



Response of cotton plant to organic fertilization with Compost and economic feasibility in comparison with mineral fertilization

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Received: 15/12/2024 **Accepted:** 17/12/2024 **Published:** 27/3/2025 **pages:** 1 – 13

Abstract

Two field experiments were performed at Sakha Agricultural Research Station, Kafr Elshiekh Governorate, Egypt, during 2021 and 2022 seasons, in order to evaluate effects of Compost and/or biofeed in combination with graded proportions of mineral NPK fertilizers on growth and yield components of Super Giza 94 Egyptian cotton cultivar and Estimating the economic return from providing quantities of mineral fertilizer.

Application of compost was added during soil preparation, Biofeed (as a liquid) was added after planting with irrigation water, mineral NPK fertilizers was applied as the recommended dose as control. The treatments were, [1] Control 100% mineral NPK, [2] 75% Mineral + 25 % Compost, [3] 75% Mineral + 25 % Biofeed, [4] 50 % Mineral + 25% Biofeed + 25% Compost, [5] 25 % Mineral + 50 % Biofeed + 25% Compost [6] 50 % Biofeed + 50% Compost). Results showed that treatment No.[4] gave the highest values of Chlorophyll a (4.94 in the first season), Chlorophyll b (3.05 in the first season), Carotenoids (1.23 in the first season), Total soluble sugar (17.91 and 18.50), plant height (142.25 in the first season) No. of fruiting branches (17.62 in the first season) , No. of open bolls (28.67 and 25.31) , % Earliness (61.82 in the first season), Seed cotton yield / kantar (9.51 and 8.49), boll weight (2.42 and 2.50) , seed index (14.05 and 11.03) and lint % (38.61 in the first season) respectively in the first and second seasons (most traits not significant) compared with other treatments and control.

Key words: Cotton, Biofeed, Compost, Fertilizer and Yield.