

Response of artichoke productivity to different proportions of Nitrogen and Potassium fertilizers

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Abstract: The application mode of fertilizers affects plant growth of artichoke and its head production. The aim of our work was to follow the response of artichoke productivity to different proportions and application time of nitrogen and potassium fertilizers to identify the optimum doses of N and K for optimum yield and product characters. During the growing seasons of 2012/2013 and 2013/2014, the local vegetatively propagated cultivar 'Balady' in Egypt was fertilized by several proportions of N and K. Five combinations between two doses of nitrogen (100 and 150 kg) N/feddan (4200 m²) and two doses of potassium (50 and 100 kg) K/feddan were applied in five equal constant doses (control) or dynamic doses (variable doses with plant growth cycle). Vegetative growth characters, head yield and its quality were recorded.

Results showed that the dynamic application doses of nitrogen (start by high nitrogen dose at the beginning then decreasing application doses during plant growth cycle) and potassium (start by less potassium dose at the beginning then increasing application doses during plant growth cycle) increased vegetative growth characters of artichoke plants and improved quantity and quality of artichoke heads compared to constant applications. The dynamic mode combination between doses of 150 kg N/feddan and 100 kg K/feddan led to increase all vegetative growth characters of artichokes (the height of plant, leaf numbers, leaf fresh & leaf dry weights and leaf area as well as chlorophyll content and increased head yield, and even more enhanced earliness and head quality. The lowest values of vegetative plant growth and head yield were obtained by either constant application doses of the same amounts, i.e., 150 kg N and 100 kg K/feddan (as a control) or dynamic mode combination between doses of 100 kg N/feddan and 50 kg K/feddan (as lower doses of dynamic mode application).

Keywords: Artichokes, Fertilization, N, K, Constant & Dynamic Applications, Yield, Quality.