Acknowledgments

The authors would like to express their sincere gratitude to Mr. Li for his assistance in organizing the literature materials. The authors also extend special thanks to the two anonymous peer reviewers for their comprehensive evaluation of the manuscript.

Conflict of Interest Disclosure

The authors affirm that this research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

Reference

Anwar A., Zheng J., Chen C., Chen M., Xue Y., Wang J., Su W., Chen R., and Song S., 2024, Effects of NH_4^+-N: NO_3^--N ratio on growth, nutrient uptake and production of blueberry (*Vaccinium* spp.) under soilless culture, Frontiers in Plant Science, 15: 1438811.
https://doi.org/10.3389/fpls.2024.1438811

Arrington M., and DeVetter L.W., 2017, Foliar applications of calcium and boron do not increase fruit set or yield in northern highbush blueberry (*Vaccinium corymbosum*), HortScience, 52(9): 1259-1264.
https://doi.org/10.21273/hortsci12207-17

Begum R.A., and Fry S.C., 2022, Boron bridging of rhamnogalacturonan-II in Rosa and Arabidopsis cell cultures occurs mainly in the endo-membrane system and continues at a reduced rate after secretion, Annals of Botany, 130(5): 703-715.
https://doi.org/10.1093/aob/mcac119

Begum R.A., and Fry S.C., 2023, Arabinogalactan-proteins as boron-acting enzymes, cross-linking the rhamnogalacturonan-II domains of pectin, Plants, 12(23): 3921.
https://doi.org/10.3390/plants12233921

Bonomelli C., Arredondo G., Nario A., Artacho P., and Contreras C., 2025, Calcium allocation to the tree canopy and the edible part of sweet cherry fruit is hindered by boron soil deficiency, Agronomy, 15(3): 691.
https://doi.org/10.3390/agronomy15030691

Chea S., Yu D.J., Park J., Oh H.D., Chung S.W., and Lee H.J., 2019, Fruit softening correlates with enzymatic and compositional changes in fruit cell wall during ripening in 'Bluecrop' highbush blueberries, Scientia Horticulturae, 245: 163-170.
https://doi.org/10.1016/j.scienta.2018.10.019

De Silva A.L., Kämper W., Wallace H.M., Ogbourne S.M., Bai S.H., Nichols J., and Trueman S.J., 2022, Boron effects on fruit set, yield, quality and paternity of macadamia, Agronomy, 12(3): 684.
https://doi.org/10.3390/agronomy12030684

Doyle J.W., Nambeesan S.U., and Malladi A., 2021, Physiology of nitrogen and calcium nutrition in blueberry (*Vaccinium* sp.), Agronomy, 11(4): 765.
https://doi.org/10.3390/agronomy11040765

Du K., Lin H., Luo Q., Li T., Wu H., Wang B., Guo Z., Pan T., and She W., 2025, Calcium and boron foliar fertilizer to relieve cracking of 'Liuyuezao' pummelos, Foods, 14(4): 595.
https://doi.org/10.3390/foods14040595

Du M., Zhu Y., Nan H., Zhou Y., and Pan X., 2024, Regulation of sugar metabolism in fruits, Scientia Horticulturae, 326: 112712.
https://doi.org/10.1016/j.scienta.2023.112712

El-Motaium R.A.E., Shaban A.E.S., Badawy E.S.H., and Ibrahim A.S., 2025, The potential role of nano-calcium and boron in increasing mango fruits productivity, quality and antioxidant content, Journal of Plant Nutrition, 48(9): 1529-1546.
https://doi.org/10.1080/01904167.2024.2445087

Feng W., Kita D.W., Peaucelle A., Cartwright H.N., Doan V., Duan Q., Liu M., Maman J., Steinhorst L., Schmitz-Thom I., Yvon R., Kudla J., Wu H.-M., Cheung A., and Dinneny J., 2018, The FERONIA receptor kinase maintains cell-wall integrity during salt stress through Ca2+ signaling, Current Biology, 28(5): 666-675.
https://doi.org/10.1016/j.cub.2018.01.023

Funakawa H., and Miwa K., 2015, Synthesis of borate cross-linked rhamnogalacturonan II, Frontiers in Plant Science, 6: 223.
https://doi.org/10.3389/fpls.2015.00223

Gholamnejad S., Haghighi M., Etemadi N., and Pessarakli M., 2023, Effects of boron on nutrient partitioning, Ca movement, and fruit quality of tomatoes, Journal of Plant Nutrition, 46(5): 697-713.
https://doi.org/10.1080/01904167.2022.2071731

Haleema B., Shah S.T., Basit A., Hikal W.M., Arif M., Khan W., Ahl H.S.-A.S., and Fhatuwani M.N., 2024, Comparative effects of calcium, boron, and zinc inhibiting physiological disorders, improving yield and quality of *Solanum lycopersicum*, Biology, 13(10): 766.
https://doi.org/10.3390/biology13100766

Hirzel J., 2023, Can the firmness, weight, and size of blueberry fruit be enhanced through the application of low amounts of calcium to the soil?, Plants, 13(1): 1.
https://doi.org/10.3390/plants13010001