ompost not only fulfilled the phosphorus requirement of greengram but it also met the phosphorus requirement of succeeding rabi orghum. Therefore, it is possible to supply the phosphorus through phospho compost once kharif to fulfil the phosphorus requirements of both the crops in sequence under dryland conditions.

References

hanavase, D.B., Rasal, P.H., Jadhav, B.R. and Patil, P.L. (1994). Mineralization of nutrients during production of phospho-compost. *J. Indian Soc. Soil Sci.* 42: 145-147.

athur, B.S., Sarkar, A.K. and Mishra, B. (1980). A study on rock-phosphate changed compost. *J. Indian Soc. Soil Sci.* 28: 206.

ishra, M.M., Kapoor, K.K. and Yadav, K.S. (1982). Effect of compost enriched with mussorie rock phosphate on crop yield. *Indian J. Agric. Sci.* 52: 674.

Misra, U.K. and Panda (1969). Utilization of rock phosphate as phosphate source. *Indian J. Agric. Sci.* 39: 353.

Rasal, P.H., Jadhav, B.R., Kalbhor, H.B., Bhanavase, D.B., Konde, B.K. and Patil, P.L. (1996). A study on production and evaluation phosphocompost on yield of soybean and sorghum. *J. Maharashtra Agric. Univ.* 21: 361-364.

Raundal, P.U., Sabale, R.N. and Dalvi, M.D. (1999). Effect of phospho-manures on crop yield in greengram-wheat cropping system. *J. Maharashtra Agric. Univ.* 24: 151-154.

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ssearch Notes

Identification of efficient cropping zone for sugarcane in Tamil Nadu

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Sugarcane is the main source of sugar 90%) in India and holds a prominent position a cash crop. India has the largest area under igarcane in the world and also has neck-neck race with Brazil in case of production. igar industry is the second largest agro-based dustry in India. In Tamil Nadu, sugarcane being cultivated in almost all districts. On oductivity (production ha⁻¹) basis Tamil Nadu nks first in India. Though sugarcane is being cultivated widely in Tamil Nadu, the yields are varying much due to the variation of climate and edaphic factor. So there is a need to identify the efficient cropping zone (ECZ) for increasing the productivity and area under sugarcane.

A study was carried out at Tamil Nadu Agricultural University, Coimbatore during 2001 to identify the ECZ for sugarcane in Tamil Nadu. The district and state data related to area, production and productivity of sugarcane and data on total cultivable area were collected for five years (1991-92, 1992-93, 1993-94, 1994-95 and 1995-96) from Agrostat (1996).

Table 1. Criteria for ECZ

Efficiency category	RYI	RSI	Cropping zone
1	125 (High)	100 (High)	Most ECZ
2	125 (High)	<75 (Low)	ECZ
3	<75 (Low)	100 (High)	Not ECZ
4	<75 (Low)	< 75 (Low)	Not ECZ

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Table 2. Efficient cropping zone for sugarcane in Tamil Nadu

Sl. No.	District	RYI								RSI								Crop-ping zone
		1991 -92	1992 -93	1993 -94	1994 -95	1995 -96	Mean	CV (%)	Cate-gory	1991 -92	1992 -93	1993 -94	1994 -95	1995 -96	Mean	CV (%)	Cate-gory	
1.	Kancheepuram	113	90	100	89	88	96	10.65	H	74	79	75	80	76	77	2.58	H	MECZ
2.	Cuddalore	102	86	105	79	77	90	12.98	H	229	210	195	198	235	213	18.00	H	MECZ
3.	Villupuram	78	81	86	80	79	81	2.11	H	209	204	208	217	189	205	10.31	H	MECZ
4.	Vellore	59	64	62	53	79	63	9.66	L	142	183	220	218	205	180	39.83	H	Not ECZ
5.	Thiruvannamalai	89	81	85	72	70	79	8.44	H	134	116	149	131	137	133	11.89	H	MECZ
6.	Salem	131	100	114	104	93	110	14.74	H	91	123	124	90	95	105	17.36	H	MECZ
7.	Dharmapuri	85	109	96	60	80	79	13.30	H	74	91	85	69	77	155	24.46	H	MECZ
8.	Erode	119	80	106	96	102	109	10.57	H	131	130	183	158	175	122	18.22	H	MECZ
9.	Coimbatore	119	120	91	66	88	92	18.86	H	127	140	102	138	104	115	20.21	H	MECZ
10.	The Nilgiris	92	94	102	77	97	92	9.36	H	1	1	1	1	2	1	1.00	L	Not ECZ
11.	Thanjavur	101	91	99	72	102	91	13.32	H	124	118	71	78	84	95	24.26	H	MECZ
12.	Nagapattinam	77	83	81	61	90	77	10.58	H	45	37	52	38	42	43	20.15	L	ECZ
13.	Trichy	102	77	122	85	109	104	13.37	H	103	100	95	121	103	104	9.86	H	MECZ
14.	Pudukkottai	91	103	102	78	105	92	11.19	H	20	27	22	23	47	28	6.05	L	ECZ
15.	Madurai	104	86	112	70	89	95	16.25	H	153	110	85	128	90	80	11.03	H	MECZ
16.	Dindugal	106	100	125	89	77	98	16.37	H	78	70	85	75	90	83	7.96	H	MECZ
17.	Ramanad	97	94	102	76	98	92	9.38	H	1	2	3	5	2	3	1.52	L	ECZ
18.	Virudhunagar	98	88	109	72	92	92	13.61	H	100	114	206	103	120	109	8.23	H	MECZ
19.	Tirunelveli	95	86	111	74	58	85	20.17	H	75	63	68	61	60	69	14.64	L	ECZ
20.	Sivagangai	98	86	102	78	92	91	9.55	H	126	135	145	131	123	132	8.60	H	MECZ
21.	Tuticorin	98	80	102	78	99	91	11.44	H	3	3	2	3	8	4	2.39	L	ECZ

The collected data were used to compute relative yield index (RYI) and relative spread index (RSI) as described by Kanwar (1972).

RYI =

$$\frac{\text{Mean yield of a particular crop in a district}}{\text{Mean yield of that particular crop in the state}} \times 100$$

RSI =

$$\frac{\text{Area of the particular crop expressed as percentage of total cultivable area in the districts}}{\text{Area of that crop expressed as percentage to the total cultivable area in the state}} \times 100$$

For each year, the RYI and RSI were calculated separately and finally mean of five years was arrived to fix up the ECZ. By combining both indices, four classes of cropping zone were identified as given in Table 1.

In addition, co efficient of variation (CV) was also computed for RYI and RSI for each district among the year of study.

From the computed data (Table 2) it can be interpreted that, out of 21 districts in Tamil Nadu where the sugarcane is being cultivated, only 14 districts were under most efficient cropping zone (MECZ) for sugarcane. The districts are Kancheepuram, Cuddalore, Villupuram, Tiruvanna malai, Salem, Dharmapuri Erode, Coimbatore, Than

Table 3. Coefficient of variation for RYI and RSI for MECZ districts

Sl.No.	District	CV (%)	
		RYI	RSI
1	Kancheepuram	10.65	2.85
2	Cuddalore	12.98	18.00
3	Villupuram	2.11	10.31
4	Tiruvannamalai	8.44	11.87
5	Salem	14.74	17.36
6	Dharmapuri	13.30	24.46
7	Erode	10.57	18.22
8	Coimbatore	18.86	20.21
9	Thanjavur	13.32	24.26
10	Trichy	13.37	9.86
11	Madurai	16.25	11.03
12	Dindigul	16.37	7.96
13	Virudhunagar	13.61	8.23
14	Sivagangai	9.55	8.60

avur, Trichy, Dindugul, Virudhunagar, Sivagangai and Madurai. Since these districts have favourable climates and soil type, the productivity was higher which in turn increased the spread of the crop. Among the 14 districts identified as MECZ for sugarcane, considering the co-efficient of variation (CV) values for RYI and RSI (Table 3) the districts Kancheepuram, Villupuram and Sivagangai exhibit a stabilised RYI and RSI. By introducing high yielding strains of sugarcane along with component technologies in these districts, there is a greater scope for intensive cropping of sugarcane and also to increase its productivity.

In the second category of ECZ, the districts included are Nagapattinam, Pudukkottai, Tirunelveli, Tuticorin, Ramanathapuram. In these districts, the low spread might be due to competition from other crops. In this zone, where the yield potential is good, yet spread is low and hence, efforts should be made mainly to increase the area of the crop by some change in the Government policies or by intensifying extension activities. It would be more remunerative to grow crops, which are most efficient than sugarcane, rather than to extend the area under sugarcane considering its high RYI.

Vellore district fell under zone category 3 (Not ECZ). The Nilgiris fell under the zone 4 (Not ECZ) where both RYI and RSI were low. In these districts sugarcane must be substituted with other efficient crops in order to improve the productivity of the zone.

Since the study was done for district level, after identifying the concerned district for most ECZ for a particular crop, in depth study may be done at taluk and village level of the concerned district in order to have micro level delineation of MECZ. The collected information would serve as first hand information to the policy makers, researchers, development workers and also farmers of Tamil Nadu.

To conclude, the districts Kancheepuram, Cuddalore, Villupuram, Tiruvannamalai, Salem, Dharmapuri, Erode, Coimbatore, Thanjavur, Trichy, Dindugul, Virudhunagar, Sivagangai and Madurai are most efficient cropping zones for sugarcane particularly Kancheepuram, Villupuram and Sivagangai which had lower coefficient of variation values in both relative yield index and relative spread index.

References

Agrostat (1996). Directorate of Agriculture. Chepak, Chennai-5. p.26.

Kanwar, J. (1972). Cropping patterns, scope and concept. In: Symp. on cropping pattern in India, ICAR, New Delhi. p.11-39.