Supplementary Material C. Climate suitability of the Mediterranean Basin for citrus black spot disease (*Phyllosticta citricarpa*) based on a generic infection model. Figures of configuration scenario S1 for ascospores by country

Anaïs Galvañ¹, Naima Boughalleb-M’Hamdi², Najwa Benfradj², Sabrine Mannai², Elena Lázaro¹,+, and Antonio Vicent¹,+,*

¹Institut Valencià d’Investigacions Agràries (IVIA), Centre de Protecció Vegetal i Biotecnologia, 46113 Moncada, Valencia, Spain
²Department of Biological Sciences and Plant Protection, Institut Supérieur Agronomique de Chott Mariem, LR21AGR05, University of Sousse, Chott Mariem, Sousse, 4042, Tunisia
*vicent.antciv@gva.es
+These authors contributed equally to this work

Supplementary Figures SC1 to SC18
Figure SC1. Monthly percentage of hours (= 0 white, |0 – 0.5| blue, |0.5 – 1| green, |1 – 5| yellow, |5 – 10| orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Algeria from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, [https://www.R-project.org](https://www.R-project.org).
Figure SC2. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al., configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Croatia from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC3. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.¹, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Cyprus from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0. https://www.R-project.org
Figure SC4. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Egypt from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0. [https://www.R-project.org](https://www.R-project.org)
Figure SC5. Monthly percentage of hours (= 0 white, |0 – 0.5] blue, |0.5 – 1] green, |1 – 5] yellow, |5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al., configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in France from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC6. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.¹, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Greece from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0. 
https://www.R-project.org
Figure SC7. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al., configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Portugal and Spain from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC8. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Israel from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC9. Monthly percentage of hours (= 0 white, [0 − 0.5] blue, [0.5 − 1] green, [1 − 5] yellow, [5 − 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\textsuperscript{1}, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Italy from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, \url{https://www.R-project.org}
Figure SC10. Monthly percentage of hours (0 = white, 0−0.5 blue, 0.5−1 green, 1−5 yellow, 5−10 orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Jordan from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0,
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Figure SC11. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Lebanon from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0.

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Figure SC12. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al., configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Libya from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC13. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phylllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.¹, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Malta from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, [https://www.R-project.org](https://www.R-project.org).
Figure SC14. Monthly percentage of hours (≥ 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al., configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Montenegro from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0, https://www.R-project.org
Figure SC15. Monthly percentage of hours (0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phylllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Morocco from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0. 
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Figure SC16. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.\(^1\), configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Syria from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software \(\text{R} \ 3.6.0\), https://www.R-project.org.
Figure SC17. Monthly percentage of hours (0 white, 0–0.5 blue, 0.5–1 green, 1–5 yellow, 5–10 orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.¹, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Tunisia from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0.

https://www.R-project.org
Figure SC18. Monthly percentage of hours (= 0 white, [0 – 0.5] blue, [0.5 – 1] green, [1 – 5] yellow, [5 – 10] orange, > 10 red) with suitable weather conditions for *Phyllosticta citricarpa* ascospore infection (generic infection model for foliar fungal pathogens by Magarey et al.1, configuration scenario S1) for the 9-km grid interpolated climatic data of the citrus-growing regions in Turkey from 2009 to 2018. Non citrus areas inside citrus-growing countries in dark-grey. The maps were created by the authors using the software R 3.6.0. 

https://www.R-project.org
References

1. Magarey, R., Sutton, T. & Thayer, C. A simple generic infection model for foliar fungal plant pathogens. *Phytopathology* **95**, 92–100 (2005).