Tropentag, September 17-19, 2018, Ghent

"Global food security and food safety:
The role of universities"

Precision Agriculture in Integrated Nutrition Management Programm for Export Roses in Colombia

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Abstract

Colombia is second country in flowers exportation, with 16 % of the world market, after Holland, with 56 %. Based on experiences in intensive export crops in Chile, where the Integrated Nutrition Management (MIN) programme is used since more than 10 years, supported by the use of high efficiency fertiliser diagnostic tools, high quality organic matter, site-specific inoculants and precision agriculture technologies, a commercial trial was proposed, evaluating the effect of MIN on rose cultivation. The study was conducted in a production block for a period of 24 months. Two treatments were evaluated: Control (C), chemical fertilisation and 200 kg of mature compost of rose material and chemical fertilisation) and MIN (T1) treatment with chemical fertilisation 75 kg compost, humic extracts and site-specific bio-inoculant with PGPR bacteria from the genera Bacillus, Pseudomonas and Streptomyces. The variables followed included plant biomass by NDVI, estimated from the active OptRx sensor (AgLeader Inc.), basal production and chemical properties of tissue and soil. As results, statistically significant differences were observed ($p < 0.05$) in relation to the content of foliar N-NO_3 and N metabolised in time, being lower in the treatment with MIN product probably of a greater vigour of plant estimated through of the NDVI ($p < 0.05$), which causes a dilution effect of the N content. Likewise, statistical differences were observed in the production of Biomass by NDVI and the No. of basal (vigorous stems that develop in the base of the plant) reaching 30 % more in the treatment with MIN, demonstrating the effect of promoting plant growth of the humic substances and the site-specific microbial inoculant.

Keywords: Exportation Roses, Integrated Nutrition Management, Precision Agriculture

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