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SCIENTIFIC NOTE

Delaying Flowering in Wild Sugarcane

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The utilization of wild cane *(Saccharum spontaneum)* genotypes in sugarcane hybridization programme is of vital importance all over the world. The development of disease resistant and ecologically adapted sugarcane hybrid is largely dependent on the successful incorporation of *S. spontaneum* genome into the commercial hybrid. Panje (1971), Clements (1980) and Alexander (1973) reported that the *Sccharum spontaneum* clones are endowed with the qualities of disease resistance and other agronomic characteristics. Coleman (1968) reported that the production of flowering stimulus in sugarcane is a stepwise process which is started when a physiologically mature plant is exposed to an inductive photoperiod. Chu and Serapion (1971) reported that the duration of inductive light and darkness cycles necessary for differentation in sugarcane varies from clone to clone.

The major problem limiting the utilization of wild sugarcane in our current sugarcane breeding programme is the early-flowering habit of the wild clones. Normally, the peak flowering time of wild sugarcane is the middle of October while that of the cultivated canes is mid-November. The persent investigation was undertaken to delay the flowering of three wild sugarcane clones through light-interruptions.

The experiment was conducted at the Sugarcane Research & Training Institute (SRTI. Seed materials of the wild clones *(Saccharum spontaneum)* namely S_1, S_2 and S_3 were collected from the sugarcace Breeding Division of SRTI. Single-bud setts were planted in pots early February. After germination, only two young plants were allowed to grow per pot. The plants received normal cultural cares including uniform fertilization and watering throughout the growing stage. In August (180 days after planting), the light-interruption treatment was effected for one hour at mid-night and was continued for 7, 14, 21 and 28 consecutive nights. The control plants received no light-interruption treatment and were protected from such treatment by a light-proof barrier wall.

A separate study was connducted with the clones S_2 which was raised under the above mentioned condition but subjected to differential treatments. In this case, the time of initiation or the light-interruption treatment was varied by one week begining August 10 (188 days after planting) and terminated with 230 days after planting. Date of flower emergence was recorded for both the experiments and the clonal responses due to differential treatment effects were calculated.

The results of the experiment are reported in table 1-2. There is a great deal of difference in the flowering behaviour of the wild clones tested. Under natural field conditions, clone S_3 flower a few days earlier than S_2 which in turn flower earlier than S_1. None of the light interruption treatments could delay the flowering of the clones S_3 which was presumably not responsive to such treatment. On the contrary, the clnes S_1 and S_2, in response to light-inter ruption treatment for 28 consecutive nights, delayed flowering by over one week (Table 1). The imposition of two-week light interruption treatment at 230 days after planting delayed flowering of the clone S_2

Table 1. Response of the *Saccharum spontaneum* clones to light interruption treatments.

Treatments	Days to flower*		
	Clones		
	S_1	S_2	S_3
Control (No light igterruption)	257	251	245
Light interruption for 7 nights	258	253	245
Light interruption for 14 nights	258	253	245
Light interruption for 21 nights	262	257	245
Light interruption for 28 nights	265	160	245
	255**	250**.	245**

* Values are the means of at least six plants

** Indicates flower emergence under field condition.

by more than two weeks (Table 2). The results indicate that light interruption treatment has definite effect on tassel development.

Table 2. Effects of light interruption treatments on the flowering response of S_2 (*S. spontaneum*) clones

Treatments[1]	Days to flower*
Control (No light interruption)	250
Light interruption commencing 188 DAP**	250
Light interruption commencing 195 DAP	250
Light interruption commencing 202 DAP	250
Light interruption commencing 209 DAP	250
Light interruption commencing 216 DAP	258
Light interruption commencing 223 DAP	259
Light interruption commencing 230 DAP	268

* Values are the means of at least four plants.

** DAP=days after planting.

1 All treatment involved one hour mid-night interruption for 14 consecutive nights from respective dates of commencements.

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