Evaluation of growth and production of sweet basil (*Ocimum basilicum* L.) under application of pelleted urea in different compactness

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Abstract

Nitrogen (N) fertilizers are widely used in vegetable production, particularly in leafy vegetables such as sweet basil. Nitrogen fertilizers have high solubility and low efficiency rates and in cropping systems are applied in high amounts that result in different health and environmental problems. Despite their high application, however, the plant's need of N may not be meet. In this study, growth and production of sweet basil was investigated under application of urea in pellet forms under greenhouse conditions. Treatments were control (without fertilizer application), urea, pellet with low compaction+35% urea, pellet with low compaction+50% urea, pellet with high compaction+35% urea, and pellet with high compaction+50% urea (w/w) with 4 replications in completely randomized design. Rotted cow-manure was used to make the pellets. Results showed that the highest leaf number per plant, as one of the main yield components in leafy vegetables, the highest plant height and chlorophyll index were in pellet with low compaction+35% urea treatment. The highest length and width of leaf as well as the highest plant fresh weight were obtained in pellet with low compaction+50% urea treatment, while the highest dry weight of plant was recorded for pellet with low compaction+35% urea treatment. The highest leaf N concentration was in urea treatment. Regarding the percentage of essential oil, plants in pellet with low compaction+50% urea as well as urea treatments showed the highest amount. In general, low compaction+50% urea treatment showed the best results and could be recommended to be applied in sweet basil production.

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