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## **Environment influences on agronomic and quality traits of sorghum**

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### **Abstract**

Sorghum is rich source of various phytochemicals including phenolic acids that have potential to significantly impact human health. Phytochemical production may be induced by not only genotype but a number of environmental factors including temperatures and amount of sunshine. The objective of this study was to determine the effect of planting date and harvesting stage on the agronomic and quality traits of 'Donganme' grain sorghum variety developed to produce high antioxidant activity. 'Donganme' were planted in three locations at four dates from early May to early July. Each planted fractions were harvested five times 35, 40, 45, 50, 55 days after head shooting date, respectively. Significant difference existed between the growth period and the agronomic traits. The interaction effects planting date and harvesting date was significant for plant height, tiller production, grain yield and antioxidant activity, indicating that low temperature and integrated sunshine influence on that traits. The result showed that antioxidant activity production occurred when the sorghum crop was grown in late season although the yield is lower. To produce antioxidant activity from sorghum grain need to consider the relation between the yield and nutrition component simultaneously.

**Keywords:** *Sorghum bicolor* L., Donganme, Environment effect, Antioxidant activity

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