MF/KG
TRAINING PROGRAM.

FARMING SYSTEM PROGRAM
AGROCLIMATOLOGY SUB PROGRAM.

- REPORT -

OF

EXPERIMENT II-IC-IO

"INTER CROPPING SORGHUM COWPEA"

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SENEGAL
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INTRODUCTION :

In order to increase and stabilize crop production in the semi-arid tropics, it is imparative that any technology for land and water management, and crop production must be aimed at improved ressource management wich the soil and rainfall efficiency. Inter cropping is a system for achieving good yield. Sorghum, one of the main crop in the S.A.T. area, and cowpea are adapted to grown on the same field.

II. **MATERIAL AND METHODS**

a) Soil field experiment was conducted on black (vertisoils) B. 2A of ICRISAT Center.
Before start of the experiment the soil 0-30cm was analysed for physico chemical propreties.

Soil Depht cm	pH	EC mmhos/cm	Organic carbone %	Available phosphorur in PPM
0 - 15	8,26	0,16	0,25	7,0
15 - 30	8,31	0,15	0,41	3,5

b) Seeds Sorghum SVP 475 Cowpea C 152 were obtained from training program.

c) Fertilizer

Single Super phosphate 242.85 kg/ha and Urea top dressing. 60 kg N/ha (130.5 kg urea/ha) Urea only for sorghum.

III - EXPERIMENTAL - DETAILS

A Randomized block Design (RBD) with 6 treatements and four replications as given in (table 1) ,
Gross and net plot sises were 5m x 3m = 15 m2.

Table 1 : Détails of the treatements

Treatements	Symbols
Sole Millet	T1
Sole Cowpea	T2
1 Sorghum 3 Cowpea	T3 (S1 : CP3)
2 Sorghum 2 Cowpea	T4 (2 : 2)
2 Sorghum 3 Cowpea	T5 (2 : 3)
2 Cowpea+ 2 Sorghum	T6 (2 : 2)

Date of sowing : 20.6.85
Emergence Cowpea : 24.6.85
Emergence Sorghum : 26.6.85

IV- RESULTS AND DISCUSS:ION

Scryhum There was a significant di fference statically between the combinaison T6 (2CP-2S) , Tl (Sole SORG), T4 (2S :2CP) and T5 (2S:3CP), T3 (1S:3CP).

The yield in T6 - Tl-T4 are equal statically, T3 are the lcwest ; hcwever the combinaison T6-(2CP-2S) yielded more grain yield than sole scrghum. T6 was 1,2% highest than sole scrghum but T) Sole scrghum are highest than T3 - T4 - T5.

Acoording to ccwpea : sole cowpea yield grain was more than intercrcp 12% more than T6 688kg/ha. T5 are the lcwest, in this treatement tree Rows of ccwpea affected the yield.
In this experient. the best combinaison is T6 (2CP-2S). Land Equivalent rati c (LER) and monatary value are ccmpared between treatements T6 and T4 are statically equal and different tc T3, T5, these twc treatements are also equal.

SUMMARY DATA OF CHARACTERS

REATEMENTS	SORGHUM					COWPEA		LER	Monetary return RS
	50% flowering	Plant Height(cm)	Panicules harvested 000/S	100 (g) grains weigh	Grain yield kg/ha	100 (g) grains weigh	Grain yield weigh kg/ha		
le Sorghum	67	135	118	17	1950	115	818	1	2925
le Cowpea						115	818	1	4088
+ CP (1:3)	78	91	60	15	940	112	735	1,5	5085
+ CP (2:2)	70	114	109	17	1868	112	643	1,8	5989
+ CP (2:3)	73	108	80	17	1395	111	593	1,5	5055
+ S (2:2)	70	116	120	18	1973	115	688	1,9	6366
P=0,05)	**	**	**	NS	**	NS	**	**	**
±	0,94	3,44	4.07	0,24	36,61	0,3	15,47	0,05	147.89
%	3	6	8	3	5	1	4	7	4

V CONCLUSION :

Based on the result of this experiment the folowing conclusion can be drawn.

T6 2 Cowpea, 2 Sorghum are the best combinaison.
1 Sorghum, 3 Cowpea are the lowest.
The low yield is due in one part to shoot fly damage (shoot fly damage is observed visually and scored 5).
This year also, crops are seriously suffuring from water deficit (477mm in 1985) 1 june t-o 16 October but in this case intercropping cereals and legumes are good combinaison for suppleying the crop production deficit.

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