

Alleviation of dormancy of fluffs in Blou buffel *Cenchrus glaucus* cv. CO1

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SUMMARY

Cenchrus is an apomictic grass species, established from both seed and rooted slips. The freshly harvested *Cenchrus* fluffs without any seed treatment did not germinate. Acid scarified fluffs recorded 42% germination. Further soaking with ascorbic acid @ 25ppm for 16 h significantly improved germination to an extent of 39 per cent over scarified fluffs followed by CuSO_4 at 50ppm and KNO_3 at 0.5 per cent concentration. Seedling vigor was the highest with GA_3 treated seeds even though the germination (58%) was low compared to other treatments.

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Key words : *Cenchrus*, Dormancy, Pre sowing treatments

Seed dormancy is the natural phenomenon for the survival of grasses in their undisturbed ecosystem. *Cenchrus* is an apomictic grass species, established from both seed and rooted slips. In *Cenchrus glaucus* also germination itself is a problem and it needs post harvest period of about three months before sowing. *Cenchrus glaucus* (Blou buffel) cv. CO1 is a selection from the local line FS 391 released during 1989 by TNAU, Coimbatore.

Cenchrus seeds are chaffy and sold in the form of fluffs. The chaffy seeds contain true seed and the fresh glumes which inhibit the germination of true seeds due to the presence of water soluble inhibitors (Parihar and Patil, 1986; Pandeya and Pathak, 1978). Hence, an attempt was made to improve the germination of seeds by pre sowing seed treatments.

MATERIALS AND METHODS

The freshly harvested fluffs without any treatment did not germinate in the present study. Hence, the fluffs were acid scarified for 4 min, washed with water, dried to original moisture content and then graded with the specific gravity separator to remove the empty glumes and used as control. The following treatments were imposed with a soaking period of 16 h.

Treatments :

T_0 - Scarified fluffs	T_6 -50 ppm CuSO_4
T_1 - Water soaking	T_7 - 25 ppm ascorbic acid

T_2 - 0.5% KNO_3	T_8 - 50 ppm ascorbic acid
T_3 - 1% KNO_3	T_9 - 100 ppm GA_3
T_4 - 2% KNO_3	T_{10} - 200 ppm GA_3
T_5 - 25 ppm CuSO_4	T_{11} - 500 ppm GA_3

The experiment was conducted with a Completely Randomized Design with four replications. The fluffs were placed for germination in between paper medium. The test conditions were 25/30°C at 90 ±5% RH. Germination period of 14 days was adopted (ISTA, 1990). Fluff was considered as a single seed unit for counting as normal seedling. The fluffs were evaluated for root and shoot length, dry matter production and vigour index values (Abdul-Baki and Anderson, 1973). Data were analysed following Snedecor and Cochran (1967).

RESULTS AND DISCUSSION

Fluffs exhibited highly significant differences for germination, shoot length and vigour index values except root length due to different dormancy breaking treatments. (Table 1)

The germination level in the acid scarified fluff *i.e.* control was 42 per cent. The improvement caused by acid scarification alone might be due to the removal or disruption of lemma and plea allowing greater gas exchange or water movement into the seed for partial destruction or removal of specific germination inhibitors present in the freshly harvested seeds. Several studies have revealed germination improvement through acid scarification (Smith, 1971 in *Panicum*; Tischler *et al.*, 1994 in *Switch grass*).

Germination was further improved by 12.5 per cent when scarified fluffs were soaked in water for 16 h. Water soaking might have leached out some of the inhibitors

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