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Biostimulators Obtained from Biological Raw Materials Affect the Flowering and Yielding of Apple Trees

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In 2007-2009, several foliar biostimulators – BloFeed Grow, BloFeed Quality, Ausma and Glukos K and soil-applied biostimulators – BioFeed Basis and Bioilsa were evaluated in terms of their effect on flowering and yielding of Polish scab-resistant apple cultivars 'Free Redstar' and 'Melfree', grown on M.9 rootstock. The experiment was carried out in the Institute's Experimental Orchard, on a light clayey podsolic soil with a medium level of nutrient content. The control and standard treatments were represented by plots without (control – 0) and with standard mineral NPK (8.83g ammonium nitrate + 6.94g granulated triple superphosphate + 7.7g potassium sulphate per tree). Doses of the soil-applied biostimulators (per tree) were: 2.4g Bioilsa and 4.0g BioFeed Basis. Concentrations and frequency of application of foliar biostimulators were: $3 \times 2\%$ BioFeed Grow 60 ml/3 l per 12 trees (12, 10 and 8 weeks before harvest) + $3 \times 2\%$ BioFeed Quality 60 ml/3 l per 12 trees (6, 4 and 2 weeks before harvest); $3 \times 0.1\%$ Ausma 3 ml/3 l per 12 trees (9, 6 and 3 weeks before harvest); $4 \times 0.5\%$ Glucos K 7.5 ml/1.5 l per 12 trees (8, 6, 4 and 2 weeks before harvest). There was no significant influence of treatments on the tree growth, regardless of the treatment trees of 'Melfree' were more vigorous than these of 'Free Redstar', however leaves of 'Free Redstar' contained more chlorophyll and their flowering was more abundant. Foliar biostimulators were very effective in promoting of flowering and yielding of both cultivars in comparison to both controls. The most effective was the mixture of two foliar biostimulators – BloFeed Grow + BloFeed Quality. Enrichment of this treatment with the standard NPK fertilization or the soil-applied biostimulators did not improve flowering intensity and yielding of both cultivars.

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Effect of Plant Preparations on Lettuce Yield

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Plant preparations are of usual use in organic horticulture. Herbal teas and broths are considered to be plant growth stimulating and disease suppressive. However, scarce scientific support is available. The aims of this work were to evaluate the effect of onion (*Allium cepa*) and nettle (*Urtica dioica*) preparations on the growth of lettuce crops. The experiments were carried out in the Experimental Organic Orchard of the Faculty of Agronomy, University of Buenos Aires. The assays were planned as completely randomised blocks, with 6 replications per treatment. Lettuce (*Lactuca sativa*) cv. Criolla was sown in continuous rows (3 kg seeds/ha) in each 1 m² minimum tillage experimental unit. Manual thinning out was required to reach an optimum number of plants per area. Onion and nettle preparations were obtained as follows. Broths were prepared by boiling 1 kg of chopped bulbs or leaves, respectively, in 10 l of water during 20 min, fermenting during 15 days, filtering and adding water to complete 10 l. Teas were prepared by chopping 1 kg of bulbs or leaves, respectively, adding 10 l of water, fermenting during 15 days, filtering and adding water to complete 10 l. Each preparation was applied to the corresponding experimental units 3 times per week, during the whole crop cycle. Controls were treated with water. The number of leaves per plant, leaf area, and fresh and dry leaf weights were quantified. No differences among treatments were observed for the number of leaves per plant and for leaf dry weight. Plots treated with onion tea showed the highest leaf area values and fresh leaf weight. Variations in chemical components of the different plant preparations, specially referred to electrical conductivity, could at least partially explain these results.

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Organic Production of Lettuce and Swiss Chard in Response to Different Levels of Vermicompost Tea

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Lettuce (Iceberg-type) and Swiss Chard were established on December 15, 2008, on 5m² biointensive beds, previously fertilized with 60 t/ha of commercial compost, at a distance of 30 cm between plants. The plants were treated with 0, 10 or 20% vermicompost tea, four times, from January 27, 2009 to the end of February, having 3 replicates (beds) per treatment in a randomly complete design. Harvesting of both crops was from March to April. The yield of Lettuce was 21.6, 41.3 and 50.1 t/ha, with 0, 10, and 20% vermicompost tea, respectively; while Swiss Chard yield was 51, 73.4 and 76.8 t/ha, with the same levels of vermicompost tea. From these results we conclude that the organic production of Lettuce and Swiss Chard, using 60 t/ha of compost, can be improved by spraying the plants with vermicompost tea at 20% for Lettuce and at 10% for Swiss Chard.

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Effect of Organic Nutrition on the Performance of Betel Vine (*Piper betle* L.) cv. Ambadi

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Betel vine (*Piper betle* L.) is a perennial creeper belonging to the family *piperaceae*, cultivated in India for its leaves used mainly for mastication. Field experiment was conducted at Arabhavi, Gokak taluk, Dist. Belgaum, Karnataka, India during 2005-2007 to study the effect of different nutritional sources on growth, yield and quality of betel vine cv. Ambadi. The experiment was laid out as RBD consisting thirteen treatments replicated thrice. Treatment combination included organic manures viz. FYM, Neem cake, Vermicompost, Sheep manure and Pressmud, while the recommended dose of fertilizer (RDF) for betel vine was 200:100:100 kg NPK per ha. Foliar spray of vermivash @ 25% was done at monthly intervals. Farmers practice consisted of application of FYM (15t/ha) and groundnut cake (0.50 t/ha). Application of FYM (25 t/ha) along with RDF recorded higher growth and yield attributes resulting in significantly higher annual leaf yield (588.55 leaves /vine) followed by Farmer's practice + foliar spray of vermivash @ 25% (540.17 leaves /vine) and FYM (25t/ha) + 2 tonnes per ha of neem cake (512.07 leaves/vine) compared to the lowest in the treatment consisting of existing farmers practice alone (279.28 leaves/vine). Maximum leaf size was in the treatment consisting of Farmer's practice + foliar spray of vermivash @ 25% (127.30cm²) followed by FYM (25 t/ha) along with RDF (117.30 cm²) and FYM (25t/ha) + 2 tonnes per ha of neem cake (108.48cm²) while it was minimum in the treatment consisting of existing farmers practice alone (78.27 cm²). Organic nutrition not only produced bigger leaf but also recorded higher leaf yield indicating scope for sustainable farming.

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The Study of Different Levels of Vermicompost and Phosphorus on Growth and Development and Some Elements Absorption in Tomato Transplants

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An investigation was conducted on the effects of vermicompost as an organic and

