

Temperature influence on seed dormancy in fodder sorghum

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SUMMARY

A study was conducted at Tamil Nadu Agricultural University on 2004 to 2006 to predict the influence of weather on depth of seed dormancy in fodder sorghum variety CO FS 29. Models constructed based on correlation coefficient analysis using weather parameters were effective in seed dormancy prediction. Seed germination was influenced by the dates of sowing with maximum germination of 92% at two months after harvest

Key words : Seed dormancy, Fodder sorghum, Temperature.

Agricultural economy in the arid and most of the semi-arid regions is largely livestock based. Forage and feeds are the major inputs in animal production especially in milch animals. The forages, besides as animal feed, are bound to contribute potentially towards bioremediation of degraded ecosystem and industrial uses.

The productivity of cultivated fodder is low because of many reasons including the less availability of quality seeds of improved cultivars. Due to low economic realization the extension of area under fodder is very difficult and farmers are reluctant to cultivate the fodders and forages.

Fodder sorghum COFS 29 is high yielding, highly palatable and nutritious variety released from Tamil Nadu Agricultural University, Coimbatore. The variety is mainly propagated through seeds. In any seed production programme seed must be readily germinable for continuous multiplication and if the species is fail to establish during the season there is a chance for elimination of the species. The photoperiod and other environmental factor especially temperature during flowering and maturity may contributed more for seed dormancy. In most of the crop seed dormancy varied with flowering time (Sharif- Zadeh and Murdoch, 2000).

Considering the above, research was taken up in fodder sorghum. cv. COFS 29 to study the environmental influence on seed dormancy and to arrive a correlation matrix to know the relationship of temperature with the depth of dormancy.

Like any other Agriculturally, Horticulturally and Silviculturally valuable crops, the season of seed production is important for forage crops. Standardization of season of sowing for any newly released variety is foremost requirement and which ensures the supply of good quality seed at appropriate time. The prevailing temperature and photoperiod have its own effect on

induction of seed dormancy. It allows staggered germination and thus continuity of species is determined. Thus dormancy is a natural adaptive character of most of weeds and less cared agricultural crop species rather than cultivated species.

The effect of photoperiod during seed maturation is an important phenomenon for photosensitive plants but it has less effect on day- neutral plants like *Cenchrus ciliaris* (Geetha, 2003). In general, long days increase seed dormancy (Fenner, 1991) but it is opposite in *Avena* (Somody *et al.*, 1984). In *Chenopodium album*, long days during seed development increase dormancy (Karssen, 1970). Seeds of *Trigonella arabica* had seed coats that were relatively permeable to water in short days, and their seeds germinated immediately after imbibition (Gutterman, 1973).

Selvaraju *et al* (2004) observed that in rice cv. ADT-38 seeds harvested during November exhibited dormancy where as, the seeds harvested during February did not possess dormancy indicating the seasonal influence on seed dormancy.

MATERIALS AND METHODS

A field experiment was laid out with four date of sowing with six replications to find out the influence of weather on seed dormancy. The details of experiment were as follows

Months		Dates of sowing
M ₁	-	30 th June 2004
M ₂	-	16 th July 2004
M ₃	-	30 th July 2004
M ₄	-	16 th August 2004
Design	:	RBD
Replication	:	Six
Plot size	:	5 x 4m
Spacing	:	30 x15 cm ²