NAME OF THE ORGANISM: Xanthomonas gardneri (Xanthomonas campestris pv. vesicatoria) (XANTGA)

GENERAL INFORMATION ON THE PEST

Name as submitted in the project specification (if different to the preferred name):

Xanthomonas campestris pv. vesicatoria
Pest category:

Bacteria **1- Identity of the pest/Level of taxonomic listing:**
Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?

Yes
Is the pest defined at the species level or lower?:

Yes
Can listing of the pest at a taxonomic level higher than species be supported by scientific reasons or can species be identified within the taxonomic rank which are the (main) pests of concern?

* Not relevant: Vegetable seed sector, Vegetable propagating and planting material (other than seeds) sector, Ornamental sector

Is it justified that the pest is listed at a taxonomic rank below species level?

Not relevant
Conclusion:

* Candidate: Vegetable seed sector, Vegetable propagating and planting material (other than seeds) sector, Ornamental sector

Justification (if necessary):

Xanthomonas campestris pv. vesicatoria is not a single taxonomic entity, and strains causing bacterial spot of tomato and pepper known with that name nowadays fall into four separate species: X. vesicatoria, X. euvesicatoria, X. perforans and X. gardneri.
Sweet pepper (Capsicum annuum) and tomato (Solanum lycopersicum) are the main host plants of strains belonging to the former X. campestris pv. vesicatoria.
Remark on Capsicum: Capsicum anomalum, C. baccatum, C. chacoense, C. chinensis, C. frutescens, C. galapagoense and one accession out of two of C. pubescens were found to be susceptible to X. campestris pv. vesicatoria race P6 after artificial inoculation (EFSA, 2014). As a consequence, listing of Capsicum at the genus level is justified. **2 – Status in the EU:**

Is this pest already a quarantine pest for the whole EU?

No
Presence in the EU:

Yes
List of countries (EPPO Global Database):

Bulgaria (2014)
Conclusion:

candidate
Justification (if necessary):

This pest is a candidate for the RNQP status according to the IIA2AWG. Data of the presence of this pest on the EU territory are available in EPPO Global Database (<https://gd.eppo.int/>).
EFSA concluded that X. gardneri has not been reported in the EU and no strain isolated in the EU has been described with features corresponding to those of X. gardneri in the literature and official collections of bacteria (EFSA, 2014). However, findings of X. gardneri have recently been described in Bulagria (Aleksandrova et al, 2014; Kizheva et al, 2013). According to these papers, X. gardneri was established on tomato for the first time in Bulgaria in 2010 on Bela variety in South region of Bulgaria. X. gardneri may thus have a very limited distribution in Europe. X. gardneri is also reported in North-America and Asia. X. gardneri causes the same symptoms on tomato and pepper as the other three species. It is therefore not desirable to have a different kind of regulation for this species, so this species is considered a candidate as well.

HOST PLANT N°1: Capsicum (1CPSG) for the Vegetable seed sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Seeds **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

No
Conclusion:

Evaluation continues **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

Plants for planting is a significant pathway: Long-distance spread of tomato and pepper Xanthomonas spp. is commonly related to the trade of infected seeds and transplants. Short-distance dispersal is ensured by splashing water (irrigation and rain) or contaminated tools: Splashing water is particularly threatening during transplant production, when several thousands of transplants are growing crowded together, and in the field, in the case of sprinkler irrigation (EFSA, 2014). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Because of the recent reclassification of the pest, economic impact evaluation is proposed for the 4 listed species. The organism is considered an important bacterial pathogen of tomato and pepper. No recent data are available as regards crop losses. However, losses of up to 30% have been reported (EU COM, 2014). In addition, the pathogen can negatively affect fruit quality.
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Candidate
Justification:

Note: genetic resistance against the four Xanthomonas species has been described in both pepper and tomato. **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

PFA, Pest free production place/site; testing and seed treatment **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP, based on data. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Seeds:
(a) The seeds originate in areas known to be free from Xanthomonas gardneri;
or
(b) No symptoms of disease caused by Xanthomonas gardneri have been observed in inspections at appropriate times during the complete cycle of vegetation of the plants at the site of production;
or
(c) The seeds have been subjected to official testing for Xanthomonas gardneri on a representative sample and using appropriate methods (whether or not following an appropriate treatment), and have been found, in these tests, free from Xanthomonas gardneri.
Justification (if necessary):

Experts indicated when the option of testing is applied to fulfil the requirements at import; the performed test should be an official test. **REFERENCES:**

* Aleksandrova K, Ganeva D, Bogatzevska N (2014) Xanthomonas gardneri – Characterization and resistance of Bulgarian tomato varieties. Turkish Journal of Agricultural and Natural Sciences 2, 1540-1545;
* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Xanthomonas campestris pv. vesicatoria (Doidge) Dye, EFSA Journal 2014; 12(6): 3720;
* EU COM (2014) Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of Xanthomonas campestris pv. vesicatoria;
* Kizheva YT, Vancheva T, Hristova P, Stoyanova M, Stojanovska M, Moncheva P, Bogatzevska N (2013) Identification of Xanthomonas strains from tomato and pepper and their sensitivity to antibiotics and copper. Bulgarian Journal of Agricultural Sciences 2, 80–82;

HOST PLANT N°2: Capsicum (1CPSG) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Plants intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

No
Conclusion:

Evaluation continues **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

Plants for planting is a significant pathway: Long-distance spread of tomato and pepper Xanthomonas spp. is commonly related to the trade of infected seeds and transplants. Short-distance dispersal is ensured by splashing water (irrigation and rain) or contaminated tools: Splashing water is particularly threatening during transplant production, when several thousands of transplants are growing crowded together, and in the field, in the case of sprinkler irrigation (EFSA, 2014). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Because of the recent reclassification of the pest, economic impact evaluation is proposed for the 4 listed species. The organism is considered an important bacterial pathogen of tomato and pepper. No recent data are available as regards crop losses. However, losses of up to 30% have been reported (EU COM, 2014). In addition, the pathogen can negatively affect fruit quality.
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Candidate
Justification:

Note: genetic resistance against the four Xanthomonas species has been described in both pepper and tomato. **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

PFA, Pest free production place/site; testing and seed treatment **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP, based on data. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Plants:
(a) Seedlings have been grown from seeds that meet the requirements laid down (pest free area, field inspection, testing);
and
(b) Young plants have been maintained in appropriate hygiene conditions to prevent infection. **REFERENCES:**

* Aleksandrova K, Ganeva D, Bogatzevska N (2014) Xanthomonas gardneri – Characterization and resistance of Bulgarian tomato varieties. Turkish Journal of Agricultural and Natural Sciences 2, 1540-1545;
* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Xanthomonas campestris pv. vesicatoria (Doidge) Dye, EFSA Journal 2014; 12(6): 3720;
* EU COM (2014) Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of Xanthomonas campestris pv. vesicatoria;
* Kizheva YT, Vancheva T, Hristova P, Stoyanova M, Stojanovska M, Moncheva P, Bogatzevska N (2013) Identification of Xanthomonas strains from tomato and pepper and their sensitivity to antibiotics and copper. Bulgarian Journal of Agricultural Sciences 2, 80–82;

HOST PLANT N°3: Capsicum (1CPSG) for the Ornamental sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Plants intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

No
Conclusion:

Evaluation continues **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

Plants for planting is a significant pathway: Long-distance spread of tomato and pepper Xanthomonas spp. is commonly related to the trade of infected seeds and transplants. Short-distance dispersal is ensured by splashing water (irrigation and rain) or contaminated tools: Splashing water is particularly threatening during transplant production, when several thousands of transplants are growing crowded together, and in the field, in the case of sprinkler irrigation (EFSA, 2014). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Because of the recent reclassification of the pest, economic impact evaluation is proposed for the 4 listed species. The organism is considered an important bacterial pathogen of tomato and pepper. No recent data are available as regards crop losses. However, losses of up to 30% have been reported (EU COM, 2014).
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Candidate
Justification:

 **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

PFA, Pest free production place/site; testing and seed treatment **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP, based on data. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Seeds:
(a) The seeds originate in areas known to be free from Xanthomonas gardneri;
or
(b) No symptoms of disease caused by Xanthomonas gardneri have been observed in inspections at appropriate times during the complete cycle of vegetation of the plants at the site of production;
or
(c) The seeds have been subjected to official testing for Xanthomonas gardneri on a representative sample and using appropriate methods (whether or not following an appropriate treatment), and have been found, in these tests, free from Xanthomonas gardneri.

Plants:
(a) Seedlings have been grown from seeds that meet the requirements laid down (pest free area, field inspection, testing);
and
(b) Young plants have been maintained in appropriate hygiene conditions to prevent infection.]
Justification (if necessary):

Risk management measures are extrapolated from the 'vegetable species' sector. **REFERENCES:**

* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Xanthomonas campestris pv. vesicatoria (Doidge) Dye, EFSA Journal 2014; 12(6): 3720;
* EU COM (2014) Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of Xanthomonas campestris pv. vesicatoria;

HOST PLANT N°4: Solanum lycopersicum (LYPES) for the Vegetable seed sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Seeds **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

No
Conclusion:

Evaluation continues **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

Plants for planting is a significant pathway: Long-distance spread of tomato and pepper Xanthomonas spp. is commonly related to the trade of infected seeds and transplants. Short-distance dispersal is ensured by splashing water (irrigation and rain) or contaminated tools: Splashing water is particularly threatening during transplant production, when several thousands of transplants are growing crowded together, and in the field, in the case of sprinkler irrigation (EFSA, 2014). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Because of the recent reclassification of the pest, economic impact evaluation is proposed for the 4 listed species. The organism is considered an important bacterial pathogen of tomato and pepper. No recent data are available as regards crop losses. However, losses of up to 30% have been reported (EU COM, 2014). In addition, the pathogen can negatively affect fruit quality.
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Candidate
Justification:

Note: genetic resistance against the four Xanthomonas species has been described in both pepper and tomato. **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

PFA, Pest free production place/site; testing and seed treatment **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP, based on data. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

No
Proposed Risk management measure:

Seeds:
(A) The seeds have been obtained by means of an appropriate acid extraction method or an equivalent method;
AND
(B) (a) The seeds originate in areas known to be free from Xanthomonas gardneri;
or
(b) No symptoms of disease caused by Xanthomonas gardneri have been observed in inspections at appropriate times during the complete cycle of vegetation of the plants at the site of production;
or
(c) The seeds have been subjected to official testing for Xanthomonas gardneri on a representative sample and using appropriate methods (whether or not following an appropriate treatment), and have been found, in these tests, free from Xanthomonas gardneri.
Justification (if necessary):

Experts indicated when the option of testing is applied to fulfil the requirements at import; the performed test should be an official test. **REFERENCES:**

* Aleksandrova K, Ganeva D, Bogatzevska N (2014) Xanthomonas gardneri – Characterization and resistance of Bulgarian tomato varieties. Turkish Journal of Agricultural and Natural Sciences 2, 1540-1545;
* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Xanthomonas campestris pv. vesicatoria (Doidge) Dye, EFSA Journal 2014; 12(6): 3720;
* EU COM (2014) Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of Xanthomonas campestris pv. vesicatoria;
* Kizheva YT, Vancheva T, Hristova P, Stoyanova M, Stojanovska M, Moncheva P, Bogatzevska N (2013) Identification of Xanthomonas strains from tomato and pepper and their sensitivity to antibiotics and copper. Bulgarian Journal of Agricultural Sciences 2, 80–82;

HOST PLANT N°5: Solanum lycopersicum (LYPES) for the Vegetable propagating and planting material (other than seeds) sector.

Origin of the listing:

IIA2AWG
Plants for planting:

Plants intended for planting **3 - Is the pest already listed in a PM4 standard on the concerned host plant?**

No
Conclusion:

Evaluation continues **4 - Are the listed plants for planting the main\* pathway for the "pest/host/intended use" combination? (\*: significant compared to others):**

Yes
Conclusion:

Candidate

Justification:

Plants for planting is a significant pathway: Long-distance spread of tomato and pepper Xanthomonas spp. is commonly related to the trade of infected seeds and transplants. Short-distance dispersal is ensured by splashing water (irrigation and rain) or contaminated tools: Splashing water is particularly threatening during transplant production, when several thousands of transplants are growing crowded together, and in the field, in the case of sprinkler irrigation (EFSA, 2014). **5 - Economic impact:**
Are there documented reports of any economic impact on the host?

Yes
Justification:

Because of the recent reclassification of the pest, economic impact evaluation is proposed for the 4 listed species. The organism is considered an important bacterial pathogen of tomato and pepper. No recent data are available as regards crop losses. However, losses of up to 30% have been reported (EU COM, 2014). In addition, the pathogen can negatively affect fruit quality.
What is the likely economic impact of the pest irrespective of its infestation source in the absence of phytosanitary measures? (= official measures)

Medium
Is the economic impact due to the presence of the pest on the named host plant for planting, acceptable to the propagation and end user sectors concerned?

No
Conclusion:

Candidate
Justification:

Note: genetic resistance against the four Xanthomonas species has been described in both pepper and tomato. **6 - Are there feasible and effective measures available to prevent the presence of the pest on the plants for planting at an incidence above a certain threshold (including zero) to avoid an unacceptable economic impact as regards the relevant host plants?**

Yes

Conclusion:

candidate
Justification:

PFA, Pest free production place/site; testing and seed treatment **7- Is the quality of the data sufficient to recommend the pest to be listed as a RNQP?**

Yes

Conclusion:

Candidate
Justification:

 **CONCLUSION ON THE STATUS:**

Recommended for listing as an RNQP, based on data. **8 - Tolerance level:**
Is there a need to change the Tolerance level:

No
Proposed Tolerance levels:

Zero tolerance based on the following risk management measures. **9 - Risk management measures:**
Is there a need to change the Risk management measure:

Yes
Proposed Risk management measure:

Plants:
(a) Seedlings have been grown from seeds that meet the requirements laid down (pest free area, field inspection, testing);
and
(b) Young plants have been maintained in appropriate hygiene conditions to prevent infection. **REFERENCES:**

* Aleksandrova K, Ganeva D, Bogatzevska N (2014) Xanthomonas gardneri – Characterization and resistance of Bulgarian tomato varieties. Turkish Journal of Agricultural and Natural Sciences 2, 1540-1545;
* EFSA Panel on Plant Health (PLH) (2014) Scientific Opinion on the pest categorisation of Xanthomonas campestris pv. vesicatoria (Doidge) Dye, EFSA Journal 2014; 12(6): 3720;
* EU COM (2014) Recommendation of the Working Group on the Annexes of the Council Directive 2000/29/EC – Section II – Listing of Harmful Organisms as regards the future listing of Xanthomonas campestris pv. vesicatoria;
* Kizheva YT, Vancheva T, Hristova P, Stoyanova M, Stojanovska M, Moncheva P, Bogatzevska N (2013) Identification of Xanthomonas strains from tomato and pepper and their sensitivity to antibiotics and copper. Bulgarian Journal of Agricultural Sciences 2, 80–82;