

## Agricultural and Forestry Extension in Biostimulants and Bioinputs in Costa Rica: A Short Review

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*Published February 28, 2024*

### ABSTRACT

The use of biostimulants and bio-inputs, including biofertilizers, bio-pesticides, and microorganisms, for agricultural use, has developed considerably over the past three decades. Definitions of biostimulants vary greatly, and there are still some arguments surrounding these compounds. However, they are defined as non-hormonal products that have a beneficial effect on plant growth. Many of these biostimulant materials are natural products that do not contain added chemicals or synthetic plant growth regulators. While bio-inputs are products of biological origin formulated with microorganisms (e.g. bacteria, fungi, viruses) or with microbial bioactive compounds, which are used to improve the productivity, quality, and of plant health, or the biological characteristics of the soil. To formulate a bio-input, the microbial strains or metabolites are selected for their ability to promote plant growth directly facilitating the absorption of nutrients by the plant or indirectly contributing to the sanitary management of diseases and pests of economic impact. Agricultural and forestry extension in biostimulants and bio-inputs in Costa Rica has been a process towards sustainability.

**Keywords:** Costa Rica, Biostimulants, Bio-inputs, Agricultural extension, Forestry extension

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**Citation:** Russo RO. (2024) Agricultural and Forestry Extension in Biostimulants and Bioinputs in Costa Rica: A Short Review. Int J Biopro Biotechnol Advance, 10(S1): 03.

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