

## POSTER

### THE EFFECTS OF MARINE ISOPENTENYL ADENINE EXTRACT (IPA EXTRACT) IN FOLIAR FERTILIZERS ON THE SYSTEMIC MINERAL NUTRITION AND ON THE QUALITY OF FRUIT PLANTS

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New foliar fertilizer formulations including marine extract rich in isopentenyl adenine (IPA extract) have introduced the notion of “systemic nutrition” into the area of fertilization. This innovation promotes better use of fertilizers both in terms of effectiveness and respect for the environment, thereby raising the quality and quantity of various crops. The advantage of IPA extract resides in its effects both on the transportation mechanism of raw-elaborated nutrients in the plant and on photosynthetic productivity.

The systemic effect of IPA extract was first demonstrated in annual crops as the systemic action of amino acids and micronutrients either in their mineral form or as a complex form of amino micronutrients. Superior migration rates over the non-treated plants of more than 36% for amino acid, 46% for micronutrient (Mn) and more than 57% for the amino micronutrient were observed. The effect of foliar treatment with IPA on the systemic transport of nitrogen (N), phosphorous (P), potassium (K) showed an improved absorption of 54% for N, 10 - 18% for P and 4 - 9 % for K.

The benefits of IPA extract were also confirmed in perennial fruit plants like grapevines and pear trees. IPA treatment improved the mineral composition of the Williams pear leaves, increasing their content of N (+5,7%) and P (+5,9%) and fruit content of N (+7,0%), P (+1,5%) and K (+3,6%).

Increasing adenine-type compounds in the plant can also increase floral induction. An increase in isopentyl adenine in the raw sap is said to be essential to growth and flowering. Similarly, the increase in sugars from the starch leads to the activation, in foliar and apical meristems, of a variety of processes including cell division, which is particularly active during vegetative growth, flowering and fruit growth. The application of IPA extract combined with a foliar BPK fertilizer in a vineyard at stages A/B/C increased the percentage of inflorescences successfully brought to flower expressed in relation to the total number of inflorescences from 56.8 (control) to 61.2% (treated). Furthermore, there was an increase in the sugar content between a boron (B) P K formula and the same formula enriched with IPA. In grapes, the sugar content rose from 21.9% to 23.5%, which corresponds to an increase of 7.4%. The combined effects of IPA lead to increase effectiveness of fertilization. In pears, the IPA treatment increased yield by 6,5% and increased fruit size from 23.7 to 24.7 kg per 100 fruit. Fruit firmness increased from 8.0 to 8.2 kg.