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MIXED CROPPING STUDIES IN SESAMUM

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The mixed cropping studies in Sesamum was conducted at the Tamil Nadu Agricultural University, Coimbatore both in summer and monsoon seasons. The results clearly indicated that sesamum with cowpea or greengram in 1:1 or 2.1 ratios or paired row planting was found superior to pure sesamum. 25 kg N/ha was found better than 50 kg N/ha.

Water is available for irrigation. Mixed cropping a way of life in tropical agriculture was considered till recently as a sign of primitive agriculture. The Scientists world over have realised the importance of mixed crop stands. Adequate fertilization of mixed stands need thorough understanding of the crops and their behaviour in mixed culture (Gangawar and Kalra, 1979). Jagannathan *et al* (1974) reported more net profit in intercropped maize and soybean Harti and Ray (1982) observed that intercropping of blackgram in pigeonpea not only gave higher profit but also maintained the fertility status of the soil at a higher level. Similar intercropping studies with the sesamum was very meagre. Hence a study on the mixed cropping with sesamum was undertaken.

MATERIAL AND METHODS

Field experiments were conducted during summer (March to May) 1977, 1978 and 1979 and monsoon season (August to October) 1978 and 1979 at the Tamil Nadu Agricultural University, Coimbatore. The design was split plot with ten treatments in the main plot and two nitrogen levels in sub plot treatments replicated thrice. The main plot treatments were sesamum + greengram 1:1 (T_1), sesamum+greengram 2:1 (T_2), sesamum+blackgram 1:1 (T_3), sesamum+blackgram 2:1 (T_4), sesamum + cowpea 1:1 (T_5), sesamum+cowpea 2:1 (T_6), sesamum (paired row)+greengram 2:1 (T_7), sesamum (paired row)+blackgram 2:1 (T_8), sesamum (paired row)+cowpea 2:1 2:1 (T_9), and sesamum alone (T_{10}): the sub plot treatments 25 kg (F1) and 50 kg (F2) N/ha. All the treatments received a basal dose of 25 kg P_2O_5 and 25 kg K_2O per hectare. Fifty per cent of nitrogen was given as basal and the balance was given 25th day after sowing. Spacing adopted was 30X10cm for the normal crop and for paired row 20cm for paired row and 40cm between pairs. Sesamum varieties S.i. 1055/1 and S.i. 1740 were raised in summer and monsoon seasons respectively. The intercrops viz, greengram (Co3), blackgram (Co.4) and Cowpea(PLS

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370) were tried in both the seasons. Normal intercultural operations were carried out.

RESULTS AND DISCUSSION

The yield recorded in various treatments were presented in table. The trend showed clearly that inter-cropping system sesamum plus cowpea on greengram either on 1:1 or 2:1 or in paired row recorded higher net return than from the pure crop of sesamum. From the table it could be seen that the performance of pure crop as well as the mixed crop was better in summer than in the monsoon season. The yield of mixed stands was superior to sesamum alone in both the seasons. Similarly the yield of pure Sesamum at low nitrogen level (25 kg N/ha) was higher than that at 50 kg N/ha level. At higher level of fertilizer sesamum recorded lower yield. It might be due to the shading effect resulted on account of more vegetative growth. (Arunachalam, 1976). Besides, the legumes crop would have contributed to the fertility of the soil resulted in the enhanced vegetative growth which in turn resulted in lower yield because of shade effect. Syariffuddin *et al* (1974) reported an increase in shading effect when a corresponding reduction in legume yield at a higher densities of maize. This reveals that wider spacing of row crop would be required if higher yields of legume are desired. In general the yield of sesamum was not reduced by the inclusion of legumes. Heavy rains affected the monsoon crop severely and this led to poor yeild. A total of 386 mm and 953.8 mm of rainfall received in the monsoon seasons of 1978 and 1979 in 25 and 34 rainy days lespectively. The yield data clearly showed that sesamum mixed with legumes cowpea or greengram in 1:1 or 2:1 or in paired row system would be advantageous. Baskaran (1976) reported that greengram was the best companion crop in sesamum pulse mixture. The present investigation was also in agreement with the above finding. Thus mixed cropping as an agronomic strategy suggests itself as an attractive proposition to attain the turin objective of increasing the yield and improving the fertility status of the soil.

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