



Growing trees in nurseries are intended to create the most uniform, high-quality seedlings possible, which will acclimatize the best when planted. Cultivating in a nursery under optimal controlled conditions enables an excess development of trees well prepared for planting. Fruit trees are frequently grown in a nursery for many months, and in Israel often for more than a year (to "gain" an extra year, according to Jewish-religious law which allows fruit picking only after the tree's third year).

Many factors are considered when determining irrigation and fertilization in nurseries— container volume, growth medium, water source, type of irrigation system, etc. All these influences the proper fertilization method. Depending on the shape of the plant, the same crop can be fertilized differently.

Fertilizer content is significantly affected by the soil medium. For example, the Coir medium tends to absorb cations (minerals with a positive ionic charge) upon its initial use. Coir media that have not been rinsed are likely to absorb large amounts of potassium until reaching equilibrium. Until then, it is necessary to either supply excessive potassium fertilizer or soak the medium in calcium before use, which will attach to the coco coir, preventing heightened potassium absorption during plant growth.

Another example is perlite. Perlite is considered an inert medium, which means that precise care must be taken in the fertigation of all nutritional elements. Any nutritional deficiency will be more readily apparent while using perlite.

Generally, soil medium is a mixture of organic (coir, peat) and mineral (tuff, polystyrene) media, so the fertilizing program must be fitted individually to each nursery.^{1,2}

Fertilizer ingredients are determined according to different growth stages, while in initial growth we will often use fertilizer at an N-P-K ratio of 1:1:1, and in most cases, we then continue with different ratios, like 2:1:3, 2:1:2, etc.

Microelements – there isn't usually a need for a particularly high concentration. though, if the crop is especially sensitive to microelement deficiency, a standard concentration of 3%-6% microelements solution in the "GATIT CF" fertilizers is usually sufficient.

Chlorine—growing media are usually fertilized with chlorine-free fertilizers ("GATIT CF" fertilizers), to avoid salinization of the plant. Fruit trees are generally grown in relatively large volume containers, and therefore the risk of salinization is minor. In many cases it's possible to use low-chlorine fertilizers like "GATIT CF" or "GATIT RC" and it is unnecessary to use a totally chlorine-free fertilizer.

Water source – Desalinated water requires calcium and magnesium supplementation. It's possible to add "Yamit" solution, which contains calcium and





magnesium, or alternatively to fertilize with “Or” fertilizer (4-2-6 + 6% MicroGat with 1.5% calcium and 0.9% magnesium).

Biostimulants – We recommend using Gat Humic acid, a bio-stimulant containing quality humic and fulvic acids that stimulant root growth, help to achieve an efficient absorption of nutritional elements, and contribute to plant growth.

Regarding any questions, you are invited to contact the Gat Fertilizers agronomist team.

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Sources:

1. Juan A. Oliet, Rosa Planelles, Francisco Artero DFJ. Nursery fertilization and tree shelters affect long-term field response of *Acacia salicina* Lindl. planted in Mediterranean semiarid conditions. *For Ecol Manage*. 2005;215:339-351.
2. Natale W, de Lima Neto AJ, Rozane DE, Parent LE, de Medeiros Corrêa MC. Mineral nutrition evolution in the formation of fruit tree rootstocks and seedlings. *Rev Bras Frutic*. 2018;40(6):1-15. doi:10.1590/0100-29452018133

