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A NOTE ON THE UTILIZATION OF LIGHT IN RELATION TO TOTAL DRY MATTER PRODUCTION IN SUNFLOWER

The efficiency of light utilization varies throughout the life cycle of a crop. Gaastra (1963), while conducting studies on a sugar beet crop, observed that the crop accumulated the greater part of its dry matter in the middle of the season when the plant was actively growing and the canopy nearly complete. In the earlier stage of the crop growth, the efficiency of light utilization was low, because of the insufficient plant canopy.

Ratnam *et al.* (1974) have studied the light utilization pattern in different field crops, during their active stage of growth. But simulteneous measurements of dry matter production were not made. In the present note observations of light utilization and dry matter production made in sunflower crop, which is becoming popular in transition tract of Dharwar, at different stages of growth, is reported.

Sunflower -variety Sunrise was sown at an interval of 7 days from June 7, 1974 with a spacing of 60 x 30 cm. A fertilizer dose of 40 N, 60 P_2O and 30 K_2O kg/ha was applied. The observation were made between 12.30 to 1.00 p m. on August 30, 1974 at different stages of crop growth, viz., grain filling (76 days ,

Table J

Light utilization and dry matter production in **sunflower** at Dharwar on August 30, **1974**

Stage of the crop	Age (days)	Height (cm)	Light intensity (taken at foot candles)				Dry weight/plant (gm)
			h	0.5 h	0.25 h	Ground level	
Grain filling	76	200	12500	1080 (8.6)*	750 (6.0)	550 (4.4)	269.2
Flower initiation	60	145	12500	1550 (12.4)	1250 (10.0)	900 (7.2)	84.0
Bud initiation	*44*	70	12500	1500 (12.0)	1 250 (10.0)	**1250** (10.0)	24.5

Figures in brackets show the percentages.

flower formation (60 days) and initiation (44 days). Light measurements were made near the centre of each plot by using a Weston Sunlight Illumination Meter (Model 756) with a quartz filter.

It is observed that at grain filling stage both the light utilization (95.6 %) and the dry matter production (269.2g/plant) were maximum where as the lowest values of these parameters were found at the bud initiation stage (Table 1).

Though the magnitudes of light utilization almost appeared to be similar for all the three stages, much of the light energy was wasted in the flower initiation and bud initiation stages when the whole plot was considered because of the insufficient canopy and corresponding bare spaces.

സംഗ്രഹം

വെസ്റ്റൺ സൺലൈറ്റ് ഇല്യുമിനേഷൻ മീറ്റർ ഉപയോഗിച്ചു നടത്തിയ ചില പരീക്ഷണങ്ങളിrati നിന്നും സൺഫ്ളവർ ചെടി സൂര്യപ്രകാശം ഏറ്റവും കൂടുതൽ ഉപയോഗിക്കുന്നതു് കായ് ഉറയ്ക്കുന്ന സമയത്താണെന്നും ഏറ്റവും കുറവു ഉപയോഗിക്കുന്നതു് മുകുളങ്ങൾ ഉണ്ടാകുന്ന സമയത്താണെന്നും കണ്ടു.

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