



Silicon improves the productive performance of sorghum in different water conditions

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The silicon has emerged as a potential drought tolerance inducing agent in plants, since besides a structural element, it can induce metabolic responses which increase drought tolerance in several crops. Thus, this study aimed to study the effects of silicon on the growth and production of sorghum plants under stress in pre-flowering. We observed a reduction in height in all treatments under water deficit. However, the stressed and silicon - fertilized plants presented similar height to those irrigated and not treated with silicon, and even greater panicle length than the untreated plants. It was verified that the silicon and irrigated fertilized plants showed higher height between all the treatments besides a longer panicle length, and all those treated with silicon, regardless of the water condition, had lower values of vegetative dry biomass. In all treatments the leaf area was reduced, but in those treated with silicon the leaf area was 27.7% greater than in the untreated. Under field capacity there was a 15.27% increase in the dry mass of panicle and 12.09% in the dry mass of grains, while under water deficit the increase was 25.12% and 24.21%, respectively. Plants treated with silicon presented a higher harvest index than those not treated with silicon, both at water conditions. In this context, the positive effects of silicon contributed to a higher yield of grains and, therefore, a greater tolerance to drought, and these were also observed under field capacity. This demonstrates that silicon can improve the productive performance of sorghum in different water conditions.

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