

ΓΕΝΙΚΑ ΘΕΜΑΤΑ

Επίδραση της φωτιάς στην ποιότητα του εδάφους της αγροτικής γης

Τρόποι διαχείρισης στα Μεσογειακά Άγρο - Οικοσυστήματα

Βιβλιογραφία

- Alcapiz M, Outeiro L, Francos M, Ibáñeta X (2018) Effects of prescribed fires on soil properties: a review. *Sci Total Environ* 613:944–957
- Alcapiz, M., Outeiro, L., Francos, M., Farguell, J., and Ibáñeta, X. 2016. Long-term dynamics of soil chemical properties after a prescribed fire in a Mediterranean forest (Montgru Massif, Catalonia, Spain). *Science of the Total Environment* 572:1329- 1335. doi:10.1016/j.scitotenv.2016.01.115.
- Araya, S. N., Meding, M., and Berhe, A. A. 2016 : Thermal alteration of soil physico-chemical properties: a systematic study to infer response of Sierra Nevada climosequence soils to forest fires, *SOIL*, 2, 351–366, <https://doi.org/10.5194/soil-2-351-2016>, 2016.
- Bodv, M.B., Doerr, S.H., Cerdú, A., and Mataix-Solera, J. 2012. Hydrological effects of a layer of vegetation ash on underlying wettable and water-repellent soil. *Geoderma* 191:14-23. doi:10.1016/j.geoderma.2012.01.006.
- Caon, L., Vallejo, V.R., Ritsema, C.J., and Geissen, V. 2014. Effects of wildfire on soil nutrients in Mediterranean ecosystems. *Earth-Science Reviews* 139:47-58. doi:10.1016/j.earscirev.2014.09.001.
- Certini, G. 2005. Effects of fire on properties of forest soils: A review. *Oecologia* 143:1-10. <http://www.jstor.org/stable/20062214>.
- De la Rosa, J.M., Jimenez-Morillo, N.T., Gonzalez-Pirez, J.A., Almendros, G., Vieira, D., Knicker, H.E., et al. 2019. Mulching induced preservation of soil organic matter quality in a burnt eucalypt plantation in central Portugal. *Journal of Environmental Management* 231:1135-1144. doi:10.1016/j.jenvman.2018.10.114.
- Fernandez, C., Fontirbel, T., and Vega, J.A. 2019. Effects of pre-fire site preparation and post-fire erosion barriers on soil erosion after a wildfire in NW Spain. *Catena* 172:691-698. doi:10.1016/j.catena.2018.09.038.
- Fernandez, C., Vega, J.A., Jiminez, E., and Fontirbel, T. 2011. Effectiveness of three post-fire treatments at reducing soil erosion in Galicia (NW Spain). *International Journal of Wildland Fire* 20:104-114. doi:10.1071/WF09010
- Fernandez-Fernandez, M., and Gonzalez-Prieto, S.J. 2020. Effects of two emergency stabilization treatments on main soil properties four years after application in a severely burnt area. *Journal of Environmental Management* 255:109828. doi:10.1016/j.jenvman.2019.109828.
- Fernandez-Garcva, V., Miesel, J., Baeza, M.J., Marcos, E., and Calvo, L. 2019b. Wildfire effects on soil properties in fire-prone pine ecosystems: Indicators of burn severity legacy over the medium term after fire. *Applied Soil Ecology* 135:147-156. doi:10.1016/j.apsoil.2018.12.002.
- Girona-Garcva, A., Badva-Villas, D., Martv-Dalmau, C., Ortiz-Perpiga, O., Mora, J.L., and Armas-Herrera, C.M. 2018. Effects of prescribed fire for pasture management on soil organic matter and biological properties: A 1-year study case in the Central Pyrenees. *Science of the Total Environment* 618:1079-1087. doi:10.1016/j.scitotenv.2017.09.127
- Gomez-Rey, M.X., and Gonzalez-Prieto, S.J. 2014. Short and medium-term effects of a wildfire and two emergency stabilization treatments on the availability of macronutrients and trace elements in topsoil. *Science of the Total Environment* 493:251-261. doi:10.1016/j.scitotenv.2014.05.119
- Gomez-Rey, M.X., Couto-Vazquez, A., Garcva-Marco, S., and Gonzalez-Prieto, S.J. 2013. Impact of fire and post-fire management techniques on soil chemical properties. *Geoderma* 195-196:155-164. doi:10.1016/j.geoderma.2012.12.005
- Granged, A.J.P., Zavala, L.M., Jordan, A., and Barcenos-Moreno, G. 2011. Post-fire evolution of soil properties and vegetation cover in a Mediterranean heathland after experimental burning: A 3-year study. *Geoderma* 164:85-94. doi:10.1016/j.geoderma.2011.05.017.
- Granged, A.J.P., Zavala, L.M., Jordan, A., and Barcenos-Moreno, G. 2011. Post-fire evolution of soil properties and vegetation cover in a Mediterranean heathland after experimental burning: A 3-year study. *Geoderma* 164:85-94. doi:10.1016/j.geoderma.2011.05.017
- Hart SC, DeLuca TH, Newman GS, MacKenzie MD, Boyle SI (2005) Post-fire vegetative dynamics as drivers of microbial community structure and function in forest soils. *For Ecol Manage* 220:166–184
- Hosseini, M., Geissen, V., Gonzalez-Pelayo, O., Serpa, D., and Machado, A.I. 2017. Effects of fire occurrence and recurrence on nitrogen and phosphorus losses by overland flow in maritime pine plantations in north-central Portugal. *Geoderma* 289:97-106. doi:10.1016/j.geoderma.2016.11.033
- Hubbert, K.P., Preisler, H.K., Wohlgemuth, P.M., Graham, R.C., and Narog, M.G. 2006. Prescribed burning effects on soil physical properties and soil water repellency in a steep chaparral watershed, southern California, USA. *Geoderma* 130:284-298.
- Hubbert, K.P., Preisler, H.K., Wohlgemuth, P.M., Graham, R.C., and Narog, M.G. 2006. Prescribed burning effects on soil physical properties and soil water repellency in a steep chaparral watershed, southern California, USA. *Geoderma* 130:284-298
- Jiminez-Gonzalez, M.A., De la Rosa, J.M., Jiminez-Morillo, N.T., Almendros-Martvn, G., Gonzalez-Pirez, J.A., and Knicker, H. 2016. Post fire recovery of soil organic matter in a Cambisol from typical Mediterranean forest in Southwestern Spain. *Science of the Total Environment* 572:1414-1421
- Jordan, A., Zavala, L.M., Mataix-Solera, J., and Doerr, S.H. 2013. Soil water repellency: Origin, assessment and geomorphological consequences. *Catena* 108:1-5. doi:10.1016/j.catena.2013.05.005
- Keeley J. E. 2009. Fire intensity, fire severity and burn severity: a brief review and suggested usage. *International Journal of Wildland Fire* 2009, 18, 116–126
- Knicker H., 2007. How does fire affect the nature and stability of soil organic nitrogen and carbon? A review. *Biogeochemistry* 85:91–118
- Knicker, H. 2007. How does fire affect the nature and stability of soil organic nitrogen and carbon? A review. *Biogeochemistry* 85, 91–118 (2007). <https://doi.org/10.1007/s10533-007-9104-4>
- Koutsias, N., Xanthopoulos, G.,

- Founda, D., Xystrakis, F., Nioti, F., Pleniou, M., Mallinis, G., Arianoutsou, M., 2013. On the relationships between forest fires and weather conditions in Greece from long-term national observations (1894–2010). *Int. J. Wildland Fire* 22, 493–507.
- Larsen, I.J., MacDonald, L.H., Brown, E., Rough, D., Welsh, M.J., Pietraszek, J.H., et al. 2009. Causes of post-fire runoff and erosion: water repellency, cover, or soil sealing? *Soil Science Society of America Journal* 73:1393-1407. doi:10.2136/sssaj2007.0432.
- Larsen, I.J., MacDonald, L.H., Brown, E., Rough, D., Welsh, M.J., Pietraszek, J.H., et al. 2009. Causes of post-fire runoff and erosion: water repellency, cover, or soil sealing? *Soil Science Society of America Journal* 73:1393-1407. doi:10.2136/sssaj2007.0432.
- Lucas-Borja, M.E., Gonzalez-Romero, J., Plaza-Alvarez, P.A., Sagra, J., Gomez, M.E., Moya, D., et al. 2019. The impact of straw mulching and salvage logging on post-fire runoff and soil erosion generation under Mediterranean climate conditions. *Science of the Total Environment* 654:441-451. doi:10.1016/j.scitotenv.2018.11.161.
- Lucas-Borja, M.E., Gonzalez-Romero, J., Plaza-Alvarez, P.A., Sagra, J., Gomez, M.E., Moya, D., et al. 2019. The impact of straw mulching and salvage logging on post-fire runoff and soil erosion generation under Mediterranean climate conditions. *Science of the Total Environment* 654:441-451. doi:10.1016/j.scitotenv.2018.11.161.
- Mataix-Solera, J., Cerda, A., Arcenegui, V., Jordan, A., and Zavala, L. M.: Fire effects on soil aggregation: a review, *Earth-Sci. Rev.*, 109, 44–60, doi : 10.1016/j.earscirev.2011.08.002, 2011
- Moreira, F., Viedma, O., Arianoutsou, M., Curt, T., Koutsias, N., Rigolot, E., Barbati, A., Corona, P., Vaz, P., Xanthopoulos, G., Mouillot, F., Bilgili, E., 2011. Landscape–wildfire interactions in southern Europe: implications for landscape management. *J. Environ. Manag.* 92, 2389–2402.
- P. Pereira, X. İbeda, D. Martin, J. Mataix-Solera, C. Guerrero. 2011. Effects of a low prescribed fire in ash water soluble elements in a Cork Oak (*Quercus suber*) forest located in Northeast of Iberian Peninsula *Environ. Res.*, 111, pp. 237-247
- Parsons A., P. R. Robichaud, S. A. Lewis, C. Napper, and J.T. Clark 2010. *Field Guide for Mapping Post-Fire Soil Burn Severity*. United States Department of Agriculture General Technical Report RMRS-GTR-243
- Plaza-Alvarez, P.A., Lucas-Borja, M.E., Sagra, J., Moya, D., Alfaro-Sanchez, R., Gonzalez-Romero, J., et al. 2018. Changes in soil water repellency after prescribed burnings in three different Mediterranean forest ecosystems. *Science of the Total Environment* 644:247-255. doi:10.1016/j.scitotenv.2018.06.364.
- Robichaud, P.R., Lewis, S.A., Wagenbrenner, J.W., Ashmun, L.E., and Brown, R.E. 2013. Post-fire mulching for runoff and erosion mitigation. Part I: effectiveness at reducing hillslope erosion rates. *Catena* 105:75-92. doi:10.1016/j.catena.2012.11.015
- Robichaud, P.R., Lewis, S.A., Wagenbrenner, J.W., Ashmun, L.E., and Brown, R.E. 2013. Post-fire mulching for runoff and erosion mitigation. Part I: effectiveness at reducing hillslope erosion rates. *Catena* 105:75-92. doi:10.1016/j.catena.2012.11.015.
- Santvn Cristina and Doerr Stefan H. 2016 Fire effects on soils: the human dimension. *Phil. Trans. R. Soc. B3712015017120150171* <http://doi.org/10.1098/rstb.2015.0171>
- Thomaz E.L., 2017. High fire temperature changes soil aggregate stability in slash-and-burn agricultural systems. *Sci. Agric.*, 74 , pp. 157-162, 10.1590/1678-992X-2015-0495
- İbeda, X., Lorca, M., Outeiro, L.R., Bernia, S., and Castellnou, M. 2005. Effects of prescribed fire on soil quality in Mediterranean grassland (Prades Mountains, north-east Spain). *International Journal of Wildland Fire* 14:379-384. doi:10.1071/WF05040.
- Varela, M.E., Benito, E., and Keizer, J.J. 2015. Influence of wildfire severity on soil physical degradation in two pine forest stands of NW Spain. *Catena* 133:342-348. doi:10.1016/j.catena.2015.06.004.
- Vega, J.A., Fernandez, C., Fonturbel, T., Gonzales-Prieto, S., and Jimenez, E. 2014. Testing the effects of straw mulching and herb seeding on soil erosion after fire in a gorse shrubland. *Geoderma* 223-225:79-87. doi:10.1016/j.geoderma.2014.01.014.
- Vieira, D.C.S., Malvar, M.C., Martins, M.A.S., Serpa, D., and Keizer, J.J. 2018. Key factors controlling the post-fire hydrological and erosive response at micro-plot scale in a recently burned Mediterranean forest. *Geomorphology* 319:161-173. doi:10.1016/j.geomorph.2018.07.014
- Wagenbrenner, J.W., MacDonald, L.H., and Rough, D. 2006. Effectiveness of three post-fire rehabilitation treatments in the Colorado Front Range. *Hydrological Processes* 20:2989-3006
- Weninger, T., Filipovi, V., Me i, M., Clothier, B., and Filipovi, L. 2019. Estimating the extent of fire induced soil water repellency in Mediterranean environment. *Geoderma* 338:187-196. doi:10.1016/j.geoderma.2018.12.008
- Wittenberg, L., van der Wal, H., Keesstra, S., and Tessler, N. 2020. Post-fire management treatment effects on soil properties and burned are restoration in a wildland-urban interface, Haifa fire case study. *Science of the Total Environment* 716:135190. doi:10.1016/j.scitotenv.2019.135190.
- Wittenberg, L., van der Wal, H., Keesstra, S., and Tessler, N. 2020. Post-fire management treatment effects on soil properties and burned are restoration in a wildland-urban interface, Haifa fire case study. *Science of the Total Environment* 716:135190. doi:10.1016/j.scitotenv.2019.135190

Βιολογικές καλλιέργειες με υπολείμματα μπλε οργανισμών. Βιοδιεγερτικές ουσίες φυκιών και ψαριών

Βιοδιεγερτικές ουσίες φυκιών και ψαριών

Βιβλιογραφία

- Ahuja, I.; Løes, A.-K. Effect of fish bones and algae fibre as fertilisers for ryegrass, Norwegian Centre for Organic Agriculture (NORSØK): Tingvoll, Norway 2019; Report, no. 7, Vol 4. <https://orgprints.org/id/eprint/36439/>
- EU 2019. Regulation (EU) 2019/1009 of the European Parliament and of the Council of 5 June 2019 laying down rules on the making available on the market of EU fertilising products and amending Regulations (EC) No 1069/2009 and (EC) No 1107/2009 and repealing Regulation (EC) No 2003/2003. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R1009> accessed June 13, 20232
- Hrólfsdóttir, A.P.; Arason, S.;



- Sveinsdóttir, H.I.; Gudjónsdóttir, M. Added value of *Ascomyllum nodosum* side stream utilization during seaweed meal processing. *Mar. Drugs* 2022, 20, 340. <https://doi.org/10.3390>
- Kim, H.-S.; Je, J.-G.; An, H.; Baek, K.; Lee, J.M.; Yim, M.-J.; Ko, S.-C.; Kim, J.-Y.; Oh, G.-W.; Kang, M.-C.; Ham, Y.M.; Jeon, Y.-J.; Lee, D.-S. Isolation and characterization of efficient active compounds using high-performance centrifugal partition chromatography (CPC) from anti-inflammatory activity fraction of *Ecklonia maxima* in South Africa. *Mar. Drugs* 2022, 20, 471. <https://doi.org/10.3390/md20080471>
 - Illera-Vives, M.; Labandeira, S.S.; Brito, L.M.; Lopez-Fabal, A.; Lopez-Mosquera, M.E. Evaluation of compost from seaweed and fish waste as a fertilizer for horticultural use. *Sci. Hortic.* 2015, 186, 101–107. <http://dx.doi.org/10.1016/j.scienta.2015.02.008>
 - Ahuja, I.; Dauksas, E.; Remme, J.F.; Richardsen, R.; Lopes, A.-K. Fish and fish waste-based fertilizers in organic farming – With status in Norway: A review. *Waste Manage.* 2020, 115, 95–112. doi:10.1016/j.wasman.2020.07.025
 - Lopez-Mosquera, M.E.; Fernandez-Lema, E.; Villares, R.; Corral, R.; Alonso, B.; Blanco, C. Composting fish waste and seaweed to produce a fertilizer for use in organic agriculture. *Proc. Environ. Sci.* 2011, 9, 113–117. <https://doi.org/10.1016/j.proenv.2011.11.018>
 - Løes, A.-K.; Ahuja, I.; de Boer A.; Rittl, T. Fertilisation effects of marine-derived residual materials on agricultural crops, Norwegian Centre for Organic Agriculture (NORSØK): Tingvoll, Norway 2022a; Report, no. 13, Vol 7. <https://orgprints.org/id/eprint/45330/>
 - Løes, A.-K.; Grønmyr, F.; Pommeresche, R.; Rittl, T. Algae fibre for soil improvement (FIMO), Norwegian Centre for Organic Agriculture (NORSØK): Tingvoll, Norway 2022b; Report, no. 8, vol 7. <https://orgprints.org/id/eprint/44040/>
 - Løes, A.-K. Benefits and challenges of marine-derived fertilisers, Norwegian Centre for Organic Agriculture (NORSØK): Tingvoll, Norway; RELACS Webinar series March 2021–April 2021; <https://orgprints.org/id/eprint/44770/>

ΔΕΝΔΡΟΚΟΜΙΑ

Μεταχρωματικό έλκος της συκιάς

Μια νέα θανατηφόρος ασθένεια

Βιβλιογραφία

- Condit IJ. (1955) ‘Fig Varieties: A Monograph’, *Hilgardia*, 23, pp. 323–538. doi: 10.3733/hilg.v23n11p323.
- Falistocco E. (2020) ‘The Millenary History of the Fig Tree (*Ficus carica* L.)’, *Advances in Agriculture, Horticulture and Entomology*, 2020(05). doi: 10.37722/AAHAE.202051.
- Habib W, Carlucci M, Manco L, Altamura G, Delle Donne AG, Nigro F. First report of *Ceratocystis ficicola* causing wilt disease on common fig (*Ficus carica*) in Italy. *Plant Dis.* 2023 Jul 5. doi: 10.1094/PDIS-03-23-0464-PDN. Epub ahead of print. PMID: 37408125. <https://apsjournals.apsnet.org/doi/abs/10.1094/PDIS-03-23-0464-PDN>
- Kajitani Y and Masuya H. (2011) ‘*Ceratocystis ficicola* sp. nov., a causal fungus of fig canker in Japan’, *Mycoscience*, 52(5), pp. 349–353. doi: 10.1007/S10267-011-0116-5. <https://www.sciencedirect.com/science/article/abs/pii/S1340354011700882>
- Tsopelas P et al. (2021) ‘*Ceratocystis ficicola* causing a serious disease of *Ficus carica* in Greece’, *Phytopathologia Mediterranea*, 60(2), pp. 337–349. doi: 10.36253/PHYTO-12794. <https://oajournals.fupress.net/index.php/pm/article/view/12794>
- Ηλεκτρονικές διευθύνσεις:
- Ελληνική Στατιστική Εταιρεία (2021). Διαθέσιμο στον ιστότοπο: <https://www.statistics.gr/el/statistics/-/publication/SPG06/>
- CABI, Datiles, M. J. (2015). *Ficus carica* (common fig). Διαθέσιμο στον ιστότοπο: <https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.24078>

Ωοπαραιοειδή της καφέ ασιατικής βρωμούσας

Πρώτη εμφάνιση ωοπαραιοειδών του *Halyomorpha halys*

στην Ελλάδα

Βιβλιογραφία

- Andreadis, S., Navrozidis, E.,

Farmakis, A., & Pisalidis, A. (2018). First evidence of *Halyomorpha halys* (hemiptera: Pentatomidae) infesting kiwifruit (*Actinidia chinensis*) in Greece. *Journal of Entomological Science*, 53(3), 402–405.

- Andreadis, S., Gogolashvili, N., Fifi, G., Navrozidis, E., Thomidis, Th., (2021). First Report of Native Parasitoids of *Halyomorpha halys* (Hemiptera: Pentatomidae) in Greece. *Insects*, 12 (11).
- Milonas, P.G.; Partsinevelos, G.K. First report of brown marmorated stink bug *Halyomorpha halys* (Hemiptera: Pentatomidae) in Greece. *EPPO Bull.* 2014, 44, 183–186.
- Stahl, J.M.; Babendreier, D.; Haye, T. Life history of *Anastatus bifasciatus*, a potential biological control agent of the brown marmorated stink bug in Europe. *Biol. Control.* 2019, 129, 178–186.
- Talamas, E., Herlihy, M., Dieckhoff, C., Hoelmer, K., Buffington, M., Bon, M., Weber, D., (2015). *Trissolcus japonicus* (Ashmead) (Hymenoptera, Scelionidae) emerges in North America. *Journal of Hymenoptera Research*, 43, 119–128
- Tortorici F, Talamas EJ, Moraglio ST, Pansa MG, Asadi-Farfar M, Tavella L, Caleca V (2019) A morphological, biological and molecular approach reveals four cryptic species of *Trissolcus* Ashmead (Hymenoptera, Scelionidae), egg parasitoids of Pentatomidae (Hemiptera). In: Talamas E (Eds) *Advances in the Systematics of Platygastridae II*. *Journal of Hymenoptera Research* 73: 153–200. <https://doi.org/10.3897/jhr.73.39052>

Ψευδόκοκκοι στις καλλιέργειες ροδακινιάς και λωτού

Μια επανεμφανιζόμενη σοβαρή απειλή- Βιολογία και αντιμετώπιση

Βιβλιογραφία

- ABBASPOUR, H. & TAGHAVI, A. 2007. Description and seasonal abundance of the tea mealybug, *Pseudococcus viburni* (affinis) (Signoret) (Homoptera: Pseudococcidae) found on tea in Iran. *Journal of Entomology* 4: 474–478.
- ABD-RABOU, S., SHALABY, H., GERMAIN, J.F., RIS, N., KREITER, P. & MALAUSA, T. 2012. Identification of mealybug pest species (Hemiptera: Pseudococcidae) in Egypt and France, using a DNA barcoding approach. *Bulletin of Entomological Research* 102: 515–523. <https://doi.org/10.1017/S0007485312000041>

- BEN-DOV, Y. & MATILE-FERRERO, D. 1995. The identity of the mealybug taxa described by VA Signoret (Homoptera, Coccoidea, Pseudococcidae). *Bulletin de la Societe Entomologique de France* 100: 241–256.
- CHARLES, J.G. 2011. Using parasitoids to infer a native range for the obscure mealybug, *Pseudococcus viburni*, in South America. *Biological Control* 56: 155–161. <https://doi.org/10.1007/s10526-010-9322-x>
- CHASE, A.R., OSBORNE, L.S. & FERGUSON, V.M. 1986. Selective isolation of the entomopathogenic fungi *Beauveria bassiana* and *Metarhizium anisopliae* from an artificial potting medium. *Florida Entomologist* 69: 285–292.
- DA SILVA, V.C.P., KAYDAN, M.B., MALAUSA, T., GERMAIN, J.F., PALERO, F. & BOTTON, M. 2017a. Integrative taxonomy methods reveal high mealybug (Hemiptera: Pseudococcidae) diversity in southern Brazilian fruit crops. *Scientific Reports* 7: 15741. <https://doi.org/10.1038/s41598-017-15983-5>
- DA SILVA, V.C.P., NONDILLO, A., GALZER, E.C.W., GARCIA, M.S. & BOTTON, M. 2017b. Effect of host plants on the development, survivorship, and reproduction of *Pseudococcus viburni* (Hemiptera: Pseudococcidae). *Florida Entomologist* 100: 718–724.
- DA SILVA, V.P., GARCIA, M. & BOTTON, M. 2017c. Biology of *Blepyrus clavicornis* (Compere) (Hymenoptera: Encyrtidae), a parasitoid of *Pseudococcus viburni* (Signoret) (Hemiptera: Pseudococcidae). *Revista Brasileira de Entomologia* 61: 257–261. <http://dx.doi.org/10.1016/j.rbe.2017.05.003>
- DAANE, K.M., ALMEIDA, R.P., BELL, V.A., WALKER, J.T., BOTTON, M., FALLAHZADEH, M. & ZAVIEZO, T. 2012. Biology and management of mealybugs in vineyards. In: *Arthropod Management in Vineyards*. 271–307. Springer, Dordrecht, Netherlands.
- DAANE, K.M., SIME, K.R., FALLON, J. & COOPER, M.L. 2007. Impacts of Argentine ants on mealybugs and their natural enemies in California's coastal vineyards. *Ecological Entomology* 32: 583–596. <https://doi.org/10.1111/j.1365-2311.2007.00910.x>
- DAPOTO, G.L., OLAVE, A., BONDONI, M. & GIGANTI, H. 2010. Obscure mealybug (*Pseudococcus viburni*) in pear trees in the Alto Valle of Rio Negro and Neuquen, Argentina. In: *XI International Pear Symposium* 909: 497–504. <https://doi.org/10.17660/ActaHortic.2011.909.58>
- DLAMINI, B.E., MALAN, A.P. & ADDISON, P. 2019a. Control of the banded fruit weevil, *Phlyctinus scallous* (Schönherr) (Coleoptera: Curculionidae) using entomopathogenic nematodes. *Austral Entomology* 58: 687–695. DOI: 10.1111/aen.12386
- DLAMINI, B.E., MALAN, A.P. & ADDISON, P. 2019b. A review of the biology and control of *Phlyctinus scallous* (Schönherr) (Coleoptera: Curculionidae), with special reference to biological control using entomopathogenic nematodes and fungi. *African Entomology* 27: 265–278. <https://doi.org/10.4001/003.027.0265>
- DOWNIE, D.A. & GULLAN, P.J. 2004. Phylogenetic analysis of mealybugs (Hemiptera: Coccoidea: Pseudococcidae) based on DNA sequences from three nuclear genes, and a review of the higher classification. *Systematic Entomology* 29: 238–260. <https://doi-org.ez.sun.ac.za/10.1111/j.0307-6970.2004.00241.x>
- FERNANDES, I.K., KEYSER, C.A., RANGEL, D.E., FOSTER, R.N. & ROBERTS, D.W. 2010. CTC medium: a novel dodine-free selective medium for isolating entomopathogenic fungi, especially *Metarhizium acridum*, from soil. *Biological Control* 54: 197–205.
- FRANCO, J.C., SUMA, P., DA SILVA, E.B., BLUMBERG, D. & MENDEL, Z. 2004. Management strategies of mealybug pests of citrus in Mediterranean countries. *Phytoparasitica* 32: 507. <https://doi.org/10.1007/BF02980445>
- FRANCO, J.C., ZADA, A. & MENDEL, Z. 2009. Novel approaches for the management of mealybug pests: application and resistance management. In: Ishaaya, I., Horowitz, A.R. (Eds) *Biorational Control of Arthropod Pests*. 233–278. Springer, Dordrecht, Netherlands.
- FRANCO, J.C. 1992. Citrus phenology as a basis to study the population dynamics of the citrus mealybug complex in Portugal. In *Proceedings of the 7th International Citrus Congress*, Acireale, Italy, 8–13 March 1992; International Society of Citriculture: Acireale, Italy, 1992; Volume 3, pp. 929–930. 13.
- GAUGLER, R., WANG, Y. & CAMPBELL, J.F. 1994. Aggressive and evasive behaviours in *Popillia japonica* (Coleoptera: Scarabaeidae) larvae: defence against entomopathogenic nematode attack. *Journal of Invertebrate Pathology* 64: 193–199.
- GEIGER, C.A.; DAANE, K.M. Seasonal movement and distribution of the grape mealybug (Homoptera: Pseudococcidae): Developing a sampling program for San Joaquin Valley vineyards. *J. Econ. Entomol.* 2001, 94, 291–301.
- GIMPEL, W.F. & MILLER, D.R. 1996. Systematic analysis of the mealybugs in the *Pseudococcus maritimus* complex (Homoptera: Pseudococcidae). *Contributions on Entomology International* 2: 1–163.
- GROSS, S., DREISHPOUN, Y., BLACHINSKI, D., SHMUELI, S., STEINBERG, S. & MENDEL, Z. 1999. Cork scars on fruits of the citrus variety 'Sweetie' as related to infestation by the citrus mealybug. *Alon Hanotea* 53: 463–468.
- GULLAN, P.J. & KOSZTARAB, M. 1997. Adaptations in scale insects. *Annual Review of Entomology* 42: 23–50.
- GULLAN, P.J. 2000. Identification of the immature instars of mealybugs (Hemiptera: Pseudococcidae) found on citrus in Australia. *Australian Journal of Entomology* 39: 160–166.
- HARDY, N.B., GULLAN, P.J. & HODGSON, C.J. 2008. A subfamily-level classification of mealybugs (Hemiptera: Pseudococcidae) based on integrated molecular and morphological data. *Systematic Entomology* 33: 51–71. <https://doi.org/10.1111/j.1365-3113.2007.00408.x>
- HEFETZ, A. & TAUBER, O. 1990. Male response to the synthetic sex pheromone of *Planococcus citri* (Risso) (Homoptera: Pseudococcidae) and its application for population monitoring. *Journal of Applied Entomology* 109: 502–506.
- HEIDARI, M. & COPLAND, M.J.W. 1993. Honeydew: a food resource or arrestant for the mealybug predator *Cryptolaemus montrouzieri*? *Entomophaga* 38: 63–68.
- HEIDARI, M. 2016. Influence of host-plant physical defences on the searching behaviour and efficacy of two coccinellid predators of the obscure mealybug, *Pseudococcus viburni* (Signoret). *Entomologica* 33: 397–402. <https://doi.org/10.15162/0425-1016/864>
- HOMINICK, W.M. 2002. Biogeography. In: Gaugler, R. (Ed.) *Entomopathogenic Nematology*. 115–144. CABI, Wallingford, U.K.
- KHAN, S., GUO, L., MAIMAITI, Y., MIJIT, M. & QIU, D. 2012. Entomopathogenic fungi as microbial biocontrol agents. *Molecular Plant*

- Breeding 3: 63–79.
- LEMAWORK, S., AZEREFEGNE, F., ALEMU, T., ADDIS, T. & BLOMME, G. 2011. Evaluation of entomopathogenic fungi against *Cataenococcus senescentis* [Williams and Matile-Ferrero, (Homoptera: Pseudococcidae)] on onset. *Crop Protection* 30: 401–404. DOI: 10.1016/j.cropro.2010.12.18
 - LONGO, S. Risultati del controllo biologico di *Planococcus citri* (Risso) in agrumeti della Sicilia orientale. In *Agrumicoltura, Il Recente Contributo Della Ricerca allo Sviluppo Dell'Agrumicoltura Italiana* Carlo Delfino: Cagliari, Italy, 1986; pp. 585–595.
 - MATHULVE, LETODI & MALAN, ANTOINETTE. (2021). A Review of the Biology and Control of the Obscure Mealybug, *Pseudococcus viburni* (Hemiptera: Pseudococcidae), with Special Reference to Biological Control Using Entomopathogenic Fungi and Nematodes. *African Entomology*. 29. 10.4001/003.029.0001.
 - MATHULWE LETODI LUKI, MALAN PAULA ANTOINETTE & STOKWE FAITH NOMAKHOLWA (2023): Combined effect of entomopathogenic nematode, *Heterorhabditis indica* with entomopathogenic fungi, *Metarhizium pinghaense* and *M. robertsii* against the obscure mealybug, *Pseudococcus viburni*, *International Journal of Pest Management*, DOI: 10.1080/09670874.2023.2209043
 - MALAN, A.P. & HATTING, J.L. 2015. Entomopathogenic nematode exploitation: case studies in laboratory and field applications from South Africa. In: Campos-Herrera, R. (Ed.) *Nematode Pathogenesis of Insects and Other Pests: Ecology and Applied Technologies for Sustainable Plant and Crop Protection*. 477–508. Springer, Cham, Switzerland. https://doi.org/10.1007/978-3-319-18266-7_20
 - MCKENZIE, H.L. 1967. Mealybugs of California: with Taxonomy, Biology, and Control of North American Species (Homoptera, Coccoidea, Pseudococcidae). University of California Press, Berkeley, CA, U.S.A. viii+526 pp.
 - MENDEL, Z., PROTASOV, A., ZADA, A., ASSAEL, F., JASROTIA, P. & FRANCO, J.C. 2007. Longevity and sexual maturity of an adult male mealybug. In: Branco, M., Franco, J.C., Hodgson, C.J. (Eds) *Proceedings of the XI International Symposium on Scale Insect Studies*, 24–27 September 2007: 121. ISA Press, Oeiras, Portugal.
 - MEYLING, N.V., EILENBERG, J., 2007. Ecology of the entomopathogenic fungi *Beauveria bassiana* and *Metarhizium anisopliae* in temperate agroecosystems: potential for conservation biological control. *Biological Control* 43, 145–155.
 - MILLAR, I.M. 2002. Mealybug genera (Hemiptera: Pseudococcidae) of South Africa: identification and review. *African Entomology* 10: 185–233.
 - MILLAR, J.G., MIDLAND, S.L., McELFRESH, J.S. & DAANE, K.M. 2005. (2, 3, 4, 4-Tetramethylcyclopentyl) methyl acetate, a sex pheromone from the obscure mealybug: first example of a new structural class of monoterpenes. *Journal of Chemical Ecology* 31: 2999–3005. <https://doi.org/10.1007/s10886-005-9320-0>
 - MILLER, D.R., MILLER, G.L. & WATSON, G.W. 2002. Invasive species of mealybugs (Hemiptera: Pseudococcidae). *Proceedings of the Entomological Society of Washington* 104: 825–836.
 - MUDAVANHU, P. 2009. An investigation into the integrated pest management of the obscure mealybug, *Pseudococcus viburni* (Signoret) (Hemiptera: Pseudococcidae), in pome fruit orchards in the Western Cape Province, South Africa. Doctoral dissertation, Stellenbosch University, Stellenbosch, South Africa.
 - MUDAVANHU, P., ADDISON, P. & PRINGLE, K.L. 2011. Monitoring and action threshold determination for the obscure mealybug *Pseudococcus viburni* (Signoret) (Hemiptera: Pseudococcidae) using pheromone baited traps. *Crop Protection* 30: 919–924. <https://doi.org/10.1016/j.cropro.2011.02.034>
 - NIKDEL, M. & NIKNAM, G. 2015. Morphological and molecular characterization of a new isolate of entomopathogenic nematode, *Steinernema feltiae* (Filipjev) (Rhabditida: Steinernematidae) from the Arasbaran forests, Iran. *Journal of Asia-Pacific Biodiversity* 8: 144–151. <http://dx.doi.org/10.1016/j.japb.2015.04.008>
 - PEREIRA, S.; CABALEIRO, C.; SAGURA, A. Citrus mealybug (Hemiptera: Pseudococcidae) movement and population dynamics in an arbor-trained vineyard. *J. Econ. Entomol.* 2010, 103, 619–630.
 - PHILLIPS, P. & SHERK, C. 1991. To control mealybugs, stop honeydew-seeking ants. *California Agriculture* 45: 26–28.
 - PIETERSE, W., MULLER, D.L. & VAN VUUREN, B.J. 2010. A molecular identification approach for five species of mealybug (Hemiptera: Pseudococcidae) on citrus fruit exported from South Africa. *African Entomology* 18: 23–29.
 - PLATT, T., STOKWE, N.F. & MALAN, A.P. 2018. Potential of local entomopathogenic nematodes for control of the vine mealybug, *Planococcus ficus*. *South African Journal of Entology and Viticulture* 39: 1–8. <http://dx.doi.org/10.21548/39-2-315>
 - PLATT, T., STOKWE, N.F. & MALAN, A.P. 2019. Foliar application of *Steinernema yirgalemense* to control *Planococcus ficus*: assessing adjuvants to improve efficacy. *South African Journal of Entology and Viticulture* 40: 1–7.
 - ROY, H.E., STEINKRAUS, D.C., EILENBERG, J., HAJEK, A.E. & PELL, J.K. 2006. Bizarre interactions and endgames: entomopathogenic fungi and their arthropod hosts. *Annual Review of Entomology* 51: 331–357. <http://dx.doi.org/10.1146/annurev.ento.51.110104.15.0941>
 - SHAHID, A.A., RAO, A.Q., BAKHSH, A. & HUSNAIN, T. 2012. Entomopathogenic fungi as biological controllers: new insights into their virulence and pathogenicity. *Archives of Biological Sciences* 64: 21–42.
 - SHAMSELDEAN, M.M., SHARABY, A.F., GESRAHA, M.A., MONTASSER, S.A. & IBRAHIM, S.A. 2013. Utilization of entomopathogenic nematodes combined with plant extracts and plant essential oils against grasshoppers *Heteracrilittoralis*. *Journal of Basic and Applied Scientific Research* 3: 289–294.
 - TANADA, Y. & KAYA, H.K. 2012. *Insect Pathology*. Academic Press, San Diego, CA, U.S.A.
 - VARELA, L., SMITH, R., BATTANY, M. & BENTLEY, W. 2006. Grape, obscure or vine, which mealybug is it: why should you care? *Practical Winery Vineyard* 27: 37–46.
 - VEGA, F.E., GOETTEL, M.S., BLACKWELL, M., CHANDLER, D., JACKSON, M.A., KELLER, S. & PELL, J.K. 2009. Fungal entomopathogens: new insights on their ecology. *Fungal Ecology* 2: 149–159.
 - VERCHER, R.; GONZALEZ, S.; SANCHEZ-DOMINGO, A.; SORRIBAS, J. A 2023. Novel Insect Overwintering Strategy: The Case of Mealybugs. *Insects* 2023, 14, 481. <https://doi.org/10.3390/insects14050481>; 11.
 - WAKGARI, W.M. & GILIOME, J.H. 2004a. Description of adult and immature female instars of

- Pseudococcusviburni (Hemiptera: Pseudococcidae) found on apple in South Africa. *African Entomology* 12: 29–38.
- WAKGARI, W.M. & GILIOME, J.H. 2004b. Mealybugs and their parasitoids in apple and pear orchards in the Western Cape Province, South Africa. *African Plant Protection* 10: 7–11.
 - WAKGARI, W.M. & GILIOME, J.H. 2005. Description of adult and immature females of six mealybug species (Hemiptera: Pseudococcidae) found on citrus in South Africa. *African Entomology* 13: 281–332.
 - Moonen, A. C., Storkey, J., & Kudsk, P. (2022). An integrated weed management framework: a pan-European perspective. *European Journal of Agronomy*, 133, 126443.
 - Heap, I. (2023). The International Herbicide-Resistant Weed Database. Διαδίκτυο: <https://www.weedscience.org/Home.aspx>
 - Beckie, H. J., Ashworth, M. B., & Flower, K. C. (2019). Herbicide resistance management: Recent developments and trends. *Plants*, 8(6), 161.
 - Pesticide Properties Database (PPDB). Διαδίκτυο: <http://sitem.herts.ac.uk/aeru/>
 - Chauhan, B. S., Gill, G. S., & Preston, C. (2007). Effect of seeding systems and dinitroaniline herbicides on emergence and control of rigid ryegrass (*Lolium rigidum*) in wheat. *Weed Technology*, 21(1), 53-58.
 - Mehmeti, A., Ramadani, J., Pacanoski, Z., Fetahaj, R., & Krasniqi, E. (2022). Possible Replacement of Wheat Post Herbicides with Soil Herbicide Pendimethalin. *Agriculturae Conspectus Scientificus*, 87(4), 337-342. ■

ΦΥΤΑ ΜΕΓΑΛΗΣ ΚΑΛΛΙΕΡΓΕΙΑΣ

Η αναγκαιότητα της Αμειψισποράς και της Χλωράς Λίπανσης Στην παραγωγικότητα των καλλιεργειών και τη διατήρηση της γονιμότητας των εδαφών

Βιβλιογραφία

- Tigka, E. et al. 2021. Seed Rate and Cultivar Effect on Contribution of *Vicia sativa* L. Green Manure to Soil Amendment under Mediterranean Conditions. *Agriculture* 2021, 11, 733.
- Vlachostergios et al. 2021. Response of early maturity soybean cultivars to row spacing in full-season crop and double-crop systems. *Plant, Soil and Environment*, 67, 2021 (1): 18–25.
- Vlachostergios D.N. et al. 2011. Advantages of mixing common vetch cultivars developed from conventional breeding programs when grown under low-input farming system. *Crop Science* 51: 1274-1281
- Βλαχοστεργίος Δ. & Α. Λιθουργίδης. 2012. Ανταγωνιστική ικανότητα ποικιλιών βίκου με ζιζάνια σε περιβάλλον μειωμένων εισροών. Βιβλίο περιλήψεων 14ου Πανελληνίου Συνεδρίου της Ελληνικής Εταιρίας Γενετικής Βελτίωσης Φυτών. 10-12 Οκτωβρίου 2012, Θεσσαλονίκη. Σελ 85

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Βιβλιογραφία

- Riemens, M., Sijnderskov, M.,