

## Are Extracts of Algae an Innovative Technique to Enhance Soybeans Productivity?

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There is a growing demand for innovative products that may enhance plant productivity. Producers can find in the market a plentiful of novel products to fulfill these expectations, such as foliar fertilizers packed with a variety of compounds other than common macro and micronutrients (amino acids, humic and fulvic acids, phosphine, and algae extracts, for example). The use of algae extracts, for this purpose in particular, is in full bloom. It is reported here the results of a field evaluation made in a farm that set up an empirical experiment to check out the possible benefits of foliar fertilizers containing algae extracts. Farmer asked for technical assistance to collect information in his field that would allow him to make decision whether this is indeed an innovative practice. The farm is located in São Gabriel de Goiás, Planaltina, Goiás. The locally recommended soybean variety Desafio was cropped using recommended agronomic practices regarding soil preparation, basal fertilization, seed inoculation and adequate plant population. Sowing was done in December 27, 2018, in a 10 ha area, with plant emergency completed by January 4, 2019. In February 10, 2019, during the flowering stage, a mixture of commercial products containing algae extracts (Dimiagro FIT, 30mL.ha<sup>-1</sup>; Dimiagro Complexo, 500 mL.ha<sup>-1</sup>, and DimiPremium Gold, 1.5 L.ha<sup>-1</sup>) was sprayed into 27 m wide strips, perpendicularly to the planting rows. A 27 m wide non-sprayed strip separated every sprayed strip, with replications covering the whole field. During harvesting (March 29, 2019), 12 plots (replications) were organized within randomly selected sprayed and non-sprayed strips, encompassing three meters long of five planting lines (2.25 m wide). All plants in the plot were counted, harvested and weighed. The number of pods per plant, number of grains per pod and the weight of 1000 grains were registered from a subsample of 60 plants taken randomly within every plot. Spraying foliar fertilizer containing algae extracts improved significantly ( $p < 0,001$ ) the productivity (4539 kg.ha<sup>-1</sup>, while the non-sprayed areas produced 3941 kg.ha<sup>-1</sup>), although there was no significant differences ( $p > 0,05$ ) in the other measured parameters (37 and 34 pods per plant for sprayed and non-sprayed areas; 2,5 grains per pod, respectively; and 213 and 203 g per 1000 grains, respectively). This gain represents almost a 10 bags benefit for the farmer. Since the overall costs of

using the technology is four bags, gains are six bags per hectare. The farmer is quite happy with these results and keen to go along with the technology, as well as to spread the word among his peers. However, the results do not allow concluding that the extracts of algae are the sole cause of such benefits, since they were mixed with macro and micronutrients and provided as foliar fertilizer. The true answer demands a more scientific approach, comparing their single and mixed effects, either in the field or under controlled conditions.