EVALUATION OF COTTON BASED CROPPING SYSTEMS UNDER COIMBATORE CONDITIONS

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ABSTRACT

Field experiments were conducted at the Tamil Nadu Agricultural University, Coimbatore during 1991-92 and 1992-93 under irrigated conditions to identify suitable cotton based cropping system under Coimbatore conditions. Results revealed that cotton (MCU 5)-tomato (Co 3) gave a maximum net income of Rs.26,900 and Rs.33, 150 during 1991-92 and 1992-93 respectively. Cotton (MCU 5)- soybean (Co 1) and cotton (MCU 5) - maize (Co1) systems also recorded more net income next to the cotton-tomato cropping system.

KEY WORDS : Cotton, Cropping System, Net Return Cotton is grown as a winter crop from August to February in black soil areas of Coimbatore, Tamil Nadu under irrigated conditions. After the harvest of cotton crop, the field is kept vacant or an uneconomical crop is raised till next August. With the arm of increasing the cropping intensity and to identify on suitable cropping system, an experiment was conducted to find out the most suitable crop that can be grown profitably after the harvest of winter combodia cotton

MATERIALS AND METHODS

Field experiments were conducted at the Tamil Nadu Agricultural University, Coimbatore under All India Coordinated Cotton Improvement Project during 1991-92 and 1992-93 to find out the suitable cotton based cropping system under Coimbatore conditions. The soil was clay loam with low, medium and high in available N, P and K in both the years. During the winter season, cotton variety MCU 5 was sown in both the years. The cotton crop was sown on 27.7.91 and 17.7.92 during 1991-92 and 1992-93 respectively. After the harvest of cotton crop, five crops, viz., sorghum (Co 26), maize (Co 1), sunflower (Co 1) soybean (Co 1), and tomato (Co 3) were sown during 1991-92. In the year 1992-93, gingelly (Co2) was included in addition to five crops tested during the first year. The crops were sown / planted on 9.2.92 and 9.2.93 during the respective years. The experiment was laid out in randomised block design with three replications. Necessary irrigation and need based plant protection were given to all the crops. After the harvest, the yields were recorded and the

RESULTS AND DISCUSSION

The results revealed that the yield of cotton MCU 5 was normal in both the years (Table 1). Among the succeeding crops, tomato (Co3) recorded a fruit yield of 267 and 245 q ha^{-1} during 1991-92 and 1992-93 respectively. The seed cotton yield equivalents to tomato were 28.7 and 36.7 q ha^{-1} which were highest among all other succeeding crops. Next to tomato, soybean (Co 1) and maize (Co 1) produced more seed cotton yield equivalents in both the years. Among other crops tested, performance of gingelly (Co2) and sunflower (Co 1) was poor. Among various crops tested, gingelly (Co2) and sunflower (Co 1) recorded the lowest yield and seed cotton yield equivalent. This is inconfirmity of the findings of Chareau (1975) and Bonde (1992) who reported that maize and sorghum grow well after the cotton crop.

The economics of the different systems revealed that cotton (MCU) 5 - tomato (Co3) sequential cropping system gave a maximum net income of Rs.26,900 and Rs.33,150 during 1991-92 and 1992-93 res ectively. The second best system

MATERIALS A' :conomics of cotton based cropping system

Field expe Tamil Nadu ' during the 1993-9'	Seed cotton yield q ha⁻¹	Succeeding crop yield q ha⁻¹	Seed cotton yield equivalent q ha⁻¹	Gross return Rs. ha⁻¹	Net income Rs. ha⁻¹	Benefit cost ratio
			1991 - 92			
...orghum Impr. , 5) (Co 26)	18.2	38.6	7.7	25920	14920	2.35
spr .tton - Maize (MCU 5) (Co 1)	18.2	43.6	10.9	29100	18100	2.65
Cotton - Soybean (MCU 5) (Co 1)	18.2	18.2	14.6	32760	21260	2.83
Cotton - Sunflower (MCU 5) (Co 1)	18.2	7.8	4.7	22880	11880	2.08
Cotton - Tomato (MCU 5) (Co 3)	18.2	287.0	28.7	46900	26900	2.35
			1992 - 93			
Cotton - Sorghum (MCU 5) (Co 26)	16.40	32.4	8.1	24500	13500	2.22
Cotton - Maize (MCU 5) (Co 1)	16.40	41.2	14.4	30.820	19820	2.80
Cotton - Soybean (MCU 5) (Co 1)	16.40	14.6	11.6	28080	16580	2.44
Cotton - Sunflower (MCU 5) (Co 1)	16.40	7.20	3.6	20000	9000	1.81
Cotton - Tomato (MCU 5) (Co 3)	16.40	245.0	36.7	53150	33150	2.66
Cotton - Gingelly (MCU 5) (Co 2)	16.40	3.80	3.0	19440	8440	1.76

Cost of produce	1992 (Rs/q)	1993 (Rs/q)	Cost of cultivation ha⁻¹
Cotton	1000	1000	8000
Sorghum	200	250	3000
Maize	250	350	3000
Soybean	800	800	3500
Sunflower	600	500	3000
Gingelly	-	800	3000
Tomato	100	150	12000

was cotton (MCU 5) - soybean (Co 1) during 1991-92 and cotton (MCU 5) maize (Co 1) system during 1992-93 and these systems gave a net income of Rs.21,250/- and Rs.19,820/- respectively. The data on benefit cost ratio revealed that cotton soybean system recorded maximum benefit -cost ratio of Rs.2.83 during 1991-92 whereas cotton - maize system recorded a maximum value of Rs.2.80 during 1992-93. The second best system was cotton - maize during 1991-92 and cotton -tomato during 1992-93. The third best sequential cropping system was cotton -sorghum and cotton-tomato during 1991-92 and cotton-soybean system during 1992-93. Cotton-sunflower and cotton - gingelly system .nve o l he ears.

It can be concluded that the sequential cropping system of cotton (MCU 5) - tomato (Co3) or cotton (MCU 5)-soybean (Co1) or cotton (MCU 5)- maize (Co 1) can be adopted for better monetary returns under Coimbatore conditions.

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