

Food and
Veterinary Office

Potato ring rot and brown rot surveys in the EU

ANNUAL REPORT
2014/2015

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EUROPEAN COMMISSION
 DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY
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Director

Potato ring rot and brown rot surveys in the EU

Annual Report 2014/2015

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EXECUTIVE SUMMARY

*Substantial survey efforts are carried out in the European Union Member States for both *Clavibacter michiganensis* spp. *sepedonicus* (causing potato ring rot) and *Ralstonia solanacearum* (causing potato brown rot). The number of ring rot outbreaks decreased in some Member States and overall, the situation has improved as the total number of findings in the ware potato production was lower compared to the previous season. However, ring rot incidence has doubled in seed. No outbreaks occurred in the Netherlands the largest exporter in the EU of seed potatoes and the situation in Poland where most ring rot in the EU occurs appears to be somewhat improved although still not satisfactory. More outbreaks occurred in both seed and ware potatoes in Romania.*

*The overall brown rot incidence has further increased in ware potatoes, but for the first time, there were no findings in seed. The organism was detected for the first time in Bulgaria and Poland. Portugal, Spain and Hungary still need to manage with the continuous findings of the pathogen in ware potatoes. No substantial changes were noticed with regard to the presence of *R. solanacearum* in surface water or hosts other than potato.*

Member States affected by ring rot and brown rot need to increase their surveillance efforts in both seed and ware potatoes for further suppression and containment of both potato diseases.

1. INTRODUCTION

Member States (MS) are required by Council Directives 93/85/EEC and 98/57/EC to carry out surveys for *Clavibacter michiganensis* spp. *sepedonicus* and *Ralstonia solanacearum* - the bacteria that cause ring rot and brown rot respectively in potatoes. The results of these surveys must be submitted to the Commission annually. The following summary for the 2014/2015 season is based mainly on these reports. All MS have submitted reports which enable a general overview to be produced. A comparison across countries and years is also possible. Notifications of outbreaks submitted in accordance with Article 5(2) of the two Directives and interceptions between MS have been taken into account. With 28 reporting MS and Switzerland (see Section 4), the amount of material is substantial and the focus in this report is on the main aspects only.

The potato production area in 2014 was approximately 1.58 million ha in the 28 EU MS (see Table 1), which represents a figure similar to the preceding year. However, the seed production area increased further by 4%. Similarly to the last growing period, about 7% of the total area was seed potatoes. Ware and seed potatoes were produced in all MS, with the exceptions of Malta who produced no seed.

A considerable effort has been made by the MS in carrying out the surveys for both bacteria, based on survey programmes which are prepared and updated every year by individual MS. All production of seed potatoes for marketing is supervised by responsible bodies under the seed potato certification schemes. This is conducted by way of regular field inspections during the vegetation period and around harvesting (including tuber cutting), followed by laboratory analysis of samples. Some MS apply similar controls to part of the farm saved seed production also. The criteria used to select ware potato lots for testing vary amongst countries but mainly include the following: focus on registered or bigger producers, high risk locations or production, source of seed potato used, findings in preceding years. In addition to the programme for laboratory testing, in some MS a significant number of lots were visually inspected and both suspected and randomly chosen tubers were cut to look for symptoms.

Generally, samples of 200 tubers are tested. In some cases like, for example, sampling of high grade seed, the size of sample taken for visual inspection was less than 200 tubers (DE, PL, UK). In many MS, samples taken from potato lots are tested for the presence of both bacteria in parallel. Some MS (BG, HR, CZ, EE, ES, FI, DE, HU, LT, NL, RO, SI, SK), as well as providing the standard reporting templates, also submitted descriptions of their sampling/testing methods confirming that they are using the methods of analysis as prescribed in the annexes to the control directives. In general, modern and sophisticated methods are used (IF, FISH, PCR, *real-time* PCR) as core screening tests, followed by plating methods and bioassay where needed. In the case of water testing, plating methods are used at first followed by complementary tests, if needed.

2. RING ROT (*CLAVIBACTER MICHIGANENSIS* SPP. *SEPEDONICUS*)

2.1. Survey density 2014/2015

Table 2 shows the total survey activity of testing and visual inspection of various categories of domestic potatoes, while Table 3 shows the amount of testing and

inspection carried out on non-domestic potatoes, i.e. potatoes from other MS or from third countries.

Table 6 shows the overall number of tests for latent infection in all MS since 1994. In 2014/2015, the number of samples taken for analysis from their own production in 28 MS was ca. 82,260 of which ca. 72% were seed. In addition to this, 5,263 samples of potatoes from other MS (of which ca. 3,800 samples of Dutch, German, Danish and UK seed) or third countries were analysed.

In many MS, numbers of samples analysed were similar to previous years, while in others, a slight or considerable trend to decrease sampling was observed in both seed and ware potatoes. In particular, Italy, Ireland and Slovakia reduced 20% or more their seed potatoes testing. Finland, France, the Netherlands, Slovenia and the United Kingdom reduced significantly their ware potatoes testing. By contrast an increase in testing was observed in seed tested in Cyprus, Romania, Latvia, Lithuania and Luxembourg and of ware potatoes tested in Germany, Hungary, Greece, Portugal and Sweden. Croatia and Poland increased somewhat their efforts in both seed and ware.

Table 4 compares the sampling density for latent infection testing applied in MS – using, a crude calculation of how many ha of potatoes each sample, on average, represents. From a statistical point of view this is not entirely correct, as the total number of samples needed to detect a certain level of infection (or “guarantee” freedom in the production to a predefined degree) in a country would vary, not only with the total hectareage grown, but also with the size of units (lots, farms) involved. Furthermore, a varying proportion of the total number of samples is used for targeted surveys, i.e. investigation of outbreaks and systematic sampling on farms with outbreaks in preceding years. In countries with many outbreaks, this can constitute a substantial proportion of the sampling. This indicator is also not so relevant for countries where system approaches are in use, e.g. with focus on the most critical points in the production chain or risk involved.

Nevertheless, with the data available, this calculation of sampling intensity can still be useful for an overall comparison of efforts across MS. These are shown in table 4 grouped into three categories: 1) where ring rot has been more or less established for a while or appeared recently in seed without an apparent, “imported” origin; 2) with only a few, sporadic outbreaks; and 3) where ring rot has never occurred. The average for each group is indicated with the overall EU average at the bottom of the Table. There are substantial variations within the groups.

The average sample density of seed potatoes in the first group was similar to that of the previous growing period. The Netherlands is dominating the picture with regard to the total number of analysed samples of seed potatoes (some 30% of all seed potato samples analysed in the EU are Dutch), with sampling density of 1.9 ha/sample (similar to that of the previous season at 1.87 ha/sample), and then Germany with sample density 1.63 ha/sample, both countries having densities below the average in the first group (1.54 ha/sample). Sampling more intense than 1 ha/sample was observed for Poland, Romania, and Estonia. In most MS in this group, the average sampling density varied between 0.7-2 ha/sample, whilst Spain, Slovakia, Greece and Sweden had lower densities (2.36, 2.31, 2.81 and 5.1 respectively).

For ware potatoes, the average sampling density (49.7 ha/sample) in the first group was similar to that of the previous growing season (49.2 ha/sample). However, most MS are below this density. Poland still dominates the picture as regards the total number of samples tested (some 41% of all ware potato samples analysed in the EU are Polish), with sampling density slightly increased compared to the previous season. In Lithuania, Germany, and Sweden the survey efforts were significantly higher compared to the previous growing season. The Netherlands decreased somewhat its efforts in ware potatoes (ca. 57 ha/sample) when compared to the previous potato growing period (35 ha/sample). Latvia, Romania, Bulgaria, Slovakia, Estonia, Finland, Greece and Czech Republic remained within their usually applied standards of sampling densities below 50 ha/sample.

As could be reasonably expected, the average sampling density is in general lower in groups two and three than in group one. The average sampling density in seeds in the second group is similar to that of the previous season whilst it has been slightly decreased in ware. No significant changes were observed in either seed or ware potato sampling in the third group.

2.2. Detection/outbreaks

Table 6 shows the number of infected lots found in each Member State since 1994. In total, 11 MS were affected in 2014/2015 none of which were recording the pathogen for the first time. The total number of findings was lower by 8% compared to the previous season as a significant decrease was observed in ware potatoes. However, ring rot in seed potatoes was doubled (see below).

Table 5 shows the incidence of ring rot in the MS where it occurred in the 2014 harvest. It is calculated as the number of positive lots as a percentage of samples analysed. The table also indicates the number of outbreaks or positive ring rot cases corresponding to the number of positive lots. Poland still dominates the picture when speaking of ring rot in the EU; some 82% of the contaminated lots were found there. The disease incidence in ware potatoes in Poland was somewhat decreased compared to the last growing period (10.2% vs. 12.2% in 2013/2014). However, the number of contaminated seed lots was somewhat increased compared to the previous season: eight in total, giving an incidence level of 0.1% (vs. 0.07% in 2013/2014) but still lower when compared to 2012 (0.21%) and previous years.

The overall picture regarding ring rot incidences in seed potatoes for the rest of the EU has worsened: 0.018% compared to 0.006% in the previous season. The ring rot incidence in ware potatoes was a little above 1%, compared to ca. 0.97% in the previous season.

The situation has also worsened in Romania with four positive seed lots (0.37% vs 0.16% in 2013/2014). Further increase was also observed in positive ware lots (6.3% vs 5.15% in 2013/2014).

Excluding these two countries (i.e. Poland and Romania) from the overall picture, the calculations would give in total 70 lots found contaminated in the 2014/2015 season, of which, five in seeds (all of them in the Czech Republic), that would give an overall incidence a little above 0.49% indicating a slight increase in ring rot compared to the last growing season (0.48%).

The situation in the Baltics was somewhat worsened mainly due to the increase in the number of findings in ware potatoes produced in Lithuania giving incidence level 2.5% (1.5% last season). By contrast, less ring rot findings occurred in Latvia with incidence level 2.7% (3.2% last season). It was noted that in many cases, farm saved seed had been used for many years and that in some places of production ring rot contamination appeared during previous growing periods. One finding occurred in ware potatoes produced in Estonia. There were no findings in seed.

In the Nordic countries, ring rot was not found in Sweden whilst the disease has been eradicated in Denmark (not found for the eleventh consecutive year). Three more findings occurred in Finland giving an incidence level of 0.7%.

After having sporadic outbreaks in both seed and ware potatoes until 2003, Austria found no ring rot for the eleventh year in a row while keeping its level of sampling stable for both seed and ware potatoes. After a single finding of the disease that occurred in seed potatoes in 2004, three more outbreaks occurred in ware potato production in Hungary. Following the ring rot outbreaks in 2012, there have been no new outbreaks in Belgium and the United Kingdom.

Ring rot contamination re-appeared in Germany, with eight findings of the bacterium in ware potatoes (out of 2,749 lots of ware potatoes analysed) counted in total as two outbreaks since the cases were related; extensive investigations indicated that farm saved seed was the origin of the infections. In the Netherlands, there were no findings of the bacterium in either seed or ware potatoes.

The Czech Republic had five findings of ring rot in seed and nine findings in ware potatoes overall counted as ten cases of outbreaks. Two more findings occurred in ware potatoes in Slovakia; no findings occurred in seed. There were no findings in seed or ware potatoes in Spain and France. For the sixth consecutive year Greece did not find ring rot in their production across the country.

The level of ring rot contamination dropped significantly in Bulgaria as only one case of positive ware potatoes was reported (18 cases in 2013/2014). No positive cases of ring rot were identified in seed. The origin of the infection might be related to the use of non-certified seed and shared machinery. Italy did not find the bacterium for the sixth consecutive year; however sampling density continues to be low in both seed and ware potatoes.

2.3. Interceptions

As indicated in Table 3, no interceptions of ring rot were reported during the last season. In total, 5,263 consignments were examined in the laboratory and 6,276 were visually inspected. Overall, the situation regarding the intra-EU interceptions has been significantly improved as there were no cases of interception due to ring rot infection in ware potatoes of Polish origin (vs. 5 cases in the last season). However, the figures for inspection and testing are on average ca. 20% lower compared to the previous season.

2.4. Conclusions on ring rot

Survey efforts are still substantial although somewhat uneven across the EU, even when taking into account the phytosanitary situation in various MS. The differences in surveillance efforts between MS were similar to the previous growing season, in

particular regarding ware potatoes in group 1. Overall, in the case of seed potatoes, most MS in this group took one sample either from one lot or from 25 tonnes, which resulted in an average sampling density of 1.91 ha/sample, almost the same as observed in the previous season (1.92 ha/sample). In the case of ware potatoes, the average sampling density was 63.7 ha/sample (61.8 ha/sample in the previous season).

As has been observed over previous years, the situation seems to be under control in countries with a large potato production, including seeds, such as the Netherlands, France, United Kingdom and Germany, (despite eight findings in ware). Figure 1 shows the overall number of tests in seed potato and samples positive to ring rot in the EU since 2005. Only three MS, Poland, Romania and Czech Republic found ring rot in seed in 2014/2015.

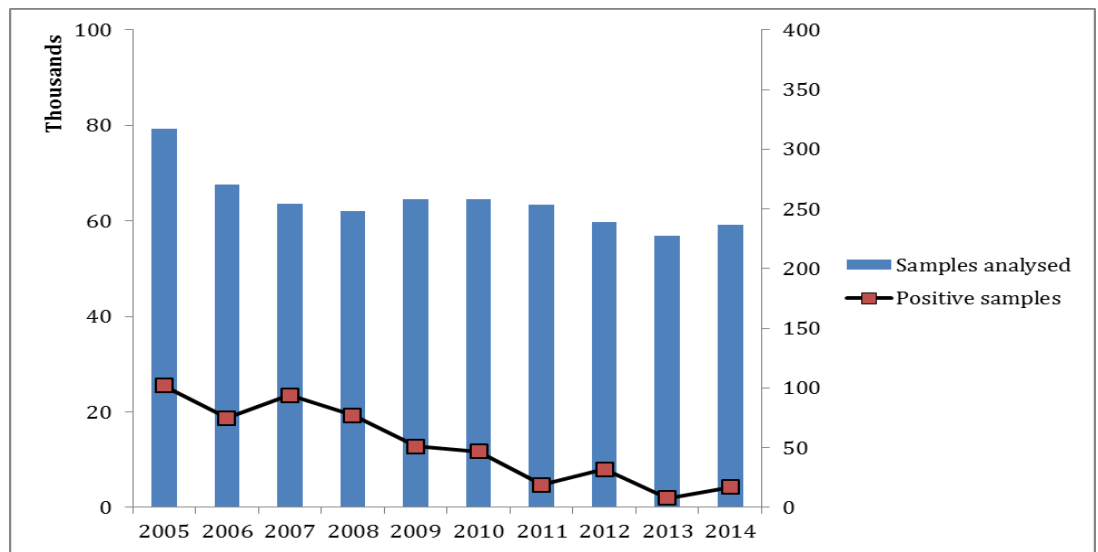


Figure 1. Overall number of tests in seed potato and samples positive to ring rot in the EU since 2005

When consistently applied, the control and precautionary measures prescribed in the control Directive, will eventually bring the disease under control and either eradicate it or reduce the amount of contamination to very low levels. It may be presumed that the pathogen has been eradicated from Austria and Denmark, as the current picture is very promising. However, this does not apply for the ware production in Hungary where three new outbreaks occurred.

Most contamination in the EU is found in Poland, where some progress was observed and the overall ring rot incidence (11.2%) decreased somewhat compared to that of the previous potato growing season (12.2%) although it still is very high. Romania continued increasing its efforts and achieved a better level of sampling and testing in both seed and ware. However, the positive tendency observed in the previous growing period did not continue and the ring rot incidence increased in both seed and ware. The incidence in ware potatoes has also increased in Lithuania and Czech Republic showing that ring rot suppression remains a difficult task. Figure 2 shows the overall number of tests in ware potato and samples positive to ring rot in the EU since 2005.

Affected MS submitted more detailed information on applying the routine control measures taken as a consequence of findings (not only the standard formula: "all

measures have been taken as prescribed by the Directive"). They also provided descriptions of measures taken in response to findings or interceptions in order to find the possible source and spread of the disease. Investigations carried out in MS with outbreaks (e.g. Czech Republic, Germany, Lithuania, Latvia) allowed either to find or to suspect a reason for infection (as in most cases no definite source of infection could be found). In MS with a high number of findings (e.g. Poland, Romania), finding a possible source of infection was not possible in most cases. This was principally because of mixed seeds of uncertain origins, sharing machinery and storage facilities and use of farm saved seeds.

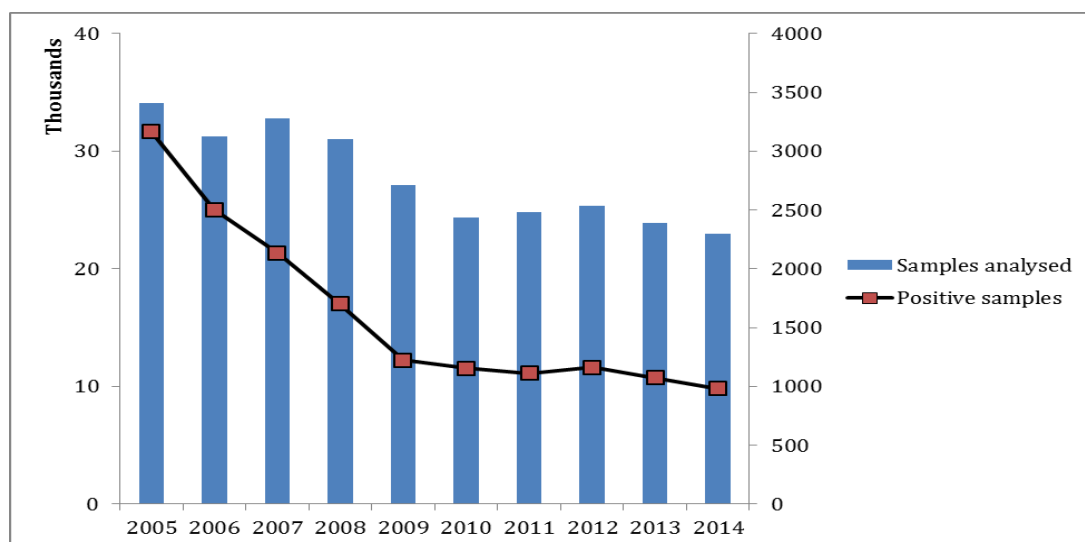


Figure 2. Overall number of tests in ware potato and samples positive to ring rot in the EU since 2005

Overall, taking the EU as a whole, the situation has improved somewhat since the previous growing period as the total number of findings was lower and the overall ring rot incidence decreased somewhat in 2014 (4.25% vs. 4.52% observed in 2013).

3. BROWN ROT (*RALSTONIA SOLANACEARUM*)

3.1. Survey density 2014/2015

Table 7 shows the total survey activity of testing and visual inspection on various categories of domestic potatoes. Table 8 shows the survey activity in water and hosts other than potato and Table 9 shows the amount of testing and inspection carried out on non-domestic potatoes, i.e. potatoes from other MS or from third countries.

In potatoes

Table 12 shows the overall number of tests for latent infection in all MS since 1995. In 2014/2015, the numbers of samples taken for analysis from their own production in all MS amounted to ca. 81,490, approximately 70% of which were seed. In addition to this, 5,325 samples of potatoes from other MS (mainly Dutch seed, but also German, Danish and UK) or third countries were analysed.

In most MS the numbers of samples analysed were similar to previous years. A significant increase on sampling was observed for seed potatoes in Romania, Cyprus and Sweden and for ware potatoes in Germany, Hungary and Poland. By contrast, Czech Republic decreased substantially its sampling efforts in both seed and ware, whilst Spain and France and the Netherlands decreased further their sampling for ware. The Netherlands continue to apply a testing density of one sample of seed potatoes per lot. In case of high risk profile and violations (e.g. prohibited use of surface water for irrigation) one sample per 25 tonnes was taken.

The sampling density applied in MS for latent infection testing is calculated as for ring rot and shown in Table 10 where MS are grouped into three categories: 1) where brown rot has been, more or less, established for a while in potatoes, tomatoes or in wild hosts/water; 2) with only few, sporadic outbreaks; and 3) where brown rot has never occurred. The average for each group is indicated with the overall EU average at the bottom of the Table. For seed potatoes, the sampling density in group one is higher compared to the second and third groups. However, substantial variations between MS are observed within all groups. A similar situation is also observed in sampling density of ware potatoes.

Following the first finding of brown rot with three contaminated lots of ware potatoes, Poland has moved to the first group with sampling density 0.7 ha/sample for seed and 34 ha/sample for ware potatoes. The same applies for Bulgaria with two contaminated lots of ware potatoes and sampling density of 1.7 ha/sample for seed and 29.8 ha/sample for ware potatoes. The average sampling density of seed potatoes in this group (1.9 ha/sample) was somewhat higher than that of the previous season (2.2 ha / sample). Some of the MS in the first group are close to or a little above this average, whilst similarly to the last growing period, Italy and United Kingdom are significantly below. Romania and Portugal dominate the picture regarding the density of seed potato testing, while Germany, Hungary and the Netherlands follow with lower sampling densities. In ware potato production, the average sampling density of the MS in the same group (54.4 ha/sample) increased significantly compared to the previous season (72.9 ha/sample). Slovakia continued its efforts and still has the highest sampling rate followed by Greece, Romania, the Netherlands, and Belgium. Following previous year's findings, Hungary increased significantly its sampling density of ware potatoes by implementing a more targeted survey in previously affected places of production. A slight improvement in sampling densities of ware potatoes compared to the previous season could be noticed in Portugal.

Similar sampling rates to the previous growing season were applied for seed and ware potatoes in the second and third groups. In the second group the average sampling densities were 2.2 ha and 122 ha / sample for seed and ware potatoes respectively. A significant improvement in sampling density in the second group was observed for seed potatoes in Sweden. Ireland after a seventh season without findings has stabilised its surveying efforts. Survey efforts in the third group are also diverse; the average sampling densities were 3.8 ha and 47.2 ha / sample for seed and ware potatoes respectively. Estonia, Croatia and Lithuania were considerably above the EU average for seed potatoes and Malta and Lithuania for ware.

In water and other hosts

Table 8 shows the survey activity in water and in hosts other than potato. The relevance of such sampling depends on the use of surface water for irrigation or spraying, the risk of flooding, the presence of wild hosts such as *Solanum dulcamara*, the growing of other hosts (e.g. tomato), and previous findings of the bacterium in the area. It is thus difficult from the information supplied to gauge and compare the efforts done in sampling water and other hosts. The geographical distribution of the samples is also essential if all relevant watercourses/production areas are to be covered. In table 8, “general survey” samples cannot be separated from samples taken to investigate outbreaks or delimit an infested watercourse.

The majority of MS conduct the surveys every year, focusing on cultivated and wild hosts. In some MS very little or no survey activity outside potatoes has taken place. An explanation for this is that in some of these countries, irrigation with surface water is uncommon or non-existent. In other MS, testing of water is an essential element in the surveying activity for the bacterium. Thus, Belgium, Czech Republic, France, Hungary, the Netherlands, Spain, and the United Kingdom continue to analyse a very high number of water samples, as does Poland where the first findings of *R. solanacearum* in potato crop occurred in 2014. Most other MS also regularly check their water bodies.

3.2. Detection/outbreaks

Potatoes

Table 12 shows the number of infected lots found in each Member State since 1995. Nine MS found brown rot during 2014/2015 season, all in ware potato lots. In Bulgaria and Poland the bacterium occurred for the first time with 0.44% and 0.03% incidence respectively in ware potatoes. After its first outbreak in 2012 the bacterium was not found again in Czech Republic. In Romania, after three successive growing seasons with recurrent outbreaks no more findings occurred during the previous growing period. In Belgium, France, Germany, Greece, Hungary, Portugal, and Spain the pathogen occurred again.

Table 11 shows the incidence of brown rot in these MS. As for ring rot, it is calculated as the number of positive lots as a percentage of samples analysed. The overall incidence in the EU is in general very low, and much lower than for ring rot, with findings in ware potatoes only resulting in ca. 0.075% total EU disease incidence (an increase compared to 0.065% in the last growing period).

In general, when compared to the last growing season the situation has somewhat worsened for most MS affected except Hungary. Brown rot outbreaks occurred again in ware potatoes in Portugal and Spain where the sampling densities applied were similar to those of the previous growing season. In contrast, after a single finding in 2008, Austria found no outbreaks for the sixth year in a row.

Following the ware potato findings of 2009 the bacterium was not found in the United Kingdom or in Sweden for the fifth consecutive year. In Ireland, intensive sampling of domestically produced potatoes and of all marketed seed potatoes prior to planting did not reveal infection, thus the 2007 findings in this country remain the only ones and the bacterium has been eradicated.

The situation has improved in Hungary, where increased sampling density in ware potatoes revealed three positive lots. In this region of the EU, Slovakia did not have any occurrence of brown rot for a fourth year in a row; all potato production remains free from brown rot since 2010. Two more findings occurred in the ware potato production in Greece.

No brown rot outbreak occurred in the Netherlands during the last growing season. It appears that the specific measures imposing restrictions on harvesting potatoes from flooded fields and the prohibition of irrigation of seed potato crops with surface water are successful. In Germany, the two brown rot findings in the ware potato production are considered as one case of outbreak due to clonal relations of the contaminated material. The same applies for Bulgaria and Poland with two and three contaminated ware potato lots respectively.

Water and other hosts

Table 8 also shows the number of positive samples from water and other hosts apart from potato. The bacterium was found in seven MS either in water or in wild host plants (or both). Submitted reports show that there were no new cases of infection in tomato crops. Of the samples taken from surface water in previously affected regions in Italy and Greece, none was found positive. In Belgium, no positive water samples were detected in the border and outside the protected areas. In addition, of the 36 samples of *S. dulcamara* and *Pelargonium* examined this year none was found to be positive.

In Germany, as in the previous years, the bacterium was found in watercourses showing permanent contamination. Brown rot contamination was not detected in other plant hosts. However, the bacterium was detected for second time in a sample of material (waste water, abraded potato peel, potato fluid and sand) discarded from a potato starch plant.

In the Netherlands, a total of 22 water samples tested positive out of 1,342 samples taken. *R. solanacearum* was detected in 107 water samples tested in Hungary and in five samples of *S. dulcamara*. Two more positive surface water samples were detected in Portugal; no samples from other hosts were taken. In France, the bacterium was found again in both surface water and other hosts. In Spain, 94 samples of surface water were found positive. The bacterium was detected again in two samples taken in the Czech Republic; no positive findings occurred in waste water samples. In United Kingdom the bacterium was not detected in samples taken from waste or surface water.

This year, there were no findings of the bacterium in Ireland or in Poland in surface or waste water discarded from potato packers or processing factories. The continued survey of waste and/or surface water in Austria, Romania, Slovakia and Slovenia, MS where brown rot findings occurred in the past, did not reveal any positive cases.

Detailed information has also been provided for detection of the bacterium in hosts other than *S. dulcamara*, including *S. nigrum*, *S. melongena*, *Silene* sp., *Bidens* sp., *Rumex obtusifolius*, *Urtica dioica*, and *Capsicum* sp. Germany, Hungary, Croatia and United Kingdom tested *Pelargonium* plants; the bacterium was not found.

3.3. Interceptions

Two interceptions of potato consignments with brown rot were notified. Poland and Greece found the bacterium in ware potatoes brought from Egypt.

3.4. Conclusions on *R. solanacearum*

Survey efforts are still uneven across the EU, even when taking into account the phytosanitary situation in various MS. Figure 3 shows the overall number of tests in seed potato and samples positive to brown rot in the EU since 2005.

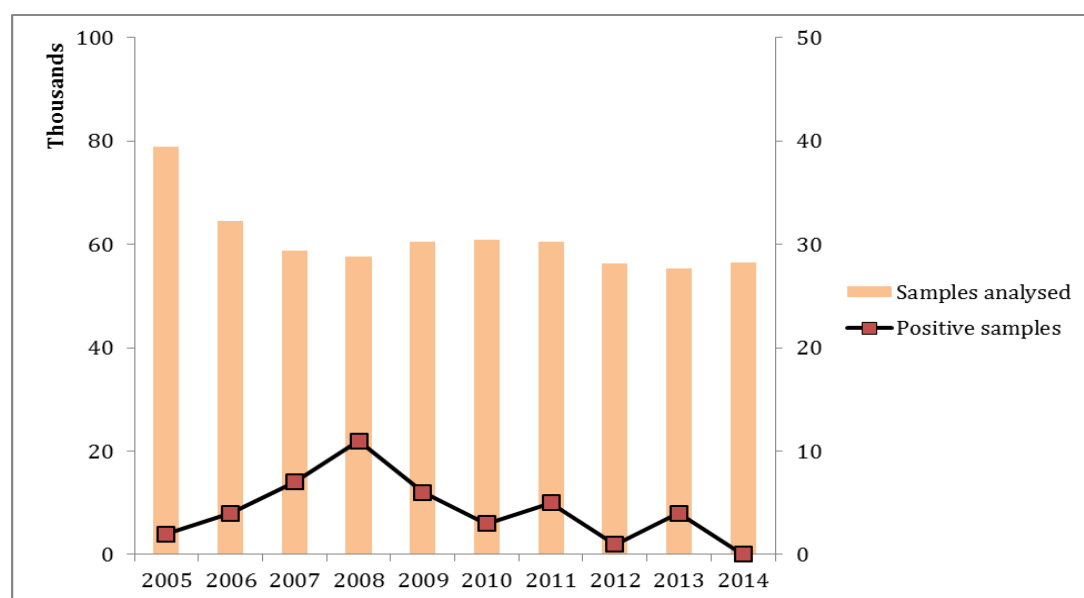


Figure 3. Overall number of tests in seed potato and samples positive to brown rot in the EU since 2005

In the case of seed potatoes, most MS take one sample either from one lot or from 25 tonnes, which resulted in an average sampling density of 2 ha/sample in the 2014/2015 season (the same as in the previous season). In the case of ware potatoes, the average sampling density increased somewhat to 58.6 ha/sample (61.5 the last season). Figure 4 shows the overall number of tests in ware potato and samples positive to brown rot in the EU since 2005.

Overall the situation has slightly deteriorated compared to the last growing season, in two countries with a large potato production Germany and France. In the Netherlands both seed and ware production remained without findings for the third year in a row. Although in these countries the pathogen is found in surface waters, limited irrigation or strict measures (e.g. a ban of irrigation as it is in the Netherlands and Hungary) and control of contaminated watercourses (Belgium, Germany, and United Kingdom) result in reduced risk for contamination of crops. There were no outbreaks in tomatoes.

It seems that the situation has not considerably worsened in any of the MS. No findings occurred in Czech Republic despite a further significant increase of the sampling density. Hungary, Spain, Portugal and Greece still need to manage with continuous findings of the pathogen. It is positive that the pathogen did not appear in Romania after it was last found in 2012.

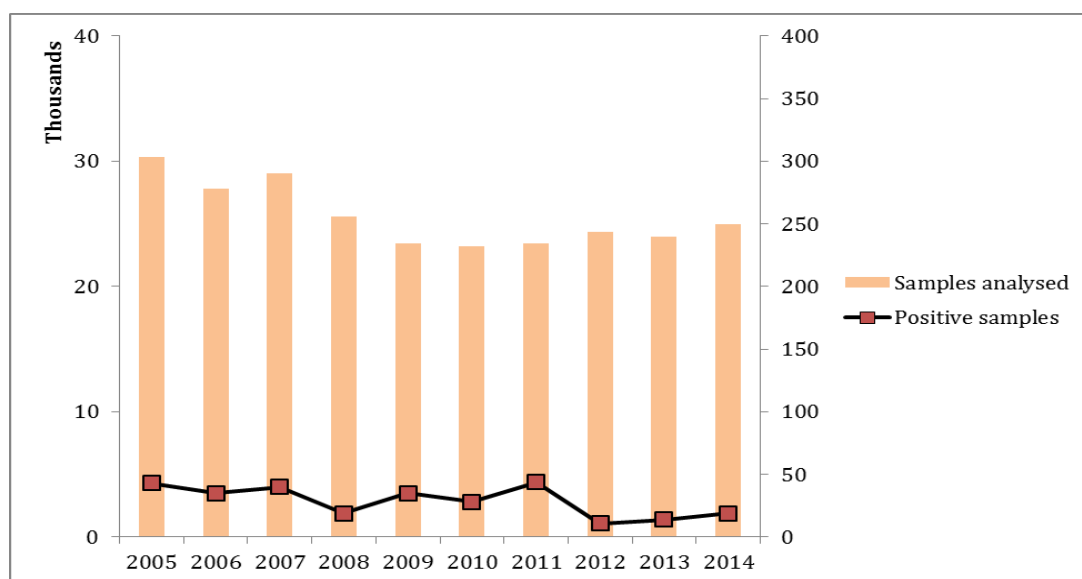


Figure 4. Overall number of tests in ware potato and samples positive to brown rot in the EU since 2005

The overall incidence in potatoes in the EU (0.076%) has somewhat increased compared to the last growing season (0.065%). Contributing to this is the detection of brown rot for the first time in Bulgaria and Poland and the increased sampling efforts carried out in the EU, particularly in the MS that have been a long-time affected by the disease.

4. SITUATION IN SWITZERLAND

Following the request from the Commission, Switzerland submitted the survey results for seed potatoes (no data regarding ware potatoes production was received). Some 1,517 ha of seeds, both basic and certified, were cultivated in 2014. In total, 168 samples were taken; that gives the sampling density rate some 9 ha per sample (the EU average is less than 2 ha/sample). Samples are tested for the two bacteria in parallel; no positives were found. Both crops and tubers are routinely inspected during the vegetation period and after harvest. There are no data whether or not tests of surface water or of host plants other than potatoes are carried out for the presence of *R. solanacearum*.

Switzerland also checks consignments of imported potatoes, both seeds and ware. All imported seed lots are checked. During the last season, 167 samples of seeds (from Austria, Belgium, France Germany and the Netherlands) were visually inspected and then laboratory tested for both bacteria. No sample was positive. In addition, 510 samples of ware potatoes were visually inspected. The vast majority of them had originated from Germany, France, the Netherlands, Italy, Spain, Israel and Egypt. Again, no infection was found.

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Table 12: Surveys for *Ralstonia solanacearum* since 1995 on the domestic potato production

Table 1: Potato production area in the EU in 2014 (in ha)

(source: Member States)

Member State	Seed	Ware	Total
Austria	1.597,08	19.875,00	21.472,08
Belgium	2.376,62	73.063,00	75.439,62
Bulgaria	283,75	13.551,00	13.834,75
Croatia	57,45	10.000,00	10.057,45
Cyprus	1.063,00	5.000,00	6.063,00
Czech Republic	3.047,40	23.747,00	26.794,40
Denmark	4.343,00	37.000,00	41.343,00
Estonia	290,96	6.300,00	6.590,96
Finland	1.071,90	20.570,00	21.641,90
France	18.524,24	143.000,00	161.524,24
Germany	17.665,00	231.362,00	249.027,00
Greece	236,40	22.041,00	22.277,40
Hungary	229,00	18.000,00	18.229,00
Ireland	288,00	9.212,00	9.500,00
Italy	234,00	43.785,00	44.019,00
Latvia	336,40	26.963,61	27.300,01
Lithuania	178,00	15.933,00	16.111,00
Luxembourg	378,73	228,00	606,73
Malta	0,00	701,00	701,00
Netherlands	35.438,00	117.311,00	152.749,00
Poland	5.334,75	339.073,00	344.407,75
Portugal	8,31	24.000,00	24.008,31
Romania	546,07	57.410,73	57.956,80
Slovakia	532,88	6.684,56	7.217,44
Slovenia	25,97	3.598,00	3.623,97
Spain	2.364,24	50.564,39	52.928,63
Sweden	1.342,00	23.776,00	25.118,00
United Kingdom	15.402,00	121.837,00	137.239,00
Total	113.195,15	1.464.586,29	1.577.781,44

Surveys for *Clavibacter michiganensis* ssp. *sepedonicus* on the domestic production, harvest 2014

Member State	Type of potatoes	Hectarage	Laboratory testing			Visual checks		Comments
			Number of samples	Density (ha/sample)	Positive lots	Number of samples	Symptomatic samples	
Austria	Seed (pre-basic)	7,43	16	0,46	0	11	0	
	Seed (basic)	432,31	309	1,40	0	259	0	
	Seed (certified)	1.157,34	844	1,37	0	677	0	
	Seed (TOTAL)	1.597,08	1.169	1,37	0	947	0	
	Ware	11.575,00	68	292,28	0	174	0	
	Industrial	8.300,00			0	3	0	
	Other (TOTAL)	19.875,00	68	292,28	0	177	0	
Belgium	Breeding material		9	0,00	0	0	0	
	Seed (pre-basic)	15,92	78	0,20	0	29	0	
	Seed (basic)	1.956,67	902	2,17	0	555	0	
	Seed (certified)	404,03	133	3,04	0	137	0	
	Seed (TOTAL)	2.376,62	1.122	2,12	0	721	0	
	Farm saved seed	0,00	337		0	337	0	
	Ware/industrial potatoes	73.063,00	825	62,45	0	825	0	
	Targeted surveys (ware)		8		0	8	0	
Other (TOTAL)	73.063,00	1.170	62,45	0	1.170	0		
Bulgaria	Seed (pre-basic)	0,30	2	0,15	0	2	0	
	Seed (basic)	89,71	26	3,45	0	26	0	
	Seed (certified)	193,74	141	1,37	0	144	0	
	Seed (TOTAL)	283,75	169	1,68	0	172	0	
	Ware	13.551,00	451	30,05	1	465	0	2 infested plots totalling 3,4 ha
	Other		2		0	2	0	Additional samples taken for tracing related lots
	Other (TOTAL)	13.551,00	453	29,91	1	467	0	
Croatia	Seed (certified)	57,45	40	1,44	0	28	0	
	Seed (TOTAL)	57,45	40	1,44	0	28	0	
	Farm saved seed		11	0,00	0	12	0	
	Ware incl. young pots	10.000,00	145	68,97	0	279	0	
	Industrial		14	0,00	0	24	0	
Other (TOTAL)	10.000,00	170	58,82	0	315	0		
Cyprus	Seed (certified)	1.063,00	127	8,37	0	127	0	Two field inspections and one inspection during harvest; all seed potato fields are inspected
	Seed (TOTAL)	1.063,00	127	8,37	0	127	0	
	Ware	5.000,00	116	43,10	0	116	0	One field inspection and one inspection after harvest
Other (TOTAL)	5.000,00	116	43,10	0	116	0		
Czech Republic	Breeding material		94	0,00	0	0	0	
	Seed (pre-basic)	57,20	70	0,82	0	0	0	
	Seed (basic)	220,80	297	0,74	1	0	0	
	Seed (certified)	2.769,40	2.411	1,15	4	0	0	
	Seed (TOTAL)	3.047,40	2.872	1,06	5	0	0	considered as 5 outbreaks in seed
	Ware & Farm saved seed	19.212,00	411	46,74	0	93	0	
	Industrial	4.535,00	338	13,42	9	48	0	
	Samples of washing/waste water		39	0,00	0	0	0	
Other (TOTAL)	23.747,00	749	31,70	9	141	0	considered as 5 outbreaks in ware	
Denmark	Seed (pre-basic)	4.343,00	579	0,00	0	0	0	
	Seed (TOTAL)	4.343,00	579	7,50	0	0	0	
	Ware	37.000,00	200	0,00	0	0	0	
	Other (TOTAL)	37.000,00	200	185,00	0	0	0	

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Member State	Type of potatoes	Hectarage	Laboratory testing			Visual checks		Comments
			Number of samples	Density (ha/sample)	Positive lots	Number of samples	Symptomatic samples	
Estonia	Seed (pre-basic)	1,96	6	0,33	0	0	0	Production site where ring rot was found on 2008 crop
	Seed (basic)	93,90	126	0,75	0	0	0	
	Seed (certified)	195,10	207	0,94	0	0	0	
	Seed (TOTAL)	290,96	339	0,86	0	0	0	
	Ware	6.300,00	173	36,42	1	0	0	
	Other (TOTAL)	6.300,00	173	36,42	1	0	0	
Finland	Seed (pre-basic)	145,80	113	69,00	0	160	0	
	Seed (basic)	420,60	257	12,00	0	199	0	
	Seed (certified)	489,30	299	139,00	0	328	0	
	Other seed	16,20	42	5,00	0	0	0	
	Seed (TOTAL)	1.071,90	711	1,51	0	687	0	
	Ware	14.500,00	379	473,00	3	0	0	
Industrial	6.070,00	58	68,00	0	0	0		
Other (TOTAL)	20.570,00	437	47,07	3	0	0		
France	Seed (pre-basic)	190,07	2.044	0,09	0	0	0	25,131 inspections of the growing crop 6,237 prebasic, 12,204 basic and 6,690 for certified category
	Seed (basic)	9.147,55	4.053	2,26	0	9.492	0	
	Seed (certified)	9.187,02	3.228	2,85	0	0	0	
	Seed (TOTAL)	18.524,64	9.325	1,99	0	9.492	0	
	Ware	143.000,00	620	230,65	0	0	0	
Other (TOTAL)	143.000,00	620	230,65	0	0	0		
Germany	Breeding material		564	0,00	0	509	0	Of 8 positive lots, 2 outbreaks due to infection on two farms
	Seed (pre-basic)	547,00	1.299	0,42	0	1.279	0	
	Seed (basic)	6.039,00	3.778	1,60	0	3.247	0	
	Seed (certified)	11.079,00	4.722	2,35	0	4.546	0	
	Seed (in trade)		461	0,00	0	346	0	
	Seed (TOTAL)	17.665,00	10.824	1,63	0	9.927	0	
	Farm saved seed (own production)		269	0,00	0	244	0	
	Ware/industrial	231.362,00	2.480	93,29	8	48.233	0	
Other (TOTAL)	231.362,00	2.749	84,16	8	48.477	0		
Greece	Seed (certified)	236,40	84	2,81	0	84	0	Visual inspections on fields during growing season Include FSS data and follow up investigation following notification on positive seed received from another MS
	Seed (TOTAL)	236,40	84	2,81	0	84	0	
	Ware & Industrial outside Crete	20.111,00	451	44,59	0	451	0	
	Ware, Crete	1.930,00	171	11,29	0	171	0	
	Soil		10					
Other (TOTAL)	22.041,00	632	34,88	0	622	0		
Hungary	Seed (pre-basic)	20,00	26	0,77	0	0	0	2 Outbreaks
	Seed (basic)	60,00	60	1,00	0	0	0	
	Seed (certified)	140,00	88	1,59	0	0	0	
	Seed (breeding stock)	9,00	9	1,00	0	0	0	
	Seed (TOTAL)	229,00	183	1,25	0	0	0	
	Ware	18.000,00	232	77,59	3	203	2	
Other (TOTAL)	18.000,00	232	77,59	3	203	2		
Ireland	Seed (basic)	288,00	197	1,46	0	800	0	
	Seed (TOTAL)	288,00	197	1,46	0	800	0	
	Ware	9.212,00	344	26,78	0	250	0	
Other (TOTAL)	9.212,00	344	26,78	0	250	0		

Member State	Type of potatoes	Hectarage	Laboratory testing			Visual checks		Comments
			Number of samples	Density (ha/sample)	Positive lots	Number of samples	Symptomatic samples	
Italy	Seed (certified)	234,00	25	9,36	0	17	0	
	Seed (TOTAL)	234,00	25	9,36	0	17	0	
	Ware	41.000,00	207	152,99	0	321	0	
	Industrial	2.785,00	61		0	40	0	
	Other (TOTAL)	43.785,00	268	163,38	0	361	0	
Latvia	Seed (pre-basic)	6,81	18	0,38	0	0	0	
	Seed (basic)	14,98	8	1,87	0	0	0	
	Seed (certified)	314,61	140	2,25	0	0	0	
	Seed (other)	0,00	5	0,00	0	0	0	Breeders' material
	Seed (TOTAL)	336,40	171	1,97	0	0	0	
	Ware		511		14	0	0	
	Industrial	26.963,61	59	46,73	0	0	0	
	Other (TOTAL)	26.963,61	636	42,40	17	0	0	Outbreaks of Cms of previous years, where SPPS carries out supervision
Lithuania	Seed (pre-basic)	1,00	4	0,25	0	0	0	
	Seed (certified)	177,00	153	1,16	0	0	0	
	Seed (TOTAL)	178,00	157	1,13	0	0	0	
	Ware	15.933,00	847	18,81	21	193	0	21 Outbreaks
	Other (TOTAL)	15.933,00	847	18,81	21	193	0	
Luxembourg	Seed (pre-basic)	33,42	22	1,52	0	0	0	
	Seed (basic)	289,09	161	1,80	0	0	0	
	Seed (certified)	56,22	39	1,44	0	0	0	
	Seed (TOTAL)	378,73	222	1,71	0	0	0	
	Ware (TOTAL)	228,27	0	#DIV/0!	0	0	0	
Malta	Seed (TOTAL)	0,00	0	0,00	0	0	0	
	Ware	701,00	32	21,91	0	32	0	
	Other (Tomatoes/Water)	365,00	89	4,10	0	84	0	32 samples collected from open field potatoes
	Other (TOTAL)	701,00	32	21,91	0	32	0	
Netherlands	Breeding material (+in vitro)		236		0	236	0	
	Seed (pre-basic)	6.813,00	4.520	6,25	0	4520	0	
	Seed (basic)	23.759,00	10.864		0	10864	0	
	Seed certified	4.866,00	2.390	2,04	0	2390	0	
	Seed (export TC)		633		0	633	0	
	Seed (TOTAL)	35.438,00	18.643	1,90	0	18.643	0	
	Farm saved seed incl. clone/breed material & material for starch prod.	911,00	748		0	748	0	
	Ware	74.000,00	746	56,75	0	746	0	
	Industrial (for starch)	42.400,00	573		0	573	0	
	Ware other (targeted survey)		0		0	0	0	
	Other (TOTAL)	117.311,00	2.067	56,75	0	2.067	0	
Poland	Variety trials	84,12	751	0,11	0	21	0	
	Seed (pre-basic)	68,82	96	0,72	0	96	0	
	Seed (basic)	1.309,39	1.905	0,69	0	43	0	
	Seed (certified)	3.872,42	5.223	0,74	8	438	0	
	Seed (TOTAL)	5.334,75	7.975	0,67	8	502	0	
	Ware	297.006,00	6.486	45,79	756	4.700	0	
	Industrial	41.462,00	860	48,21	42	244	0	
	Other (Farm - saved seed potatoes)	605,00	609	0,99	17	52	0	
	Other (TOTAL)	339.073,00	7.955	42,62	815	4.996	0	

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Member State	Type of potatoes	Hectarage	Laboratory testing			Visual checks		Comments
			Number of samples	Density (ha/sample)	Positive lots	Number of samples	Symptomatic samples	
Portugal	Seed (certified)	8,31	15	0,55	0	15	0	
	Seed (TOTAL)	8,31	15	0,55	0	15	0	
	Ware	24.000,00	121	198,35	0	121	0	
	Industrial	0,00	0	#DIV/0!	0	0	0	
	Other (TOTAL)	24.000,00	121	198,35	0	121	0	
Romania	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	
	Seed (basic)	55,30	103	0,54	0	103	4	
	Seed (certified)	490,77	977	0,50	4	936	0	
	Seed (TOTAL)	546,07	1.080	0,51	4	1.039	4	
	Ware	56.960,64	1.581	36,03	101	1.248	0	
	Industrial	450,09	21	21,43	0	21	0	
	Other (TOTAL)	57.410,73	1.602	35,84	101	1.269	0	
Slovakia	Breeding material							
	Seed (pre-basic)	4,00	6	0,67	0	6	0	
	Seed (basic)	111,72	64	1,75	0	64	0	
	Seed (certified)	417,16	161	2,59	0	161	0	
	Seed (TOTAL)	532,88	231	2,31	0	231	0	
Ware	6.684,56	306	21,84	2	378	2		
Other (TOTAL)	6.684,56	306	21,84	2	378	0		
Slovenia	Seed (pre-basic)	1,54	14	0,11	0	20	0	
	Seed (basic)	17,18	9	1,91	0	22	0	
	Seed (certified)	7,25	5	1,45	0	12	0	
	Seed (TOTAL)	25,97	28	0,93	0	54	0	
	Ware	3.598,00	69	52,14	0	72	0	
Other (TOTAL)	3.598,00	69	52,14	0	72	0		
Spain	Seed (pre-basic)	53,07	11	4,82	0	7	0	
	Seed (basic)	504,41	83	6,08	0	85	0	
	Seed (certified)	1.806,76	908	1,99	0	1.110	0	In seed certified lots, analysis by IF and PCR
	Seed (TOTAL)	2.364,24	1.002	2,36	0	1.202	0	
	Ware	50.564,39	414	122,14	0	432	0	Analysis with laboratory method specified in Directive 93/85/EC
	Industrial	0,00	1	0,00	0	31	0	
	Other (TOTAL)	50.564,39	421	120,11	0	492	0	On-farm consumption and following
Sweden	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	
	Seed (basic)	240,00	59	4,07	0	160	0	
	Seed (certified)	1.102,00	204	5,40	0	100	0	
	Seed (TOTAL)	1.342,00	263	5,10	0	260	0	
	Ware	17.636,00	202	87,31	0	2.374	0	Visual inspections carried out by a private potato control company
	Other (TOTAL)	23.776,00	202	117,70	0	2.374	0	
United Kingdom	Seed (pre-basic)	114,00	287	0,40	0	0	0	All nuclear stock production of SASA
	Seed (basic)	15.178,00	1.369	11,17	0	774	0	In Scotland the sample size depends on available material
	Seed (certified)	110,00	48		0	0	0	From Jersey only. Other data are recorded under "Basic"
	Seed (TOTAL)	15.402,00	1.704	9,04	0	774	0	
	Farm saved seed	620,00	0	#DIV/0!	0	27	0	From the Isle of Man and Jersey only
	Other (ware)	121.837,00	360	338,44	0	276	0	In Scotland the sample size depends on available material

TABLE 3: Surveys for *Clavibacter michiganensis* ssp. *sepedonicus* on potato "imports", 2014/2015 season

Member State	Commodity	Number of Samples	Positives	Number of visual checks	Positives	Remarks
Austria	Seed potatoes	110	0	0	0	Mainly from NL and DE
	Other potatoes	23	0	5	0	Mainly from EG
Belgium	Seed potatoes	460	0	460	0	Most from NL
	Other potatoes	214	0	214	0	Mainly from IL, NL, FR and DE
Bulgaria	Seed potatoes	58	0	80	0	Mainly from NL and DE
	Other potatoes	11	0	389	0	Mainly from TK and DE
Croatia	Seed potatoes	7	0	54	0	Mainly from NL and DE
	Other potatoes	17	0	17	0	Mainly from DE and ES
Cyprus	Seed potatoes	215	0	204	0	Mainly from NL
	Other potatoes	10	0	10	0	From IL
Czech Republic	Seed potatoes	55	0	0	0	Mainly from NL and DE
	Other potatoes	57	0	12	0	Mainly from DE, FR, PL
Denmark	Seed potatoes	0	0	0	0	
	Other potatoes	0	0	0	0	
Estonia	Seed potatoes	6	0	0	0	From NL, LV, FR, FI and DE
	Other potatoes	6	0	0	0	From MA, LV, SE, EG, and CY
Finland	Seed potatoes	94	0	0	0	Mainly from DE, NL, DK and SE
	Other potatoes	4	0	0	0	
France	Seed potatoes	55	0	55	0	
	Other potatoes	14	0	14	0	
Germany	Seed potatoes	253	0	106	0	Majority from NL and DK
	Other potatoes	14	0	200	0	Mainly from EG
Greece	Seed potatoes	356	0	356	0	Most from NL
	Other potatoes	176	0	176	0	From EG
Hungary	Seed potatoes	91	0	0	0	Most from NL, AT and DE
	Other potatoes	18	0	0	0	Most from PL, no positives
Ireland	Seed potatoes	50	0	0	0	Mainly from UK
	Other potatoes	67	0	0	0	From IL and EG
Italy	Seed potatoes	184	0	366	0	Most from NL
	Other potatoes	185	0	1.966	0	From EG and IL
Latvia	Seed potatoes	56	0	0	0	Mainly from DE and NL
	Other potatoes	14	0	0	0	Mainly from SE and LT
Lithuania	Seed potatoes	12	0	5	0	From PL, NL, DK and DE
	Other potatoes	14	0	0	0	Mainly from IL, DK and DE
Luxembourg	Seed potatoes	110	0	0	0	From BE, DE and NL
	Other potatoes	9	0	0	0	Mainly from DE
Malta	Seed potatoes	20	0	16	0	Mainly from NL
	Other potatoes	0	0	0	0	
Netherlands	Seed potatoes	102	0	102	0	Mainly from DE, FR and DK
	Other potatoes	0	0	0	0	
Poland	Seed potatoes	92	0	6	0	Mainly from NL and DE
	Other potatoes	169	0	377	0	From various MSs, EG and MO
Portugal	Seed potatoes	49	0	55	0	Mainly from NL
	Other potatoes	13	0	13	0	From FR and ES
Romania	Seed potatoes	178	0	164	0	Most from NL and DE
	Other potatoes	18	0	138	0	Most from PL
Slovakia	Seed potatoes	21	0	21	0	Mainly from CZ, DE and NL
	Other potatoes	78	0	78	0	Mainly from CZ, FR, and NL
Slovenia	Seed potatoes	12	0	12	0	Mainly from NL
	Other potatoes	13	0	12	0	Mainly from FR
Spain	Seed potatoes	444	0	445	0	Most from NL and UK
	Other potatoes	94	0	98	0	Most from NL , UK and FR
Sweden	Seed potatoes	6	0	0	0	From DK, DE, UK and NL
	Other potatoes	7	0	50	0	From IL
United Kingdom	Seed potatoes	787	0	0	0	Most from NL, FR and DE
	Other potatoes	135	0	0	0	Mainly from ES, FR, IL and EG.
EU	Seed potatoes	3.883	0	2.507	0	
	Other potatoes	1.380	0	3.769	0	

TABLE 4: Density of sampling for laboratory testing for *Clavibacter michiganensis* ssp. *sepedonicus* on the domestic potato production, harvest 2014

Member State	Seed potatoes			Ware potatoes		
	Area (ha)	No. of samples	Sampling density (ha per sample)	Area (ha)	No. of samples	Sampling density (ha per sample)
Poland	5.335	7.975	0,67	339.073	7.955	42,62
Latvia	336	171	1,97	26.964	636	42,40
Lithuania	178	157	1,13	15.933	847	18,81
Romania	546	1.080	0,51	57.411	1.602	35,84
Germany	17.665	10.824	1,63	231.362	2.749	84,16
Netherlands	35.438	18.643	1,90	117.311	2.067	56,75
Bulgaria	284	169	1,68	13.551	453	29,91
Spain	2.364	1.002	2,36	50.564	421	120,11
Slovakia	533	231	2,31	6.685	306	21,84
Estonia	291	339	0,86	6.300	173	36,42
Finland	1.072	711	1,51	20.570	437	47,07
Sweden	1.342	263	5,10	23.776	202	117,70
Greece	236	84	2,81	22.041	632	34,88
Czech Republic	3.047	2.872	1,06	23.747	749	31,70
TOTAL - GROUP 1	68.668	44.521	1,54	955.287	19.229	49,68
Denmark	4.343	579	7,50	37.000	200	185,00
United Kingdom	15.402	1.704	9,04	121.837	360	338,44
Hungary	229	183	1,25	18.000	232	77,59
France	18.525	9.325	1,99	143.000	620	230,65
Belgium	2.377	1.122	2,12	73.063	1.170	62,45
Austria	1.597	1.169	1,37	19.875	68	292,28
Cyprus	1.063	127	8,37	5.000	116	43,10
Italy	234	25	9,36	43.785	268	163,38
TOTAL - GROUP 2	43.769	14.234	3,07	461.560	3.034	152,13
Croatia	57	40	1,44	10.000	170	58,82
Malta	0	0		701	32	21,91
Slovenia	26	28	0,93	3.598	69	52,14
Ireland	288	197	1,46	9.212	344	26,78
Luxembourg	379	222	1,71	228	0	
Portugal	8	15	0,55	24.000	121	198,35
TOTAL - GROUP 3	758	502	1,51	47.739	736	64,86
TOTAL EU	113.196	59.257	1,91	1.464.587	22.999	63,68

TABLE 5: Incidence of ring rot in Member States where it occurred in the 2014 harvest

Member State	Type	Total no. of samples	No. of positive lots	No. of Rr cases	Incidence seed	Incidence ware
Bulgaria	seed	169	0	0	0,000%	
	ware	453	1	1		0,221%
Czech Republic	seed	2.872	5	5	0,174%	
	ware	749	9	5		1,202%
Estonia	seed	339	0	0	0,000%	
	ware	173	1	1		0,578%
Finland	seed	711	0	0	0,000%	
	ware	437	3	1		0,686%
Germany	seed	10.824	0	0	0,000%	
	ware	2.749	8	2		0,291%
Hungary	seed	183	0	0	0,000%	
	ware	232	3	2		1,293%
Latvia	seed	171	0	0	0,000%	
	ware	636	17	3		2,673%
Lithuania	seed	157	0	0	0,000%	
	ware	847	21	21		2,479%
Poland	seed	7.975	8	7	0,100%	
	ware	7.955	815	679		10,245%
Romania	seed	1.080	4	4	0,370%	
	ware	1.602	101	77		6,305%
Slovakia	seed	231	0	0	0,000%	
	ware	306	2	2		0,654%
TOTAL EU-ring rot	seed	24.712	17	16	0,069%	
	ware	16.139	981	794		6,078%
TOTAL EU28	seed	59.257	17	16	0,029%	
	ware	22.999	981	794		4,265%
TOTAL EU27 (-PL)	seed	51.282	9	9	0,018%	
	ware	15.044	166	115		1,103%
TOTAL EU26 (-PL&RO)	seed	50.202	5	5	0,010%	
	ware	13.442	65	38		0,484%

TABLE 6: Surveys for *Clavibacter michiganensis* ssp. *sepedonicus* since 1994 on the domestic potato production

Member State	1994	1995	1996	1997	1998	1999	2000	2001	Harvest											2014		
									2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012		2013	
Austria	- seed Samples - ware - positive - seed lots - ware	56 1	108 83	108 83	117 65	112 78	304 79	684 95	589 97	662 91	632 87	625 88	594 96	578 91	533 87	603 99	602 104	594 105	1.224 75	1.216 73	1.169 68	
Belgium	- seed Samples - ware - positive - seed lots - ware	120 115	526 114	408 93	351 39	534 242	700 302	1.082 404	697 476	1.726 1.204	3.930 2.284	4.948 1.691	3.346 689	2.535 1.188	1.040 1.466	925 1.313	1.168 1.282	1.073 1.178	1.038 1.218	959 1.218	1.135 1.228	1.122 1.170
Bulgaria	- seed Samples - ware - positive - seed lots - ware												443 552	285 672	275 467	213 531	297 466	301 497	195 594	179 503	169 453	
Croatia	- seed Samples - ware																		32 132	35 135	40 170	
Cyprus	- seed Samples - ware									145 167	108 178	115 350	115 346	108 270	169 326	102 266	94 223	124 224	124 170	67 140	127 116	
Czech Republic	- seed Samples - ware - positive - seed lots - ware									3.740 2.790	3.611 2.133	3.378 1.428	2.699 1.425	2.993 1.177	3.129 1.035	2.959 799	2.694 715	2.814 663	2.768 648	2.670 882	2.872 749	
Denmark	- seed Samples - ware - positive - seed lots - ware	1.732 188	1.656 225	1.622 229	855 1	1.270 379	1.480 338	1.420 263	1.389 335	1.371 428	978 323	996 309	985 390	662 361	991 367	780 262	697 195	536 148	541 192	650 200	552 242	579 200
Estonia	- seed Samples - ware - positive - seed lots - ware									108 312	161 242	263 369	324 358	278 269	228 263	357 252	331 170	413 222	287 169	315 171	339 173	
Finland	- seed Samples - ware - positive - seed lots - ware	1.478 914	1.633 1.000	1.189 1.221	1.443 1.905	1.464 2.051	1.731 1.350	1.676 1.535	1.686 1.947	1.586 1.243	1.461 769	1.116 1.147	1.482 1.693	1.430 853	1.355 1.238	1.379 1.497	1.334 1.107	1.422 903	729 970	743 569	729 541	711 437
France	- seed Samples - ware - positive - seed lots - ware	2.481	2.299 45	2.785 215	7.446 323	3.257 308	7.157 363	7.011 1657	7.610 1078	6.762 1216	5.921 744	8.979 1020	8.246 988	8.333 960	8.386 955	8.459 949	9.193 993	12.057 883	9.082 901	9.315 943	9.041 899	9.325 620
Germany	- seed Samples - ware - positive - seed lots - ware	3.488 1.250	3.877 530	5.081 892	10.987 2.966	12.352 4.195	12.174 4.569	12.102 5.261	11.301 4.578	11.275 4.920	11.850 4.886	12.554 5.304	11.746 3.652	10.860 3.126	11.044 2.825	10.562 2.670	11.175 2.427	11.157 2.421	10.943 2.072	10.629 2.258	10.246 2.039	10.824 2.749
Greece	- seed Samples - ware - positive - seed lots - ware	37	114	152 31	138 515	130 966	73 466	77 742	60 688	69 796	83 681	59 675	60 352	77 363	119 332	120 371	130 537	121 429	86 475	77 416	77 520	84 632
Hungary	- seed Samples - ware - positive - seed lots - ware									616 688	566 362	244 357	215 317	214 345	205 344	153 300	197 198	149 200	167 162	191 173	183 232	
Ireland	- seed Samples - ware	266 130	251 213	234 242	250 252	236 215	215 260	308 309	125 378	120 381	146 402	110 229	145 341	188 339	712 261	736 518	786 169	480 295	432 340	359 277	244 344	197 344
Italy	- seed Samples - ware - positive - seed lots - ware			51 172	439 1.067	68	49 54	23 123	167 274	189 282	170 271	213 366		318 236	154 414	214 239	58 334	28 299	27 216	29 282	40 271	25 268
Latvia	- seed Samples - ware - positive - seed lots - ware									183 128	185 752	139 500	106 596	163 1.410	178 979	163 759	145 711	142 804	143 769	140 713	171 636	
Lithuania	- seed Samples - ware - positive - seed lots - ware									209 613	404 304	124 989	153 1.705	187 1.439	196 1.210	180 623	152 850	169 883	128 949	157 773	157 847	
Luxembourg	- seed Samples - ware	12 5	111	253 5	254 4	133 22	208 0	168 0	399 0	183 4	227 4	225 8	148 6	79 12	190 0	303 1	244 0	150 0	113 0	178 0	222 0	
Malta	- seed Samples - ware									0 0	0 0	0 0	0 0	0 154	0 34	0 43	0 41	0 34	0 39	0 39	0 32	
Netherlands	- seed Samples - ware - positive - seed lots - ware	2.943	3.275 300	3.601 1.829	4.246 2.941	4.816 2.267	3.806 3.833	62.775 6.613	59.352 4.454	57.245 6.603	20.972 5.886	61.199 8.950	38.402 3.055	28.087 2.263	21.982 3.458	21.629 3.877	22.890 3.178	20.809 2.330	22.677 2.555	19.745 3.121	18.418 3.426	18.643 2.067
Poland	- seed Samples - ware - positive - seed lots - ware									7.685 11.818	8.186 15.291	5.927 15.243	6.197 13.785	7.552 12.643	6.992 10.421	7.224 9.543	6.892 8.389	8.173 8.597	8.143 9.073	7.243 7.535	7.975 7.955	
Portugal	- seed Samples - ware	5 109	127	100 364	34 286	84 259	188 68	108 209	65 233	39 162	38 135	45 94	37 100	8 133	10 102	6 132	2 166	0 141	0 110	0 88	0 95	15 121
Romania	- seed Samples - ware - positive - seed lots - ware												470 790	586 1.020	526 1.621	507 1.358	688 1.432	456 1.569	633 1.415	1.080 1.729	1.602 1.415	
Slovakia	- seed Samples - ware - positive - seed lots - ware									350 283	813 226	455 696	266 201	417 333	369 266	251 201	245 201	228 262	217 306	297 306	231 306	
Slovenia	- seed Samples - ware									56 82	60 92	41 95	37 102	35 81	36 69	36 63	31 72	36 83	28 91	28 69		
Spain	- seed Samples - ware - positive - seed lots - ware	216 89	617 119	911 139	748 159	647 152	609 340	471 161	424 314	726 368	641 419	1.374 340	1.179 663	1.105 641	1.909 757	1.782 821	1.766 723	1.896 696	1.745 498	1.113 417	1.064 421	
Sweden	- seed Samples - ware - positive - seed lots - ware		354 515	401 434	204 903	275 620	222 485	249 488	330 864	344 712	413 529	428 499	394 532	452 462	363 394	403 438	388 404	386 331	350 482	339 362	309 55	263 202
United Kingdom	- seed Samples - ware - positive - seed lots - ware	103 195	118 208	191 236	351 356	137 171	389 235	1.148 232	1.282 301	1.279 255	906 326	1.883 505	1.832 491	1.929 541	1.982 567	2.024 610	1.860 613	1.813 594	1.831 561	1.687 595	1.720 555	1.704 360
EU TOTAL	- seed Samples - ware - positive - seed lots - ware	12.844 3.032	14.773 3.397	17.087 6.206	27.854 12.245	25.452 11.777	29.113 12.681	88.922 17.974	85.571 15.943	83.513 17.943	61.490 33.551	108.855 41.397	79.313 34.069	67.704 31.240	63.522 32.774	62.045 31.039	64.498 27.124	64.632 24.381	63.448 24.830	59.719 25.375	56.895 23.895	59.257 22.999

NOTE: in order to compare across years and Member States, findings of ring rot are indicated as number of positive lots. This information has, however, not been available in some of the older data and the number indicated is then the number of infected farms or of positive samples. Therefore, the figures for positive findings must be used with caution.

Surveys for *Ralstonia solanacearum* on the domestic 2014 potato crop

Surveys for *Ralstonia solanacearum* on the domestic 2014 potato crop

Member State	Type of potatoes	Hectarage	Laboratory testing			Visual inspections				Comments
			no. of samples	density (ha/sample)	no. positive lots	tuber samples	no. positive	crop inspections	no. positive	
Austria	Seed (pre-basic)	7,43	16	0,46	0	11	0	32	0	
	Seed (basic)	432,31	309	1,40	0	259	0	618	0	
	Seed (certified)	1.157,34	844	1,37	0	677	0	799	0	
	Seed (TOTAL)	1.597,08	1.169	1,37	0	947	0	1.449	0	
	Ware potatoes	11.575,00	68	292,28	0	174	0	18	0	
	Industrial	8.300,00			0	3	0	15	0	
	Other (TOTAL)	19.875,00	68	292,28	0	177	0	33	0	
Belgium	Breeding material		9	0,00	0	0	0	0	0	All lots inspected & sampled during grading
	Seed (pre-basic)	15,92	78	0,20	0	29	0	2/field	0	All plots visually inspected during growth
	Seed (basic)	1.956,67	902	2,17	0	555	0	2/field	0	
	Seed (certified)	404,03	133	3,04	0	137	0	2/field	0	
	Seed (TOTAL)	2.376,62	1.122	2,12	0	721	0	2/field	0	
	Farm saved seed		337		0	337	0	0	0	1-2 samples/lot
Ware/industrial potatoes	73.063,00	825	56,99	1	825	0	0	0	1 sample/lot	
Targeted surveys (ware)		120		0	110	0	0	0	Potatoes in the protected area. Monitoring after suspicion of contamination.	
	Other (TOTAL)	73.063,00	1.282	56,99	1	1.272	0	0	0	
Bulgaria	Seed (pre-basic)	0,30	2	0,15	0	2	0	2	0	
	Seed (basic)	89,71	26	3,45	0	26	0	16	0	
	Seed (certified)	193,74	141	1,37	0	144	0	131	0	
	Seed (TOTAL)	283,75	169	1,68	0	172	0	149	0	
	Ware	13.551,00	450	30,11	1	464	0	720	0	One outbreak in an area of 0.3 ha
	Other		4		1	4	0	0	0	Samples taken in tracing process - 2nd outbreak - 0,1 ha, private garden
	Other (TOTAL)	13.551,00	454	29,85	2	468	0	720	0	
Croatia	Seed (certified)	57,45	51	1,13	0	40	0	0	0	
	Seed (TOTAL)	57,45	51	1,13	0	40	0	0	0	
	Farm saved seed		117		0	209	0	175	0	
	Industrial		14	76,34	0	24	0	18	0	
	Ware potatoes incl.young pots	10.000,00	28		0	70	0	70	0	
	Other (TOTAL)	10.000,00	159	62,89	0	303	0	263	0	
Cyprus	Seed (certified)	1.063,00	127	8,37	0	127	0	254	0	field inspections:3 (2 crop-1harvest)
	Seed (TOTAL)	1.063,00	127	8,37	0	127	0	254	0	
	Ware potatoes	5.000,00	116	43,10	0	116	0	116	0	field inspections:2 (1 crop - 1harvest)
	Other (TOTAL)	5.000,00	116	43,10	0	116	0	116	0	
Czech Republic	Breeding material		94	0,00	0	0	0	0	0	
	Seed (pre-basic)	57,20	0	#DIV/0!	0	0	0	0	0	
	Seed (basic)	220,80	297	0,74	0	0	0	0	0	
	Seed (certified)	2.769,40	0	#DIV/0!	0	0	0	0	0	
	Seed (TOTAL)	3.047,40	391	7,79	0	0	0	0	0	
	Ware & Farm saved seed	19.212,00	391	49,14	0	93	0	158	0	
Industrial	4.535,00	132	34,36	0	48	0	15	0		
	Other (TOTAL)	23.747,00	523	45,41	0	141	0	173	0	
Denmark	Seed (pre-basic)				0	0	0	0	0	
	Seed (basic)	4.343,00	579	7,50	0	0	0	0	0	
	Seed (certified)				0	0	0	0	0	
	Seed (TOTAL)	4.343,00	579	7,50	0	0	0	0	0	
	Ware potatoes	37.000,00	200	185,00	0	0	0	0	0	
	Other (TOTAL)	37.000,00	200	185,00	0	0	0	0	0	

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Member State	Type of potatoes	Hectarage	Laboratory testing			Visual inspections				Comments
			no. of samples	density	no. positive lots	tuber samples	no. positive	crop		
				(ha/sample)				inspections	no. positive	
Estonia	Seed (pre-basic)	1,96	6	0,33	0	0	0	0	0	
	Seed (basic)	93,90	126	0,75	0	0	0	0	0	
	Seed (certified)	195,10	207	0,94	0	0	0	0	0	
	Seed (TOTAL)	290,96	339	0,86	0	0	0	0	0	
	Ware potatoes	6.300,00	173	36,42	0	0	0	0	0	
	Other (TOTAL)	6.300,00	173	36,42	0	0	0	0	0	
Finland	Seed (pre-basic)	145,80	114	1,28	0	160	0	0	0	
	Seed (basic)	420,60	156	2,70	0	199	0	0	0	
	Seed (certified)	489,30	126	3,88	0	328	0	0	0	
	Other seed	16,20	5	3,24	0	0	0	0	0	
	Seed (TOTAL)	1.071,90	401	2,67	0	687	0	0	0	
	Ware	14.500,00	379	38,26	0	0	0	0	0	
Industrial	6.070,00	58	35,23	0	0	0	0	0		
Other (TOTAL)	20.570,00	437	47,07	0	0	0	0	0		
France	Seed (pre-basic)	190,07	2.044	0,09	0		0		0	
	Seed (basic)	9.147,55	4.053	2,26	0	9.492	0	25.131	0	
	Seed (certified)	9.187,02	3.228	2,85	0		0		0	
	Seed (TOTAL)	18.524,64	9.325	1,99	0	9.492	0	25.131	0	
	Ware potatoes	143.000,00	624	229,17	1	0	0	0	0	
	Industrial	0,00	624	229,17	0	0	0	0	0	
Other (TOTAL)	143.000,00	624	229,17	1	0	0	0	0		
Germany	Breeding material	0,00	564	0,00	0	509	0	152	0	
	Seed (pre-basic)	547,00	1.299	0,42	0	1.279	0	3.316	0	
	Seed (basic)	6.039,00	3.778	1,60	0	3.247	0	6.510	0	2-3 field inspections during certification
	Seed (certified)	11.079,00	4.722	2,35	0	4.546	0	5.613	0	
	Seed (samples from trade -DE)	0,00	461	0,00	0	346	0	0	0	
	Seed (TOTAL)	17.665,00	10.824	1,63	0	9.927	0	15.591	0	
	Farm saved seed (own prod.)	0,00	269	0,00	0	244	0	25	0	
	Ware/industrial potatoes	231.362,00	2.421		2	48.233	0	0	0	2 lots but only one case, as both lots belong to one farm.
	Other (TOTAL)	231.362,00	2.690	86,01	2	48.477	0	25	0	
Greece	Seed (certified)	236,40	84	2,81	0	84	0	62	0	
	Seed (TOTAL)	236,40	84	2,81	0	84	0	62	0	
	Ware outside Crete	20.111,00	442	45,50	2	442	2	0	0	
	Ware, Crete	1.930,00	171	11,29	0	171	0	0	0	
	Industrial		9	0,00	0	9	0	15	0	
Other (TOTAL)	22.041,00	622	35,44	2	622	2	15	0		
Hungary	Seed (pre-basic)	20,00	26	0,77	0	0	0	24	0	
	Seed (basic)	60,00	60	1,00	0	0	0	51	0	
	Seed (certified)	140,00	88	1,59	0	0	0	77	0	
	Seed (breeding stock)	9,00	9	1,00	0	0	0	24	0	
	Seed (TOTAL)	229,00	183	1,25	0	0	0	176	0	
	Ware	18.000,00	232	77,59	3	239	2	439	0	3 Outbreaks
Other (TOTAL)	18.000,00	232	77,59	3	239	2	439	0		
Ireland	Seed (pre-basic)			#DIV/0!	0	0	0	0	0	
	Seed (basic)	288,00	197	1,46	0	800	0	3	0	
	Seed (TOTAL)	288,00	197	1,46	0	800	0	3	0	
	Ware	9.212,00	344	26,78	0	250	0	0	0	
Other (TOTAL)	9.212,00	344	26,78	0	250	0	0	0		

Member State	Type of potatoes	Hectarage	Laboratory testing			Visual inspections				Comments
			no. of samples	density	no. positive lots	tuber samples	no. positive	crop		
				(ha/sample)				inspections	no. positive	
Italy	Seed (certified)	234,00	25	9,36	0	17	0	274	0	
	Seed (TOTAL)	234,00	25	9,36	0	17	0	274	0	
	Farm saved seed				0	0	0	0	0	
	Ware	41.000,00	207	152,99	0	405	0	386	0	
	Industrial	2.785,00	61		0	74	0	301	0	
	Other (TOTAL)	43.785,00	268	163,38	0	479	0	687	0	
Latvia	Seed (pre-basic)	6,81	18	0,38	0	0	0	0	0	
	Seed (basic)	14,98	8	1,87	0	0	0	0	0	
	Seed (certified)	314,61	140	2,25	0	0	0	0	0	
	Seed (other)	0,00	5	0,00	0	0	0	0	0	Breeders material
	Seed (TOTAL)	336,40	171	1,97	0	0	0	0	0	
	Ware potatoes		511		0	0	0	0	0	
	Industrial	26.963,61	59	47,30	0	0	0	0	0	Outbreaks of CMS of previous years
	Other (TOTAL)	26.963,61	636	42,40	0	0	0	0	0	
Lithuania	Seed (pre-basic)	1,00	4	0,25	0	0	0	1	0	
	Seed (basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (certified)	177,00	153	1,16	0	0	0	13	0	
	Seed (TOTAL)	178,00	157	1,13	0	0	0	14	0	
	Ware potatoes	15.933,00	847	18,81	0	193	0	38	0	
	Other (TOTAL)	15.933,00	847	18,81	0	193	0	38	0	
Luxembourg	Seed (pre-basic)	33,42	22	1,52	0	0	0	17	0	
	Seed (basic)	289,09	161	1,80	0	0	0	115	0	
	Seed (certified)	56,22	39	1,44	0	0	0	18	0	
	Seed (TOTAL)	378,73	222	1,71	0	0	0	150	0	
	Ware	228,27	0	#DIV/0!	0	0	0	2	0	
	Other (TOTAL)	228,27	0	#DIV/0!	0	0	0	0	0	
Malta	Seed (certified)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (TOTAL)	0,00	0	#DIV/0!	0	0	0	0	0	
	Ware potatoes	701,00	32	21,91	0	32	0	32	0	32 samples from open field potatoes
	Other (TOTAL)	701,00	32	21,91	0	32	0	32	0	
Netherlands	Breeding material		236		0	236	0	0	0	
	Seed (pre-basic)	6.813,00	4.520	1,96	0	4.520	0	0	0	
	Seed (basic)	23.759,00	10.864		0	10.864	0	0	0	
	Seed (certified)	4.866,00	3.023	1,61	0	3.023	0	0	0	
	Seed (TOTAL)	35.438,00	18.643	1,90	0	0	0	0	0	
	Farm saved seed incl. material for starch prod.	911,00	748		0	748	0	0	0	
	Ware	74.000,00	746	51,88	0	746	0	0	0	
	Industrial for starch	42.400,00	573		0	573	0	0	0	
	Targeted survey/investigations		194		0	194	0	0	0	
	Other (TOTAL)	117.311,00	2.261	51,88	0	0	0	0	0	
Poland	Variety trials	84,12	751	0,11	0	21	0	26	0	
	Seed (pre-basic)	68,82	96	0,72	0	0	0	18	0	
	Seed (basic)	1.309,39	1.905	0,69	0	43	0	226	0	
	Seed (certified)	3.872,42	5.231	0,74	0	426	0	1.541	0	
	Seed (TOTAL)	5.334,75	7.983	0,67	0	490	0	1.811	0	
	Ware & Farm saved seed	297.611,00	7.243	41,09	0	4.329	0	2.222	0	In 7 cases results are still pending following screening test
	Industrial	41.462,00	2.718	15,25	3	406	0	232	0	
		Other (TOTAL)	339.073,00	9.961	34,04	3	4.735	0	2.454	0

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Member State	Type of potatoes	Hectarage	Laboratory testing			Visual inspections				Comments
			no. of samples	density	no. positive lots	tuber samples	no. positive	crop		
				(ha/sample)				inspections	no. positive	
Portugal	Seed (certified)	8,31	15	0,55	0	15	0	15	0	One positive in Central Region. One positive in one island.
	Seed (TOTAL)	8,31	15	0,55	0	15	0	15	0	
	Ware	24.000,00	121	198,35	2	121	0	212	0	
	Industrial	0,00	0	#DIV/0!	0	0	0	0	0	
	Other (TOTAL)	24.000,00	121	198,35	2	121	0	212	0	
Romania	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (basic)	55,30	103	0,54	0	103	0	26	0	
	Seed (certified)	490,77	977	0,50	0	936	0	205	0	
	Seed (TOTAL)	546,07	1.080	0,51	0	1.039	0	231	0	
	Ware	56.960,64	1.581	36,03	0	1.248	0	1.252	0	
	Other (TOTAL)	450,09	21	21,43	0	21	0	21	0	
Slovakia	Breeding material			#VALUE!	0	0	0	0	0	
	Seed (pre-basic)	4,00	4	1,00	0	6	0	12	0	
	Seed (basic)	111,72	64	1,75	0	64	0	116	0	
	Seed (certified)	417,16	161	2,59	0	161	0	236	0	
	Seed (TOTAL)	532,88	229	2,33	0	231	0	364	0	
	Other (TOTAL)	6.684,56	306	21,84	0	378	0	169	0	
Slovenia	Seed (pre-basic)	1,54	14	0,11	0	20	0	60	0	
	Seed (basic)	17,18	9	1,91	0	22	0	66	0	
	Seed (certified)	7,25	5	1,45	0	12	0	36	0	
	Seed (TOTAL)	25,97	28	0,93	0	54	0	162	0	
	Ware potatoes	3.598,00	69	52,14	0	72	0	10	0	
	Other (TOTAL)	3.598,00	69	52,14	0	72	0	10	0	
Spain	Seed (pre-basic)	53,07	11	4,82	0	7	0	34	0	3 Positives in Castilla y León
	Seed (basic)	504,41	83	6,08	0	88	0	181	0	
	Seed (certified)	1.806,76	908	1,99	0	1.109	0	1.998	0	
	Seed (TOTAL)	2.364,24	1.002	2,36	0	1.204	0	2.213	0	
	Ware (inc on-farm consumption)	50.564,39	415	121,55	3	411	0	393	0	
	Other (TOTAL)	50.564,39	416	121,55	3	442	0	423	0	
Sweden	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (basic)	240,00	59	4,07	0	160	0	0	0	
	Seed (certified)	1.102,00	204	5,40	0	100	0	0	0	
	Seed (TOTAL)	1.342,00	263	5,10	0	260	0	0	0	
	Ware	17.636,00	202	117,70	0	2.374	0	0	0	
	Other (TOTAL)	6.140,00	202	117,70	0	2.374	0	0	0	
United Kingdom	Seed (pre-basic)	114,00	287	0,40	0	0	0	849	0	
	Seed (basic)	15.178,00	1.369	11,09	0	774	0	2.423	0	
	Seed (certified)	110,00	48		0	0	0	40	0	
	Seed (TOTAL)	15.402,00	1.704	9,04	0	774	0	3.312	0	
	Farm saved seed	620,00	0	#DIV/0!	0	27	0	0	0	
	Other (TOTAL)	121.217,00	360	338,44	0	249	0	124	0	

TABLE 8: Surveys for *Ralstonia solanacearum* in water and n

Member State	Water sampling				Other hosts		Tomatoes or other hosts			
	Waste water/soil (processing)		Surface water		no. samples	no. positive	Tomatoes			
	no. of samples	no. positive	no. of samples	no. positive			no. inspections	no. plants inspected	no. lab. tests	no. positive
Austria	3	0	9	0	15	0	22	65.416	20	0
Belgium	16	0	402	0	36	0	0	0	0	0
Bulgaria	0	0	22	0	11	0	40		2	0
Croatia	0	0	20	0	16	0	59	33.1 ha	52	0
Cyprus	0	0	0	0	0	0	0	0	0	0
Czech Republic	39	0	170	2	204	0	2	1	2	0
Denmark	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0		0	0
France	0	0	193	10	218	16	0	150m	0	0
Germany	88	2	55	17	386	0	2	0.1 ha	0	0
Greece	0	0	18	0	144	0	49	851.955	75	0
Hungary	0	0	479	107	72	5	10	0.5 ha	6	0
Ireland	28	0	2	0	0	0	0	0	0	0
Italy		0	65	0	12	0	624	ND	255	0
Latvia	0	0	27	0	27	0	0	0	0	0
Lithuania	0	0	2	0	0	0	0	0	0	0
Luxembourg	0	0	0	0	0	0	0	0	0	0
Malta	0	0	5	0	48	0	0	0	36	0
Netherlands	0	0	1.342	22	29	0	0	0	0	0
Poland	0	0	2.230	0	0	0	348	29.630.188	0	0
Portugal	0	0	5	2	0	0	0	0	0	0
Romania	0	0	8	0	4	0	0	3,311ha	95	0
Slovakia	0	0	29	0	7	0	22	18.21 ha	4	0
Slovenia	2	0	16	0	0	0	100	853.040	2	0
Spain	0	0	173	94	0	0	179	256.293.482	645	0
Sweden	0	0	0	0	0	0	0	0	0	0
United Kingdom	14	0	577	0	9	0	0	0	0	0
TOTAL EU	190	2	5.849	254	1.238	21	1.457		1.194	0

TABLE 9: Surveys for *Ralstonia solanacearum* on potato "imports", 2014/2015 season

Member State	Commodity	Number of samples	Positives	Number of visual checks	Positives	Remarks
Austria	Seed potatoes	110	0	0	0	Mainly from NL and DE
	Other potatoes	23	0	5	0	Mostly from EG
Belgium	Seed potatoes	460	0	460	0	Most from NL, DE, LU and FR
	Other potatoes	214	0	214	0	Mainly from DE, NL, FR, and IL
Bulgaria	Seed potatoes	58	0	80	0	Mainly from NL and DE
	Other potatoes	11	0	389	0	Mainly from DE and TR
Croatia	Seed potatoes	8	0	55	0	Mainly from NL and DE
	Other potatoes	19	0	21	0	Mainly from ES and DE
Cyprus	Seed potatoes	215	0	204	0	Mainly from NL and DE
	Other potatoes	10	0	10	0	From IL
Czech Republic	Seed potatoes	55	0	0	0	Mainly from DE and NL
	Other potatoes	57	0	12	0	Mainly from DE and FR
Denmark	Seed potatoes	0	0	0	0	
	Other potatoes	0	0	0	0	
Estonia	Seed potatoes	6	0	0	0	Mainly from NL
	Other potatoes	6	0	0	0	Mainly from MA
Finland	Seed potatoes	94	0	0	0	Most from DE,NL,DK,SE and FR
	Other potatoes	4	0	0	0	ZZ
France	Seed potatoes	55	0	55	0	
	Other potatoes	14	0	14	0	
Germany	Seed potatoes	254	0	107	0	Mainly from NL, DK, FR and UK
	Other potatoes	23	0	961	0	Mainly from EG
Greece	Seed potatoes	356	0	356	0	Most from NL
	Other potatoes	176	1	176	1	From EG
Hungary	Seed potatoes	91	0	0	0	Most from NL , DE and AT
	Other potatoes	18	0	0	0	Mainly from PL
Ireland	Seed potatoes	50	0	0	0	Mainly from UK
	Other potatoes	67	0	0	0	From IL and EG
Italy	Seed potatoes	210	0	396	0	Most from NL
	Other potatoes	189	0	159	0	From EG and TN
Latvia	Seed potatoes	56	0	0	0	Mainly from DE and NL
	Other potatoes	14	0	0	0	
Lithuania	Seed potatoes	12	0	5	0	From various MS
	Other potatoes	14	0	0	0	
Luxembourg	Seed potatoes	110	0	0	0	From BE, DE and NL
	Other potatoes	9	0	0	0	
Malta	Seed potatoes	20	0	16	0	Mainly from NL and UK (Scotland)
	Other potatoes	0	0	0	0	
Netherlands	Seed potatoes	102	0	102	0	Mainly from DE, DK and FR
	Other potatoes	0	0	0	0	
Poland	Seed potatoes	93	0	7	0	Mainly from NL and DE
	Other potatoes	187	1	375	0	From various MS; includes EG and MO
Portugal	Seed potatoes	49	0	55	0	From NL and UK
	Other potatoes	13	0	13	0	From FR and ES
Romania	Seed potatoes	178	0	164	0	Most from NL and DE
	Other potatoes	18	0	138	0	Largely from PL
Slovakia	Seed potatoes	21	0	21	0	Mainly from NL, CZ and DE
	Other potatoes	78	0	78	0	Mainly from CZ, FR and NL
Slovenia	Seed potatoes	12	0	12	0	Mainly from NL and FR
	Other potatoes	13	0	12	0	Mainly from FR
Spain	Seed potatoes	444	0	445	0	Most from NL, UK and FR
	Other potatoes	94	0	98	0	Most from FR, UK and NL
Sweden	Seed potatoes	6	0	0	0	From NL, DK, UK and DE
	Other potatoes	7	0	50	0	From IL
United Kingdom	Seed potatoes	787	0	0	0	Most from NL and FR
	Other potatoes	135	0	0	0	Mainly from FR, ES, EG, and IL
EU	Seed potatoes	3.912	0	2.540	0	
	Other potatoes	1.413	2	2.725	1	

TABLE 10: Density of sampling for laboratory testing for *Ralstonia solanacearum* on the domestic potato production, harvest 2014

Member State	Seed potatoes			Ware potatoes		
	Area (ha)	No. of samples	Sampling density (ha per sample)	Area (ha)	No. of samples	Sampling density (ha per sample)
Bulgaria	284	169	1,7	13.551	454	29,8
Netherlands	35.438	18.643	1,9	117.311	2.261	51,9
Germany	17.665	10.824	1,6	231.362	2.690	86,0
Spain	2.364	1.002	2,4	50.564	416	121,5
Hungary	229	183	1,3	18.000	232	77,6
Poland	5.335	7.983	0,7	339.073	9.961	34,0
Portugal	8	15	0,6	24.000	121	198,3
Romania	546	1.080	0,5	57.411	1.602	35,8
Slovakia	533	229	2,3	6.685	306	21,8
Greece	236	84	2,8	22.041	622	35,4
Italy	234	25	9,4	43.785	268	163,4
Belgium	2.377	1.122	2,1	73.063	1.282	57,0
United Kingdom	15.402	1.704	9,0	121.837	360	338,4
TOTAL - GROUP 1	80.651	43.063	1,9	1.118.683	20.575	54,4
Austria	1.597	1.169	1,4	19.875	68	292,3
Czech Republic	3.047	391	7,8	23.747	523	45,4
France	18.525	9.325	2,0	143.000	624	229,2
Ireland	288	197	1,5	9.212	344	26,8
Slovenia	26	28	0,9	3.598	69	52,1
Sweden	1.342	263	5,1	23.776	202	117,7
TOTAL - GROUP 2	24.825	11.373	2,2	223.208	1.830	122,0
Croatia	57	51	1,1	10.000	159	62,9
Cyprus	1.063	127	8,4	5.000	116	43,1
Denmark	4.343	579	7,5	37.000	200	185,0
Estonia	291	339	0,9	6.300	173	36,4
Finland	1.072	401	2,7	20.570	437	47,1
Latvia	336	171	2,0	26.964	636	42,4
Lithuania	178	157	1,1	15.933	847	18,8
Luxembourg	379	222	1,7	228	0	
Malta	0	0		701	32	21,9
TOTAL - GROUP 3	7.719	2.047	3,8	122.696	2.600	47,2
EU	113.196	56.483	2,0	1.464.587	25.005	58,6

TABLE 11: Incidence of brown rot in Member States where it occurred in the 2014 harvest

Member State		Total no. of samples	No. of positive lots	No. of Br cases	Incidence seed	Incidence ware
Belgium	seed	1.122	0	0	0,000%	
	ware	1.282	1	1		0,078%
Bulgaria	seed	169	0	0	0,000%	
	ware	454	2	1		0,441%
France	seed	9.325	0	0	0,000%	
	ware	624	1	1		0,160%
Germany	seed	10.824	0	0	0,000%	
	ware	2.690	2	1		0,074%
Greece	seed	84	0	0	0,000%	
	ware	622	2	2		0,322%
Hungary	seed	183	0	0	0,000%	
	ware	232	3	3		1,293%
Poland	seed	7.983	0	0	0,000%	
	ware	9.961	3	1		0,030%
Portugal	seed	15	0	0	0,000%	
	ware	121	2	2		1,653%
Spain	seed	1.002	0	0	0,000%	
	ware	416	3	3		0,721%
TOTAL EU-brown rot	seed	21.382	0	0	0,000%	
	ware	15.778	19	15		0,120%
TOTAL EU28	seed	56.483	0	0	0,000%	
	ware	25.005	19	15		0,076%

TABLE 12: Surveys for *Ralstonia solanacearum* since 1995 on the domestic potato production

Member State		Harvest																				
		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
Austria	Number of Samples	- seed - ware - seed - ware	54 73	108 83	120 87	117 65	112 78	298 81	653 94	589 92	662 91	632 87	625 88	594 96	578 91	533 87	603 99	602 104	594 105	1.224 75	1.216 73	1.169 68
	Number of Samples	- seed - ware - seed - ware	1.251 89	854 193	342 101	500 73	700 499	1.082 408	701 411	1.043 649	3.731 1.123	4.948 1.629	3.346 1.527	2.535 663	1.040 1.285	925 1.375	1.168 1.446	1.073 1.406	1.038 1.268	959 1.281	1.135 1.322	1.122 1.282
	Number of Samples	- seed - ware - seed - ware																				
Belgium	Number of Samples	- seed - ware - seed - ware																				
	Number of Samples	- seed - ware - seed - ware																				
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Bulgaria	Number of Samples	- seed - ware - seed - ware																				
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	Number of Samples	- seed - ware - seed - ware																				
Croatia	Number of Samples	- seed - ware - seed - ware																				
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Cyprus	Number of Samples	- seed - ware - seed - ware																				
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United Kingdom	Number of Samples	- seed - ware - seed - ware																				
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NOTE: in order to compare across years and Member States, findings of *R. solanacearum* are indicated as number of positive lots. This information has, however, in some cases not been available and the number indicated is then the number of infected fields, of infected farms or of positive samples. Therefore, the figures for positive findings must be used with caution.

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