Phonolite rock fertilization as an alternative source of potassium in sorghum crop

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Sorghum crop

- In recent years the sorghum crop (Sorghum bicolor) has been highlighted regarding to the expansion, mainly in the succession of plantings summer crops.

Potassium mineral nutrition

- The increase in planting sorghum has shown the necessity for further studies on the mineral nutrition of the crop, particularly the potassium (K), which is the second most nutrient absorbed by the majority of plant species and can be found in all plants tissues.

Phonolite rock

- Brazil imports most of the potassium that it consumes in agriculture, however, such huge external dependence can be minimized with the use of alternative local K bearing rocks.
- The phonolite is a rock with about 8,5% of K_2O, and has emerged as an alternative source of potassium, being considered as a slow-release fertilizer that also provides other nutrients essential for plant growth, such as Ca, Mg, Mn and Fe.

Materials and Methods

☛ The experiment was conducted in Unifenas Experimental Area (Alfenas, MG, Brazil) randomized block (DBC design), with four treatments and six replications, totaling twenty-four plots. The treatments used was the dose of 60 $Kg.ha^{-1}$ K_2O, using three sources of potassium: potassium chloride (KCl), potassium sulfate and magnesium (K-Mag), phonolite rock, and the control treatment.

☛ The green mass parameters, dry weight, height and stem diameter were analized. After the crop harvest, soil samples were taken to determine the amount of residual potassium in the soil.

Conclusions

The use of phonolite rock as an alternative source of potassium is not a viable source to promote the development of sorghum, the different sources of potassium fertilizers in the soil are able to produce similar residual effect and the soluble sources of potassium (potassium chloride and K-Mag) can provide greater dry matter production in forage sorghum.

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