**References**

Agrawal, A. A. (1999). Induced responses to herbivory in wild radish: effects on several herbivores and plant fitness. Ecology, 80(5), 1713-1723. [doi.org/10.1890/0012-9658(1999)080[1713:IRTHIW]2.0.CO;2](https://doi.org/10.1890/0012-9658%281999%29080%5B1713%3AIRTHIW%5D2.0.CO;2)

Aragón, C. F., Escudero, A., & Valladares, F. (2008). Stress-induced dynamic adjustments of reproduction differentially affect fitness components of a semi-arid plant. Journal of Ecology, 96(1), 222-229. [doi.org/10.1111/j.1365-2745.2007.01320.x](https://doi.org/10.1111/j.1365-2745.2007.01320.x)

Ashley, T. R. (1986). Geographical distribution and parasitization levels for parasitoids of the fall armyworm, *Spodoptera frugiperda*. Florida Entomologist,69(3), 516-524. DOI: 10.2307/3495384

Ashley, T. R., Barfield, C. S., Waddill, V. H., Mitchell, E. R. (1983). Parasitization of fall armyworm larvae on volunteer corn, bermudagrass, and paragrass. TheFlorida Entomologist, 66(2), 267-271.

Barber, N. A., Milano, N. J., Kiers, E. T., Theis, N., Bartolo, V., Hazzard, R. V., & Adler, L. S. (2015). Root herbivory indirectly affects above- and below-ground community members and directly reduces plant performance. Journal of Ecology, 103(6):1509-1518. [doi.org/10.1111/1365-2745.12464](https://doi.org/10.1111/1365-2745.12464)

Bekaert, M., Edger, P. P., Hudson, C. M., Piers, J. C., & Conant, G. C. (2012). Metabolic and evolutionary costs of herbivory defense: systems biology of glucosinolate synthesis. New Phytologist, 196(2), 596-605. [doi.org/10.1111/j.1469-8137.2012.04302.x](https://doi.org/10.1111/j.1469-8137.2012.04302.x)

Bosak, E. J. (2011). Using a developmental comparison to decipher priming of induced defenses in maize and its effects on a generalist herbivore. PhD thesis, The Pennsylvania State University, University Park, USA.

Bradford, M. M. (1976). A rapid and sensitive method for the quantitation of microgram quantities of protein utilizing the principle of protein-dye binding. Analytical Biochemistry, 72(1-2), 248–254. [doi.org/10.1016/0003-2697(76)90527-3](https://doi.org/10.1016/0003-2697%2876%2990527-3)

Bustos-Segura, C., Cuny, M. A. C., & Benrey, B. (2019). Parasitoids of leaf herbivores enhance plant fitness and do not alter caterpillar-induced resistance against seed beetles. Functional Ecology, 34(3), 586-596.  [doi.org/10.1111/1365-2435.13478](https://doi.org/10.1111/1365-2435.13478)

Chen, M.-S. (2008). Inducible direct plant defense against insect herbivores: a review. Insect Science, 15(2), 101-114. [doi.org/10.1111/j.1744-7917.2008.00190.x](https://doi.org/10.1111/j.1744-7917.2008.00190.x)

Coleman, R. A., Barker, A. M., & Fenner, M. (1999). Parasitism of the herbivore *Pieris brassicae* L. (Lep., Pieridae) by *Cotesia glomerata* L. (Hym., Braconidae) does not benefit the host plant by reduction of herbivory. Journal of Applied Entomology, 123(3), 171-177. [doi.org/10.1046/j.1439-0418.1999.00334.x](https://doi.org/10.1046/j.1439-0418.1999.00334.x)

Cuny, M. A. C., Gendry, J., Hernández-Cumplido, J., & Benrey, B. (2018). Changes in plant growth and seed production in wild lima bean in response to herbivory are attenuated by parasitoids. Oecologia, 187(2), 447-457. DOI:[10.1007/s00442-018-4119-1](https://doi.org/10.1007/s00442-018-4119-1)

Cusumano, A., Zhu, F., Volkoff, A.-N., Verbaarschot, P., Bloem, J., Vogel, H., Dicke, M., & Poelman, E. H. (2018). Parasitic wasp-associated symbiont affects plant-mediated species interactions between herbivores. Ecology Letters, 21(7), 957-967. [doi.org/10.1111/ele.12952](https://doi.org/10.1111/ele.12952)

Eichenseer, H., Mathews, M. C., Bi, J. L., Murphy, J. B., Felton, G. W. (1999). Salivary glucose oxidase: multifunctional roles for *Helicoverpa zea*? Archives of Insect Biochemistry and Physiology, 42(1), 99-109. [doi.org/10.1002/(SICI)1520-6327(199909)42:1<99::AID-ARCH10>3.0.CO;2-B](https://doi.org/10.1002/%28SICI%291520-6327%28199909%2942%3A1%3C99%3A%3AAID-ARCH10%3E3.0.CO;2-B)

Elzinga, J. A., Atlan, A., Biere, A., Gigord, L., Weis, A. E., & Bernasconi, G. (2007). Time after time: flowering phenology and biotic interactions. Trends in Ecology and Evolution, 22(8), 432-439. [doi.org/10.1016/j.tree.2007.05.006](https://doi.org/10.1016/j.tree.2007.05.006)

Felton, G. W., Donato, K., Del Vecchio, R. J., & Duffey, S. S. (1989). Activation of plant foliar oxidases by insect feeding reduces nutritive quality of Foliage for noctuid herbivores. Journal of Chemical Ecology, 15(12), 2667-2694.

Fine, P. V. A., Miller, Z. J., Mesones, I., Irazuzta, S., Appel, H. M., Stevens, M. H. H., Sksjrvi, L., Schultz, J. C., & Coley, P. D. (2006). The growth-defense trade-off and habitat specialization by plants in Amazonia forests. Ecology, 87(7), 150-162. [10.1890/0012-9658(2006)87[150:TGTAHS]2.0.CO;2](http://dx.doi.org/10.1890/0012-9658%282006%2987%5B150%3ATGTAHS%5D2.0.CO;2)

Gols, R., Wagenaar, R., Poelman, E. H., Kruidhof, H. M., van Loon, J. J. A., & Harvey, J. A. (2015). Fitness consequences of indirect plant defence in the annual weed, *S inapis arvensis*. Functional Ecology, 29(8) 1019-1025. [doi.org/10.1111/1365-2435.12415](https://doi.org/10.1111/1365-2435.12415)

Gómez, J. M., & Zamora, R. (1994). Top-down effects in a tritrophic system: parasitoids enhance plant fitness. Ecology, 75(4), 1023-1030. [doi.org/10.2307/1939426](https://doi.org/10.2307/1939426)

Heil, M., Hilpert, A., Kaiser, W., & Linsenmair, K. E. (2000). Reduced growth and seed set following chemical induction of pathogen defence: does systemic acquired resistance (SAR) incur allocation costs? Journal of Ecology, 88(4), 645-654. [doi.org/10.1046/j.1365-2745.2000.00479.x](https://doi.org/10.1046/j.1365-2745.2000.00479.x)

Herms, D. A., & Mattson, W. J. (1992). The dilemma of plants: to grow or defend. The Quarterly Review of Biology, 67(3), 283-335.

Higginson, A. D., Delf, J., Ruxton, G. D., & Speed, M. P. (2011) Growth and reproductive costs of larval defence in the aposematic lepidopteran *Pieris brassicae*. Journal of Animal Ecology, 80(2), 384-392. doi: 10.1111/j.1365-2656.2010.01786.x

Hoballah, M. E. F., & Turlings, T. C. J. (2001). Experimental evidence that plants under caterpillar attack may benefit from attracting parasitoids. Evolutionary Ecology Research, 3:553-565.

Holeski, L. M., Jander, G., & Agrawal, A. A. (2012). Transgenerational defense induction and epigenetic inheritance in plants. Trends in Ecology and Evolution, 27(11), 618-626. [doi.org/10.1016/j.tree.2012.07.011](https://doi.org/10.1016/j.tree.2012.07.011)

Hopper, K. R., & King, E. G. (1984). Feeding and movement on cotton of *Heliothis* species (Lepidoptera: Noctuidae) parasitized by *Microplities croceipes* (Hymenoptera: Braconidae). Environmental Entomology, 13(6), 1645-1660. <https://doi.org/10.1093/ee/13.6.1654>

Howe, G. A., & Jander, G. (2008). Plant immunity to insect herbivores. Annual Review of Plant Biology, 59, 41-66. doi: 10.1146/annurev.arplant.59.032607.092825

van Hulten, M., Pelser, M., van Loon, L. C., Pieterse, C. M. J., & Ton, J. (2006).

Costs and benefits of priming for defense in *Arabidopsis*. Proceedings of the National

Academy of Science of the United State of America, 103(14), 5602-5607.

[doi.org/10.1073/pnas.0510213103](https://doi.org/10.1073/pnas.0510213103)

Huot, B., Yao, J., Montgomery, B. L., & He, S. Y. (2014). Growth-defense tradeoffs in plant: a balancing act to optimize fitness. Molecular Plant, 7(8), 1267-1287. [doi.org/10.1093/mp/ssu049](https://doi.org/10.1093/mp/ssu049)

Johnson, M. T. J., Lajeunesse, M. J., & Agrawal, A. A. (2006). Additive and interactive effects of plant genotypic diversity on arthropod communities and plant fitness. Ecology Letter, 9(1), 23-34. [doi.org/10.1111/j.1461-0248.2005.00833.x](https://doi.org/10.1111/j.1461-0248.2005.00833.x)

Juenger, T., & Bergelson, J. (1998). Pairwise versus diffuse natural selection and the multiple herbivores of scarlet gilia, *Ipomopsis aggregate*. Evolution, 56(6), 1583-1592. [doi.org/10.1111/j.1558-5646.1998.tb02239.x](https://doi.org/10.1111/j.1558-5646.1998.tb02239.x)

Juenger, T., & Bergelson, J. (2000). The evolution of compensation to herbivory in scarlet gilia, *Ipomopsis aggergata*: herbivore-imposed natural selection and the quantitative genetics of tolerance. Evolution, 54(3), 764-777. [doi.org/10.1111/j.0014-3820.2000.tb00078.x](https://doi.org/10.1111/j.0014-3820.2000.tb00078.x)

Karasov, T. K., Chae, E., Herman, J. J., & Bergelson, J. (2017). Mechanisms to mitigate the trade-off between growth and defense. The Plant Cell, 29, 666-680. doi.org/10.1105/tpc.16.00931

Kelly, M. G., & Levin, D. A. (2000). Directional selection on initial flowering date in *Phlox drumondii* (Polemoniaceae). American Journal of Botany, 87(3), 382-391.

[doi.org/10.2307/2656634](https://doi.org/10.2307/2656634)

Kessler, A., & Baldwin, I. T. (2001). Defensive function of herbivore-induced plant volatile emissions in nature. Science, 291(5511), 2141-2144. DOI: 10.1126/science.291.5511.2141

Kessler, A., & Baldwin, I. T. (2004). Herbivore-induced plant vaccination. part I. the orchestration of plant defenses in nature and their fitness consequences in the wild tobacco *Nicotiana attenuate*. The Plant Journal,38(4), 639-649. [doi.org/10.1111/j.1365-313X.2004.02076.x](https://doi.org/10.1111/j.1365-313X.2004.02076.x)

Kettenring, K. M., Weekley, C. W., & Menges, E. S. (2009). Herbivory delays flowering and reduces fecundity of *Liatris ohlingerae* (Asteraceae), an endangered, endemic plant of the Florida scrub. The Journal of Torrey Botanical Society, 136(3), 350-362. doi.org/10.3159/08-RA-113.1

King, E., & Coleman, R. (1989). Potential for biological control of Heliothis species.

Annual Review of Entomology, 34, 53-75.

Kolb, A. (2008). Habitat fragmentation reduces plant fitness by disturbing pollination and modifying responses to herbivory. Biological Conservation, 141(10), 2540-2549. [doi.org/10.1016/j.biocon.2008.07.015](https://doi.org/10.1016/j.biocon.2008.07.015)

Lau, J. A., & Lennon, J. T. (2012). Rapid responses of soil microorganisms improve

plant fitness in novel environments. Proceedings of the National Academy of Science

of the United State of America, 109, 14058-14062.

Lima, J. E., Carvalho, R. F., Neto, A. T., Figueira, A., & Peres, L. E. P. (2004). Micro-msk: a tomato genotype with miniature size, short life cycle, and improved in vitro shoot regeneration. Plant Science, 167(4), 753-757. [doi.org/10.1016/j.plantsci.2004.05.023](https://doi.org/10.1016/j.plantsci.2004.05.023)

Livak, K. J., & Schmittgen, T. D. (2001). Analysis of relative gene expression data using realtime quantitative PCR and the 2(-Delta Delta C(T)) Method. Methods, 25(4), 402-408. [doi.org/10.1006/meth.2001.1262](https://doi.org/10.1006/meth.2001.1262)

van Loon, J. J. A., de Boer, J. G., & Dicke, M. (2003). Parasitoid-plant mutualism: parasitoid attack of herbivore increases plan reproduction. Entomologia Experimentalis et Applicata, 97(2), 219-227. [doi.org/10.1046/j.1570-7458.2000.00733.x](https://doi.org/10.1046/j.1570-7458.2000.00733.x)

Maron, J. L. (1998). Insect herbivory above- and belowground: individual and joint effects on plant fitness. Ecology, 79(4), 1281-1293. [doi.org/10.1890/0012-9658(1998)079[1281:IHAABI]2.0.CO;2](https://doi.org/10.1890/0012-9658%281998%29079%5B1281%3AIHAABI%5D2.0.CO;2)

Martí, E., Gisbert, C., Bishop, G. J., Dixon, M. S., & García-Martínez, J. L. (2006). Genetic and physiological characterization of tomato cv. Micro-tom. Journal of Experimental Botany, 57(9), 2037-2047. [doi.org/10.1093/jxb/erj154](https://doi.org/10.1093/jxb/erj154)

McArt, S. H., Halitschke, R., Salminen, J.-P., & Thaler, J. S. (2013). Leaf herbivory increases plant fitness via induced resistance to seed predators. Ecology, 94(4), 966-975. [doi.org/10.1890/12-1664.1](https://doi.org/10.1890/12-1664.1)

McClay, A. S. (1992). Effects of *Brachypterolus pulicarius* (L.) (ColeopteraL Nitidulidae) on flowering and seed production of common toadflax. The Canadian Entomologist,124(4), 631-636. doi.org/10.4039/Ent124631-4

Medina, M., Eoque, E., Pineda, B., Cañas, L., Rodriguez-Concepición, M., Beltrán, J. P., & Gómez-Mena, C. (2013). Early anther ablation triggers parthenocarpic fruit development in tomato. Plant Biotechnology Journal,11(6), 770-779. [doi.org/10.1111/pbi.12069](https://doi.org/10.1111/pbi.12069)

Mothershead, K., & Marquis, R. J. (2000). Fitness impacts of herbivory through indirect effects on plant-pollinator interactions in *Oenothera macrocarpa*. Ecology, 81(1), 30-40. [doi.org/10.1890/0012-9658(2000)081[0030:FIOHTI]2.0.CO;2](https://doi.org/10.1890/0012-9658%282000%29081%5B0030%3AFIOHTI%5D2.0.CO;2)

Mumm, R., & Dicke, M. (2010). Variation in natural plant products and the attraction of bodyguards involved in indirect plant defense. Canadian Journal of Zoology, 88(7), 628-667. [doi.org/10.1139/Z10-032](https://doi.org/10.1139/Z10-032)

Ode, P. J., Harvey, J. A., Reichelt, M., Gershenzon, J., Gols, R. (2016). Differential induction of plant chemical defense by parasitized and unparasitized herbivores: consequences for reciprocal multitrophic interactions. Oikos, 125(10), 1398–1407.

[doi.org/10.1111/oik.03076](https://doi.org/10.1111/oik.03076)

Paige, K. (1999). Regrowth following ungulate herbivory in *Ipomopsis aggregata*: geographic evidence for overcompensation. Oecologia, 118(3), 316-323. https://doi.org/10.1007/s004420050732

Paige, K. N., & Whitham, T. G. (1987). Overcompensation in response to mammalian herbivory: the advantage of being eaten. The American Naturalist, 129(3), 407-416. <https://www.jstor.org/stable/2461689>

Pashalidou, F. G., Frago, E., Griese, E., Poelman, E. H., van Loon, J. J. A., Dick, M., & Fatouros, N. E. (2015). Early herbivore alert matters: plant-mediated effects of egg deposition on higher trophic levels benefit plant fitness. Ecology Letters, 18(9), 927-936. [doi.org/10.1111/ele.12470](https://doi.org/10.1111/ele.12470)

Peiffer, M., & Felton, G. W. (2005). The host plant as a factor in the synthesis and secretion of salivary glucose oxidase in larval *Helicoverpa zea*. Archives of Insect Biochemistry and Physiology, 58(2), 106‐113. [doi.org/10.1002/arch.20034](https://doi.org/10.1002/arch.20034)

Poelman, E. H., Zheng, S. J., Zhang, Z., Heenskerk, N. M., Cortesero, A. M., Dicke,

M. (2011). Parasitoid-specific induction of plant responses to parasitized herbivores

affects colonization by subsequent herbivores. Proceedings of the National Academy

of Science of the United State of America, 108(49), 19647-19652.

[doi.org/10.1073/pnas.1110748108](https://doi.org/10.1073/pnas.1110748108)

Poveda, K., Díaz, F. D., & Ramirez, A. (2018). Can overcompensation increase crop production? Ecology, 99(2), 270-280. [doi.org/10.1002/ecy.2088](https://doi.org/10.1002/ecy.2088)

Poveda, K., Jimnez, M. I. G., & Kessler, A. (2010). The enemy as ally: herbivore-induced increase in crop yield. Ecological Applications, 20(7), 1787-1793.

Rasmann, S. R., De Vos, M., Casteel, C. L., Tian, D., Halitschke, R., Sun, J. Y., Agrawal, A. A., Felton, G. W., & Jander, G. (2012). Herbivory in the previous generation primes plants for enhanced insect resistance. Plant Physiology, 158, 854-863. doi.org/10.1104/pp.111.187831

Redman, A. M., Cipollini Jr. D. F., & Schultz, J. C. (2001). Fitness costs of jasmonic acid-induced defense in tomato, *Lycopersicon esculentum*. Oecologia, 126(3), 380-385. doi.org/10.1007/s004420000522

Romero, G. Q., & Koricheva, J. (2011). Contrasting cascade effects of carnivores on plant fitness: a meta-analysis. Journal of Animal Ecology, 80(3), 696-704. [doi.org/10.1111/j.1365-2656.2011.01808.x](https://doi.org/10.1111/j.1365-2656.2011.01808.x)

Strauss, S. Y., Conner, J. K., & Rush, S. L. (1996). Foliar herbivory affect floral characters and plant attractiveness to pollinators: implications for male and female plant fitness. The American Naturalist, 147(6), 1098-1107.

Tan, C.-W., Peiffer, M., Hoover, K., Rosa, C., Acevedo, F. E., & Felton, G. W. (2018).

Symbiotic polydnavirus of a parasite manipulates caterpillar and plant immunity.

Proceedings of the National Academy of Science of the United State of

America, 115(20), 5199-5204. [doi.org/10.1073/pnas.1717934115](https://doi.org/10.1073/pnas.1717934115)

Tan, C.-W., Peiffer, M., Hoover, K., Rosa, C., & Felton, G. W. (2019). Parasitic wasp

mediates plant perception of insect herbivores. Journal of Chemical Ecology, 45, 972-

981. [doi.org/10.1007/s10886-019-01120-1](https://doi.org/10.1007/s10886-019-01120-1)

Thaler, J. S. (1999). Induced resistance in agricultural crops: effects of jasmonic acid on herbivory and yield in tomato plants. Environmental Entomology, 28(1), 30-37. [doi.org/10.1093/ee/28.1.30](https://doi.org/10.1093/ee/28.1.30)

Tian, D., Traw, M. B., Chen, J. Q., Kreitman, M., & Bergelson, J. (2003). Fitness costs of R-gene-mediated resistance in Arabidopsis thaliana. Nature, 423, 74-77.

Tian, D., Peiffer, M., Shoemaker, E., Tooker, J., Haubruge, E., Francis, F., Luthe, D. S., & Felton, G. W. (2012). Salivary glucose oxidase from caterpillars mediates the induction of rapid and delayed-induced defenses in the tomato plant. PloS One, 7(4), e36168. [doi.org/10.1371/journal.pone.0036168](https://doi.org/10.1371/journal.pone.0036168)

Tipping, P. W., Holko, C. A., & Bean, R. A. (2005). *Helicoverpa zea* (Lepidoptera: Noctuidae) dynamics and parasitism in Maryland soybeans. Florida Entomology, 88(1), 55-61. doi.org/10.1653/0015-4040(2005)008[0055:HZLNDA]2.0.CO;2

Tooker, J. F., & Hanks, L. M. (2006). Tritrophic interactions and reproductive fitness of the prairie perennial *Silphium laciniatum* Gillette (Asteraceae). Environmental Entomology, 35(2), 537-545. [doi.org/10.1603/0046-225X-35.2.537](https://doi.org/10.1603/0046-225X-35.2.537)

Turlings, T. C. J., & Erb, M. (2018). Tritrophic interactions mediated by herbivore-induced plant volatiles: mechanisms, ecological relevance, and application potential*.* Annual Reviews of Entomology, 63, 433-452. doi.org/10.1146/annurev-ento-020117-043507

Ueta, R., Abe, C., Watanabe, T., Sugano, S. S., Ishihara, R., Ezura, H., Osakabe, Y., & Osakabe, K. (2017). Rapid breeding of parthenocarpic tomato plants using CRISPR/Cas9. Scientific Reports, 7, 507. DOI:10.1038/s41598-017-00501-4

Verdύ, M., & Traveset, A. (2005). Early emergence enhances plant fitness: a phylogenetically controlled meta-analysis. Ecology,86(6), 1385-1394. [doi.org/10.1890/04-1647](https://doi.org/10.1890/04-1647)

Welter, S. C., & Steggall, J. W. (1993). Contrasting the tolerance of wild and domesticated tomatoes to herbivory: agroecological implications. Ecological Applications, 3(2), 271-278. [doi.org/10.2307/1941830](https://doi.org/10.2307/1941830)

Young, J., & Price, R. (1975). Incidence, parasitism, and distribution patterns of

*Heliothis zea* on sorghum, cotton, and alfalfa for southwestern Oklahoma.

Environmental Entomology,4(5), 777-779. [doi.org/10.1093/ee/4.5.777](https://doi.org/10.1093/ee/4.5.777)

Zangerl, A. R., & Bazzaz, F. A. (1992). Theory and pattern in plant defense allocation. In R. S. Fritz & E. L. Simms (Eds.), *Plant resistance to herbivores and pathogens: Ecology, Evolution, and Genetics* (pp.363-391). Chicago, IL: The University of Chicago Press.

Zavala, J. A., Patankar, A. G., Gase, K., Hui, D., & Baldwin, I.T. (2004). Manipulation of endogenous trypsin proteinase inhibitor production in *Nicotiana attenuate* demonstrates their function as antiherbivore defenses. Plant Physiology, 134, 1181-1190. doi.org/10.1104/pp.103.035634

Zhu, F., Broekgaarden, C., Weldegergis, B. T., Harvey, J. A., Vosman, B., Dicke, M., Poelman, E. H. (2015). Parasitism overrides herbivore identity allowing hyperparasitoids to locate their parasitoid host using herbivore-induced plant volatiles. Molecular Ecology, 24(11), 2886–2899. [doi.org/10.1111/mec.13164](https://doi.org/10.1111/mec.13164)