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Temesgen Begna\*

Ethiopian Institute of Agricultural Research, Chiro National Sorghum Research and Training Center, Ethiopia

### Abstract

The exponential growth of the human population and increasing climatic change are major challenges to global agriculture because of the need for sustainable food production to feed the growing population. Plant breeding plays

D VLJQL¿FDQW UROH LQ UHVROYLQJ DJULFXOWXUDO SUREOHPV DQG HQKDQFLQJ E  
SRSXODWLRQ %UHHGLQJ QHZ DQG KLJK SHUIRUPLQJ FXOWLYDUV ZLWK PDUNHW S  
DEVHQFH RI DQ LQWHJUDWHG SUH EUHHGLQJ SURJUDP 'XULQJ WKH HDUO\ SKDVH  
VSDFH DQG UHVRXUFHV DUH LQYHVWHG LQ WKH VHOHFWLRQ DQG JHQHWLF DGYDQ  
ZLWK SDUHQWDO JHQRW\SHV 6SHHG EUHHGLQJ KDV WKH SRWHQWLDO WR UHGX



(LEDs) was used; hence, adjusting the photoperiod to approximately 10 hr and increasing the amount of blue light facilitated the growth of short-day crop species such as soybean plants, which flowered 23 days earlier than did normal plants and achieved advanced crop maturity within 77 days, thus facilitating the growth of up to 5-6 generations of

breeding methods can also be used to synchronize the oowering of





