

Harvest Index of Soybean Varieties in Sorghum Based Cropping System*

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The most important component of an improved plant type in pulses must be considered as high harvest index, which is the ratio of economical yield to the biological yield. Selection of crop varieties for a high harvest index possible on phenotypic basis. The main factor responsible for low grain yield of pulses is due to their poor harvest index.

Harvest index, in pulse crops, is largely a function of photosynthetic activity which declines as pod formation starts and not because of poor sink capacity. Indeed, the sink in many of pulses appears to be unusually large when one considers the flowering potential of these crops. Many of the flowers formed are lost due to shedding and the pods which do develop are only partially filled (Jain, 1975).

The objective of the present study was to identify the soybean variety with highest harvest index among the promising varieties in sorghum based cropping systems.

The experiment was conducted at Department of Agronomy, Agricultural College and Research Institute, Coimbatore, during South West Monsoon season, 1978. Five soybean varieties namely UGM20, M₂, M₃, CuJ 27/8 and Punjab-1 were tested. Three systems of cropping viz., uniform row with Co, 9 lab-lab (C₁); soybean varieties (C₂) and paired row system with soybean varieties (C₃) were adopted. Two levels of nitrogen 60 (N₁) and 80 (N₂) kg N per ha were imposed over a common basal dose of 60kg P₂O₅ per

ha and 45kg K₂O per ha. The experiment was conducted in split plot design with three replications.

The harvest index was significantly influenced by varieties, cropping systems and nitrogen levels. The data pertaining to the harvest index of soybean varieties are furnished in the table. The varieties Pubjab-1 and UGM₂₀ have shown higher harvest index numbers of 0.21 and 0.14 respectively. The superiority of the cropping systems and the nitrogen levels have also influenced the harvest index. In this case uniform row system of planting and 80 kg N per ha level showed an increased harvest index number over paired row system and 60 kg N per ha application. The interaction between cropping systems, soybean varieties and nitrogen levels were also significant. In both the systems and nitrogen levels, Punjab-1 was a good performer. In case of all the soybean varieties uniform row planting was found to be effective in influencing the harvest index. While lab-lab did not show any significant influence by the levels of nitrogen tried in this trial.

REFERENCE

- JAIN, H. K. Development of high yielding varieties of pulses: Perspectives, possibilities and experimental approaches, International Workshop on Grain Legumes, January 13-16 1975, ICRISAT, India, p. 182.

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TABLE : Harvest Index of Soy Bean Varieties

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Varieties	Cropping system N levels	Uniform Row system			Paired row system			Mean	N levels varieties	60kg	80kg	Mean
		60kg	80kg	Mean	60kg	80kg	Mean					
UGM ₂₀		0.14	0.14	0.14	0.14	0.15	0.15	0.14	UGM ₂₀	0.14	0.14	0.14
M ₂		0.09	0.09	0.09	0.07	0.09	0.08	0.08	M ₂	0.08	0.09	0.08
M ₉		0.09	0.13	0.11	0.06	0.07	0.07	0.09	M ₉	0.08	0.10	0.09
Cul 27/8		0.10	0.14	0.12	0.10	0.10	0.10	0.11	Cul 27/8	0.10	0.12	0.11
Punjab-1		0.22	0.25	0.23	0.16	0.21	0.18	0.21	Punjab-1	0.19	0.23	0.21
Mean		0.13	0.15	0.14	0.10	0.12	0.11	0.13	Mean	0.12	0.14	0.13
									Lab-lab	0.48	0.53	0.51

Harvesting stage

SED C, D.

Source

Varieties

Cropping systems

V x C

N

N at V

V at N

N at cropping systems

Cropping systems at N

Lab-lap at N levels

0.014

0.009

0.020

0.004

0.009

0.016

0.006

0.010

0.029

0.030

N. S.

0.013

0.008

0.020

0.033

M. S

N. S

N. S