

Cropping Pattern in Malprabha Command Area of Karnataka, an Analysis

For sustainable agricultural production soils, water resources, climatic conditions and cropping pattern have to be studied in detail. Out of these only the cropping pattern can be practicably manipulated by the way of adopting modern technologies to suit the demands of higher crop productions for ever increasing population of the country. The area under irrigation was 85 m ha in 1990 and it will touch the maximum feasible area of 113 m ha in 2000/2005 A.D. Out of these irrigated area, lion's share is constituted by major irrigation projects. While planning these irrigation projects. Certain cropping patterns were envisaged considering the water availability. Soil and climatic conditions for each of the projects, e.g., in Malprabha command as only 20 per cent of area should be under biseasonal crops and growing of paddy was banned. However, these recommended cropping patterns as originally planned for the project are found not to be adopted by command area farmers because of many reasons. Some of the reasons identified through survey are water availability, pest/disease problem, market prices etc. Out of these water availability and distribution is one of the most important reason. The original storage capacity of the reservoirs has been reduced due to siltation. Added to this violation of notified area, physical status of canal structures, location of field (tail end) were resulted in unequal distribution in canal water and shift in cropping pattern. The fluctuations in cropping pattern causes scarcity/excess production in certain commodities besides soil health and crop pest hazards. This calls for monitoring the

cropping pattern in command areas regularly to ensure timely corrective measures. Under this background, attempts have been made, to study the cropping pattern in Malprabha Command Area for three years (1991-92 to 1993-94). For the present study, the data on cropping pattern as reported by irrigation department has been used. During these three years canal water was available for both *Kharif* and *Rabi* seasons. The canal water availability period in different years were 252, 216 and 236 days during 1991-92, 1992-93 and 1993-94 respectively.

The Malprabha project is one of the important major irrigation projects of Karnataka State providing protective irrigation to drought prone areas of 2.18 lakh ha (ultimate) of Dharwad, Belgaum and Bijapur districts. The storage capacity of reservoir is 37.73 TMC feet and the water was made available for irrigation for the first time from canal system in the year 1974-75. Malprabha water is potable and good for irrigation.

The water is conveyed by Malprabha Right Bank Canal (MRBC), Malprabha Left bank canal (MLBC), Kolchi canal and lift irrigation schemes. The region lies between longitudes 75° - 15E and 76°-00 'E and latitude 15°-20 'N and 15° - 45 'N. It forms part of the north dry zone of Karnataka and falls under semi arid climatic conditions having annual rainfall in the range of 500-600mm. In the command 90 to 95 per cent of the soils are grouped under vertisols. In general, the water table is very deep and the ground water is saline.

Considering the soil conditions, the rainfall in the command area, the agricultural practices and the availability of water for utilisation at the dam and the diversion points, the following cropping pattern has been suggested under this project.

Kharif : 40% *Rabi* : 40% Biseasonal : 20%

Hence, at any given time sixty per cent of the command area is under irrigation.

The area under different crops in various seasons during 1991-92 to 1993-94 is presented in table 1 and depicted in Fig.1. the analysis of the data revealed that,

- Out of the ultimate potential of 2,18,191 ha only 64.2 per cent area is notified upto 1993-94.
- Out of the total notified area the actual water utilised for crop production was in the range of 77.7 to 82.5 per cent during different years.
- Out of the total area cropped cereals, cotton, oilseeds and pulses constituted 50.7, 28.2 and 3.7 per cent, respectively.
- Among cereals maize occupied major area (44.3%) followed by wheat (35.5%) and sorghum (20.2%).
- In oilseeds only two crops are grown namely groundnut (62.6%) and sunflower (37.4%).
- The area under cotton decreased by 14.2 and 35.2 per cent in the year 1992-93 and 1993-4 respectively as compared to the year 1992-92.
- The area under maize and wheat in 1993-94 increased by 54.1 and 38.3 per

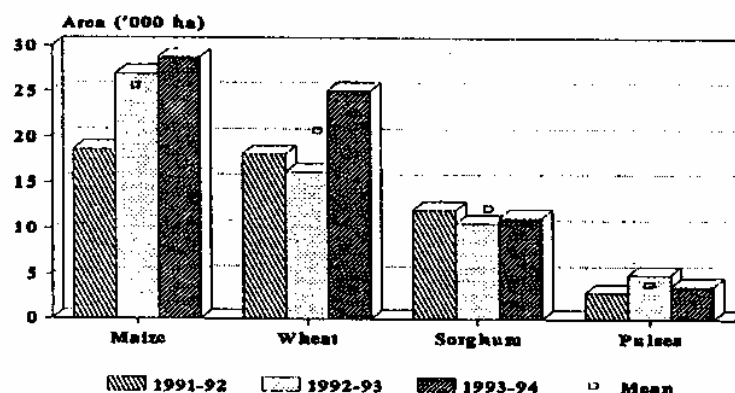
cent respectively as compared to the area during 1991-92.

- Oilseeds area has shown the decreasing trend.
- The total area under pulses is very low and it is fluctuating. The majority of pulse area is in *rabi* season occupied mainly by chickpea.
- The area under the category others has shown increasing trend. It was only 2.8 per cent in 1991-92 which went up to 9.7 per cent in 1993-94. The crops like paddy in low laying portions of the individual holdings, horticultural crops (onion and chilli) etc. are grouped in this category.
- Majority of maize area (86.7%) was in *Kharif* season.
- Growing of sunflower in *rabi* season has shown decreasing trend.
- The fodder and plantation crop component is lacking in the cropping pattern.

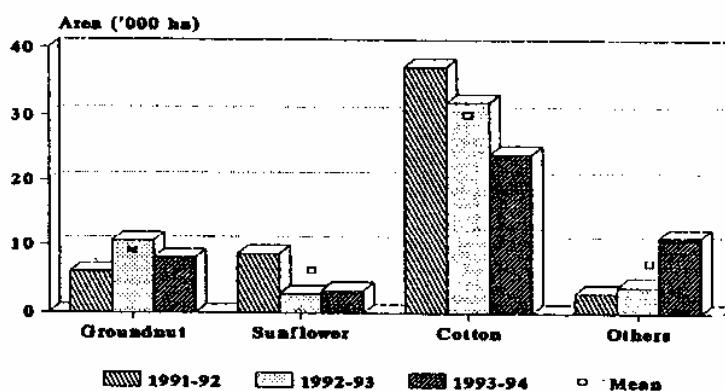
The study of cropping pattern in Malprabha Command indicated that, even though the canal water was assured for both the season during all the years, there existed shift in cropping pattern. The farmers of the command are preferring to grow on more area the high water requirement crops like maize in *Kharif* and wheat in *rabi* season. Likewise, though area under biseasonal cotton has shown decreasing trend it was still above, the suggested 20 per cent. The data also indicated that, there is no scope for fodder and horticultural component in the cropping pattern of the command. In the recent years late

Table 1. Cropping pattern in Malprabha Command area(ha).

Year	Season	Cereals			Total	Oilseeds		Pulses	Cotton	Others	Total area	Notified area
		Maize	Wheat	Sorghum		G.nut	Sunflower					
1991-92	Kharif	15749	-	4908	20657	2077	1912	314	9388	1639	35987	54851
	Rabi	1495	18126	6567	26188	3622	6383	2675	7672	773	47313	53260
	Biseasonal	1420	-	602	2022	298	357	5	20179	464	23325	26755
	Total	18664	18126	12077	48867	5997	8652	2994	37239	2876	10625	134866
1992-93	Kharif	23339	-	6111	29450	2532	1605	110	7306	2721	43724	56043
	Rabi	536	16199	4067	20802	7973	919	4625	5282	163	39764	55571
	Biseasonal	3050	-	432	3482	186	269	241	19356	980	24514	27363
	Total	26925	16199	10610	53734	10691	2793	4976	31944	3864	108002	138977
1993-94	Kharif	25394	-	5873	31267	3522	1391	177	4998	3453	44808	56499
	Rabi	1323	25078	3516	29917	4132	1131	3490	3544	7051	49265	55897
	Biseasonal	2043	-	1823	3688	402	805	34	15593	787	21487	27606
	Total	28760	25078	11212	65050	8056	3327	3702	24135	11291	115560	140002
Mean	Kharif	21494	-	5631	27125	2710	1636	200	7231	2604	41506	55798
	Rabi	1118	19801	4717	25636	5242	2811	3597	5499	2662	45447	54909
	Biseasonal	2171	-	952	3123	295	477	280	18376	744	23109	27241
	Total	24783	19801	11300	55884	8247	4924	4077	31106	6010	110062	137948



A. Cereals and Pulses



B. Oilseeds, Cotton and other crops

Fig. 1 Area under different crops in Malprabha Command during three successive optimum canal water supply years.

release or early closure of canal water supply in this command area has become a regular feature. Further, extending the canal to the full projected area, one can anticipate definite apprehension of imbalance in water

availability and distribution for crop production. This calls for adoption of suitable cropping pattern so as to adjust the water allocation for equitable distribution.

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