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DG Health and Food Safety

Potato Ring Rot and Brown Rot Surveys in the EU

Annual Report 2016/2017

Health and Food Safety

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EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

Directorate F
Director

Potato ring rot and brown rot surveys in the EU

Annual Report 2016/2017

EXECUTIVE SUMMARY

Substantial survey efforts are made in the European Union Member States for both Clavibacter michiganensis *spp.* sepedonicus *(causing potato ring rot) and* Ralstonia solanacearum *(causing potato brown rot).*

Overall, the situation for ring rot has further improved as the total number of findings in the ware potato production was lower than in the previous seasons. Only seven Member States were affected by the disease, the lowest number since 2001. Ring rot incidence has decreased in seed by approximately 15% compared to 2015. In Poland, where most ring rot in the EU occurs, the situation in both seed and ware potato production has improved and the number of findings has significantly dropped compared to the previous growing period. The situation in Romania, however, has further deteriorated in both seed and ware potatoes.

The overall brown rot incidence has slightly decreased in ware potatoes but there were findings in seed after two years without any. Following the first outbreak in 2014 the organism is still present in Poland. Also Portugal, Spain and Hungary need to manage with the continuous findings of the pathogen in ware potatoes. The situation still appears to be positive in Romania with no brown rot detection during the last four growing periods. However, an outbreak in seed potatoes occurred in the Netherlands after four years without any. No substantial changes were observed with regard to the presence of R. solanacearum *in surface water or hosts other than potato.*

Continuous efforts in Member States affected by ring rot and brown rot in both seed and ware potatoes are necessary for ultimate eradication 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 2016/2017 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 2016 was approximately 1.52 million ha in the 28 EU MS (see Table 1), which is somewhat less than in the preceding year. The seed production area was decreased slightly by 0.12%. Similarly to the last growing periods, 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 cutting of tuber samples), 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. Most MS (BG, HR, CZ, DK, EE, FI, FR, ES, DE, HU, LT, LV, NL, RO, SE, SI, SK), 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 2016/2017

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 2016/2017, the number of samples taken for analysis from their own production in 28 MS was 91,619 of which ca. 70% were seed. In addition to this, 6,677 samples of potatoes from other MS (of which ca. 4,736 samples of Dutch, German, Danish, French 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, France and Sweden reduced 20% or more their seed potatoes testing. Belgium, Cyprus, Czech Republic, and Estonia, reduced significantly their ware potatoes testing. Croatia, Portugal and Slovakia decreased their efforts in both seed and ware. By contrast an increase in testing was observed in seed tested in Cyprus, Estonia, Hungary, Latvia and Luxembourg, and of ware potatoes tested in Bulgaria, Spain and Sweden. Lithuania and Poland increased substantially 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 hectarage 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 density 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 improved further 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 (34.4% of all seed potato samples analysed in the EU are Dutch), with sampling density of 1.64 ha/sample (slightly improved to that of the previous season at 1.86 ha/sample), and then Germany with sample density 1.5 ha/sample, both countries having densities below the average in the first group (1.38 ha/sample). Sampling more intense than 1 ha/sample was observed for Romania, Poland, Estonia and Hungary. In most MS in this group, the sampling density varied between 1 - 2.5 ha/sample, whilst Spain, Slovakia and Sweden, had lower densities (2.59, 2.55 and 3.04 respectively). Greece had the lowest density with 4.75 ha/sample.

For ware potatoes, the average sampling density (37.2 ha/sample) in the first group was significantly improved to that of the previous growing season (47.6 ha/sample). Four MS, Poland, Lithuania, Bulgaria and Slovakia, are below this density. Poland still dominates the picture as regards the total number of samples tested (some 50%

of all ware potato samples analysed for ring rot in the EU are Polish), with sampling density 21.4 ha/sample significantly increased compared to the previous season (35 ha/sample). Lithuania increased significantly its efforts in ware potatoes (ca. 12.2 ha/sample) when compared to the previous potato growing period (20.1 ha/sample). In Greece, Estonia, Slovakia and Czech Republic, the survey efforts were somewhat lower compared to the previous growing season. Latvia, Romania, Bulgaria, and Finland, remained within their usually applied standards of sampling densities close to or better than 40 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 substantially increased 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 MS since 1994. In total, seven MS were affected in 2016/2017, which is the lowest number since 2001. None of these MS were recording the pathogen for the first time. An overall 10% decrease was observed in the number of ring rot positives, mainly caused by a substantial decrease of findings in the ware potato production.

No ring rot findings occurred in Estonia, Germany and the Netherlands. Similarly, in Czech Republic and Finland where ring rot has been present for many years, for the first time there were no findings.

Table 5 shows the incidence of ring rot in the MS where it occurred in the 2016 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 84% of the contaminated lots were found there. However, a substantial improvement was observed in Poland's ware potato production sector: despite the increased number of ware potato samples by 46% during 2016/2017 the number of positive lots decreased by 14% when compared to the previous growing period. This resulted in a substantial decrease of the overall disease incidence in ware potatoes in Poland (5.4% in 2016/2017 vs. 9.1% in 2015/2016). A similar decrease was also observed in the number of contaminated seed potato lots when compared to the previous season: 8 in total, giving an incidence level of 0.08% (vs. 0.22% in 2015/2016 and 0.1% in 2014/2015).

The overall picture regarding ring rot incidences in seed potatoes for the rest of the EU was the same with that of the previous growing period (0.02% in 2015/2016). However, the ring rot incidence in ware potatoes was slightly increased to 0.93% compared to 0.66% in the previous season.

Eleven positive seed lots were found in Romania with ring rot incidence doubled compared to the previous growing period (0.8% vs. 0.4% vs. in 2015/2016). A significant increase was also observed in positive ware lots resulting in increased ring rot incidence (6.73% vs. 4.48% in 2015/2016 and 6.3% in 2014/2015).

If Romania is excluded from the overall figures together with Poland, there were only 45 lots found contaminated in the 2016/2017 season (of which, one in seeds) and the overall incidence would be 0.35% in ware potatoes (indicating a slight increase compared to the last growing season 0.31%) and 0.002% in seed.

In the Baltic countries, there were no findings of ring rot in seed and, as mentioned above, there was no ring rot in Estonia. However, the situation in Lithuania is challenging mainly due to an increase in the number of findings in ware potatoes giving ring rot incidence level 2.5% (1.9% last season), whilst in Latvia only slight improvement has been observed with 1% incidence (1.2% last season). In some places of production using farm saved seed for many years, there are recurrent ring rot outbreaks.

In the Nordic countries, ring rot was not found in Sweden (for the fifth consecutive year) whilst the disease has been eradicated in Denmark (not found since 2003). As mentioned above, for the first time no ring rot findings occurred in Finland.

After having sporadic outbreaks in both seed and ware potatoes until 2003, Austria found no ring rot for the thirteenth year in a row while keeping its level of sampling stable for both seed and ware potatoes. After the first findings in ware potatoes in 2014 and 2015, the situation in Hungary has improved with no findings in seed and ware potato production this year. Following the ring rot outbreaks in 2012, there have been no new outbreaks in Belgium and the United Kingdom for the fourth year in a row.

There was no ring rot contamination this year in Germany and no findings in seed for the fourth year in a row. There were no findings in seed or ware potatoes in the Netherlands and France in both seed and ware potatoes. Spain had one finding of ring rot in seed and one in ware. One finding occurred in ware potatoes in Slovakia; no findings occurred in seed.

The level of ring rot contamination increased further in Bulgaria as six cases of positive ware potatoes were reported (3 cases in 2015/2016). One positive case of ring rot was also identified in seed. The origin of the infection might be related to the use of non-certified seed and shared machinery. Italy and Greece, including Crete where ring rot outbreaks had occurred previously, did not find the bacterium for the eighth consecutive year; however, in both countries sampling density continues to be low in both seed and ware potatoes.

Some of the affected MS submitted more detailed information on applying the routine control measures taken as a consequence of findings. 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. Bulgaria, 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 or use of farm saved seeds and lack of preventive hygiene measures in sharing machinery and storage facilities.

2.3. Interceptions

As indicated in Table 3, six interceptions of ring rot were reported during the last season, one in seed potatoes from Czech Republic reported by Poland (still under investigation at the time of reporting) and five in ware potatoes. The ware potatoes were from Poland (three notified by Romania with significant delay and one by United Kingdom) and Turkey (one reported by Bulgaria). The visual inspections carried out on marketed potatoes originating from other MS and third countries decreased by 5%. For the same period, laboratory testing increased by 8%. In total, 6,677 samples from potato consignments were examined in the laboratory whilst 7,313 were visually inspected.

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 all groups. The overall sampling density increased to 51.9 ha/sample (60.5 ha/sample in the previous season). In the case of seed potatoes, most MS took one sample either from one lot or from 25 tonnes, which resulted in an overall average sampling density of 1.72 ha/sample, similar to that observed in the previous season (1.76 ha/sample).

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 France, United Kingdom, Germany and the Netherlands (all with no findings). Figure 1 shows the overall number of tests in seed potato and samples positive to ring rot in the EU since 2007. Three MS, Poland, Romania and Spain found ring rot in seed in 2016/2017.

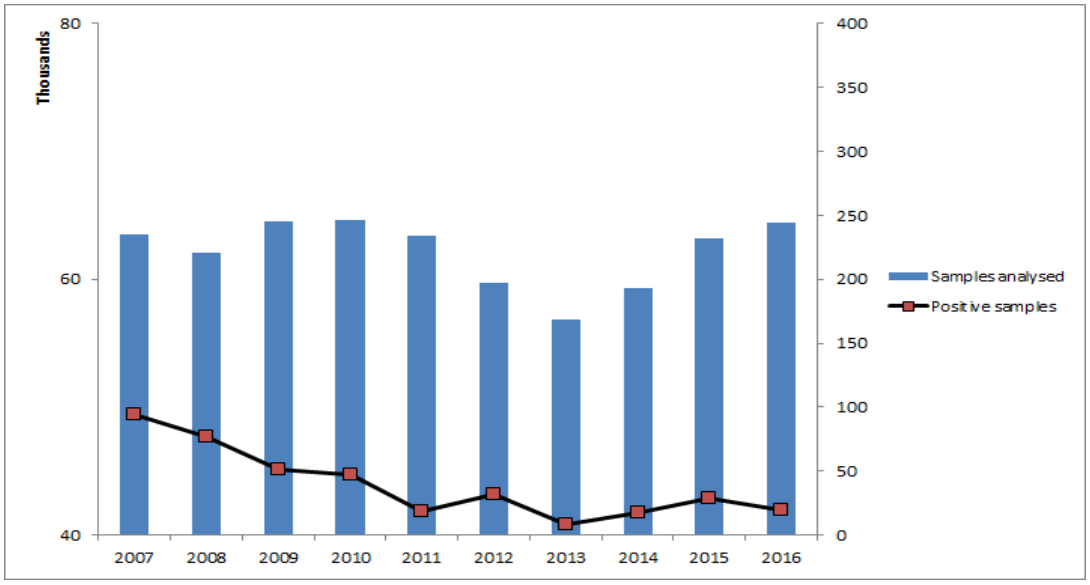

Figure 1. Overall number of tests in seed potato and samples positive to ring rot in the EU since 2007

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. The pathogen has been possibly eradicated from Greece as the current picture continues to be very promising.

Most contamination in the EU is found in Poland, where sampling efforts have significantly increased. Major progress was observed particularly in ware potatoes where ring rot incidence was significantly reduced and Poland has now dropped to the second highest position. However, the overall ring rot incidence is still high for both seed and ware potatoes and additional efforts are necessary. Romania continued its efforts and in seed it achieved a level of sampling and testing similar to that of the previous growing period. However, now it has the highest ring rot incidence within the EU. Figure 2 shows the overall number of tests in ware potato and samples positive to ring rot in the EU since 2007. In most cases, no definite source of the contamination could be identified.

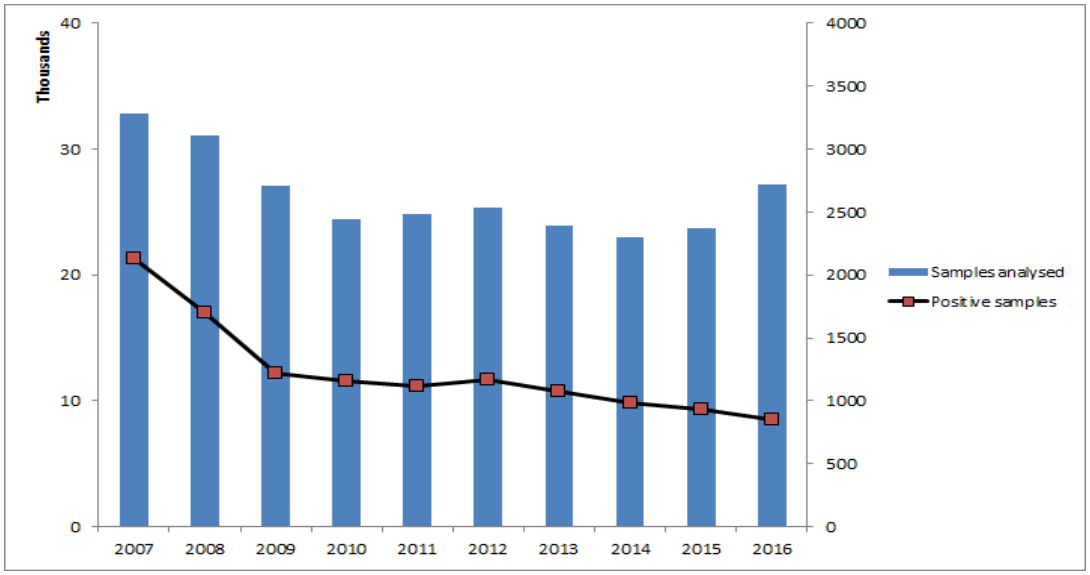

Figure 2. Overall number of tests in ware potato and samples positive to ring rot in the EU since 2007

Taking the EU as a whole, the ring rot incidence dropped in both seed and ware and the situation has improved since the previous growing period. Ring rot was found only in seven MS, the lowest number of affected MS since 2001. In addition, the total number of findings was lower and the overall ring rot incidence decreased further in 2016 (3.17% vs. 4% observed in 2015).

3. BROWN ROT *(RALSTONIA SOLANACEARUM)*

3.1. Survey density 2016/2017

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 2016/2017, the numbers of samples taken for analysis from their own production in all MS amounted to 98,341 approximately 64% of which were seed. In addition to this, 6,898 samples of potatoes from other MS (mainly Dutch seed, but also German, Danish and British) or third countries were analysed.

In most MS, the numbers of samples analysed were similar to previous years. In the MS previously affected by brown rot, a significant increase in sampling was observed for seed potatoes in Czech Republic and Hungary and for ware potatoes in Bulgaria, Spain and Sweden. The Netherlands and Poland increased substantially sampling in both seed and ware potatoes. By contrast, France and Spain decreased somewhat their sampling in seed, whilst Belgium, Greece and Slovakia decreased further their sampling for ware. Portugal decreased further its sampling in ware. The Netherlands continue to apply a testing density of one sample of seed potatoes per lot. In case of "high risk profile" (e.g. outbreaks or clonal and/or contact links with contaminated material) and violations (e.g. prohibited use of surface water for irrigation) one sample per 25 tonnes was taken. For ware potatoes the "high risk profile" sampling rate is one sample per 150 tonnes.

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.

Poland applied similar sampling density for seed as that of the previous growing period (0.6 ha/sample vs. 0.7 ha/sample in 2015/2016) and increased the density for ware from 20 ha/sample to 13.8 ha/sample. Bulgaria continued to apply slightly increased sampling densities compared to those of the previous growing period, 1.5 ha/sample for seed and 26.6 ha/sample for ware potatoes. The average sampling density of seed potatoes in this group (1.6 ha/sample) was similar to that of the previous season (1.8 ha / sample). Some of the MS in the first group have higher densities, from 0.5-0.9 ha/sample, whilst Greece, Italy and United Kingdom have significantly lower densities. Hungary, Poland, Portugal and Romania have the highest densities of seed potato testing, followed by Germany and the Netherlands.

In ware potato production, the average sampling density of the MS in group 1 (35.6 ha/sample) increased compared to the previous season (41.8 ha/sample). Poland continued its efforts and still has the highest sampling rates followed by Bulgaria, Slovakia, and the Netherlands. Some improvement in sampling densities of ware potatoes compared to the previous season could be noticed in Spain.

Sampling rates, similar to those of 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 ha and 113.8 ha / sample for seed and ware potatoes respectively. Sweden continued improving its sampling density in ware potatoes. Ireland after a ninth season without findings has stabilised its surveying efforts. Survey efforts in the third group are also diverse; the average sampling densities were 3.3 ha and 41.3 ha / sample for seed and ware potatoes respectively. Estonia, Cyprus 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, Germany, Hungary, the Netherlands, and the United Kingdom continue to analyse a high number of water samples, as does Poland where the first findings of *R. solanacearum* in a 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. Five MS found brown rot during 2016/2017 season, the second lowest number of MS since 2000. In the Netherlands the bacterium was found in seed potato lots, whilst Hungary found the contamination in both seed and ware. In Poland, the bacterium occurred for a third season with the same incidence 0.01% in ware potatoes as in 2015/2016. In Portugal, and Spain the pathogen occurred again in ware potato production.

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 both seed and ware potatoes resulting in ca. 0.055% total EU disease incidence (0.078% in the last growing period).

In general, when compared to the last growing season the situation remained stable for most MS affected except Hungary and the Netherlands where the situation has worsened with significantly increased numbers of findings. In the Netherlands, the specific measures imposing restrictions on harvesting potatoes from flooded fields and the prohibition of irrigation of seed potato crops with surface water are still in place. However, the contamination appears to have been caused after flooding of a shallow seed potato production field by a nearby contaminated waterway. The competent authority raised awareness amongst seed potato producers to avoid growing seed potatoes too close to surface water.

After a single finding in 2008, Austria found no outbreaks for the eighth 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 seventh 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.

After its first outbreak in 2012 and seven more findings in the last growing period the bacterium was not found during 2016/2017 in Czech Republic, whilst in Slovakia all potato production remains free from brown rot since 2010. In Romania, after three successive growing seasons with recurrent outbreaks (2010-2012), no findings have occurred during the last four growing periods. No brown rot findings occurred during the last growing season in Bulgaria, France, Germany and Greece.

Water and other hosts

Table 8 shows the number of positive samples from water and other hosts apart from potato. As in the previous two surveillance periods the bacterium was found in seven MS either in water or in wild host plants (or both). 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 of and outside the protected areas. In addition, of the 36 samples of *S. dulcamara* examined this year none was found to be positive.

In Germany, as in the previous years, the bacterium was found in surface water showing permanent contamination. Infection was also detected in one sample of *S. dulcamara*. However, the bacterium was not detected in samples of material (waste water, abraded potato peel, potato fluid and sand) discarded from potato processing plants.

In the Netherlands, a total of 111 samples tested positive out of 1,300 samples taken from surface water and in one sample of *S. dulcamara*. *R. solanacearum* was also detected in 79 out of 576 water samples tested in Hungary. Two more positive surface water samples were detected in Portugal; five samples taken from other hosts were negative. In Spain, 46 samples of surface water were found positive; there was also one case of infection in tomato crops. The bacterium was also detected this year in samples taken from waste and surface water in Czech Republic. In United Kingdom the bacterium was detected in six samples taken from surface water.

There were no findings of the bacterium in surface or waste water discarded from potato packers or processing factories in Ireland or in Poland. However, there were six positives in other hosts in Poland. 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.

The bacterium was also found in *S. dulcamara* tested in Czech Republic (three positives). Detailed information has also been provided for testing carried out by the MS in other hosts, including *S. nigrum*, *S. melongena*, *Cucumis* sp., *Citrulus lanatus*, *Cucurbita* sp., *Bidens* sp., *Urtica dioica*, *Pelargonium* and *Capsicum* sp. with no findings.

3.3. Interceptions

Two interceptions of potato consignments with brown rot were notified one from Turkey and one 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 the various MS. Figure 3 shows the overall number of tests in seed potato and samples positive to brown rot in the EU since 2007.

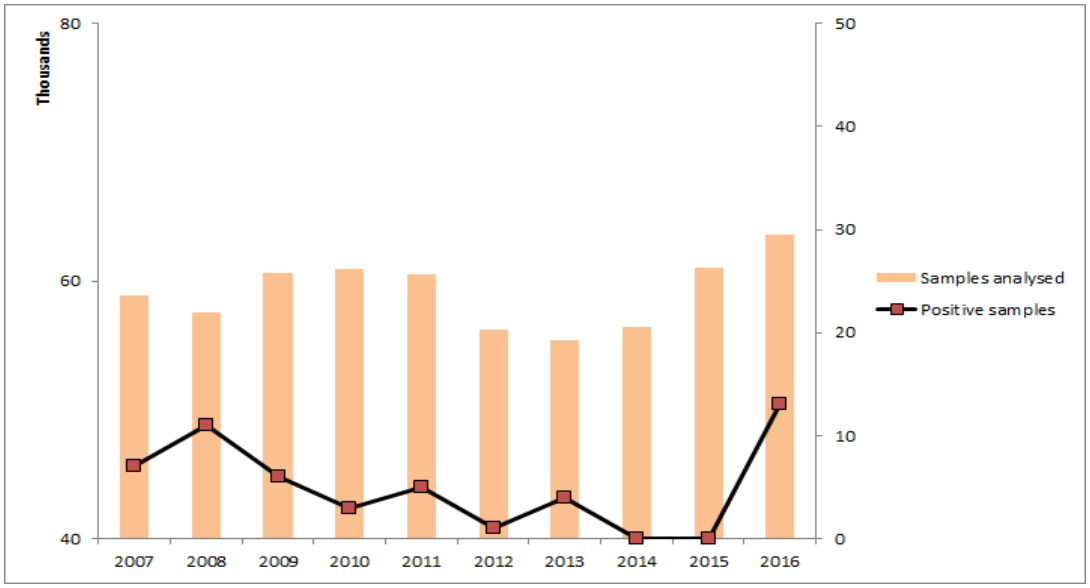

Figure 3. Overall number of tests in seed potato and samples positive to brown rot in the EU since 2007

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 1.7 ha/sample in 2016/2017, which is similar to that in the previous season. In the case of ware potatoes, the average sampling density increased somewhat to 40.6 ha/sample (46.5 in the last season). Figure 4 shows the overall number of tests in ware potato and samples positive to brown rot in the EU since 2007.

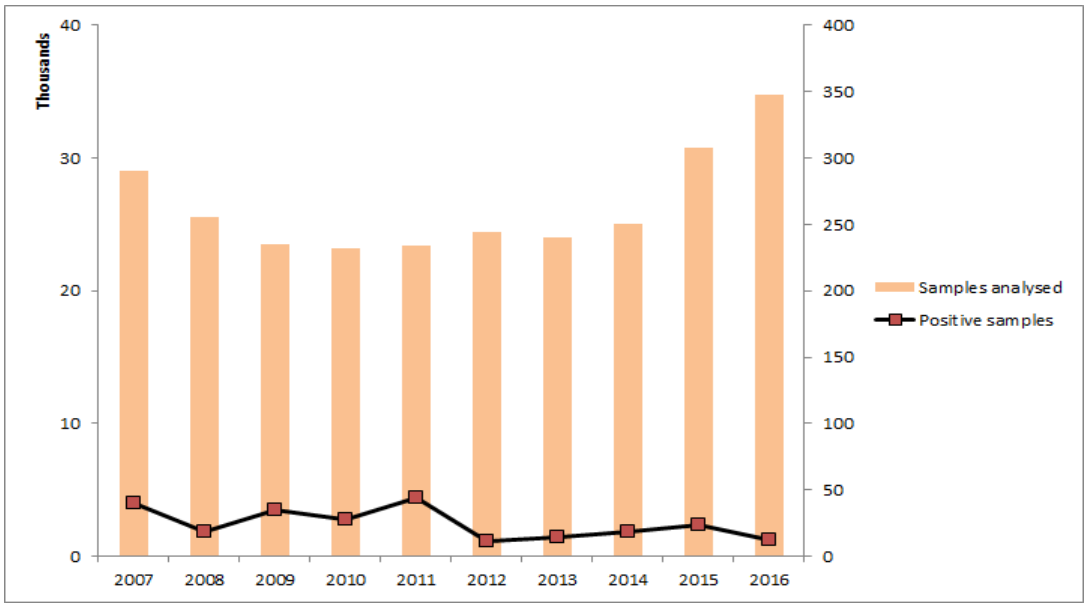

Figure 4. Overall number of tests in ware potato and samples positive to brown rot in the EU since 2007

In Hungary, the situation has deteriorated compared to the last growing season. After four years in a row without findings, the same applies for the Netherlands with brown rot findings in seed potato production. Although in some countries the pathogen is found in surface waters, limited irrigation or strict measures and control

of contaminated watercourses result in reduced risk for contamination of crops. In Spain, there was one outbreak in tomatoes.

Except for Hungary and the Netherlands, it seems that the situation has not worsened in any MS. Findings during the previous growing seasons in Bulgaria, France, Germany and Greece were not repeated this season. Poland, Spain and Portugal still need to manage with continuous findings of the pathogen. It is positive that the pathogen did not appear again in Romania after it was last found in 2012 as well as in Slovakia and Slovenia with last findings respectively in 2010 and 2011.

The overall incidence in potatoes in the EU (0.055%) has further decreased compared to the last two growing seasons (0.078% for 2015/2016 and 0.076% for 2014/2015). However, due to the repetition of findings in the seed potato production sector in MS which have been long-time affected by the disease, the positive trend observed cannot be considered as permanent yet.

4. SITUATION IN SWITZERLAND

Switzerland submitted survey results for seed potatoes (no data regarding ware potatoes production was received). Some 1,528 ha of seeds, pre-basic, basic and certified, were cultivated in 2016. In total, 153 samples were taken; that gives the sampling density rate some 10 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*.

In April 2017 Switzerland, following a notification received by the Dutch competent authorities, reported an outbreak of *R. solanacearum* race 1 at two sites with several varieties of *Rosa* cultivated for cut flower production. Eradication measures have been taken and follow-up investigations are in place.

Switzerland also checks consignments of imported potatoes, both seeds and ware. All imported seed lots are checked. During the last season, 143 samples of seeds (from Austria, Belgium, France, Netherlands and Poland) were visually inspected and then laboratory tested for both bacteria. No sample was positive. In addition, 53 samples of ware potatoes from Spain were visually inspected. Again, no infection was found.

5. LIST OF TABLES

Table 1: Potato production area in the EU in 2016 (in ha)

(source: Member States)

Member State	Seed	Ware	Total
Austria	1.685,51	19.325,24	21.010,75
Belgium	2.240,66	85.790,00	88.030,66
Bulgaria	182,75	11.889,05	12.071,80
Croatia	20,00	9.500,00	9.520,00
Cyprus	94,51	5.000,00	5.094,51
Czech Republic	2.919,00	20.496,00	23.415,00
Denmark	4.589,00	39.709,00	44.298,00
Estonia	235,27	5.600,00	5.835,27
Finland	1.050,00	21.000,00	22.050,00
France	19.096,00	155.595,00	174.691,00
Germany	15.633,00	224.325,00	239.958,00
Greece	190,10	21.315,62	21.505,72
Hungary	211,00	18.000,00	18.211,00
Ireland	253,00	8.721,00	8.974,00
Italy	198,00	39.936,00	40.134,00
Latvia	413,01	24.386,88	24.799,89
Lithuania	157,50	13.964,70	14.122,20
Luxembourg	356,00	201,00	557,00
Malta	0,00	701,00	701,00
Netherlands	36.434,00	117.226,00	153.660,00
Poland	5.979,30	287.613,60	293.592,90
Portugal	11,45	24.622,00	24.633,45
Romania	738,24	50.359,00	51.097,24
Slovakia	441,10	5.583,68	6.024,78
Slovenia	31,72	3.147,00	3.178,72
Spain	2.094,09	46.486,06	48.580,15
Sweden	910,70	24.210,00	25.120,70
United Kingdom	14.839,00	127.978,60	142.817,60
Total	111.003,91	1.412.681,43	1.523.685,34

Surveys for *Clavibacter michiganensis* ssp. *sepedonicus* on the domestic production, harvest 2016

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)	6,65	9	0,74	0	0	0	
	Seed (basic)	494,84	342	1,45	0	304	0	
	Seed (certified)	1.184,02	851	1,39	0	668	0	
	Seed (TOTAL)	**1.685,51**	**1.202**	**1,40**	**0**	**972**	**0**	
	Ware	10.950,29	75	257,67	0	11	0	
	Industrial	8.374,95			0	3	0	
	Other (TOTAL)	**19.325,24**	**75**	**257,67**	**0**	**14**	**0**	
Belgium	Breeding material		5	0,00	0	0	0	
	Seed (pre-basic)	59,68	52	1,15	0	47	0	All lots inspected & sampled during grading
	Seed (basic)	1.926,66	891	2,16	0	534	0	All parcels inspected during growth
	Seed (certified)	254,32	134	1,90	0	128	0	Sampling: pre-basic 10 samples/lot, basic S,SE 1sample/ha
	Seed (TOTAL)	**2.240,66**	**1.082**	**2,07**	**0**	**709**	**0**	(max 4samples/lot), Basic & Certified 1sample/lot
	Farm saved seed	0,00	318		0	166	**0**	1-2 samples/lot
	Ware/industrial potatoes	85.790,00	318	134,89	0	318	**0**	1 sample/lot
	Targeted surveys (ware)		0		0	0	**0**	
	Other (TOTAL)	**85.790,00**	**636**	**134,89**	**0**	**484**	**0**	
Bulgaria	Seed (basic)	3,30	9	0,37	0	9	0	
	Seed (certified)	179,45	116	1,55	0	116	0	
	Seed (TOTAL)	**182,75**	**125**	**1,46**	**0**	**125**	**0**	
	Ware	11.889,05	441	26,96	7	441	0	Pernik - 4 outbreaks - 67,8 ha. Sliven - 1 outbreak - 0,75 ha. Samokov - 1 outbreak - 0,55 ha.
	Other		6		0	6	0	Additional 6 tuber samples for tracing related lots.
	Other (TOTAL)	**11.889,05**	**447**	**26,60**	**7**	**447**	**0**	
Croatia	Seed (certified)	20,00	22	0,91	0	17	0	
	Seed (TOTAL)	**20,00**	**22**	**0,91**	**0**	**17**	**0**	
	Farm saved seed			#DIV/0!	0		0	
	Ware incl. young pots	**9.500,00**	107	88,79	0	39	0	
	Industrial			#DIV/0!	0		0	
	Other (TOTAL)	**9.500,00**	**107**	**88,79**	**0**	**39**	**0**	
Cyprus	Seed (certified)	94,51	104	0,91	0	104	0	Two field inspections and one inspection during harvest;
	Seed (TOTAL)	**94,51**	**104**	**0,91**	**0**	**104**	**0**	All seed potato fields are inspected.
	Ware	5.000,00	119	42,02	0	119	**0**	Fields are selected randomly from all potato producing areas.
	Other (TOTAL)	**5.000,00**	**119**	**42,02**	**0**	**119**	**0**	
Czech Republic	Breeding material		60	0,00	0	14	0	
	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	
	Seed (basic)	335,00	378	0,89	0	0	0	
	Seed (certified)	2.584,00	2.043	1,26	0	25	0	
	Seed (TOTAL)	**2.919,00**	**2.481**	**1,18**	**0**	**39**	**0**	
	Ware & Farm saved seed	15.390,00	271	56,79	0	427	0	Incl. volunteer potatoes
	Industrial	5.106,00	166	30,76		42	0	
	Samples of washing/waste water		30	0,00	0	0	0	
	Other (TOTAL)	**20.496,00**	**437**	**46,90**	**0**	**469**	**0**	
Denmark	Seed (pre-basic)	4.589,00	581	0,00	0	0	0	
	Seed (TOTAL)	**4.589,00**	**581**	**7,90**	**0**	**0**	**0**	
	Ware	39.709,00	358	0,00	0	0	0	
	Other (TOTAL)	**39.709,00**	**358**	**110,92**	**0**	**0**	**0**	

Table 2

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)	3,04	7	0,43	0	0	0	
	Seed (basic)	6,38	11	0,58	0	0	0	
	Seed (certified)	225,85	270	0,84	0	0	0	
	Seed (TOTAL)	**235,27**	**288**	**0,82**	**0**	**0**	**0**	
	Ware	5.600,00	145	**38,62**	**0**	0	0	
	Other (TOTAL)	**5.600,00**	**145**	**38,62**	**0**	**0**	**0**	
Finland	Seed (pre-basic)	225,00	98	69,00	0	278	0	
	Seed (basic)	438,00	163	12,00	0	237	0	
	Seed (certified)	368,00	198	139,00	0	199	0	
	Other seed	19,00	11	5,00	0	0	0	
	Seed (TOTAL)	**1.050,00**	**470**	**2,23**	**0**	**714**	**0**	
	Ware	15.500,00	347	473,00	0	0	0	
	Industrial	5.500,00	86	68,00	0	0	0	
	Other (TOTAL)	**21.000,00**	**433**	**48,50**	**0**	**0**	**0**	
France	Seed (pre-basic)	3.521,00	3.760	0,94	0	3.334	0	
	Seed (basic)	11.781,00	5.136	2,29	0	4.407	0	
	Seed (certified)	3.794,00	1.293	2,93	0	1.256	0	
	Seed (TOTAL)	**19.096,00**	**10.189**	**1,87**	**0**	**8.997**	**0**	
	Ware	133.220,00	943	141,27	0	0	0	
	Industrial	22.375,00			0	0	0	
	Other (TOTAL)	**155.595,00**	**943**	**165,00**	**0**	**0**	**0**	
Germany	Breeding material		907	0,00	0	808	0	
	Seed (pre-basic)	1.010,00	1.617	0,62	0	1.617	0	
	Seed (basic)	5.361,00	3.023	1,77	0	2.865	0	
	Seed (certified)	9.262,00	4.512	2,05	0	4.753	0	
	Seed (in trade)		347	0,00	0	346	0	
	Seed (TOTAL)	**15.633,00**	**10.406**	**1,50**	**0**	**10.389**	**0**	
	Farm saved seed (own production)	0,00	298	0,00	0	298	0	
	Ware/industrial	224.309,00	2.226	100,77	0	46.294	0	
	Other	16,00	14	1,14	0	14	0	
	Other (TOTAL)	**224.325,00**	**2.538**	**88,39**	**0**	**46.606**	**0**	
Greece	Seed (certified)	190,10	40	4,75	0	40	0	
	Seed (TOTAL)	**190,10**	**40**	**4,75**	**0**	**40**	**0**	
	Ware & Industrial outside Crete	19.335,62	239	80,90	0	242	0	
	Ware, Crete	1.980,00	182	10,88	0	0	0	
	Soil		28			0	0	Examined for PPs and PCs issuing (plants for planting)
	Other (TOTAL)	**21.315,62**	**421**	**50,63**	**0**	**242**	**0**	
Hungary	Seed (pre-basic)	23,00	39	0,59	0	0	0	
	Seed (basic)	70,00	66	1,06	0	0	0	
	Seed (certified)	104,00	95	1,09	0	0	0	
	Seed (breeding stock)	14,00	25	0,56	0	0	0	
	Seed (TOTAL)	**211,00**	**225**	**0,94**	**0**	**0**	**0**	
	Ware	18.000,00	215	83,72	0	218	0	No further outbreaks following those in 2015
	Other (TOTAL)	**18.000,00**	**215**	**83,72**	**0**	**218**	**0**	
Ireland	Seed (pre-basic)	0,00		#DIV/0!	0	0	0	
	Seed (basic)	253,00	175	1,45	0	0	0	
	Seed (TOTAL)	**253,00**	**175**	**1,45**	**0**	**0**	**0**	
	Ware	8.721,00	310	28,13	0	0	0	
	Other (TOTAL)	**8.721,00**	**310**	**28,13**	**0**	**0**	**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)	198,00	30	6,60	0	46	0	
	Seed (TOTAL)	**198,00**	**30**	**6,60**	**0**	**46**	**0**	
	Ware	37.059,00	177	182,56	0	350	0	
	Industrial	2.877,00	26		0	81	0	
	Other (TOTAL)	**39.936,00**	**203**	**196,73**	**0**	**431**	**0**	
Latvia	Seed (pre-basic)	20,55	30	0,69	0	0	0	
	Seed (basic)	26,75	22	1,22	0	0	0	
	Seed (certified)	365,71	206	1,78	0	0	0	
	Seed (other)	0,11	11	0,01	0	0	0	Breeders' material
	Seed (TOTAL)	**413,12**	**269**	**1,54**	**0**	**0**	**0**	
	Ware		439		2	0	0	
	Industrial	24.386,88	70	49,07	0	0	0	
	Other		58		4	0	0	
	Other (TOTAL)	**24.386,88**	**567**	**43,01**	**6**	**0**	**0**	Outbreaks of *Cms* of previous years, where SPPS carries out supervision
Lithuania	Seed (pre-basic)	0,10	8	0,01	0	0	0	
	Seed (basic)	0,00	0	#DIV/0!	0	0	0	
	Seed (certified)	157,40	145	1,09	0	0	0	
	Seed (TOTAL)	**157,50**	**153**	**1,03**	**0**	**0**	**0**	
	Ware	13.964,70	1.145	12,20	29	34	**0**	
	Other (TOTAL)	**13.964,70**	**1.145**	**12,20**	**29**	**34**	**0**	
Luxembourg	Seed (pre-basic)	21,00	49	0,43	0	0	0	
	Seed (basic)	204,00	106	1,92	0	0	0	
	Seed (certified)	131,00	34	3,85	0	0	0	
	Seed (TOTAL)	**356,00**	**189**	**1,88**	**0**	**0**	**0**	
	Ware (TOTAL)	**201,00**	**3**	**67,00**	**0**	**0**	**0**	
Malta	**Seed (TOTAL)**	**0,00**	**0**	**0,00**	**0**	**0**	**0**	
	Ware	701,00	33	21,24	0	33	0	29 samples collected from open field potatoes and 4 from local ware potatoes 2 samples collected from basal uprg potatoes for EU trade
	Other (Tomatoes/Water)	365,00	51	7,16	0	35	0	sampling on field and greenhouse tomatoes/water
	Other (TOTAL)	**701,00**	**33**	**21,24**	**0**	**33**	**0**	
Netherlands	Breeding material (+in vitro)		316		0	316	0	
	Seed (pre-basic)	9.566,00	7.023	**3,94**	0	7023	0	
	Seed (basic)	19.881,00	10.343		0	10343	0	
	Seed certified	6.987,00	3.821	**1,83**	0	3821	0	
	Seed other (targeted survey)		0		0	0	0	4 water samples collected from open water reservoirs
	Seed (export TC)		674		0	674		
	Seed (TOTAL)	**36.434,00**	**22.177**	**1,64**	**0**	**22.177**	**0**	
	Farm saved seed incl. clone/breed material & material for starch prod.	1.030,00	497		0	497	0	
	Ware	73.032,00	678	57,27	0	678	0	
	Industrial (for starch)	43.164,00	819		0	819	0	
	Ware other (targeted survey)		53		0	53	0	
	Other (TOTAL)	**117.226,00**	**2.047**	**57,27**	**0**	**2.047**	**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	
Poland	Variety trials	102,70	733	0,14	0	73	0	
	Seed (pre-basic)	121,90	234	0,52	0	0	0	
	Seed (basic)	1.780,10	2.984	0,60	0	27	0	
	Seed (certified)	3.974,60	5.682	0,70	8	1.017	0	
	Seed (TOTAL)	**5.979,30**	**9.633**	**0,62**	**8**	**1.117**	**0**	
	Ware	234.950,30	7.014	33,50	659	4.903	6	In 8 cases results are still pending following screening test.
	Industrial	48.380,20	5.126	9,44	31	744	0	
	Other (Farm - saved seed potatoes)	4.283,10	1.295	3,31	34	241	0	
	Other (TOTAL)	**287.613,60**	**13.435**	**21,41**	**724**	**5.888**	**6**	
Portugal	**Seed (TOTAL)**	**11,45**	**13**	**0,88**	**0**	**13**	**0**	
	Other (TOTAL)	**24.622,00**	**142**	**173,39**	**0**	**142**	**0**	
Romania	Seed (pre-basic)	0,45	1	0,45	0	1	0	
	Seed (basic)	45,88	92	0,50	0	92	0	
	Seed (certified)	691,91	1.303	0,53	11	1.303	0	
	Seed (TOTAL)	**738,24**	**1.396**	**0,53**	**11**	**1.396**	**0**	
	Ware	49.428,68	1.243	39,77	84	1.347	0	
	Industrial	930,32	5	186,06	0	5	0	
	Other (TOTAL)	**50.359,00**	**1.248**	**40,35**	**84**	**1.352**	**0**	
Slovakia	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	
	Seed (basic)	98,94	64	1,55	0	64	0	
	Seed (certified)	342,16	109	3,14	0	109	0	
	Seed (TOTAL)	**441,10**	**173**	**2,55**	**0**	**173**	**0**	
	Ware	5.583,68	176	31,73	1	370	**0**	
	Other (TOTAL)	**5.583,68**	**176**	**31,73**	**1**	**370**	**0**	
Slovenia	Seed (pre-basic)	1,93	8	0,24	0	29	0	
	Seed (basic)	21,90	6	3,65	0	32	0	
	Seed (certified)	7,89	6	1,32	0	11	0	
	Seed (TOTAL)	**31,72**	**20**	**1,59**	**0**	**72**	**0**	
	Ware	3.147,00	60	52,45	0	60	0	
	Other (TOTAL)	**3.147,00**	**60**	**52,45**	**0**	**60**	**0**	
Spain	Seed (pre-basic)	78,85	18	4,38	0	12	0	
	Seed (basic)	740,34	143	5,18	0	131	0	
	Seed (certified)	1.274,90	649	1,96	1	464	0	
	Seed (TOTAL)	**2.094,09**	**810**	**2,59**	**1**	**607**	**0**	
	Ware	46.486,06	494	94,10	1	701	0	
	Other (TOTAL)	**46.486,06**	**494**	**94,10**	**1**	**702**	**0**	
Sweden	Seed (pre-basic)	587,70	176	3,34	0	160	0	
	Seed (basic)	301,20	115	2,62	0	160	0	
	Seed (certified)	21,80	9	2,42	0	160	0	
	Seed (TOTAL)	**910,70**	**300**	**3,04**	**0**	**480**	**0**	
	Ware	17.335,00	135	128,41	0	2.100	0	
	Industrial	6.875,00	73	94,18	0	0	0	
	Other (TOTAL)	**24.210,00**	**208**	**116,39**	**0**	**2.100**	**0**	
United Kingdom	Seed (pre-basic)	111,00	185	0,60	0	2	0	
	Seed (basic)	14.472,00	1.622	9,08	0	842	0	
	Seed (certified)	256,00	54		0	0	0	
	Seed (TOTAL)	**14.839,00**	**1.861**	**7,97**	**0**	**844**	**0**	
	Farm saved seed	600,00	0	#DIV/0!	0	32	0	
	Ware potatoes	127.378,60	260		0	220	0	
	Other (ware)	**127.978,60**	**260**	**492,23**	**0**	**252**	**0**	

TABLE 3: Surveys for *Clavibacter michiganensis* ssp. *sepedonicus* on potato "imports", 2016/2017 season

Member State	Commodity	Number of Samples	Positives	Number of visual checks	Positives	Remarks
Austria	Seed potatoes	94	0	0	0	Mainly from NL and DE
	Other potatoes	16	0	0	0	Mainly from EG
Belgium	Seed potatoes	587	0	289	0	Most from NL, FR and LU
	Other potatoes	231	0	231	0	Mainly from DE, FR, NL, and IL
Bulgaria	Seed potatoes	77	0	100	0	Mainly from NL and DE
	Other potatoes	53	1	454	0	1 positive from TR, 2 intercepted lots
Croatia	Seed potatoes	85	0	99	0	Mainly from NL and DE
	Other potatoes	32	0	104	0	Mainly from BA, ES, DE, and NL
Cyprus	Seed potatoes	275	0	275	0	Mainly from NL
	Other potatoes	0	0	0	0	
Czech Republic	Seed potatoes	27	0	22	0	Mainly from NL and DE
	Other potatoes	54	0	38	0	Mainly from FR, PL and EG
Denmark	Seed potatoes	0	0	0	0	
	Other potatoes	0	0	0	0	
Estonia	Seed potatoes	6	0	0	0	From DE, DK, and NL
	Other potatoes	9	0	0	0	From MA, EG, NL, ES, SE, LT and LV
Finland	Seed potatoes	136	0	0	0	From DE, DK, NL, and SE
	Other potatoes	0	0	0	0	
France	Seed potatoes	163	0	163	0	Mainly from NL
	Other potatoes	1	0	2	0	From PL and IL
Germany	Seed potatoes	263	0	134	0	Majority from NL and PL
	Other potatoes	25	0	467	0	Mainly from EG
Greece	Seed potatoes	296	0	296	0	Most from NL
	Other potatoes	302	0	302	0	From EG and TR
Hungary	Seed potatoes	54	0	0	0	Most from NL, FR and DE
	Other potatoes	0	0	0	0	
Ireland	Seed potatoes	106	0	0	0	Mainly from UK, and DE
	Other potatoes	48	0	0	0	From IL
Italy	Seed potatoes	259	0	459	0	Mainly from NL
	Other potatoes	130	0	2.286	0	From TN
Latvia	Seed potatoes	78	0	0	0	Mainly from DE and NL
	Other potatoes	23	0	0	0	Mainly from ES, IT, MA and EG
Lithuania	Seed potatoes	19	0	6	0	From PL, DE, LV and NL
	Other potatoes	3	0	0	0	From MA and EG
Luxembourg	Seed potatoes	35	0	0	0	From CH, D, FR and NL
	Other potatoes	1	0	0	0	From FR
Malta	Seed potatoes	16	0	16	0	Mainly from NL
	Other potatoes	3	0	3	0	From NL
Netherlands	Seed potatoes	246	0	0	0	From BE, DK, DE, FR, DE and UK
	Other potatoes	216	0	0	0	Mainly from DE and BE
Poland	Seed potatoes	183	1	16	0	from DE and NL; **1 positive accomp. by CZ plant passport**
	Other potatoes	139	0	322	0	Mainly from CY and EG
Portugal	Seed potatoes	65	0	65	0	Mainly from NL and UK
	Other potatoes	28	0	28	0	From FR, NL and ES
Romania	Seed potatoes	180	0	200	0	Most from NL and DE
	Other potatoes	269	3	271	0	Most from EG, **3 positives from PL from non-compliant consignments**
Slovakia	Seed potatoes	26	0	26	0	Mainly from DE and NL
	Other potatoes	123	0	123	0	Mainly from CZ, FR, and DE
Slovenia	Seed potatoes	12	0	2	0	Mainly from NL and DE
	Other potatoes	8	0	6	0	Mainly from FR and IT
Spain	Seed potatoes	415	0	419	0	Most from NL and UK
	Other potatoes	103	0	33	0	Most from NL , UK and FR
Sweden	Seed potatoes	4	0	0	0	From DE and UK
	Other potatoes	0	0	19	0	From IL - only visual inspections.
United Kingdom	Seed potatoes	1.029	0	27	0	Most from NL, FR and DE
	Other potatoes	124	1	7	0	**1 positive from PL**
EU	**Seed potatoes**	**4.736**	**1**	**2.614**	**0**	
	Other potatoes	**1.941**	**5**	**4.696**	**0**	

TABLE 4: Density of sampling for laboratory testing for *Clavibacter michiganensis* ssp. *sepedonicus* on the domestic potato production, harvest 2016

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	5.979	9.633	0,62	287.614	13.435	21,41
Latvia	413	269	1,54	24.387	567	43,01
Lithuania	158	153	1,03	13.965	1.145	12,20
Romania	738	1.396	0,53	50.359	1.248	40,35
Germany	15.633	10.406	1,50	224.325	2.538	88,39
Netherlands	36.434	22.177	1,64	117.226	2.047	57,27
Bulgaria	183	125	1,46	11.889	447	26,60
Spain	2.094	810	2,59	46.486	494	94,10
Slovakia	441	173	2,55	5.584	176	31,73
Estonia	235	288	0,82	5.600	145	38,62
Finland	1.050	470	2,23	21.000	433	48,50
Sweden	911	300	3,04	24.210	208	116,39
Hungary	211	225	0,94	18.000	215	83,72
Greece	190	40	4,75	21.316	421	50,63
Czech Republic	2.919	2.481	1,18	20.496	437	46,90
TOTAL - GROUP 1	67.589	48.946	1,38	892.456	23.956	37,25
Denmark	4.589	581	7,90	39.709	358	110,92
United Kingdom	14.839	1.861	7,97	127.979	260	492,23
France	19.096	10.189	1,87	155.595	943	165,00
Belgium	2.241	1.082	2,07	85.790	636	134,89
Austria	1.686	1.202	1,40	19.325	75	257,67
Cyprus	95	104	0,91	5.000	119	42,02
Italy	198	30	6,60	39.936	203	196,73
TOTAL - GROUP 2	42.743	15.049	2,84	473.334	2.594	182,47
Croatia	20	22	0,91	9.500	107	88,79
Malta	0	0		701	33	21,24
Slovenia	32	20	1,59	3.147	60	52,45
Ireland	253	175	1,45	8.721	310	28,13
Luxembourg	356	189	1,88	201	3	
Portugal	11	13	0,88	24.622	142	173,39
TOTAL - GROUP 3	672	419	1,60	46.892	655	71,59
TOTAL EU	111.004	64.414	1,72	1.412.681	27.205	51,93

TABLE 5: Incidence of ring rot in Member States where it occurred in the 2016 harvest

Member State	Type	Total no. of samples	No. of positive lots	No. of Rr cases	Incidence seed	Incidence ware
Bulgaria	seed	125	0	0	0,000%	
	ware	447	7	6		1,566%
Latvia	seed	269	0	0	0,000%	
	ware	567	6	6		1,058%
Lithuania	seed	153	0	0	0,000%	
	ware	1.145	29	25		2,533%
Poland	seed	9.633	8	0	0,083%	
	ware	13.435	724	724		5,389%
Romania	seed	1.396	11	8	0,788%	
	ware	1.248	84	77		6,731%
Slovakia	seed	173	0	0	0,000%	
	ware	176	1	1		0,568%
Spain	seed	810	1	1	0,123%	
	ware	494	1	1		0,202%
TOTAL EU-ring rot	seed	47.796	20	9	0,042%	
	ware	22.833	852	840		3,731%
TOTAL EU28	seed	64.414	20	9	0,031%	
	ware	27.205	852	840		3,132%
TOTAL EU27 (-PL)	seed	54.781	12	9	0,022%	
	ware	13.770	128	116		0,930%
TOTAL EU26 (-PL&RO)	seed	53.385	1	1	0,002%	
	ware	12.522	44	39		0,351%

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

			Harvest																						
Member State			**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Austria	Number of	- seed		56	108	108	117	112	304	684	589	662	632	625	594	578	533	603	602	594	1.224	1.216	1.169	1.133	1.202
	Samples	- ware		1	83	83	65	78	79	95	97	91	87	88	96	91	87	99	104	105	75	73	68	71	75
	- positive	*- seed*							***2***		***1***														
	lots	*- ware*									***1***	***2***													
Belgium	Number of	- seed	120	526	408	351	534	700	1.082	697	1.726	3.930	4.948	3.346	2.535	1.040	925	1.168	1.073	1.038	959	1.135	1.122	1.055	1.082
	Samples	- ware	115		114	93	39	242	302	404	476	1.204	2.284	1.691	689	1.188	1.466	1.313	1.282	1.178	1.218	1.228	1.170	1.166	636
	- positive	*- seed*									***7***														
	lots	*- ware*							***2***		***14***	***7***									***2***				
Bulgaria	Number of	- seed													443	285	275	213	297	301	195	179	169	133	125
	Samples	- ware													552	672	467	531	466	497	594	503	453	381	447
	- positive	*- seed*													***2***	***5***	***2***		***1***		***1***			***1***	
	lots	*- ware*													***14***	***29***	***9***	***2***	***17***	***9***	***23***	***18***	***1***	***4***	***7***
Croatia	Number of	- seed																			32	35	40	13	22
	Samples	- ware																			132	135	170	107	107
Cyprus	Number of	- seed										145	108	115	115	108	169	102	94	124	124	67	127	66	104
	Samples	- ware										167	178	350	346	270	326	266	223	224	170	140	116	224	119
Czech Republic	Number of	- seed										3.740	3.611	3.378	2.699	2.993	3.129	2.959	2.694	2.814	2.768	2.670	2.872	2.467	2.481
	Samples	- ware										2.790	2.133	1.428	1.425	1.177	1.035	799	715	663	648	882	749	595	437
	- positive	*- seed*										***2***	***2***		***4***			***4***	***4***	***2***	***1***		***5***	***4***	
	lots	*- ware*										***11***	***8***	***3***	***3***	***7***	***5***	***2***	***2***	***6***	***2***	***4***	***9***	***2***	
Denmark	Number of	- seed	1.732	1.656	1.622	855	1.270	1.480	1.420	1.389	1.371	978	996	985	662	991	780	697	536	541	650	552	579	615	581
	Samples	- ware	188	225	229	392	379	338	263	335	428	323	309	390	361	367	262	195	148	192	200	242	200	448	358
	- positive	*- seed*	***8***			***1***	***2***	***6***				***2***													
	lots	*- ware*	***8***	***5***	***7***	***5***	***8***	***3***		***3***	***1***	***1***													
Estonia	Number of	- seed										108	161	263	324	278	228	357	331	413	287	315	339	249	288
	Samples	- ware										312	242	369	358	269	263	252	170	222	169	171	173	189	145
	- positive	*- seed*												***1***			***2***							***1***	
	lots	*- ware*										***7***	***12***	***13***	***4***	***5***	***4***		***1***	***1***	***1***		***1***		
Finland	Number of	- seed	1.478	1.633	1.189	1.443	1.464	1.731	1.676	1.686	1.596	1.461	1.116	1.482	1.430	1.355	1.379	1.334	1.422	729	743	729	711	486	470
	Samples	- ware	914	1.000	1.221	1.905	2.051	1.350	1.535	1.947	1.243	769	1.147	1.693	853	1.238	1.497	1.107	903	970	569	541	437	418	433
	- positive	*- seed*							***3***																
	lots	*- ware*	***33***	***?***	***106***	***68***	***29***	***22***	***16***	***11***	***16***	***23***	***34***	***18***	***16***	***23***	***17***	***5***	***11***	***7***	***2***	***5***	***3***	***2***	
France	Number of	- seed	*2.481*	2.299	2.785	7.446	3.257	7.157	7.011	7.610	6.762	5.921	8.979	8.246	8.333	8.386	8.459	9.193	12.057	9.082	9.315	9.041	9.325	12.789	10.189
	Samples	- ware		45	215	323	308	363	1657	1078	1216	744	1020	988	960	955	949	993	883	901	943	899	620	865	943
	- positive	*- seed*					***1***								***2***										
	lots	*- ware*			***1***							***3***										***1***			
Germany	Number of	- seed	3.488	3.877	5.081	10.987	12.352	12.174	12.102	11.301	11.275	11.850	12.554	11.746	10.860	11.044	10.562	11.175	11.157	10.943	10.629	10.246	10.824	10.852	10.406
	Samples	- ware	1.250	530	892	2.966	4.195	4.569	5.261	4.578	4.920	4.886	5.304	3.652	3.126	2.825	2.670	2.427	2.421	2.072	2.258	2.039	2.749	2.675	2.538
	- positive	*- seed*	***5***	***7***	***19***	***37***	***28***	***36***	***44***	***16***	***6***	***5***	***8***	***4***	***1***	***3***	***2***	***1***	***6***	***1***	***3***				
	lots	*- ware*	***10***	***9***	***45***	***55***	***49***	***106***	***76***	***58***	***58***	***69***	***19***	***25***	***7***	***4***	***5***	***3***	***3***	***2***	***1***		***8***	***1***	
Greece	Number of	- seed			152	138	130	73	77	60	69	83	59	60	77	119	120	130	121	86	77	77	84	41	40
	Samples	- ware	37	114	31	515	966	466	742	688	796	681	675	352	363	332	371	537	429	475	416	520	632	497	421
	- positive	*- seed*				***4***																			
	lots	*- ware*				***95***	***243***	***183***	***117***	***41***	***75***	***75***		***10***	***31***	***10***	***2***								
Hungary	Number of	- seed										616	566	244	215	214	205	153	197	149	167	191	183	182	225
	Samples	- ware										688	362	357	317	345	344	300	198	200	162	173	232	215	215
	- positive	*- seed*											***1***												
	lots	*- ware*																					***3***	***6***	
Ireland	Number of	- seed	266	251	234	250	236	215	308	125	120	146	110	145	188	712	736	786	480	432	359	244	197	172	175
	Samples	- ware	130	213	242	252	215	260	309	378	381	402	229	341	339	261	518	169	295	340	277	344	344	306	310
Italy	Number of	- seed			51	439		49	23	167	189	170	213		318	154	214	58	28	27	29	40	25	27	30
	Samples	- ware			172	1.067	68	54	123	274	282	271	366		236	414	239	334	299	216	282	271	268	231	203
	- positive	*- seed*																							
	lots	*- ware*															***2***								
Latvia	Number of	- seed										183	185	139	207	163	178	163	145	142	143	140	171	164	269
	Samples	- ware										128	752	500	596	1.410	979	759	711	804	769	713	636	592	567
	- positive	*- seed*										***10***	***2***		***1***										
	lots	*- ware*										***12***	***74***	***44***	***57***	***147***	***74***	***33***	***24***	***23***	***21***	***23***	***17***	***7***	***6***
Lithuania	Number of	- seed										209	404	124	153	187	196	180	152	155	169	128	157	121	153
	Samples	- ware										613	304	989	1.705	1.439	1.210	623	850	883	949	773	847	774	1.145
	- positive	*- seed*										***1***				***1***			***1***						
	lots	*- ware*										***42***	***12***	***78***	***110***	***52***	***40***	***13***	***40***	***30***	***39***	***12***	***21***	***15***	***29***
Luxembourg	Number of	- seed	12	*111*	253	254	133	208	168	399	183	227	225	148		79	190	303	244	150	113	178	222	122	189
	Samples	- ware	5		5	4	22	0	0	0	4	4	8	6		12	0	1		0	0	0	0	5	3
Malta	Number of	- seed										0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Samples	- ware										0	0	0	0	154	34	43	41	34	39	39	32	33	33
Netherlands	Number of	- seed	2.943	3.275	3.601	4.246	4.816	3.806	62.775	59.352	57.245	20.972	61.199	38.402	28.087	21.982	21.629	22.890	20.809	22.677	19.745	18.418	18.643	19.640	22.177
	Samples	- ware		300	1.829	2.941	2.267	3.833	6.613	4.454	6.603	5.886	8.950	3.055	2.263	3.458	3.877	3.178	2.330	2.555	3.121	3.426	2.067	2.083	2.047
	- positive	*- seed*					***1***		***2***	***3***	***1***		***4***			***1***	***1***		***7***	***1***	***1***	***0***			
	lots	*- ware*						***3***	***5***	***2***		***1***				***1***	***1***	***6***	***3***	***16***	***8***	***3***		***1***	
Poland	Number of	- seed										7.685	8.186	5.927	6.197	7.552	6.992	7.224	6.892	8.173	8.143	7.243	7.975	8.225	9.633
	Samples	- ware										11.818	15.291	15.243	13.785	12.643	10.421	9.543	8.389	8.597	9.073	7.535	7.955	9.208	13.435
	- positive	*- seed*										***309***	***310***	***93***	***59***	***70***	***45***	***28***	***9***	***15***	***17***	***5***	***8***	***18***	***8***
	lots	*- ware*										***2.607***	***3.416***	***2.937***	***2.224***	***1.750***	***1.449***	***1.027***	***899***	***909***	***937***	***917***	***815***	***840***	***724***
Portugal	Number of	- seed	5		100	34	84	188	108	65	39	38	45	37	8	10	6	2	0	0	0	0	15	17	13
	Samples	- ware	109	127	364	286	259	68	209	233	162	135	94	100	133	102	132	166	141	110	88	95	121	196	142
Romania	Number of	- seed													470	586	526	507	930	688	456	633	1.080	1.244	1.396
	Samples	- ware													790	1.020	1.621	1.358	1.432	1.569	1.415	1.729	1.602	1.228	1.248
	- positive	*- seed*													***6***	***13***	***25***	***16***	***19***		***9***	***1***	***4***	***5***	***11***
	lots	*- ware*													***33***	***92***	***85***	***124***	***151***	***104***	***120***	***89***	***101***	***55***	***84***
Slovakia	Number of	- seed										350	813	455	266	417	369	251	245	228	217	297	231	238	173
	Samples	- ware										283	226	696	201	333	333	266	231	201	262	306	306	264	176
	- positive	*- seed*											***3***	***4***								***1***			
	lots	*- ware*										***8***	***20***	***32***	***1***	***11***	***6***	***5***	***5***	***4***	***1***	***3***	***2***	***3***	***1***
Slovenia	Number of	- seed										56	60	41	37	35	36	36	31	36	36	28	28	24	20
	Samples	- ware										82	92	95	102	81	69	63	72	83	91	91	69	61	60
Spain	Number of	- seed	216	617	911	748	647	609	471	424	726	641	1.374	1.179	1.105	1.909	1.782	1.766	1.896	1.745	1.113	1.064	1.002	935	810
	Samples	- ware	89	119	139	159	152	340	161	314	368	419	340	663	641	757	821	785	723	696	498	417	421	427	494
	- positive	*- seed*	***4***	***7***	***2***				***2***	***2***	***4***	***3***	***2***			***1***		***2***				***1***			***1***
	lots	*- ware*	***1***	***5***	***3***	***2***		***2***	***10***	***5***	***7***	***5***	***2***	***8***	***2***		***2***	***2***			***1***				***1***
Sweden	Number of	- seed		354	401	204	275	222	249	330	344	413	428	394	452	363	403	388	386	350	339	309	263	395	300
	Samples	- ware		515	434	903	620	485	488	864	712	529	499	532	462	394	438	404	331	482	362	55	202	147	208
	- positive	*- seed*								***2***															
	lots	*- ware*	***14***	***5***	***12***	***8***	***1***	***2***	***4***	***13***	***8***	***7***	***1***			***4***				***1***						
United Kingdom	Number of	- seed	103	118	191	351	137	389	1.148	1.282	1.279	906	1.883	1.832	1.929	1.982	2.024	1.860	1.813	1.831	1.687	1.720	1.704	1.828	1.861
	Samples	- ware	195	208	236	356	171	235	232	301	255	326	505	491	541	567	610	613	594	561	595	555	360	253	260
	- positive	*- seed*										***1***													
	lots	*- ware*											***2***								***6***				
EU TOTAL	Number of	- seed	12.844	14.773	17.087	27.854	25.452	29.113	88.922	85.571	83.513	61.490	108.855	79.313	67.704	63.522	62.045	64.498	64.632	63.448	59.719	56.895	59.257	63.233	64.414
	Samples	- ware	3.032	3.397	6.206	12.245	11.777	12.681	17.974	15.943	17.943	33.551	41.397	34.069	31.240	32.774	31.039	27.124	24.381	24.830	25.375	23.895	22.999	23.659	27.205
	- positive	*- seed*	***17***	***14***	***21***	***42***	***32***	***42***	***53***	***23***	***19***	***333***	***332***	***102***	***75***	***94***	***77***	***51***	***47***	***19***	***32***	***8***	***17***	***29***	***20***
	lots	*- ware*	***66***	***24***	***174***	***233***	***330***	***321***	***230***	***133***	***180***	***2.880***	***3.600***	***3.168***	***2.502***	***2.135***	***1.701***	***1.222***	***1.156***	***1.112***	***1.164***	***1.075***	***981***	***936***	***852***

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 2016 potato crop

Surveys for Ralstonia solanacearum on the domestic 2016 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)	6,65	9	0,74	0	0	0	18	0	
	Seed (basic)	494,84	342	1,45	0	304	0	682	0	
	Seed (certified)	1.184,02	851	1,39	0	668	0	805	0	
	Seed (TOTAL)	**1.685,51**	**1.202**	**1,40**	**0**	**972**	**0**	**1.505**	**0**	
	Ware potatoes	10.950,29	75	257,67	0	11	0	15	0	
	Industrial	8.374,95			0	3	0	15	0	
	Other (TOTAL)	**19.325,24**	**75**	**257,67**	**0**	**14**	**0**	**30**	**0**	
Belgium	Breeding material		5	0,00	0	0	0	0	0	All lots inspected & sampled during grading
	Seed (pre-basic)	59,68	52	1,15	0	47	0	38	0	All plots visually inspected during growth
	Seed (basic)	1.926,66	891	2,16	0	534	0	488	0	
	Seed (certified)	254,32	134	1,90	0	128	0	88	0	
	Seed (TOTAL)	**2.240,66**	**1.082**	**2,07**	**0**	**709**	**0**	0	**0**	
	Farm saved seed		318		0	166	0	0	0	1-2 samples/lot
	Ware/industrial potatoes	85.790,00	318	101,17	0	318	0	0	0	1 sample/lot
	Targeted surveys (ware)		212		0	212	0	0	0	
	Other (TOTAL)	**85.790,00**	**848**	**101,17**	**0**	**696**	**0**	**0**	**0**	
Bulgaria	Seed (basic)	3,30	9	0,37	0	9	0	4	0	
	Seed (certified)	179,45	116	1,55	0	116	0	71	0	
	Seed (TOTAL)	**182,75**	**125**	**1,46**	**0**	**125**	**0**	**75**	**0**	
	Ware	11.889,05	447	26,60	0	453	0	433	0	
	Industrial				0		0		0	
	Other (TOTAL)	**11.889,05**	**447**	**26,60**	**0**	**453**	**0**	**433**	**0**	
Croatia	Seed (certified)	20,00	22	0,91	0		0	0	0	
	Seed (TOTAL)	**20,00**	**22**	**0,91**	**0**	**0**	**0**	**0**	**0**	
	Ware potatoes incl.young pots	9.500,00	107		0	169		52	0	
	Other (TOTAL)	**9.500,00**	**107**	**88,79**	**0**	**177**	**0**	**57**	**0**	
Cyprus	Seed (certified)	94,51	104	0,91	0	104	0	104	0	Two field inspections in the leaves and one tuber at harvest; all fields inspected
	Seed (TOTAL)	**94,51**	**104**	**0,91**	**0**	**104**	**0**	**104**	**0**	
	Ware potatoes	5.000,00	119	42,02	0	119	0	119	0	Fields are selected randomly from all potato producing areas
	Other (TOTAL)	**5.000,00**	**119**	**42,02**	**0**	**119**	**0**	**119**	**0**	
Czech Republic	Breeding material			#DIV/0!	0	0	0	0	0	
	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (basic)	335,00	378	0,89	0	0	0	0	0	
	Seed (certified)	2.584,00	91	28,40	0	25	0	0	0	
	Seed (TOTAL)	**2.919,00**	**469**	**6,22**	**0**	**25**	**0**	**0**	**0**	
	Ware & Farm saved seed	15.390,00	291	52,89	0	309	0	312	0	Incl. 3 samples of volunteer potatoes
	Industrial	5.106,00	148	34,50	0	39	0	30	0	
	Other (TOTAL)	**20.496,00**	**439**	**46,69**	**0**	**348**	**0**	**342**	**0**	
Denmark	Seed (pre-basic)				0	0	0	0	0	
	Seed (basic)	4.589,00	581	7,90	0	0	0	0	0	
	Seed (certified)					0	0	0	0	
	Seed (TOTAL)	**4.589,00**	**581**	**7,90**	**0**	**0**	**0**	**0**	**0**	
	Ware potatoes	39.709,00	358	110,92	0	0	0	0	0	
	Other (TOTAL)	**39.709,00**	**358**	**110,92**	**0**	**0**	**0**	**0**	**0**	

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	
Estonia	Seed (pre-basic)	3,04	7	0,43	0	0	0	0	0	
	Seed (basic)	6,38	11	0,58	0	0	0	0	0	
	Seed (certified)	225,85	270	0,84	0	0	0	0	0	
	Seed (TOTAL)	**235,27**	**288**	**0,82**	**0**	**0**	**0**	**0**	**0**	
	Ware potatoes	5.600,00	145	38,62	0	0	0	0	0	
	Other (TOTAL)	**5.600,00**	**145**	**38,62**	**0**	**0**	**0**	**0**	**0**	
Finland	Seed (pre-basic)	225,00	98	2,30	0	278	0	0	0	
	Seed (basic)	438,00	163	2,69	0	237	0	0	0	
	Seed (certified)	368,00	198	1,86	0	199	0	0	0	
	Other seed	19,00	11	1,73	0	0	0	0	0	
	Seed (TOTAL)	**1.050,00**	**470**	**2,23**	**0**	**714**	**0**	**0**	**0**	
	Ware	15.500,00	347	44,67	0	0	0	0	0	
	Industrial	5.500,00	86	35,23	0	0	0	0	0	
	Other (TOTAL)	**21.000,00**	**433**	**48,50**	**0**	**0**	**0**	**0**	**0**	
France	Seed (pre-basic)	3.521,00	3.760	0,94	0	3.334	0		0	
	Seed (basic)	11.781,00	5.136	2,29	0	4.407	0	29.000	0	
	Seed (certified)	3.794,00	1.293	2,93	0	1.256	0		0	
	Seed (TOTAL)	**19.096,00**	**10.189**	**1,87**	**0**	**8.997**	**0**	**29.000**	**0**	
	Ware potatoes	133.220,00	943	141,27	0	0	0	0	0	
	Industrial	22.375,00			0	0	0	0	0	
	Other (TOTAL)	**155.595,00**	**943**	**165,00**	**0**	**0**	**0**	**0**	**0**	
Germany	Breeding material	0,00	907	0,00	0	808	0	297	0	
	Seed (pre-basic)	1.010,00	1.617	0,62	0	1.617	0	4.287	0	
	Seed (basic)	5.361,00	3.023	1,77	0	2.865	0	4.848	0	
	Seed (certified)	9.262,00	4.512	2,05	0	4.753	0	5.927	0	
	Seed (samples from trade -DE)	0,00	347	0,00	0	346	0	85	0	
	Seed (TOTAL)	**15.633,00**	**10.406**	**1,50**	**0**	**10.389**	**0**	**15.444**	**0**	
	Farm saved seed (own prod.)	0,00	298		0	298	0	0	0	
	Ware/industrial potatoes	224.309,00	2.226	0,00		46.294				
	Other	16,00	14		0	14	0	0	0	
	Other (TOTAL)	**224.325,00**	**2.538**	**88,39**	**0**	**46.606**	**0**	**0**	**0**	
Greece	Seed (certified)	190,10	40	4,75	0	40	0	0	0	
	Seed (TOTAL)	**190,10**	**40**	**4,75**	**0**	**40**	**0**	**0**	**0**	2 visual inspections of fields during growing season
	Ware outside Crete	19.335,62	227	85,18	0	230	0	0	0	62 lots of 227 used as farm saved seed.
	Ware, Crete	1.980,00	182	10,88	0	182	0	0	0	
	Industrial		12	0,00	0	12	0	0	0	Visual inspections of 182 fields.
	Other (TOTAL)	**21.315,62**	**421**	**50,63**	**0**	**424**	**0**	**0**	**0**	
Hungary	Seed (pre-basic)	23,00	39	0,59	0	0	0	11	0	
	Seed (basic)	70,00	66	1,06	0	0	0	56	0	
	Seed (certified)	104,00	95	1,09	1	0	0	45	0	
	Seed (breeding stock)	14,00	25	0,56	4	0	0	38	0	
	Seed (TOTAL)	**211,00**	**225**	**0,94**	**5**	**0**	**0**	**150**	**0**	
	Ware	18.000,00	215	83,72	7	218	0	324	0	
	Other (TOTAL)	**18.000,00**	**215**	**83,72**	**7**	**218**	**0**	**324**	**0**	
Ireland	Seed (pre-basic)	0,00		#DIV/0!	0	0	0	0	0	
	Seed (basic)	253,00	175	1,45	0	800	0	3	0	
	Seed (TOTAL)	**253,00**	**175,00**	**1,45**	**0**	**800**	**0**	**3**	**0**	
	Ware	8.721,00	310	28,13	0	250	0	0	0	
	Other (TOTAL)	**8.721,00**	**310**	**28,13**	**0**	**250**	**0**	**0**	**0**	

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	
Italy	Seed (certified)	198,00	30	6,60	0	39	0	251	0	
	Seed (TOTAL)	**198,00**	**30**	**6,60**	**0**	**39**	**0**	**251**	**0**	
	Ware	37.059,00	194	164,71	0	383	0	705	0	
	Industrial	2.877,00	31		0	81	0	126	0	
	Other (TOTAL)	**39.936,00**	**225**	**177,49**	**0**	**464**	**0**	**831**	**0**	
Latvia	Seed (pre-basic)	20,55	30	0,69	0	0	0	0	0	
	Seed (basic)	26,75	22	1,22	0	0	0	0	0	
	Seed (certified)	365,71	206	1,78	0	0	0	0	0	
	Seed (other)	0,11	60	0,00	0	0	0	0	0	Breeders material
	Seed (TOTAL)	**413,12**	**318**	**1,30**	**0**	**0**	**0**	**0**	**0**	
	Ware potatoes	24.386,88	439	47,91	0	0	0	0	0	
	Industrial		70		0	0	0	0	0	
	Other		58							Outbreaks of CMS of previous years
	Other (TOTAL)	**24.386,88**	**567**	**43,01**	**0**	**0**	**0**	**0**	**0**	
Lithuania	Seed (pre-basic)	0,10	8	0,01	0	0	0	0	0	
	Seed (basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (certified)	157,40	145	1,09	0	0	0	3	0	
	Seed (TOTAL)	**157,50**	**153**	**1,03**	**0**	**0**	**0**	**3**	**0**	
	Ware potatoes	13.964,70	1.145	12,20	0	34	0	29	0	
	Other (TOTAL)	**13.964,70**	**1.145**	**12,20**	**0**	**34**	**0**	**29**	**0**	
Luxembourg	Seed (pre-basic)	21,00	49	0,43	0	0	0	111	0	
	Seed (basic)	204,00	106	1,92	0	0	0	324	0	
	Seed (certified)	131,00	34	3,85	0	0	0	165	0	
	Seed (TOTAL)	**356,00**	**189**	**1,88**	**0**	**0**	**0**	**600**	**0**	
	Ware	201,00	3	67,00	0	0	0	3	0	
	Other (TOTAL)	**201,00**	**3**	**67,00**	**0**	**0**	**0**	**0**	**0**	
Malta	Seed (certified)	0,00	0	#DIV/0!		0	0	0	0	
	Seed (TOTAL)	**0,00**	**0**	**#DIV/0!**	**0**	**0**	**0**	**0**	**0**	
	Ware potatoes	701,00	31	22,61	0	31	0	29	0	29 samples from open field potatoes, 1 from local ware potatoes and 1 ware potatoes from the EU
	Other (TOTAL)	**701,00**	**31**	**22,61**	**0**	**31**	**0**	**29**	**0**	
Netherlands	Breeding material (+in-vitro)		316		0	0	0	0	0	
	Seed (pre-basic)	9.566,00	7.023	1,67	0	7.023	0	0	0	
	Seed (basic)	19.881,00	10.343		2	10.343	0	0	0	Findings related to one single source. Grower in 2015 whereby part of a field suffered from flooding in a summer.
	Seed (certified)	6.987,00	3.821	1,83	0	3.821	0	0	0	
	Seed other (targeted survey)		1.115		6	1.115				Positive lots with direct clonal links with the 2 findings in basic seed potatoes
	Seed (export TC)		674							
	Seed (TOTAL)	**36.434,00**	**23.292**	**1,56**	**8**	**0**	**0**	**0**	**0**	
	FSS+material for starch	1.030,00	497		0	497	0	0	0	
	Ware	73.032,00	678	58,79	0	678	0	0	0	
	Industrial for starch	43.164,00	819		0	819	0	0	0	
	Other (TOTAL)	**117.226,00**	**1.994**	**58,79**	**0**	**1.994**	**0**	**0**	**0**	
Poland	Variety trials	102,70	744	0,14	0	73	0	44	0	
	Seed (pre-basic)	121,90	234	0,52	0	0	0	28	0	
	Seed (basic)	1.780,10	2.984	0,60	0	27	0	194	0	
	Seed (certified)	3.974,60	5.682	0,70	0	1.017	0	1.602	0	
	Seed (TOTAL)	**5.979,30**	**9.644**	**0,62**	**0**	**1.117**	**0**	**1.868**	**0**	
	Ware	234.950,30	8.248	28,49	1	4.896	0	1.779	0	Positives originate from farms already in quarantine since 2015
	Farm saved seed	4.283,10	1.295	3,31	0	241	0	213	0	
	Industrial	48.380,20	11.271	4,29	1	669	0	614	0	
	Other (TOTAL)	**287.613,60**	**20.814**	**13,82**	**2**	**5.806**	**0**	**2.606**	**0**	

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	
Portugal	Seed (certified)	11,45	13	0,88	0	13	0	52	0	
	Seed (TOTAL)	**11,45**	**13**	**0,88**	**0**	**13**	**0**	**52**	**0**	
	Ware	24.622,00	142	173,39	1	142	0	244	0	1 positive in central region. Origin not determined. Additional surveillance ongoing.
	Industrial	0,00	0	#DIV/0!	0	0	0	0	0	
	Other (TOTAL)	**24.622,00**	**142**	**173,39**	**1**	**142**	**0**	**244**	**0**	
Romania	Seed (pre-basic)	0,45	1	0,45	0	1	0	1	0	
	Seed (basic)	45,88	92	0,50	0	92	0	17	0	
	Seed (certified)	691,91	1.303	0,53	0	1.303	0	246	0	
	Seed (TOTAL)	**738,24**	**1.396**	**0,53**	**0**	**1.396**	**0**	**264**	**0**	
	Ware	49.428,68	1.243	39,77	0	1.347	0	1.347	0	
	Industrial	930,32	5	186,06	0	5	0	5	0	
	Other (TOTAL)	**50.359,00**	**1.248**	**40,35**	**0**	**1.352**	**0**	**1.352**	**0**	
Slovakia	Breeding material			#VALUE!	0		0		0	
	Seed (pre-basic)	0,00	0	#DIV/0!	0	0	0	0	0	
	Seed (basic)	98,94	64	1,55	0	64	0	106	0	
	Seed (certified)	342,16	109	3,14	0	109	0	198	0	
	Seed (TOTAL)	**441,10**	**173**	**2,55**	**0**	**173**	**0**	**304**	**0**	
	Ware potatoes	5.583,68	176	31,73	0	370	0	206	0	
	Other (TOTAL)	**5.583,68**	**176**	**31,73**	**0**	**370**	**0**	**206**	**0**	
Slovenia	Seed (pre-basic)	1,93	8	0,24	0	29	0	58	0	
	Seed (basic)	21,90	6	3,65	0	32	0	64	0	
	Seed (certified)	7,89	6	1,32	0	11	0	22	0	
	Seed (TOTAL)	**31,72**	**20**	**1,59**	**0**	**72**	**0**	**144**	**0**	
	Ware potatoes	3.147,00	60	52,45	0	60	0	0	0	
	Other		0	#DIV/0!	0	0	0	0	0	
	Other (TOTAL)	**3.147,00**	**60**	**52,45**	**0**	**60**	**0**	**0**	**0**	
Spain	Seed (pre-basic)	78,85	15	5,26	0	12	0	70	0	
	Seed (basic)	740,34	143	5,18	0	131	0	819	0	
	Seed (certified)	1.274,90	649	1,96	0	464	0	1.553	0	
	Seed (TOTAL)	**2.094,09**	**807**	**2,59**	**0**	**607**	**0**	**2.442**	**0**	
	Ware(inc. farm cons. & potato waste)	46.486,06	496	93,72	2	692	0	800	0	Both positives in the province of Jaen; one of the fields irigated
	Industrial	0,00	0		0		0		0	with contaminated water
	Other (TOTAL)	**46.486,06**	**496**	**93,72**	**2**	**692**	**0**	**800**	**0**	
Sweden	Seed (pre-basic)	587,70	176	3,34	0	160	0	0	0	
	Seed (basic)	301,20	115	2,62	0	160	0	0	0	
	Seed (certified)	21,80	9	2,42	0	160	0	0	0	
	Seed (TOTAL)	**910,70**	**300**	**3,04**	**0**	**480**	**0**	**0**	**0**	
	Ware	17.335,00	208	116,39	0	2.100	0	0	0	
	Industrial	6.875,00			0	0	0	0	0	
	Other (TOTAL)	**24.210,00**	**208**	**116,39**	**0**	**2.100**	**0**	**0**	**0**	
United Kingdom	Seed (pre-basic)	111,00	185	0,60	0	0	0	0	0	
	Seed (basic)	14.472,00	1.622	8,92	0	0	0	0	0	
	Seed (certified)	256,00	54		0	0	0	0	0	
	Seed (TOTAL)	**14.839,00**	**1.861**	**7,97**	**0**	**0**	**0**	**0**	**0**	
	Farm saved seed	600,00	0	#DIV/0!	0	0	0	0	0	
	Ware potatoes	127.378,60	260		0	0	0	0	0	
	Other (TOTAL)	**127.978,60**	**260**	**492,23**	**0**	**0**	**0**	**0**	**0**	

TABLE 8: Surveys for *Ralstonia solanacearum* in water and non-potato hosts in 2016

Member State	Water sampling				Tomatoes or other hosts						Comments
	Waste water/soil (processing)		Surface water		Other hosts		Tomatoes				
	no. of samples	no. positive	no. of samples	no. positive	no. samples	no. positive	no. inspections	no. plants inspected	no. lab. tests	no. positive	
Austria	0	0	9	0	6	0	32	80.725	14	0	Other hosts - different host plants including tomatoes intended for production. Water samples from rivers
Belgium	48	0	425	0	36	0	0	0	0	0	Other hosts: *Solanum dulcamara* in rivers ouside P.A.
Bulgaria	4	0	27	0	9	0	44	29.207	1	0	Other hosts: *Solanum nigrum*
Croatia	0	0	12	0	0	0	37	0	28	0	
Cyprus	0	0	0	0	0	0	0	0	0	0	
Czech Republic	30	2	144	18	184	3	3	0	1	0	Other hosts: *S. dulcamara (3 positive)* , *Urtica dioica, Bidens* spp., *Mentha* spp
Denmark	0	0	0	0	0	0	0	0	0	0	Irrigation has no significance in Denmark
Estonia	0	0	0	0	0	0	0	0	0	0	Irrigation has no significance in Estonia
Finland	0	0	0	0	0	0	0		0	0	Irrigation has no significance in Finland
France	0	0	269	0	0	0	0	0	0	0	
Germany	79	0	69	9	208	1	1	100	0	0	Hosts include: *S.dulcamara* (24, 1 positive), *Pelargonium* (56), Tomato plants (41), Others (87)
Greece	0	0	6	0	68	0	51	1.392.707	169	0	6 surface water (river) samples from Preveza
Hungary	0	0	576	79	65	0	34	12	2	0	*52 Rosa, 13 S. dulcamara, all negative*
Ireland	23	0	0	0	0	0	0	0	0	0	
Italy	0	0	61	0	93	0	215	3.061.862 + ND	179	0	*Capsicum annum, Sol. melongena, Lycopersicum esculentum* for processing, *Cucumis sp., Citrullus lanatus, Cucurbita*
Latvia	0	0	26	0	26	0	0	0	0	0	Other hosts: *S. dulcamara* (19) and *S. nigrum (7)*
Lithuania	0	0	30	0	3	0	0	0	0	0	Other hosts: *S. dulcamara* from the riverside
Luxembourg	0	0	0	0	0	0	0	0	0	0	
Malta	0	0	4	0	28	0	0	0	22	0	Tomatoes: 15 samples from open field tomato crops and 13 samples collected from greenhouses.
Netherlands	0	0	1.300	111	3	1	0	0	100	0	Other hosts: S. dulcamara, 1 positive
Poland	3.418	0	1.010	0	283	6	394	49.036.346	1	0	
Portugal	0	0	10	2	5	0	0	0	0	0	Samples of Rosa taken in green houses subject to eradication measures; 2 positive samples in irrigation water.
Romania	0	0	1	0	1	0	110	2012500	1	0	Other hosts: Solanum dulcamara
Slovakia	0	0	37	0	5	0	10	13	1	0	Other hosts: *Solanum dulcamara*
Slovenia	0	0	14	0	0	0	189	2.240.000	0	0	
Spain	0	0	124	46	16	0	157	21.090.904	1.185	1	Positive in a greehouse in the province of Almeria
Sweden	0	0	0	0	0	0	0	0	0	0	Irrigation has no significance in Sweden
United Kingdom	15	0	541	6	8	0	0	0	0	0	Other hosts: *Solanum dulcamara; 6 Rs found at 2 locations along Sixteen Foot drain*
TOTAL EU	**3.617**	**2**	**4.695**	**271**	**1.047**	**11**	**1.277**		**1.704**	**1**	

TABLE 9: Surveys for *Ralstonia solanacearum* on potato "imports", 2016/2017 season

Member State	Commodity	Number of samples	Positives	Number of visual checks	Positives	Remarks
Austria	Seed potatoes	94	0	0	0	Mainly from NL and DE
	Other potatoes	16	0	0	0	Mainly from EG
Belgium	Seed potatoes	587	0	289	0	Most from NL, FR and LU
	Other potatoes	231	0	231	0	Mainly from DE, FR, NL, and IL
Bulgaria	Seed potatoes	77	0	100	0	Mainly from NL and DE
	Other potatoes	53	1	454	0	Mainly from TR: one positive lot
Croatia	Seed potatoes	85	0	99	0	Mainly from NL and DE
	Other potatoes	46	0	280	0	Mainly from EG and BA
Cyprus	Seed potatoes	275	0	275	0	Mainly from NL and DE
	Other potatoes	0	0	0	0	
Czech Republic	Seed potatoes	130	0	22	0	Mainly from DE and NL
	Other potatoes	54	0	38	0	Mainly from DE, FR, PL and EG
Denmark	Seed potatoes	0	0	0	0	
	Other potatoes	0	0	0	0	
Estonia	Seed potatoes	6	0	0	0	Mainly from DE
	Other potatoes	9	0	0	0	Mainly from LV
Finland	Seed potatoes	136	0	0	0	From DE, NL, DK, and SE
	Other potatoes	0	0	0	0	
France	Seed potatoes	163	0	163	0	Mainly from NL
	Other potatoes	1	0	3	0	From PL and IL
Germany	Seed potatoes	263	0	134	0	Mainly from NL
	Other potatoes	92	0	811	0	Mainly from EG
Greece	Seed potatoes	296	0	296	0	Most from NL
	Other potatoes	302	0	302	0	From EG
Hungary	Seed potatoes	54	0	0	0	Most from NL and DE
	Other potatoes	0	0	0	0	Mainly from PL
Ireland	Seed potatoes	106	0	0	0	Mainly from UK and DE
	Other potatoes	48	0	0	0	From IL and PL
Italy	Seed potatoes	254	0	450	0	Mainly from NL
	Other potatoes	130	0	2.286	0	From EG, IL and TN
Latvia	Seed potatoes	78	0	0	0	Mainly from DE and NL
	Other potatoes	23	0	0	0	From various MS
Lithuania	Seed potatoes	19	0	6	0	From various MS
	Other potatoes	3	0	0	0	From MA and EG
Luxembourg	Seed potatoes	35	0	0	0	From CH, D, FR and NL
	Other potatoes	1	0	0	0	From FR
Malta	Seed potatoes	16	0	16	0	Mainly from NL
	Other potatoes	3	0	3	0	From NL
Netherlands	Seed potatoes	246	0	0	0	Mainly from BE, DK, DE, FR and UK
	Other potatoes	216	0	0	0	Mainly from BE, DE, FR, and PL
Poland	Seed potatoes	183	0	16	0	Mainly from DE and NL
	Other potatoes	139	1	322	0	From various MS; includes EG (1 positive)
Portugal	Seed potatoes	65	0	65	0	Mainly from NL and UK
	Other potatoes	28	0	28	0	From FR and ES
Romania	Seed potatoes	180	0	200	0	Most from NL and DE
	Other potatoes	269	0	271	0	Most from EG and RS
Slovakia	Seed potatoes	26	0	26	0	Mainly from NL and DE
	Other potatoes	123	0	123	0	Mainly from CZ, FR, DE and NL
Slovenia	Seed potatoes	12	0	2	0	Mainly from NL
	Other potatoes	54	0	126	0	Mainly from EG
Spain	Seed potatoes	415	0	419	0	Most from NL and UK
	Other potatoes	103	0	33	0	Most from NL , UK and FR
Sweden	Seed potatoes	0	0	0	0	
	Other potatoes	0	0	19	0	
United Kingdom	Seed potatoes	1.029	0	27	0	Most from NL and FR
	Other potatoes	124	0	7	0	Mainly from FR, ES, EG, and IL
EU	**Seed potatoes**	**4.830**	**0**	**2.605**	**0**	
	Other potatoes	**2.068**	**2**	**5.337**	**0**	

TABLE 10: Density of sampling for laboratory testing for *Ralstonia solanacearum* on the domestic potato production, harvest 2016

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	183	125	1,5	11.889	447	26,6
Netherlands	36.434	23.292	1,6	117.226	1.994	58,8
Germany	15.633	10.406	1,5	224.325	2.538	88,4
Spain	2.094	807	2,6	46.486	496	93,7
Hungary	211	225	0,9	18.000	215	83,7
Poland	5.979	9.644	0,6	287.614	20.814	13,8
Portugal	11	13	0,9	24.622	142	173,4
Romania	738	1.396	0,5	50.359	1.248	40,4
Slovakia	441	173	2,5	5.584	176	31,7
Greece	190	40	4,8	21.316	421	50,6
Italy	198	30	6,6	39.936	225	177,5
Belgium	2.241	1.082	2,1	85.790	848	101,2
United Kingdom	14.839	1.861	8,0	127.979	260	492,2
TOTAL - GROUP 1	79.193	49.094	1,6	1.061.125	29.824	35,6
Austria	1.686	1.202	1,4	19.325	75	257,7
Czech Republic	2.919	469	6,2	20.496	439	46,7
France	19.096	10.189	1,9	155.595	943	165,0
Ireland	253	175	1,4	8.721	310	28,1
Slovenia	32	20	1,6	3.147	60	52,5
Sweden	911	300	3,0	24.210	208	116,4
TOTAL - GROUP 2	24.896	12.355	2,0	231.494	2.035	113,8
Croatia	20	22	0,9	9.500	107	88,8
Cyprus	95	104	0,9	5.000	119	42,0
Denmark	4.589	581	7,9	39.709	358	110,9
Estonia	235	288	0,8	5.600	145	38,6
Finland	1.050	470	2,2	21.000	433	48,5
Latvia	413	318	1,3	24.387	567	43,0
Lithuania	158	153	1,0	13.965	1.145	12,2
Luxembourg	356	189	1,9	201	3	
Malta	0	0		701	31	22,6
TOTAL - GROUP 3	6.915	2.125	3,3	120.063	2.908	41,3
EU	111.004	63.574	1,7	1.412.681	34.767	40,6

TABLE 11: Incidence of brown rot in Member States where it occurred in the 2016 harvest

Member State		Total no. of samples	No. of positive lots	No. of Br cases	Incidence seed	Incidence ware
Hungary	seed	225	5	2	2,222%	
	ware	215	7	2		3,256%
Netherlands	seed	23.292	8	1	0,034%	
	ware	1.994	0	0		0,000%
Poland	seed	9.644	0	0	0,000%	
	ware	20.814	2	2		0,010%
Portugal	seed	13	0	0	0,000%	
	ware	142	1	1		0,704%
Spain	seed	807	0	0	0,000%	
	ware	496	2	2		0,403%
TOTAL EU-brown rot	seed	33.981	13	3	0,038%	
	ware	23.661	12	7		0,051%
TOTAL EU28	seed	63.574	13	3	0,020%	
	ware	34.767	12	7		0,035%

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	2015	2016
Austria	Number of Samples	- seed	54	108	120	117	112	298	653	589	662	632	625	594	578	533	603	602	594	1.224	1.216	1.169	1.133	1.202
		- ware	73	83	87	65	78	81	94	92	91	87	88	96	91	87	99	104	105	75	73	68	71	75
		- *seed*																						
		- *ware*														***1***								
Belgium	Number of Samples	- seed	1.251	854	342	500	700	1.082	701	1.043	3.731	4.948	3.346	2.535	1.040	925	1.168	1.073	1.038	959	1.135	1.122	1.055	1.082
		- ware	89	193	101	73	499	408	411	649	1.123	1.629	1.527	663	1.285	1.375	1.446	1.406	1.268	1.281	1.322	1.282	1.276	848
	- *positive lots*	- *seed*					***1***																	
		- *ware*					***8***			***11***			***1***			***1***							***1***	***1***	
Bulgaria	Number of Samples	- seed												443	412	275	213	295	301	195	179	169	133	125
		- ware												552	618	474	533	443	484	612	518	454	381	447
	- *positive lots*	- *seed*																						
		- *ware*																				***2***		
Croatia	Number of Samples	- seed																		32	35	51	20	22
		- ware																		132	135	159	100	107
Cyprus	Number of Samples	- seed									145	108	115	115	89	169	102	94	124	124	67	127	66	104
		- ware									167	178	350	346	270	326	266	223	224	170	140	116	224	119
Czech Republic	Number of Samples	- seed									3.740	355	246	246	306	379	385	300	451	475	2.671	391	264	469
		- ware									150	131	116	163	153	173	101	338	386	784	929	523	520	439
	- *positive lots*	- *seed*																						
		- *ware*																		***1***			***7***	
Denmark	Number of Samples	- seed	346	440	460	282	237	528	240	248	291	996	740	662	430	780	697	536	541	650	552	579	615	581
		- ware	68	190	144	42	30	150	167	316	283	393	390	361	348	262	195	148	192	200	242	200	448	358
Estonia	Number of Samples	- seed									102	161	263	324	278	228	357	331	413	287	315	339	249	288
		- ware									312	242	369	358	269	263	252	170	222	169	171	173	189	145
Finland	Number of Samples	- seed		50	60	91	101	38	80	100	150	150	150	150	150	150	146	205	305	358	325	401	465	470
		- ware		102	140	86	0	0	0	100	68	80	122	60	55	25	166	846	970	569	541	437	418	433
France	Number of Samples	- seed	7.342	5.187	16.384	5.759	8.809	7.821	7.613	6.762	5.445	8.979	8.246	8.333	8.386	8.459	9.193	12.179	9.082	9.315	9.041	9.325	12.789	10.189
		- ware	45	215	323	308	456	1.701	1.078	1.216	744	1.020	988	960	955	949	993	883	901	943	895	624	865	943
	- *positive lots*	- *seed*						***1***	***2***				***1***			***1***	***1***					***0***		
		- *ware*						***41***		***1***				***1***			***1***		***1***		***1***	***1***		
Germany	Number of Samples	- seed	2.190	4.661	10.758	11.164	11.871	11.816	11.124	10.837	10.772	12.559	11.746	10.860	11.044	10.562	11.183	11.052	10.943	10.630	10.246	10.824	10.852	10.406
		- ware	198	670	2.417	3.732	4.688	5.152	4.629	4.555	5.617	5.164	3.652	3.126	2.825	2.667	2.427	2.421	2.058	2.258	2.039	2.690	2.675	2.538
	- *positive lots*	- *seed*		***3***								***1***					***1***		***1***		***3***			
		- *ware*		***3***	***2***	***15***	***11***		***5***	***1***	***1***				***1***	***3***		***1***				***2***		
Greece	Number of Samples	- seed		152	138	132	73	77	60	69	83	59	60	77	119	120	130	121	86	77	77	84	41	40
		- ware	114	31	515	922	466	742	688	796	681	733	352	363	332	351	545	429	475	416	520	622	497	421
	- *positive lots*	- *seed*			***1***									***3***	***1***									
		- *ware*							***19***	***10***	***4***	***5***		***3***			***3***	***1***	***1***		***1***	***2***		
Hungary	Number of Samples	- seed									616	566	244	215	214	205	153	197	149	167	191	183	182	225
		- ware									688	362	357	317	345	344	300	198	200	162	173	232	215	215
	- *positive lots*	- *seed*									***10***				***3***	***9***		***1***			***1***			***5***
		- *ware*									***14***		***24***	***2***	***13***	***3***	***5***	***5***	***5***	***1***	***9***	***3***	***3***	***7***
Ireland	Number of Samples	- seed		234	250	236	215	308	125	120	146	110	145	188	712	736	786	480	432	359	244	197	172	175
		- ware	350	242	252	215	260	309	378	381	372	229	341	339	528	518	169	295	340	277	344	344	306	310
	- *positive lots*	- *seed*													***1***									
		- *ware*													***2***									
Italy	Number of Samples	- seed				189	77	68	176	262	170	291		361	154	39	54	10	27	29	40	25	27	30
		- ware			327		54	148	274	307	338	311		229	384	243	326	299	203	283	296	268	232	225
	- *positive lots*	- *seed*							***1***															
		- *ware*			***2***				***1***			***1***							***1***					
Latvia	Number of Samples	- seed									183	185	139	207	163	178	163	145	142	143	140	171	164	318
		- ware									140	752	508	596	1.410	979	759	711	804	772	713	636	592	567
Lithuania	Number of Samples	- seed									209	404	124	153	187	196	180	152	155	169	128	157	121	153
		- ware									613	304	989	1.705	1.439	1.210	623	850	883	951	773	847	774	1.145
Luxembourg	Number of Samples	- seed	111	253	254	133	208	62	399	439	227	225	178		79	190	303	244	150	113	178	222	122	189
		- ware		5	4		0	0	0	300	4	8	6		12		1						5	3
Malta	Number of Samples	- seed									0	0		0	0	0	0	0	0	0	0	0	0	0
		- ware									0	0	66	0	154	34	43	41	34	39	39	32	33	31
Netherlands	Number of Samples	- seed	45.406	58.920	67.151	55.008	64.403	64.430	59.352	57.245	58.484	61.199	42.819	28.843	21.813	22.069	22.890	20.809	22.477	19.230	17.642	18.643	19.640	23.292
		- ware	10.543	5.273	4.126	9.457	5.273	8.024	6.088	6.603	7.250	8.796	3.055	2.263	3.211	2.900	2.680	1.520	1.687	2.392	3.002	2.261	2.258	1.994
	- *positive lots*	- *seed*	***52***	***8***	***30***	***2***	***26***	***13***	***11***	***6***	***3***	***1***	***1***		***2***	***1***	***1***							***8***
		- *ware*	***40***	***7***	***32***	***138***	***73***	***15***	***11***	***11***	***4***			***4***			***1***	***1***	***4***					
Poland	Number of Samples	- seed									7.489	8.188	5.920	6.192	7.550	6.517	7.231	6.908	8.201	8.143	7.243	7.983	8.225	9.644
		- ware									11.520	15.152	14.922	13.548	12.538	10.385	9.542	8.543	8.601	9.081	7.549	9.961	16.085	20.814
	- *positive lots*	- *seed*																						
		- *ware*																				***3***	***2***	***2***
Portugal	Number of Samples	- seed		10	34	32	170	13	65	39	38	45	37	8	10	6	2	0	0	0	0	15	17	13
		- ware		686	286	413	257	142	233	162	135	94	100	133	102	132	166	141	113	88	95	121	196	142
	- *positive lots*	- *seed*																						
		- *ware*		***43***	***1***	***84***	***49***	***20***	***7***	***5***	***6***	***4***	***2***	***10***	***7***	***1***		***8***	***19***		***1***	***2***	***3***	***1***
Romania	Number of Samples	- seed												470	586	526	507	930	688	456	633	1.080	1.244	1.396
		- ware												790	1.020	1.621	1.358	1.432	1.569	1.415	1.726	1.602	1.228	1.248
	- *positive lots*	- *seed*																***2***	***2***	***1***				
		- *ware*																	***2***	***2***				
Slovakia	Number of Samples	- seed									350	884	545	266	417	369	251	245	228	217	297	229	238	173
		- ware									285	277	696	201	333	333	266	231	201	262	306	306	264	176
	- *positive lots*	- *seed*																						
		- *ware*									***9***	***4***	***8***	***4***	***9***	***4***	***5***	***3***						
Slovenia	Number of Samples	- seed									56	60	41	37	35	36	36	31	36	36	28	28	24	20
		- ware									82	92	95	102	81	69	63	72	61	91	91	69	61	60
	- *positive lots*	- *seed*																						
		- *ware*																***1***	***2***					
Spain	Number of Samples	- seed	1.009	979	773	647	609	457	423	723	632	1.374	1.179	1.102	1.909	1.765	1.765	1.896	1.760	1.138	1.064	1.002	935	807
		- ware	25	132	171	152	386	178	243	353	389	326	637	660	768	890	794	723	703	503	641	416	440	496
	- *positive lots*	- *seed*	***1***	***4***								***1***		***1***					***2***					
		- *ware*	***2***	***4***			***11***	***3***	***4***	***13***	***7***	***4***	***6***	***11***	***8***	***6***	***18***	***8***	***9***	***7***	***2***	***3***	***8***	***2***
Sweden	Number of Samples	- seed	81	395	38	81	70	249	300	308	195	168	175	260	218	226	228	312	350	14	41	263	395	300
		- ware		14	8	11	2	190	525	243	192	192	212	245	45	51	163	168	159	113	360	202	147	208
		- *seed*																						
		- *ware*															***2***							
United Kingdom	Number of Samples	- seed		191	448	171	398	1.653	1.282	1.246	928	1.883	1.832	1.983	1.982	1.957	1.873	1.841	1.882	1.687	1.720	1.704	1.828	1.861
		- ware	227	236	306	171	234	232	305	266	339	505	491	541	567	610	606	594	569	352	363	360	253	260
	- *positive lots*	- *seed*															***3***							
		- *ware*	***1***				***4***						***2***											
EU TOTAL	Number of Samples	- seed	57.790	72.434	97.210	74.542	88.053	88.900	82.593	80.030	94.844	104.529	78.915	64.624	58.861	57.595	60.599	60.988	60.555	56.227	55.448	56.483	61.016	63.574
		- ware	11.732	8.072	9.207	15.647	12.683	17.457	15.113	16.339	31.501	36.965	30.334	27.825	29.037	25.581	23.461	23.229	23.412	24.390	23.996	25.005	30.753	34.767
	- *positive lots*	- *seed*	***53***	***15***	***31***	***2***	***27***	***14***	***14***	***6***	***13***	***3***	***2***	***4***	***7***	***11***	***6***	***3***	***5***	***1***	***4***	***0***	***0***	***13***
		- *ware*	***42***	***57***	***37***	***237***	***152***	***79***	***47***	***52***	***45***	***18***	***43***	***35***	***40***	***19***	***35***	***28***	***44***	***11***	***14***	***19***	***24***	***12***

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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