



Coating seeds with hydro-absorbers as possible mitigation strategy for unreliable rainfall patterns in early-sown sorghum

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Introduction

Coating seeds with water conserving hydro-absorbers may be an option to maintain germination and seedling growth during early drought spells. Two varieties of sorghum (*Sorghum bicolor* L. cvs. Piper and Susu) coated with two hydro-absorbers (Stockosorb® and Geohumus®) were studied to determine the coating effects on (1) early seedlings vigor (2) seedling establishment and survival under drought.

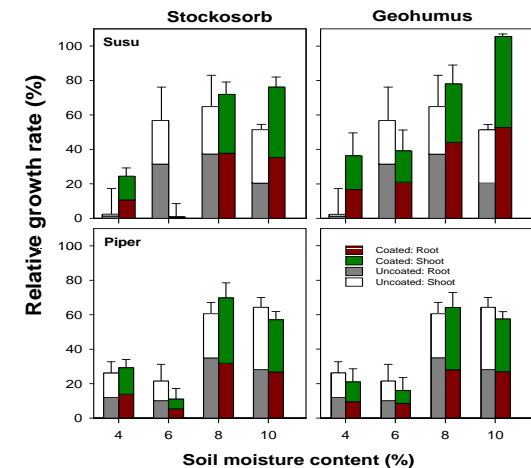


Conclusion and Outlook

- Coatings conferred a degree of protection against wilting in early drought leading to higher seedling survival rates
- Hydro-absorbers differed in their effect
- The potential for field applications of coating technologies will be tested

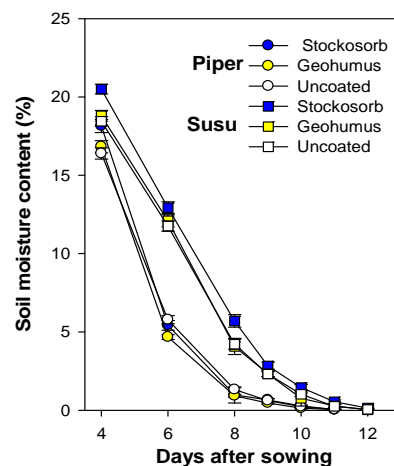


Preliminary Results and Discussion



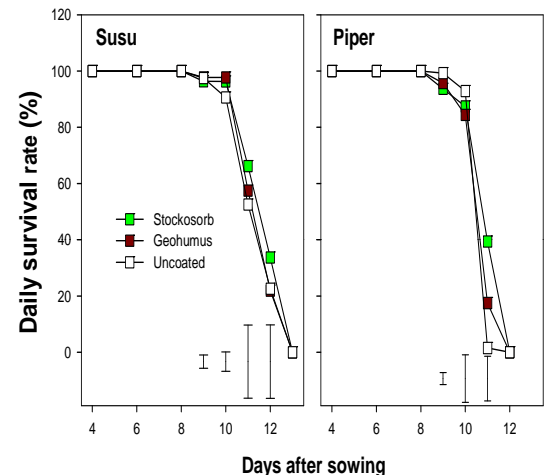
Effect of hydro-absorbers on the relative growth rate of root and shoot in two sorghum varieties (Susu and Piper) under different drought intensities. Bars = SE

- Coated compared to uncoated seeds had higher relative growth rates
- Susu had higher growth rates compared to piper
- Both Geohumus and stockosorb strongly promoted growth in susu compared to Piper



Soil moisture content over time in pots. Bars = Standard error (SE)

- Moisture content over time was higher in Susu pots compared to piper pots
- Within each variety, the change in moisture content over time was similar

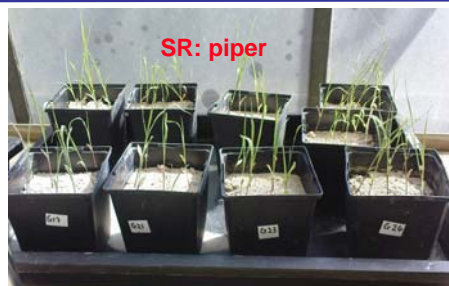


Effect of seed coats containing hydro-absorbers on the daily on survival rates of two sorghum varieties. Bars = lsd

- Larger numbers of coated seeds survived similar intensive drought stress compared to uncoated seeds
- Coats containing stockosorb supported seedling survival rates better than those containing Geohumus

Notes on material and method

- A dynamic drought experiment was conducted under semi-controlled greenhouse conditions with an ambient temperature of 20-25°C and 35-50% relative humidity
- Seven plants were grown in each pot (1452cm³) in sand and pots were replicated 5 times
- Five days after sowing, pots were allowed to dry; root and shoot dry matter was recorded every 2 days by destructive sampling from 5 pots
- Root length measured with a ruler during every sampling
- The number of plants that wilted was scored and the daily survival rate (SR) calculated



Acknowledgements

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