



December 2021

Fall fertilization on kiwifruits plantations

The kiwifruit *Actinidia chinensis* or Chinese gooseberry is a part of the Ericaceae family, like other fruits such as red currants and blueberries. It has brown skin, is hairy, and has a rough texture. Its flesh is usually green with black edible seeds. Kiwifruit is native to central and eastern [China](#). 'Hayward' is the most commonly available cultivar in the world. It is named after the New Zealander horticulturalists Hayward Wright, who spread the cultivar all around NZ and then across the globe. Kiwifruit has great nutrition facts, and it is an excellent source of nutrients such as potassium, polyphenols, carotenoids, folic acid, and vitamins C, E, and K.

'Hayward' is the most common cultivar in Israel, as in the rest of the world. 'Bruno' cultivar is common in Tefen heights, and recently a new cultivar called 'Jintao', which has yellow flesh, was planted widely around the northern district of Israel.

Kiwifruit is highly sensitive to salty and chalky soils¹, and nutrients absorption efficiency differs according to the cultivar and the soil type². Therefore, precise fertigation management is crucial for an optimal yield. Parameters such as nutrient content in leaves and the amount of nitrogen in irrigation water should be taken into consideration when determining agricultural management. Traditionally, kiwifruits fertilization quantity is 150-180 kg/h of nitrogen, 60 kg/h of phosphorous, and 300 kg/h of potassium per season³.

"**Blue**" series containing nitrogen stabilizer, which is highly efficient in reduction of kiwifruit sensitivity to iron and other microelements deficiencies in the soil. Nitrogen is preserved in its ammoniacal form, and when absorbed in plants creates a passive acidic environment in the rhizosphere. Research supports the assumption of the potential to reduce nitrogen fertilizer by using fertilizers containing different nitrogen preserving mechanisms⁴, without affecting yield. It is possible due to the lessening rate of nitrogen loss in soil. Therefore, using "blue" series containing nitrogen stabilizers can allow extremely efficient and smart fertilization.

As mentioned before, kiwifruit is known for its salt sensitivity, but there is some evidence which contracts it and presents a partial resistance to chloride in normal⁵ and even severe⁶ concentration. Problems caused by salt can be prevented by growing kiwifruits in well-drained soils. Also, non-chloride fertilization could be considered: the new Gat-Fertilizers "**Sapir**" series provides ammoniacal nitrogen, along with non-chloride potassium source and micro elements, all combined in one formula. Alternatively, a non-acidic fertilizer based on ammonium sulfate "Illit-Gofer", allows fertilization of micro elements and high standard iron chelate "**FerroGat**", suitable for alkaline soils, as also intensive potassium and ammoniacal nitrogen, with nitrogen stabilizer "**Blue**". An addition of humic and fulvic acids "**Bio-HumiGat**" is also recommended, to improve root system development, phosphorous absorption, and microelements.

Kiwifruit is very sensitive to microelements deficiencies, such as iron, zinc, and boron, so steady fertilization of these nutrients is essential. Nitrogenic fertilization is



highly recommended after harvest, as a third of the nitrogen dose is usually given during the fall season. Likewise, microelements fertilization is important and should not be skipped, even if only by the end of the season, since apparently fixing deficiencies has a crucial influence on bud-break, proper flowering, and the number of seeds on the following season^{7,8}.

Fertilization guidelines are considered as a recommendation only.

For consulting and planning effective fertilization for your plantation, you can contact the Gat Fertilizers' expert team.

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¹ Strik, B. C., & Cahn, H. (1998). Growing kiwifruit.

² Peticila, A., Scaeteanu, G. V., Madjar, R., Stanica, F., & Asanica, A. (2015). Fertilization effect on mineral nutrition of *Actinidia deliciosa* (kiwi) cultivated on different substrates. *Agriculture and Agricultural Science Procedia*, 6, 132-138.

³ Kramer *et al.*, (1995), fertilization recommendation on deciduous plantations, Israeli ministry of Agriculture, Shaham-unit.

⁴ LU, Y. L., KANG, T. T., GAO, J. B., CHEN, Z. J., & ZHOU, J. B. (2018). Reducing nitrogen fertilization of intensive kiwifruit orchards decreases nitrate accumulation in soil without compromising crop production. *Journal of Integrative Agriculture*, 17(6), 1421-1431.

⁵ Yang, L., Zhu, Z., Zhang, J., Gao, Y., Wang, X., Liu, G., ... & Tong, Y. A. (2020). Response of kiwifruit yield and fruit quality to chloride-containing fertilizers. *Agronomy Journal*, 112(2), 1012-1020.

⁶ Smith, G. S., & Miller, S. A. (1991, February). Osmotic effects on performance and fruit quality of kiwifruit vines. In *II International Symposium on Kiwifruit 297* (pp. 331-336).

⁷ Vajari, M. A., Eshghi, S., Moghadam, J. F., & Gharaghani, A. (2018). Late season mineral foliar application improves nutritional reserves and flowering of kiwifruit. *Scientia Horticulturae*, 232, 22-28.

⁸ Vajari, M. A., Moghadam, J. F., & Eshghi, S. (2018). Influence of late season foliar application of urea, boric acid and zinc sulfate on nitrogenous compounds concentration in the bud and flower of Hayward kiwifruit. *Scientia Horticulturae*, 242, 137-145.

