NUTRITION AND FERTILIZATION IN MANGO. LITERATURE REVIEW

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EXECUTIVE SUMMARY

The main objective of this report consists in providing assistance to mango growers in establishing an adequate fertilization program. To accomplish this objective a thorough literature review was complemented with a survey on mango nutrition and sent to mango producers and researchers all over the world, as well as information collected from different important fertilizers companies.

The establishment of a correct fertilization program must begin with conducting a soil analysis performed before planting. This will indicate the physicochemical characteristics of the soil where mango is going to be cultivated, a necessary step in order to setup the initial basal dressing and correction measures. Appropriates values for a soil to be cultivated with mangos are discussed, and general recommendations are given in the **Soil analysis** paragraph**.** Examples of general fertilizer programs that have been recommended in different countries for mango cultivation for the first year have been provided, and also for adult trees in smaller farms with no access to laboratories (**General recommendations for fertilizing mangos** paragraph)**.**

As indicated in this report, despite its limitations, foliar analysis is the most useful tool for a correct establishment of a mango fertilizer program. A complete review of the values recommended by different authors as well as a discussion about sampling and interpretations techniques, both based on individual values and on the relations between nutrients, is reported in the **Foliar analysis** paragraph**.** As indicated in the **Nutrient extractions** section, the reposition of macro and micronutrient losses due to crop load, dropped fruits, leaves and branches removed by pruning, as well as those removed by lixiviation, volatilization, soil fixation and runoff is essential for an appropriate mango fertilizer program. It is clear from our review that fertilizer programs differ depending on cultivars and locations (soil and climatic conditions, particularly temperature), cultural practices and age of the tree and, as a consequence, nutrient extraction should be determined for each mango farm and cultivar. An example of using crop removal to establish a mango fertilization program is given in Annex 4.

The role of macro and micronutrients, their effect in the plant at different moment of the growth cycle and the most appropriate moment for their application was also reviewed. In conclusion, most macronutrients, and particularly nitrogen, should be applied directly to the soils or through fertigation immediately after harvest, except for foliar applications of nitrates to induce flowering. Micronutrients, however, should be applied by foliar sprays mostly during flowering, with the exception of iron that should preferably be applied regularly as chelates through fertigation.

It is also indicated that experiments done in mango comparing organic and inorganic sources of fertilizers have not shown clear differences regarding nutrient absorption and yield; and that organic fertilizers are applied directly to the soil or, in some cases, through fertigation.

The final conclusion of the report is that the many variables involved in mango nutrition and fertilization makes it impossible to draw general recommendation for a mango fertilizing program that have to be established by each particular farm. This is true

even for each cultivar inside the farm, based in the sound interpretation of soil and foliar analysis and forecasted nutrient extraction. However, guidelines for a correct interpretation of these tools have been given in this report that can serve mango growers for obtaining the maximum productivity for this crop through an adequate fertilizer program.

For the full report, please click here: https://buff.ly/32qSILo