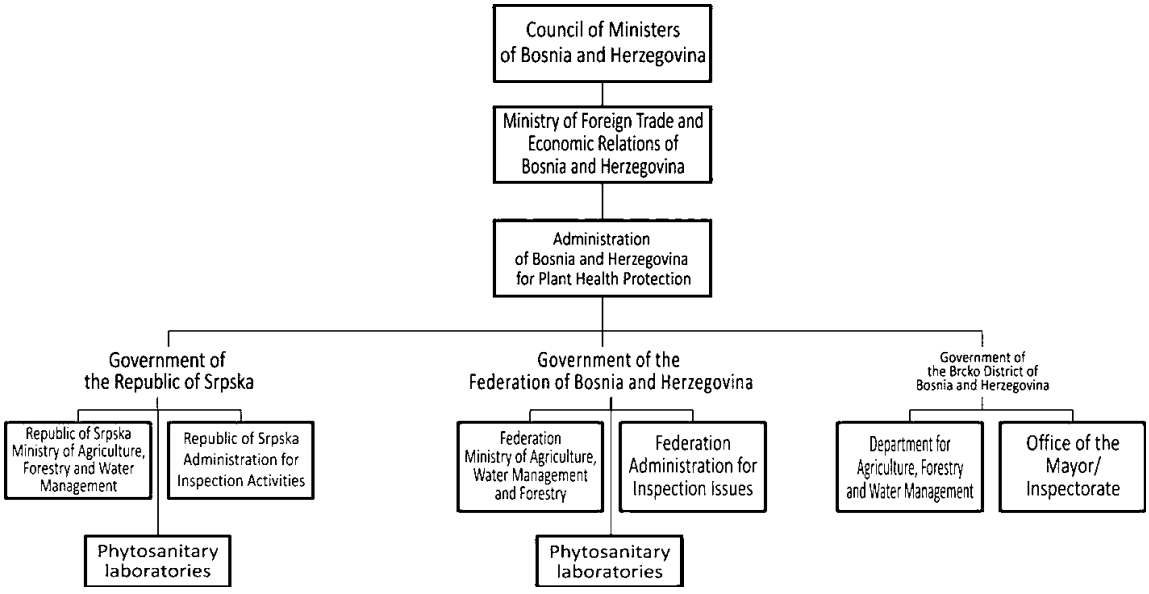
The responsibility for carrying out inspections and official controls lies with three Agricultural Inspectorates which are organised within the independent administrations for inspection affairs. These are respectively the FBIH Administration for Inspection Affairs (with 12 phytosanitary and 2 agricultural inspectors), the RS Administration for Inspection Activities (with 13 phytosanitary and 7 agricultural inspectors) and the inspectorate of BD within the Mayor's Office (with 3 phytosanitary inspectors). The inspectorates are responsible, *inter alia,* for the phytosanitary checks carried out at import at the 22 Border Inspection Posts (BIPs, see also section 5.2.3) and inspections

carried out prior to export for issuance of phytosanitary certificates. They also carry out inspections of seed and propagating material, implement control measures in case of harmful organism outbreaks and impose sanctions in case of infringements. Inspectorate staff have legal powers associated to growing crops in fields, wholesale warehouse and distribution centres and the BIPs.

The three inspectorates cooperate and coordinate with PHPA and within their administrative areas of operation are obliged to report back on the occurrence and spread of harmful organisms. However, PHPA does not have direct hierarchical responsibility in terms of management on the activities of the agricultural inspectorates. The other competent bodies of the two entities and BD of Bosnia and Herzegovina are also obliged to report to the PHPA on the occurrence and spreading of harmful organisms within their respective administrative areas of operation. PHPA has established a plant health coordination working group with representatives of all ministerial entities and inspectorates for addressing general plant health issues, adopting relevant plant health legislation, planning and implementing special monitoring programmes.

Figure 1 below provides an overview of the organisation of the plant health system in Bosnia and Herzegovina.

Figure 1. Overview of the plant health system in Bosnia and Herzegovina.



FBIH has been further organised into ten Cantons with 79 Municipalities with Cantonal Ministries of Agriculture and Cantonal agricultural inspectorates. Similarly, RS has been organised in 63 municipalities with Entity Ministries for Agricultural affairs and Regional agricultural inspectorates. Cantonal / Regional agricultural inspectorates have legal competences on the use of land and the marketing of seed, plant protection products and fertilisers. They do not have tasks associated to plant health.

The audit team noted that:

- The division of responsibilities amongst the authorities involved in plant health and reporting relationships is clear;
- All staff responsible for plant health controls are holders of higher education degrees in agricultural engineering or horticulture and many are further specialised in crop protection;
- Staffing problems were reported and currently, some posts remain to be filled. However, the important parts of the plant health controls on potatoes are being carried out.

- All tasks related to official plant health controls, including laboratory analysis, are carried out by State bodies reporting to PHPA or the Agricultural Inspectorates which have the status of a public authority.

PHPA informed the audit team that all staff are public servants and are subject to rules intended to prevent potential conflicts of interest. In the past, plant health inspectors of the BIPs were subject to a frequent rotation scheme. Nowadays, staff rotation takes place only occasionally.

Conclusions

The plant health services in Bosnia and Herzegovina are well structured with a clear division of tasks and responsibilities, in line with the relevant Standards. The units of the three regional Governments of Bosnia and Herzegovina are authorised to carry out plant health controls and directly report to the NPPO. No official controls have been delegated to non-governmental bodies. The staff of the plant health services involved in the official controls for exports to the EU are technically qualified, in line with Article 2(1)(i) of Council Directive 2000/29/EC.

5.1.2 National legislation

Findings

The PHPA informed the audit team that the national legislation in the plant health sector is being aligned with EU legislation. The following is a list of the legislation of relevance for plant health in potatoes that was in force at the time of the audit:

1. Law on Plant Health Protection “Official Gazette of B&H” No. 23/03 and Law on Plant Health Protection of RS “Official Gazette of RS” No. 25/09, partly harmonised with Council Directive 2000/29/EC;
2. Rulebook on list of harmful organisms, list of plants, plants products, and regulated objects “Offical Gazzette B&H” No. 48/13, harmonising national legislation with the Annexes to the Council Directive 2000/29/EC;
3. Rulebook on phytosanitary register and plant passports “Official Gazette of B&H” No. 05/13, harmonising, *inter alia,* with Commision Directives 92/90/EEC, 92/105/EEC and 93/50/EEC;
4. Rulebook on the form and content of the phytosanitary certificates and phytosanitary certificates for re-export "Official Gazette B&H" No. 12 /13;
5. Rulebook on measures to prevent the introduction and spread of the disease against *Synchytrium endobioticum* "Official Gazette of B&H" No. 78/09, harmonising with Council Directive 69/464/EEC;
6. Rulebook on implementing the systemic detection survey and taking measures in order to prevent the entry, spread and containment of ring rot of potatoes caused by *Clavibacter michiganensis* ssp. *sepedonicus* "Official Gazette of B&H" No. 90/09, harmonising with Council Directive 93/85/EEC;
7. Rulebook on the implementation of the system of monitoring and taking measures to prevent the introduction, spread and control of potato brown rot and bacterial wilt in potato and tomato caused by *Ralstonia solanacearum* "Official Gazette of B&H" No. 90/09, harmonising with Council Directive 98/57/EC;
8. Rulebook on measures to prevent the spread and control of potato cyst nematodes "Offical Gazette B&H” No. 98/12, harmonising with Council Directive 2007/33/EC;

The audit team received copies of the above legislation in English and noted that:

- Texts largely transpose the relevant EU legislation except for provisions that are specifically for Member States. Import requirements for potatoes are generally harmonised with EU requirements, even though potato imports are allowed from more countries including all European countries;
- The EU legislation regarding *Cms*, *Rs*, PCN and PWD has been transposed into the national legislation. The current test methods described in the amended Directives 93/85/EC and 98/57/EC have been included in the national legislation.

Conclusions

There is general and specific legislation in Bosnia and Herzegovina for potatoes which gives the plant health services the legal basis to carry out their tasks, in line with EU legislation and international standards. The main plant health legislation of relevance for potatoes is harmonised with the EU legislation.

5.1.3 Guidelines and training

Findings

Staff responsible for carrying out surveys and export controls are provided with regular training, technical information and detailed instructions for sampling seed and ware potato plants and tubers. Specific instructions for potato sampling have also been issued (Official Gazette B&H No.85/13).

The PHPA has issued an inspectors' handbook with quality and quarantine harmful organisms and the general phytosanitary requirements for production of plants and plant products.

- The staff met by the audit team appeared to be knowledgeable on plant health matters and were also aware of the inspection and sampling techniques of relevance to potatoes;
- Inspectors were adequately prepared for carrying out work with quarantine potato harmful organisms.

In the framework of the 2009 EU twinning programme, specific workshops were delivered to laboratory staff on molecular diagnostic methods of potato quarantine harmful organisms. The list of the training programmes organised during 2013 for the staff involved in potato controls included, *inter alia*, the evaluation of phytosanitary control and monitoring of harmful organisms in the potato sector, training on the emergency measures against harmful organisms and a workshop for phytosanitary inspectors.

Conclusions

Staff responsible for carrying out surveys and export controls in the potato sector have been adequately trained and have access to appropriate technical information, in line with section 3.3 (Technical information) of ISPM 7 and section 1.4 (Requirements for inspectors) of ISPM 23. Guidelines have been established since 2009, which provide assurance of the quality of inspections and sampling in the potato sector.

5.1.4 Work planning and record keeping. Internal and external evaluation

Findings

The PHPA proposes annual work plans for general and specific surveillance and issues a decision with the monitoring programme for the systematic control for potato quarantine harmful organisms.

The programme forms the basis of the monthly work plans for phytosanitary units. A report with accomplishments and corrective actions to be taken is prepared and the programme is reviewed during meetings that take place between the PHPA and the competent bodies of the three BIH entities. Table 1 below indicates elements of the four stage annual surveillance programme for the inspection of potato and tomato crops. Visual checks are carried out earlier in areas with Mediterranean climate and later in areas with continental climate.

Table 1. Surveillance programme for potato and tomato crops

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Harmful organisms
Soil sampling												PCN soil sampling, seed potatoes
Soil sampling												PCN soil sampling, ware potatoes
			Mediterranean zone		**Phase I:** Visual checks in the growing seasons and sampling							*Cms, Rs* production of seed and ware potatoes
				Phase II: Visual checks of tomato and potato plants including tubers in case of suspicion; tuber sampling at harvest			Continental zone					*Cms, Rs,* PSTVd and PWD production of seed and early ware potatoes
								Phase II: Visual checks / sampling of potato tubers at harvest				*Cms, Rs,* production of seed and other ware potatoes
									Phase III & IV: Visual checks and sampling of tubers at storage			Cms, Rs, PCN (soil on the tubers): seed and ware potatoes sampled in warehouses / distribution centres
												Rs: Visual checks and laboratory sampling *S. dulcamara,* Tomato, *Pelargonium* and irrigation water
												Epitrix sp., PCN, PWD, *Cms, Rs, Meloidogyne* sp.: Visual control and sampling in BIPs

A functioning communication and reporting system is in place between the PHPA, the competent bodies of the BIH entities/district and the research institutes. Following an official inspection, a report is submitted to the Ministry or Department of Agriculture of the entity/district. In the event of occurrence of quarantine harmful organisms, reports are also submitted to the agricultural inspectorates and to the PHPA. All competent authorities keep records of the follow up actions taken. The PHPA has prepared two contingency plans with actions to be taken by plant health inspectors in case of emergency situations due to the presence of *Cms* or *Rs*.

The PHPA together with the competent bodies of the BIH entities/district, carries out evaluation of reports on the implementation of the special surveillance programme. Occasionally, it conducts audits on the performance of the research institutes and the agricultural inspectorates. Surveillance work carried out by research institutions is verified by the agricultural inspectorate. External audit of the financial operation of the PHPA is carried out by the Supreme Office for Public Sector Auditing. Currently, all data relating to the surveys and sampling for laboratory analyses are held in spreadsheets. They can be used by the PHPA to establish distribution maps for pests and diseases and for the preparation of the surveillance programme.

Conclusions

Plant health controls are adequately planned and decided on during meetings, which take place between the PHPA and the competent bodies of the BIH entities/district. Plant health controls are planned and plans are executed and documented. The work of the phytosanitary inspectors, the agricultural services and the inspectorates is subject to internal and external evaluation, in line with Section 6 (Review mechanism) of ISPM 7.

5.1.5 Financial resources and contingency funding

Findings

The PHPA is funded by the budget of BIH institutions. In general, the Ministries and the Inspectorates prepare a draft budgetary plan forwarded annually to the Governments of the FBIH, RS and BD. The specific surveillance programme was initially financed by external resources. Nowadays, surveillance of the potato sector is carried out through funds available from the state budget. Contingency funding can only be addressed through budgetary reserves that can be allocated through specific Governmental decision.

Conclusions

There is a clear system of financing of plant health services in Bosnia and Herzegovina, in line with Section 3 (Resources) of ISPM 7.

5.1.6 Communication and consultation with stakeholders

Findings

The PHPA organises joint conferences and training workshops for producers and other stakeholder groups. Various means are used to inform stakeholders about plant health legislation and risks in the potato sector. All the relevant legislation is available on the PHPA website and a range of technical literature has been developed.

Recently, the PHPA organised specific workshops for potato producers in order to explain the EU import requirements, the general potato surveillance and the reasons for registration (see also section 5.4). The workshops were also addressed to potato importers and distributors and other stakeholders providing consultation services. Currently, the PHPA mainly focus on large scale commercial producers and those that plant imported seed potatoes or export ware potatoes.

The audit team noted that good communication and consultation procedures with stakeholders involved in the potato sector, including potato exporters, have been established. Information to producers and traders is provided by means of booklets, leaflets and posters with a description of the symptoms of plant diseases and pests. Commercial producers and processors of ware potatoes are well informed of plant health issues related to potato production.

Conclusions

The PHPA and Agricultural Services communicate and consult with stakeholders in the potato sector, in line with Section 5 (Communication) of ISPM 7. Currently, this is mainly targeting commercial large scale producers.

5.1.7 Laboratories and diagnostics

Findings

Laboratory staff of the Research Institutes in BIH have attended training workshops under the Twinning Light Project, " Strengthening the Capacities of Phytosanitary Services in BiH". The training involved the molecular identification of *Cms* and *Rs,* methods for PCN extraction and molecular identification and the detection of potato viruses and potato spindle tuber viroid (PSTVd). In laboratories visited, the methods applied for the detection of ring rot and brown rot are those described in Directives 93/85/EEC and 98/57/EC and follow standard operating procedures that form part of laboratory quality system. All staff met by the audit team were well trained and

competent to perform their tasks. All laboratories and staff have successfully participated in proficiency tests organised for the past two years by another Member State.

Nematology and bacteriology laboratory facilities in FBIH Agricultural Institute in Sarajevo

The laboratories have been recently renovated and are largely suitable for purpose. Both have suitable equipment for extraction and identification and have been accredited according to ISO 17025 standards. However, this accreditation does not concern the phytosanitary aspects of their work.

- The audit team noted that a molecular confirmation to back up morphological identification of PCN at genus level is not applied in the nematology laboratory. In addition, the current drainage system did not provide sufficient guarantees in case an infected sample gets into the sink.

The use of anti-oxidant to the extraction buffer and the provision of host test plants at correct growth stage throughout the testing period could further improve the performance of the bacteriology laboratory.

Nematology laboratory facilities in FBIH Agro-Mediterranean Institute in Mostar

The Institute hopes to attain ISO 9001 in the near future and the nematology laboratory is basing its procedures on ISO 17025. Suspect PCN cysts and juveniles are identified to species level by PCR and confirmed by internal transcribed spacer-restriction fragment length polymorphism analysis.

Bacteriology laboratory facilities in RS Agricultural Institute and Nematology laboratory in RS Faculty of Agriculture in Banja Luka

The laboratories are well run and reasonably well equipped for the level of testing being carried out. The evidence for a functioning quality system is limited but the procedures are well documented.

Conclusions

There is good diagnostic support in Bosnia and Herzegovina with regard to the analyses of EU quarantine organisms of potato. The effectiveness of the laboratories is audited through proficiency tests and their performance is reliable. The methods used for bacterial testing are largely in line with Directives 93/85/EC and 98/57/EC. However, in one of the laboratories visited the morphological method applied for identifying PCN at genus level is not backed up by molecular confirmation as recommended by the relevant EPPO diagnostic protocol.

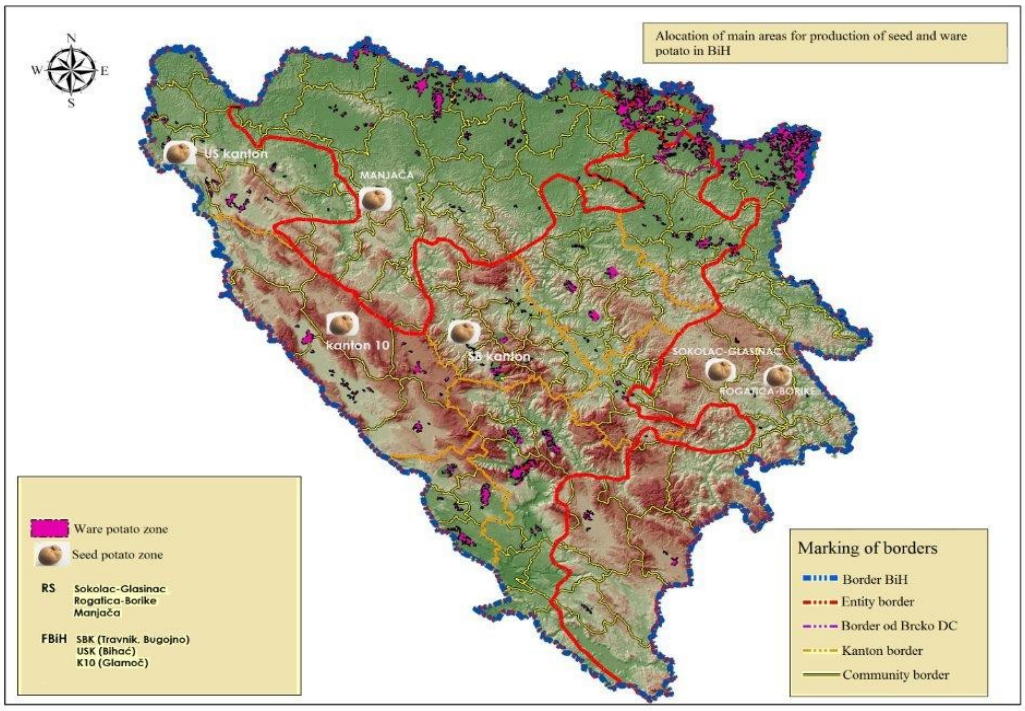
5.2 Production and trade information

Findings

5.2.1 Potato production system

Potatoes are widely grown in Bosnia and Herzegovina; approximately 36,000 ha are planted with an annual production of approximately 400,000 t. Seed potato production takes place in highland areas in both FBIH and RS. Ware potato production takes place throughout the country. In RS and BD, the crop is concentrated in the east and north east areas and depending on the altitude are planted from April to early June and harvested from August to October. Early ware potatoes are mainly grown in west FBIH areas affected by the Mediterranean climate mainly in the Cantons of Una-Sana, West Herzegovina, Herzegovina-Neretva and Canton 10. They are planted mid February to early March and harvested from mid May to mid June onwards. Figure 2 below provides an overview of the main potato growing areas in Bosnia and Herzegovina.

Figure 2: main potato growing areas in Bosnia and Herzegovina



The main source of seed for the commercial ware potato production is imported "class A" certified seed (estimated to cover 50% of the ware potato production area) and domestically produced "class A" certified seed originating from imported pre-basic and basic material (mostly from the Netherlands, Belgium, Germany, France and the United Kingdom), which is used for further multiplication (estimated to cover 30% of the ware potato production area). The remaining 20% of the ware potato production area is managed by small-scale producers using uncertified seed.

Producers engaged in ware potato production often practice tuber cutting for the purpose of planting. The exact percentage is unknown, but it is a general assumption that about 30% of the seed potatoes are cut.

Ware potato crops in BIH are irrigated only in plains and in the Mediterranean part, mainly by commercial producers having access to surface (30%) and underground water (70%), making for around 10% (estimates) of the total potato production. High yields are achieved on the irrigated surfaces (30 - 60 t/ha). *Solanum dulcamara* is known to occur in Bosnia and Herzegovina.

For seed potatoes, crop rotations of minimum three years are obligatory. Cereals legumes and vegetables are grown in the rotation. For ware potato production, crop rotations are generally two years (cereals legumes). Small scale producers of ware potatoes often have multi-annual potato production without crop rotation.

The producers met by the audit team stated that they do not share their equipment. Contract potato production is common for exporting purposes, potato processing and large scale commercial distributors.

5.2.2 Seed multiplication and certification – ware potato production

The production of in-vitro pre-basic material ceased in 1993. Nowadays no pre-basic seed is produced in BiH. The Gene bank of the Faculty of Agriculture and Food Sciences in Sarajevo has a certain number of *Solanum* accessions. This material remains without having been tested and it has

not been released. In RS seed potatoes are mainly produced in Sokolac-Glasinac, Rogatica-Borike and Manjača. In FBIH seed potatoes are produced in Travnik, Bugojno, Bihac and Glamoc. In 2013 some 2,800 t of seed potatoes were produced in Bosnia and Herzegovina.

The area and the number of farms involved in seed and ware production in 2013 according to the Register of Agricultural Holdings (RAH), a general registration database for producers and agricultural stakeholders (see also section 5.4) is detailed in table 2 below.

Table 2. Production of certified seed and ware potatoes in 2013

Area planted with seed potatoes (ha)	Nº of seed potato production farms	Aggregated area planted with seed potatoes (ha)	Nº of ware potato production farms	Aggregated area planted with ware potatoes (ha)
< 1			4,150 RS / 4,388 FBIH	672,60 RS / 688,75 FBIH
1 – 4,99	3 RS	9 RS	253 RS / 304 FBIH	620,60 RS / 503,13 FBIH
5 – 19,99	2 RS / 6 FBIH	27.5 RS / 63.1 FBIH	15 RS / 11 FBiH	116,70 RS / 106,28 FBIH
20 - 50	2 RS / 1 FBIH	41 RS / 30 FBIH	3 RS	80 RS
> 50	1 FBIH	55.7 FBIH		
TOTAL	**15**	**226.3**	**9,124**	**2,788.06**

However, estimates for the total area of ware potatoes in Bosnia and Herzegovina vary significantly and indicate a much larger area of ware potato production. During the 2011-2013 period this area was estimated to ca. 36,400 ha producing ca. 398,000 t of ware potatoes, giving an average yield of 10.9 t/ha.

5.2.3 Border inspection posts - Potato imports and exports

At the moment there are 22 BIPs of which eight are located in FBIH, eleven in RS and 3 in BD. BIH has 12 BIPs bordering EU (Croatia), five with Republic of Serbia and one with Montenegro. Table 3 below indicates the names and location of BIPs in BIH.

Table 3. Border Inspection Posts (BIPs) in Bosnia and Herzegovina

BIP, entity	**Bordering Country**	**Type**	**BIP, entity**	**Bordering Country**	**Type**
Orašje, FBIH	Croatia	Road	Mahovljani, RS	International	Airport
Gorica, FBIH	Croatia	Road	Šamac, RS	Croatia	Road/Rail
Sarajevo Airport, FBIH	International	Airport/Post	Rača, RS	Serbia	Road
Bijača, FBIH	Croatia	Road	Bijeljina, RS	Serbia	Rail
Čapljina, FBIH	Croatia	Rail	Karakaj, RS	Serbia	Road
Bosanski Šamac, FBIH	Croatia	Road/Rail	Zvornik, RS	Serbia	Rail
Kamensco, FBIH	Croatia	Road	Vardište, RS	Serbia	Road
Izačić, FBIH	Croatia	Road	Klobuk, RS	Montenegro	Road
Gradiška, RS	Croatia	Road	Brčko Bridge	Croatia	Road
Dobrljin, RS	Croatia	Rail	Brčko Railway	Croatia	Rail
Banja Luka, RS	International	Post	Port of Luka, Brčko River Sava	International	River port

The PHPA provided the following data on the quantity and origin/destination of seed potatoes imported to and exported from Bosnia and Herzegovina in 2012 and 2013:

Table 4. Imports and exports of seed potatoes into and from Bosnia and Herzegovina in 2012 and 2013

Imports			Exports		
Country of origin	**Quantity (t) 2012**	**Quantity (t) 2013**	**Country of destination**	**Quantity (t) 2012**	**Quantity (t) 2013**
Austria	95.5		Montenegro	67.97	11.25
Belgium	733.01	898.95	Serbia	5.0	7.0
Denmark	117.25	319			
France	285	321.05			
Germany	607.25	609.75			
Luxembourg	332.5	367.75			
Netherlands	6,321.58	6,767.90			
Poland		46.2			
Serbia	14.8	14.8			
Slovenia		9.2			
Spain	140				
United Kingdom	45	135			
Total imported seed	**8,691.90**	**9,489.60**	**Total exported seed**	**72.97**	**18.25**

The PHPA provided the following data on the quantity and origin/destination of early and other ware potatoes imported to and exported from Bosnia and Herzegovina in 2012 and 2013:

Table 5. Imports and exports of ware potatoes into and from Bosnia and Herzegovina in 2012 and 2013

Imports			Exports		
Country of origin	**Quantity (t) 2012**	**Quantity (t) 2013**	**Country of destination**	**Quantity (t) 2012**	**Quantity (t) 2013**
Albania	213.66	319.42	F.Y.R. Macedonia		275.49
Austria	11	193	Croatia	2,796.50	1,781.85
Belarus		40	Montenegro	578.73	1,461.63
Croatia	2,644.66	2660.9	Norway	341.96	274.27
Cyprus	13.4		Serbia	156	231
Denmark		149.42			
Egypt	849.63	780.9			
F.Y.R. Macedonia	305.9	226.45			
France	28.43	67.43			
Germany	947.82	297.08			
Greece	77.95	21.55			
Hungary	609.01				
Iran	2.3				
Israel	22.01				
Italy	643.33	273.42			

Ivory Coast	1.1				
Kosovo		13.7			
Lithuania		21			
Morocco	7.4	4.48			
Netherlands	161.83	106.16			
Peru		0.1			
Serbia	1,042.32	1,899			
Slovenia	46.07	18.58			
Spain	8	13.97			
Turkey		4,489			
U.S. of America	0.3	0.22			
Ukraine		2,456			
Total imported ware	**7,636.12**	**14,051.78**	**Total exported ware**	**3,873.19**	**4,024.24**

Conclusions

The production of certified seed potatoes in Bosnia and Herzegovina is based mainly on the multiplication of high grade seed originating in EU Member States. Despite the legal possibility to import seed potatoes from a wider range of countries than permitted by the EU, there has only been limited import of seed potatoes from Serbia. A seed certification system is in place and this factor provides assurance regarding the health status of certified seed potatoes, and the ware potato production derived from them. In general, ware potatoes can be imported from all European countries and many non-European countries. However, the imports are very limited from countries not allowed to export to the EU. The estimates for total ware potato production vary significantly. This makes it difficult to plan surveys or to ensure that any inspections and sampling are actually representative of the national production.

5.3 Status and controls for harmful organisms of potato in Bosnia and Herzegovina

Legal requirements

Annex I, Part A, Section I to Council Directive 2000/29/EC lists those harmful organisms that are not known to occur in the EU, and whose introduction and spread within the EU is banned. Section II of the same Annex lists those organisms that are known to occur in the EU but whose introduction and spread within the EU is also banned. These include *C. michiganensis* ssp. *sepedonicus, R. solanacearum, Globodera* spp. and *Synchytrium endobioticum*.

ISPM 4 describes the requirements for establishment of pest free areas. ISPM 6 establishes guidelines for surveillance.

5.3.1 Status of harmful organisms of potato in Bosnia and Herzegovina

Findings

PHPA provided the following information of the status of EU harmful organisms of potatoes in Bosnia and Herzegovina:

Table 6. Status of EU regulated harmful organisms in Bosnia and Herzegovina

Harmful organism	Status	Harmful organism	Status
Potato spindle tuber viroid	**A**	Potato leafroll virus	**A**
Potato stolbur phytoplasma	**A**	*Synchytrium endobioticum*	**B**
Tomato spotted wilt virus	**A**	*Phoma andina*	**A**
Andean potato latent virus	**A**	*Septoria lycopersici* var. *malagutii*	**A**
Andean potato mottle virus	**A**	*Thecaphora solani*	**A**
Arracacha virus B, oca strain	**A**	*Clavibacter michiganensis* ssp. *sepedonicus*	**B**
Potato black ringspot virus	**A**	*Ralstonia solanacearum*	**B**
Potato virus T	**A**	*Globodera rostochiensis*	**E1**
Potato virus A	**A**	*Globodera pallida*	**E1**
Potato virus M	**A**	*Meloidogyne chitwoodi*	**A**
Potato virus S	**A**	*Meloidogyne fallax*	**A**
Potato virus V	**A**	*Ditylenchus destructor*	**A**
Potato virus X	**A**	*Nacobbus aberrans*	**A**
Potato virus Y (incl. Yo, Yn and Yc)	**A**	*Leptinotarsa decemlineata*	**D**

Where:
A = Absent, no reports
B = Absent, confirmed by survey
D = present, widespread
E1 = present, limited distribution, under official control

5.3.2 Ring rot and brown rot surveillance strategy and results

Legal requirements

Annex I, Part A, Section II to Council Directive 2000/29/EC lists those harmful organisms that are known to occur in the Community, and whose introduction and spread within the Community is banned. These organisms include *C. michiganensis* ssp. s*epedonicus.*

Article 2 of Directive 93/85/EEC establishes the requirement of systematic official surveys for *C. michiganensis* ssp. *sepedonicus*.

Annex I, Part A, Section II to Council Directive 2000/29/EC lists those harmful organisms that are known to occur in the Community, and whose introduction and spread within the Community is banned. These organisms include *R. solanacearum*.

Article 2 of Directive 98/57/EC establishes the requirement of systematic official surveys for *R. solanacearum.*

ISPM 4 details the requirements for the establishment of pest free areas. In particular, Section 1.2 includes the three components in establishing and maintaining a pest free area: systems to establish freedom (surveys and general surveillance), phytosanitary measures to maintain freedom, and checks to verify freedom has been maintained.

Findings

Council Directives 93/85/EEC and 98/57/EC have been transposed into national legislation by the Rulebooks on phytosanitary measures against ring rot and brown rot published in the "Official Gazette of B&H" No. 90/09 (see also section 5.1.2).

Bosnia and Herzegovina has launched a specific surveillance plan for the inspection of potato and

tomato crops (see also section 5.1.4). Annual surveys for the detection of ring rot and brown rot are carried out at all registered seed potato producers, mainly through visual inspections of the growing crop, in parallel with other checks taking place for seed quality and certification. In case of suspicion, plant health inspectors send foliage and/or tuber samples for laboratory analysis. Visual inspections may also take place at the final stage of the growing period. Samples of tubers for laboratory analysis are mainly taken in the field by uprooting plants prior to harvest or in the warehouse.

The PHPA informed the audit team that large scale registered seed and ware potato producers and exporters are the main subject of surveys and inspections. Other producers might be selected for surveillance on the basis of information collected for other purposes. Annual ware potato surveys are largely based on visual inspections carried out during the vegetative period. Potato lots destined for export can also be sampled and tested for ring rot and brown rot (see also section 5.5). Wild hosts (*S. dulcamara* and *S. nigrum*), surface water and waste water from potato processing plants are also sampled. Other hosts of brown rot like tomato and *Pelargonium* are visually inspected with instructions for samples to be taken in case of suspicion. However, no such samples have been taken so far.

Neither ring rot nor brown rot have been detected in Bosnia and Herzegovina. The results of laboratory testing carried out for the detection of ring rot and brown rot during 2011-2013 growing periods are presented in table 7 below.

Table 7. Laboratory testing of seed and ware potatoes for the detection of both *Cms* and *Rs* from the 2011-2013 periods of potato harvest

	2011			**2012**			**2013**		
Potato category	Cropping area (ha)	Nº of samples	***Density****	Cropping area (ha)	Nº of samples	***Density***	Cropping area (ha)	Nº of samples	***Density***
Basic seed	194.3	18	***5.9***	91	28	***5.5***	72.3	32	***4.2***
Certified seed		25		157.32	17		124.4	15	
Ware/Industrial/ Other	37,127	106	***350.3***	36,818	112	***328.7***	35,423.8	110	***322***
S. dulcamara / S. nigrum	3			4			0		
Water	12 irrigation + 5 waste			9 irrigation + 6 waste			11 irrigation + 7 waste		

***Sampling *density* is indicated as total ha/sample**

Samples of seed and ware potatoes taken for laboratory analysis consist of 200 tubers in line with the EU ring rot and brown rot control Directives. However, the available data indicate that the average sample densities for ring rot and brown rot in both seed (4.7 ha per sample) and ware potatoes (333.4 ha per sample) are much lower than densities applied in the EU.

The registration of ware potato growers in the PHYTO-Register is still in progress (see also section 5.4). Potato surveillance is focused on large-scale producers, and small-scale producers where endemic ring rot or brown rot is more likely to occur are less well represented in the surveillance plan.

- The audit team noted that sampling of potatoes for the detection of latent infection has been mainly carried out in the field without a fully representative sample, instead of sampling at storage as recommended by EU legislation. The practice currently applied is that the 200 tubers are collected from approximately 100-200 plants.

Import requirements for potatoes are generally harmonised with EU requirements, even though potato imports are allowed from more countries including all European countries (see also section 5.2.3). Controls carried out at import are mainly based on visual inspections. Samples are sent for

laboratory analysis in case of suspicion. During the 2012-2013 import periods, laboratory testing was carried out respectively on 15 and 47 samples of seed potatoes. Ware potatoes of EU and third country origin are also visually checked and laboratory tested.

However, the audit team also noted that:

- Samples of imported seed or ware potatoes for visual inspection do not always consist of 200 tubers. As common practice 10-20 tubers are taken for inspection during import. A sample of 200 tubers for visual inspection might be taken from potato consignments arriving from "high risk" countries for the presence of potato bacteria;
- In certain cases the requirements for additional declarations on the phytosanitary certificates accompanying imported potatoes were not enforced.

Conclusions
Annual surveys carried out in Bosnia and Herzegovina for the detection of *Cms* and *Rs* include visual inspection of the growing crop and laboratory checks of potato tubers in line with Article 2 of Directive 93/85/EEC and Article 2 of Directive 98/57/EC. These mainly focus on seed and ware potatoes produced by large-scale commercial producers destined for market and export. Potatoes produced by small-scale non commercial holdings are not regularly sampled.

So far, the two bacterial diseases have not been detected in Bosnia and Herzegovina. However, the density of sampling of both seed and ware potatoes is significantly lower than the level carried out by EU Member States with a similar pest status. The total number of samples of seed and ware potato tubers analysed, is not satisfactory and it does not provide good coverage of the domestic seed and ware potato production. In addition, as the majority of the seed potato samples are taken from the field, the bacteria have few possibilities to develop in the tubers before sampling. The status of the bacteria in Bosnia and Herzegovina is therefore not fully known.

Import controls are carried out for all seed and ware potato consignments. However, the number of tubers examined during visual inspections is not appropriate and in some cases the requirements for additional declarations of imported consignments are not enforced.

5.3.3 Specific ring rot and brown rot programmes

Legal requirements
Article 11 of Directive 93/85/EEC provides that additional or stricter measures may be adopted to combat *C. michiganensis* ssp. *sepedonicus* or to prevent it from spreading, in so far as they are in compliance with the provisions of Directive 2000/29/EC.

Article 10 of Directive 98/57/EC provides that additional or stricter measures may be adopted to combat *R. solanacearum* or to prevent it from spreading, in so far as they are in compliance with the provisions of Directive 2000/29/EC.

Findings
There is no compensation to seed or ware potato producers for losses resulting from phytosanitary measures. The use and the production of certified seed is subsidised by the State in both FBIH and RS. Producers must submit evidence of the origin of the seed used.

The PHPA has launched an information campaign about the measures to be applied during potato production and transport. The campaign includes distribution of printed material with references to potato ring rot and brown rot and meetings between potato producers and the plant health authorities of the entities/district. In addition, PHPA recently addressed to producers specific recommendations with hygiene requirements for disinfection of tools and agricultural machinery used during seed and ware potato packaging.

Conclusions

Bosnia and Herzegovina has adopted additional measures to combat *Cms* and *Rs* in line with with Article 11 of Directive 93/85/EEC and Article 10 of Directive 98/57/EC.

5.3.4 Synchytrium endobioticum

Legal requirements

Annex IV, Part A, Section I, Point 25.1 of Directive 2000/29/EC requires that for imports from countries where *S. endobioticum* is known to occur, either (a) potatoes originate in areas known to be free from the pathogen (all races other than Race 1, the common European race), and no symptoms of *S. endobioticum* have been observed either at the place of production or in its immediate vicinity since the beginning of an adequate period; or (b) provisions recognised as equivalent to the Community provisions on combating *S. endobioticum* in accordance with the procedure referred to in Article 18(2) have been complied with.

Annex IV, Part A, Section I, Point 33 of the same directive requires that plants with roots, planted or intended for planting, grown in open air must come from a place of production known to be free from *C. michiganensis* ssp *sepedonicus, Globodera pallida, G. rostochiensis* and *S. endobioticum*.

ISPM 4 details the requirements for the establishment of pest free areas and section 2.2.1 refers to specific delimiting surveys.

Findings

So far *S. endobioticum* has not been detected in Bosnia and Herzegovina. Soil samples taken for the detection of PCN from plots intended for production of seed potato or any other rooted propagative material are not examined for the presence of resting sporangia of *S. endobioticum*. However, visual inspections for the presence of this pathogen are conducted in the framework of certification of seed potatoes and the general surveillance plan for potato quarantine harmful organisms.

Conclusions

S. endobioticum has not been detected in Bosnia and Herzegovina.

5.3.5 Globodera pallida and G. Rostochiensis

Legal requirements

Annex I, Part A, Section II (a), Points 1 and 2 list *Globodera pallida* and *G. rostochiensis* as harmful organisms whose introduction into the EU shall be banned.

Annex IV, Part A, Section I, Point 33 of the same directive requires that plants with roots, planted or intended for planting, grown in open air must come from a place of production known to be free from *C. michiganensis* ssp *sepedonicus, Globodera pallida, G. rostochiensis* and *S. endobioticum*.

Findings

The basis for the controls on PCN is the Rulebook No. 98/12, which is harmonised with Council Directive 2007/33/EC. Seed potato producers are obliged to submit annual production plans and testing for PCN is obligatory before entering a field into the seed certification programme. All fields destined for seed potato production are sampled at 1,500 ml/ha. PCN surveillance of potato fields and of nurseries producing rooted plants is carried out by taking soil samples.

Overall, approximately 700 soil samples are analysed annually of which 330 are examined in the framework of the surveillance programme for the inspection of potato crops and include samples

from plots with seed and ware potatoes, samples of soil adherent on tubers taken from potato packing and distribution centres and soil samples from nurseries with propagating material.

PCN are not widespread in Bosnia and Herzegovina. *G. pallida* has been detected in RS (one plot of 1,1 ha in Rogatica). *G. rostochiensis* has been detected in FBIH (2 plots totalling 0.2 ha in Herzegovina). The PCN affected plots have been scheduled as infested and growing potatoes and other host plants has been banned for six years. The measures will be in place until laboratory tests determine that the plots are free from PCN.

Conclusions

Potato cyst nematodes are not widespread in Bosnia and Herzegovina. There is a programme for ensuring that fields used for seed potatoes and rooted plant material are free from *Globodera* spp. Control measures harmonised with those of the EU are laid down in national legislation. Overall, there is good assurance that EU import requirements regarding PCN are met.

5.4 Registration of stakeholders and traceability of consignments

Legal requirements

Article 6(5) of Council Directive 2000/29/EC requires that all producers of products, which must be accompanied by a plant passport, must be officially registered. Article 6(6) of the same Directive, and Commission Directive 93/50/EEC extend this obligation to producers, collective warehouses or dispatching centres of all other than seed sorts of potatoes.

Commission Directive 92/90/EEC establishes the procedures for registration, the obligations for registered establishments and the official checks that must be carried out.

Article 10 of Directive 2000/29/EC establishes the procedures and requirements that have to be met in order for a plant passport to be issued.

Article 10(2) of Directive 2000/29/EC requires that articles listed in Annex V, Part A, Section I to the Directive may not be moved unless they are accompanied by a plant passport valid for the territory concerned. These articles include plants of stolon- or tuber forming species of *Solanum* L. or their hybrids, intended for planting.

Point 18.5 of Annex IV, Part A, Section II to Council Directive 2000/29/EC lays down provisions for labelling of ware potatoes.

Directive 92/105/EEC establishes requirements for the standardisation of the content of plant passports.

Findings

Commission Directives 92/90/EEC, 92/105/EEC and 93/50/EEC have been transposed into national legislation by the Rulebook on phytosanitary register and plant passports "Official Gazette of B&H" No. 05/13 (see also section 5.1.2). All packers, traders and processors engaged in production, storage and marketing of ware potatoes must be registered in the RAH. A legal requirement for registration in RAH database also applies to both seed and large scale-ware potato producers applying for financial assistance or other type of support.

Data management of the RAH is carried out by the entity Ministries of agriculture of RS and FBIH or the BD Department of Agriculture, while recording, revision and deletion of data is organised by the municipal / regional services. It is not compulsory for small scale ware potato producers to be registered in the RAH as long as their total production area is less than 0.5 ha and their produce is intended for own use or for sale in the local market to final consumers.

- At the time of the audit there were 15 seed and 9,124 ware potato producers of which 5,200 were registered in the RAH at national level. During 2013, registered potato producers grew respectively ca. 230 ha of seed and ca. 2,790 ha of ware potatoes.

In November 2013, the PHPA launched a campaign for registering seed and commercial ware potato producers in PHYTO-Register, a registration database established specifically for plant health purposes. Registration requests have to be submitted to the entity Ministries of agriculture of RS and FBIH or the BD Department of Agriculture, which prepared and issued specific guidelines addressed to producers. The database will be centrally managed by the PHPA.

- At the time of the audit, the registration of seed and ware potato producers in PHYTO-Register had only been recently started; there were no accurate data on the number of ware potato producers. Of the approximately 80 applications received at national level, 13 are under preparation for registration.

Small scale holdings producing for own consumption and/or local markets are mainly "recorded" by regional services or by through larger potato packaging warehouses and distribution centres.

- Regional services visited in both entities, appeared to be informed of farmers growing ware potatoes in their area.

The audit team visited two registered potato producers growing seed potatoes from pre-basic or basic potato material originating from the EU. The producers appeared to be aware of the relevant plant health requirements. They stated that their crops are subject to the annual special potato surveillance scheme applied for PCN, potato bacteria and for non-regulated harmful organisms.

The audit team noted that:

- Seed potatoes prior to packaging are stored in clearly marked wooden crates. Packed seed potatoes were stored on wooden pallets in labelled bags;
- Sampling carried out for visual inspection or for laboratory analysis according to the special potato surveillance scheme, is adequately documented.

The audit team visited two registered fruit and vegetable distribution centres collaborating with individual ware potato producers on a contract basis: the first was marketing early ware potatoes selected and packed in the field and the second was marketing ware potatoes arriving in bulk for selection and packaging.

The audit team noted that:

- Both managers of the distribution centres were aware of registration carried out for traceability purposes and stated that they collaborate only with registered potato producers;
- Although packed potatoes were labelled, ware potato labelling is not compulsory and currently is implemented on a voluntary basis. Tracing back to places of production and production fields could be achieved through registration numbers associated with the names of individual producers laid down in lists.

Conclusions

Registration of seed potato producers, commercial ware potato producers and other entities like dispatching centres and collective potato warehouses is obligatory. A general registration system for agricultural holdings has been set up and the registration of seed and ware potato producers in a specific phytosanitary registry has been initiated. EU requirements regarding the labelling of seed and ware potatoes have been transposed to the national legislation and are so far implemented for seed. Seed potatoes are labelled and ware potatoes marketed through commercial distribution centres are often labelled on a voluntary basis. However, the registration of seed and ware potato producers for phytosanitary purposes has only been recently initiated and the relevant available data

are not accurate.

5.5 Processors packers and control of waste

Legal requirements

Article 2.1 of Directive 98/57/EC provides that liquid waste discharged from industrial processing or packaging premises handling potato tubers should be surveyed for the presence of *R. solanacearum*. Official surveys may also be conducted on material such as growing medium, soil and soil waste from industrial processing or packaging premises.

Findings

In Bosnia and Herzegovina, there are two plants processing domestic and imported potatoes. According to legal requirements, solid waste produced during industrial processing must be trasported in closed containers and disposed of at officially approved locations where there is no risk of spread of quarantine harmful organisms. Alternative options include incineration or treatments not posing risk of harmful organism spread.

Waste water from processing plants has to be treated and cleaned in order to comply with specific environmental requirements. In the framework of the official annual surveillance, staff of the agricultural research institutions take samples of waste water produced from potato processing plants (see also section 5.3.2).

The audit team visited a potato processing company and noted that:

- The manager of the processing plant was aware of phytosanitary requirements of potato crop and risks related to potato processing;
- No specific heat or chemical treatment were in place for disinfection of waste water. The water was filtered to remove solid waste and disposed of to the municipal sewage system;
- One sample of waste water is taken twice a year during the periods of intensive potato processing. No samples are taken from solid waste material. So far brown rot has never been detected in any of the samples taken.

Conclusions

There is a system in place to mitigate the risks from waste produced by potato industries. Brown rot has not been detected in samples of waste water taken from potato processing plants at regular intervals. Soil and solid waste is not sampled for verification purposes.

5.6 Export checks and issuance of phytosanitary certificates

Legal requirements

Point 25.1 of Annex IV, Part A, Section I, of Directive 2000/29/EC establishes specific requirements, with respect to *S. endobioticum*, which must be met in order for ware potatoes to be exported to the EU.

Annex IV, Part A, Section I, Point 25.2 of Directive 2000/29/EC, lays down that potato tubers must either (a) originate in countries known to be free from *C. michiganensis* ssp. *sepedonicus*; or (b) provisions recognised as equivalent to the Community provisions on combating *C. michiganensis* ssp. *sepedonicus* in accordance with the procedure referred to in Article 18(2) have been complied with, in the country of origin.

Point 25.4.1 of Annex IV, Part A, Section I, of the same Directive, lays down that ware potatoes in order to be exported to the EU should originate in areas in which *R. solanacearum* is not known to occur.

Findings

Ware potato producers in order to export must be registered in the PHYTO-register and participate in the specific surveillance plan for the inspection of potato crops. Producers intending to export have to submit an application to the agricultural inspectorate which is competent for the area of the place of production. Upon notification, inspectors proceed with documentary, identity and plant health checks of the consignments to be exported. Pre-export checks usually take place in the production sites or warehouses either owned by farmers or managed by professional companies. During the documentary and identity checks, inspectors check for evidence of the origin of the consignments and the results of laboratory analyses carried out in the framework of the specific potato surveillance plan. In addition, they take a 200 tuber sample for each lot of 25 t for visual inspection and if in doubt or suspicion, they may order a complementary laboratory testing. A phytosanitary certificate is issued at the place of the checks. Customs officers may carry out an additional documentary and identity check before sealing and clearing the consignment.

The audit team visited two points of exit where ware potatoes were exported to Croatia prior to its accession to the EU. At the time of the audit there were no potato consignments cleared for export to third countries. The audit team noted that:

- Plant health inspectors confirmed that potatoes destined for export are loaded at the place of production upon documentary verification of laboratory results for the absence of quarantine harmful organisms. Potatoes have to be packed in clean and labelled packaging material. Inspectors have to be present during loading;
- A phytosanitary certificate is issued. Inspectors have the right to issue phytosanitary certificates only for potatoes produced in the region of their competence. Ware potatoes for export can be traced back to their original place of production through lists with registered potato producers which are notified to the BIPs;
- Customs clearance prior to export generally takes place at the local customs office and the consignment is sealed there. In case of infringement, inspectors at the points of exit have been instructed to launch an investigation procedure involving trace back and forward actions.

Conclusions

There are clear procedures for export controls. Pre-export checks are carried out in warehouses and plant health inspectors have been instructed to be present during loading. Consignments and their certification are traceable as appropriate from production, handling and transport to the point of exit as required by Section 4.2 of ISPM 7.

6 Overall Conclusions

Overall the report concludes that the picture regarding the situation and official controls of the main potato harmful organisms in Bosnia and Herzegovina is positive. Official diagnostic laboratories are working well and detection methods are equivalent to those applied in the EU. Seed potato plots are subject to an official surveillance programme which includes soil sampling prior to planting, visual surveys of the growing crop and tuber sampling during harvest and storage. Available data indicate that so far there has been no incidence of ring rot and brown rot. However, the surveillance methods applied to confirm this, are not fully in line with EU requirements. Sampling is not fully

representative as the samples are mainly taken in the fields of large scale commercial producers of certified seed and ware potatoes. Potatoes destined for local markets or the domestic household consumption are not surveyed. *S. endobioticum* has not been detected and the presence of potato cyst nematodes is very limited.

Although ring rot and brown rot have not been detected, Bosnia and Herzegovina cannot be regarded as free from these bacteria as there are problems in the methodology of sampling and in the number of tuber samples analysed.

7 Closing Meeting

A closing meeting was held on 3 April 2014 with the representatives of the Competent Authorities. At this meeting, the audit team presented the main findings and preliminary conclusions of the audit.

8 Recommendations

The Competent Authorities in Bosnia and Herzegovina are recommended:

N°.	Recommendation
1.	To ensure that standardised and comparable operating procedures are applied at national level with a view to further improving overall quality of laboratory checks. In particular, a molecular confirmation to back up morphological identification of PCN at genus level should be implemented in line with the relevant EPPO diagnostic protocol for PCN detection.
2.	To ensure that the surveillance carried out for latent infection of Clavibacter michiganensis ssp. sepedonicus and Ralstonia solanacearum, is improved. In particular, the number of seed and ware potato samples should be substantially increased and samples should preferably be taken from potatoes in storage. Sampling should take into account the potato production system in the country and also represent small potato production holdings in line with Article 2 of Directive 93/85/EEC and Article 2 of Directive 98/57/EC.
3.	To ensure that during controls carried out at import the appropriateness of the additional declaration is always checked during documentary checks, in line with Article 13a(1)(b)(i) and Article 13(1)(ii) of Directive 2000/29/EC.
4.	To ensure that the registration of seed and ware potato producers is completed to include all entities that market potatoes other than small scale growers whose entire production is sold to final consumers on the local market (or through dispatch centres) in line with Article 6(6) of Directive 2000/29/EC and Directive 93/50/EEC.
5.	To ensure that following registration of ware potato producers, potatoes will be labelled and the registration number of the producer, dispatching centre or collective

N°.	Recommendation
	warehouse will be indicated in line with point 18.5 of Annex IV Part A Section II of Directive 2000/29/EC.

The competent authority's response to the recommendations can be found at:

http://ec.europa.eu/food/fvo/rep_details_en.cfm?rep_inspection_ref=2014-7258

Annex 1 - Legal References

Legal Reference	Official Journal	Title
Dir. 2000/29/EC	OJ L 169, 10.7.2000, p. 1-112	Council Directive 2000/29/EC of 8 May 2000 on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community
Dir. 69/464/EEC	OJ L 323, 24.12.1969, p. 1-2	Council Directive 69/464/EEC of 8 December 1969 on control of Potato Wart Disease
Dir. 93/85/EEC	OJ L 259, 18.10.1993, p. 1-25	Council Directive 93/85/EEC of 4 October 1993 on the control of potato ring rot
Dir. 98/57/EC	OJ L 235, 21.8.1998, p. 1-39	Council Directive 98/57/EC of 20 July 1998 on the control of Ralstonia solanacearum (Smith) Yabuuchi et al.
Dir. 93/50/EEC	OJ L 205, 17.8.1993, p. 22-23	Commission Directive 93/50/EEC of 24 June 1993 specifying certain plants not listed in Annex V, part A to Council Directive 77/93/EEC, the producers of which, or the warehouses, dispatching centres in the production zones of such plants, shall be listed in an official register
Dir. 2007/33/EC	OJ L 156, 16.6.2007, p. 12-22	Council Directive 2007/33/EC of 11 June 2007 on the control of potato cyst nematodes and repealing Directive 69/465/EEC
Dir. 92/90/EEC	OJ L 344, 26.11.1992, p. 38-39	Commission Directive 92/90/EEC of 3 November 1992 establishing obligations to which producers and importers of plants, plant products or other objects are subject and establishing details for their registration

Legal Reference	Official Journal	Title
Dir. 92/105/EEC	OJ L 4, 8.1.1993, p. 22-25	Commission Directive 92/105/EEC of 3 December 1992 establishing a degree of standardization for plant passports to be used for the movement of certain plants, plant products or other objects within the Community, and establishing the detailed procedures related to the issuing of such plant passports and the conditions and detailed procedures for their replacement

Annex 2 - Standards quoted in the report

International Standard	Title
ISPM 4	Requirements for the establishment of the pest free areas, Food and Agriculture Organisation, 1995
ISPM 6	Guidelines for surveillance, Food and Agriculture Organisation, 1997
ISPM 7	Phytosanitary certification system, Food and Agriculture Organisation, 2011
ISMP 23	Guidelines for inspection, Food and Agriculture Organisation, 2005