

ΓΕΝΙΚΑ ΘΕΜΑΤΑ

Η οργανική ουσία του εδάφους και η σημασία της για τις καλλιέργειες

Τι πρέπει να γνωρίζουμε, τι πρέπει να προσέχουμε

Βιβλιογραφία

- Κουκουλάκης, Π., Α. Σιμώνης, Α. Γκέρτσος. 2000. Οργανική ουσία του εδάφους – Το πρόβλημα των ελληνικών εδαφών. Εκδόσεις Σταμούλη. Σελίδες 491.
- Στυλιανίδης, Δ., Α. Σιμώνης, Γ. Συργιαννίδης. 2002. Θρέψη λίπανση φυλλοβόλων οπωροφόρων δένδρων. Εκδόσεις Σταμούλη. Σελίδες 675.
- Angst, G., K. Mueller, K. Nierop, M. Simpson. 2021. Plant- or microbial-derived? A review on the molecular composition of stabilized soil organic matter. *Soil Biology and Biochemistry*. Volume 156.
- Brady, N., R. Weil, 1996. *The Nature and Properties of Soils*, 11th Edition. Prentice Hall, Inc, Simon and Shuster Co., New Jersey. Pp740.
- Clarholm, M., U. Skjollberg, A. Rosling. 2015. Organic acid induced release of nutrients from metal-stabilized soil organic matter – The unbutton model. *Soil Biology and Biochemistry*. Volume 84, Pages 168-176.
- Cotrufo, F., J.Lavallee. 2022. Soil organic matter formation, persistence, and functioning: A synthesis of current understanding to inform its conservation and regeneration. Editor(s): Donald L. Sparks, *Advances in Agronomy*, Academic Press, Volume 172, Pages 1-66.
- Funderburg, E. 2016. Organic Matter Serves Important Role in Soil Health. Samuel Roberts Noble Foundation. <https://www.no-tillfarmer.com/articles/5606-organic-matter-serves-important-role-in-soil-health>
- Mitchell, J.P., A. Shrestha, W.R. Horwath, R.J. Southard, N. Madden, J. Veenstra, D.S. Munk. 2015. Tillage and cover cropping affect crop yields and soil carbon in the San Joaquin Valley, California. *Agronomy Journal* 107:588–596.
- Peng, Y., E. Rieke, I. Chahal, C. Norris, K. Janovicek, J. Mitchell, K. Roozeboom, Z. Hayden, J. Strock, S. Machado, V. Sykes, B. Deen, O. Bapuelos Tavarez, A. Gamble, K. Scow, D. Brainard, N. Millar, G. Johnson, R. Schindelbeck,

- K. Kurtz, H. van Es, S. Kumar, L. Van Eerd. 2023. Maximizing soil organic carbon stocks under cover cropping: insights from long-term agricultural experiments in North America. *Agriculture, Ecosystems & Environment*. Volume 356,
- Schonbeck, M., D. Jerkins, and J. Ory. 2017. *Soil Health and Organic Farming: Building Organic Matter for Healthy Soils: an Overview*. Organic Farming Research Foundation (www.ofrr.org), 39 pp.
- Soil Health Institute. 2018. North American Project to Evaluate Soil Health Measurements. <https://soilhealthinstitute.org/>
- Sullivan, D., A.D. Moore, L.J. Brewer. 2019. Soil organic matter as a soil health indicator: Sampling, testing, and interpretation. Oregon State University Extension Service. 1-12. <https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9251.pdf>.
- USDA Natural Resources Conservation Center. 2014. Soil organic matter. Soil health - guide for educators. 1-9.

Νέες μέθοδοι βελτίωσης των φυτών

Μπορούν να επηρεάσουν σημαντικά τη φυτοπροστασία του μέλλοντος;

Βιβλιογραφία

- Anonymous. 2019. Biotech crops continue to help meet the challenges of increased population and climate change. ISAAA Brief 54-2018: Executive Summary. <https://www.isaaa.org/resources/publications/briefs/>
- Begna, T. 2021. Conventional breeding methods widely used to improve self-pollinated crops. *International Journal of Research Studies in Agricultural Sciences (IJRSAS)* 7:1-16. doi: <https://doi.org/10.20431/2454-6224.0701001>.
- Bramlett, M., G. Plaetinck, and P. Maiefisch, 2020. RNA-based biocontrols-A new paradigm in crop protection. *Engineering* 6 (5):522–527. doi:10.1016/j.eng.2019.09.008.
- Bremmer, J., A. Meisner, C. Bregman, G. Splinter, A. Horsting, C. van der Salm. 2023. Future pathways towards sustainable crop protection in greenhouse horticulture; Anticipating consequences of the Farm to Fork Strategy. Wageningen,

Wageningen Economic Research, Report 2023-041. 80 pp.

- Christiaens, O., S. Whyard, A.M. Vilez, and G. Smagghe. 2020b. Doublestranded RNA technology to control insect pests: Current status and challenges. *Frontiers in Plant Science* 11, 451. doi:10.3389/fpls.2020.0045.
- Dalakouras, A., M. Wassenegger, E. Dadami, I. Ganopoulos, M.L. Pappas, and K. Papadopoulou. 2020. Genetically modified organism-free RNA Interference: Exogenous application of RNA molecules in plants. *Plant Physiology* 182:38–50. www.plantphysiol.org.
- Dekker, J. and S.O. Duke. 1995. Herbicide-resistant field crops. Pages 69-116 in *Advances in Agronomy*, D.L. Sparks, ed. Academic Press.
- Domingo, J.L. and J.G. Bordonaba. 2011. A literature review on the safety assessment of genetically modified plants. *Environment International* 37:734-742.
- Dong, O.X. and P.C. Ronald. 2019. Genetic engineering for disease resistance in plants: Recent progress and future perspectives. *Plant Physiology* 180:26–38. doi/10.1104/pp.18.0122.
- EFSA. 2022. Updated scientific opinion on plants developed through cisgenesis and intragenesis. EFSA journal doi: 10.2903/j.efsa.2022.7621.
- Egan, L.M. and W.N. Stiller. 2022. The past, present, and future of host plant resistance in cotton: An Australian perspective. *Frontiers in Plant Science* 13:895877. doi: 10.3389/fpls.2022.895877.
- Ελευθεροχωρινός, Η.Γ. 2020. Ζιζανιολογία: Βιολογία και Διαχείριση Ζιζανίων-Ζιζανιοκτόνα, Φυτά και Περιβάλλον. Εκδόσεις Αγροτύπος Α.Ε. Αθήνα. 497 σελ.
- Hille, F., H. Richter, S.P. Wong, M. Bratovic, S. Ressel, and E. Charpentier. 2018. The Biology of CRISPR-Cas: Backward and Forward. *Cell* 172, March 8. <https://doi.org/10.1016/j.cell.2017.11.032>.
- Kaur, R., A. Choudhury, S. Chauhan, A. Ghosh, R. Tiwari, M.V. Rajam. 2012. RNA interference and crop protection against biotic stresses *Physiology and Molecular Biology of Plants* 27(10):2357–2377.
- Koch, A. and M. Wassenegge. 2021. Host-induced gene silencing-mechanisms and applications. *New Phytologist* 231: 54–59 doi: 10.1111/nph.17364.

- Koch, A., D. Biedenkopf, A. Furch, L. Weber, O. Rossbach, E. Abdellatif, L. Linicus, J. Johannsmeier, L. Jelonek, A. Goemann A, et al. 2016. An RNAi-based control of *Fusarium graminearum* infections through spraying of long dsRNAs involves a plant passage and is controlled by the fungal silencing machinery. *PLoS Pathog* 12: e1005901.
- Kumari, P., P. Jasrotia, D. Kumar, P.L. Kashyap, S. Kumar, C.N. Mishra, S. Kumar, and G.P. Singh. 2022. Biotechnological approaches for host plant resistance to insect pests. *Frontiers in Genetics* 13:914029. doi: 10.3389/fgene.2022.914029.
- Kaur, K., A. Choudhury, S. Chauhan, A. Ghosh, R. Tiwari, M.V. Rajam. 2021. RNA interference and crop protection against biotic stresses. *Physiology and Molecular Biology of Plants* 27(10):2357–2377. <https://doi.org/10.1007/s12298-021-01064-5>.
- Liu, S., S. Geng, A. Li, Y. Mao, L. Mao. 2021. RNAi technology for plant protection and its application in wheat. *aBiotech* 2:365–374. doi: [10.1007/s42994-021-00036-3](https://doi.org/10.1007/s42994-021-00036-3).
- Li, Y., X. Wu, Y. Zhang and Q. Zhang. 2022. CRISPR/Cas genome editing improves abiotic and biotic stress tolerance of crops. *Frontiers in Genome Editing* 4:987817.
- Newsom, S., H.P. Parameshwaran, L. Martin and R. Rajan. 2021. The CRISPR-Cas Mechanism for adaptive immunity and alternate bacterial functions fuels diverse biotechnologies. *Frontiers in Cellular and Infection Microbiology* 10:619763. doi: 10.3389/fcimb.2020.619763.
- Paul, N.C., S-W Park, H. Liu, S. Choi, J. Ma, J.S. MacCready, M.I. Chilvers, and H. Sang, 2021. Plant and fungal genome editing to enhance plant disease resistance using the CRISPR/Cas9 system. *Frontiers in Plant Science* 12:700925. doi: 10.3389/fpls.2021.700925.
- Pline-Smic, W. 2006. Physiological mechanisms of glyphosate resistance. *Weed Technology* 20:290-300.
- Rato, C., M.F. Carvalho, C. Azevedo, and P.R. Oblessuc. 2021. Genome editing for resistance against plant pests and pathogens. *Transgenic Research* 30:427–459. <https://doi.org/10.1007/s11248-021-00262-x>.
- Reinders, J.D., W.J. Moar, G.P. Head, S. Hassan and L.J. Meinke. 2023. Effects of SmartStax® and SmartStax® PRO maize on western corn rootworm (*Diabrotica virgifera virgifera* LeConte) larval feeding injury and adult life history parameters. *PLoS ONE* 18(7): e0288372. doi.org/ 10.1371/journal.pone.0288372.
- Sauvagère, S. and C. Siatka. 2023. CRISPR-Cas: ‘The multipurpose molecular tool’ for gene therapy and diagnosis. *Genes* 14:1542. <https://doi.org/10.3390/genes14081542>.
- Thum, R.A., B.P. Sperry, G.M. Chorak, R.G. Leon, J. Ferrell. 2023. Confusion and ambiguity concerning the terms “resistance” and “tolerance” in aquatic plant management. *Weed Science* 71: 279–283. doi: 10.1017/wsc.2023.28.
- Tyagi, S., K. Kesiraju, M. Saakre, M. Rathinam, V. Raman, D. Pattanayak, and R. Sreevathsa. 2020. Genome editing for resistance to insect pests: An emerging tool for crop improvement. *ACS Omega* 2020, 5, 20674-20683. <https://dx.doi.org/10.1021/acsomega.0c01435>.
- Wan, L., Z. Wang, M. Tang, D. Hong, Y. Sun, J. Ren, N. Zhang, H. Zeng. 2021. CRISPR-Cas9 gene editing for fruit and vegetable crops: Strategies and prospects. *Horticulturae* 7,193. doi.org/10.3390/horticulturae7070193.
- Yara, A., T. Yaeno, M. Hasegawa, H. Seto, J-L Montillet, K. Kusumi, S. Seo, K. Iba. 2007. Disease resistance against *Magnaporthe grisea* is enhanced in transgenic rice with suppression of x-3 fatty acid desaturases. *Plant Cell Physiology* 48:1263–1274.
- Zaidi, S.S.A., A. Mahas, H. Vanderschuren, and M.M. Mahfouz. 2020. Engineering crops of the future: CRISPR approaches to develop climate-resilient and disease-resistant plants. *Genome Biology* 21:289 <https://doi.org/10.1186/s13059-020-02204-y>. ■