

Socio-economic evidences of food consumption pattern and nutritional status of rural households from Rajasthan

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ABSTRACT

An attempt was made in the present study to examine the influence of socio-economic factors on food consumption pattern as well as nutritional status, in order to target groups for prioritizing and focusing efforts for improvement of nutritional status of rural population. Conducted in irrigated and rainfed area of Rajasthan state, the study revealed that the food basket was dominated by cereals with a negligible portion of protein and energy being supplied by food of animal origin. Comparative analysis in irrigated and rainfed areas revealed that consumption of all food-items was estimated higher than RDA except meat, fish and eggs in irrigated area where all food-items were estimated much lower except cereals in rain-fed area of Rajasthan. The per capita consumption of non-vegetarian food-item in the state was found to be much lower than the RDA as well as all India (NSS 55th round) for both the irrigated and rain-fed households. The households of irrigated area were having diversified food basket than rain-fed area of state. Diet diversification increased with increase in the monthly per capita expenditure and farm size of rural households. Policies aimed at improving the nutritional status of rural population including intensifying the rural development programmes and promoting agro-based industries to increase purchasing power of rural population. Dairy enterprises need to be promoted on priority in order to diversify food basket and raising nutritional status of rural population, while simultaneously raising income levels.

KEY WORDS : Food-items, Consumption, Dietary intake pattern, Nutritional status

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Food security is achieved when “all people at all times have physical and economic access to food that is sufficient to meet dietary needs for healthy and productive life”. In this sense, achievement of food security implies producing sufficient food and making it accessible to all individuals throughout the year and on sustainable basis from year to year. Further, fulfilling dietary needs for a productive and healthy life implies physical and economic access of all people to nutritive food, according to each individual’s requirement. Food security thus, connotes

freedom from hunger and malnutrition (Acharya, 2009). India accounts for one-sixth of the global population and it is growing so fast that, probably she will soon become the most populous nation in the world. The pressure on land is increasing day-by-day, while agricultural productivity is not keeping pace with the population growth (Kiresur *et al.*, 2010).

The need of food security arises primarily due to the fluctuation in food production and non-availability of sufficient food from domestic source (Ram, 1996). Although, the introduction of green revolution has enabled India to achieve self-sufficiency in food production and also enhance its capacity to cope with inter year fluctuations in production. Gopalan (1995) and Soe (2002) argued that India’s nutritional problem is not due to non-availability of food grains at the national level, but due to lack of adequate economic access to food. They stated that nearly one-third poor households’ family income in the country is so low that nutritional needs

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are not met even 70 per cent of that income is spent on food only. The food-grain self-sufficiency that is visible in India is often argued to be due to lack of purchasing power among large masses of rural population (Sen, 1983 and Nasurudeen *et al.*, 2006). While Sukhatme (1987) reported that India's nutritional problem is not just that of the purchasing capacity of the poor, but a more complex problem which results from a complex interaction of income, price, individual preferences and belief, cultural traditions as well as geographical, social, political, economic and environment forces (WHO, 2003). These forces combine to prevent the poor and other disadvantaged segments of the population from acquiring and effectively utilizing enough food to meet their nutritional requirements. Because of these, the extent of malnutrition and poverty are still important reminders, which needs immediate attention.

However, in recent years, the food consumption pattern is under-going substantial change. Sustained economic growth, increasing purchasing power and changing lifestyle are causing significant changes in Indian food basket, away from staple foodgrains towards high-value horticultural and animal products (Rae, 1999 and Kumar *et al.*, 2009). Such shifts in consumption pattern are evident more in urban areas than in rural areas (Selvarajan and Ravishankar, 1996). Under the changing scenario, it is imperative to determine the food consumption pattern and nutritional status of rural population in the relatively backward region of the country. This study specifically attempts to identify the socio-economic factors determining the food consumption pattern and nutritional status of rural households and suggest measures to improve nutritional status of rural households in the state of Rajasthan.

METHODOLOGY

A household is a group of persons normally living together and taking food from the same kitchen. It may also be conceived as a basic unit of food consumption, whose members typically pool their income, buy as a unit and share somewhat similar food preferences. In this study, a sample of 300 households was surveyed for assessment of dietary intake pattern and nutritional status of rural households. These households were also categorized according to socio-economic status, which may influence the nutritional status of rural folk. Per capita expenditure, social group and farm holding size play a role on the consumption of food items, which in turn, contribute to the nutritional well being of the individuals and households.

The enquiry was conducted by survey method and collection of information was based on primary data. The data related to quantity consumed for various commodities were grouped in food items like cereal, pulses, vegetables, milk and milk products, edible oils, meat, fish and eggs, fruits, sugar and jaggery. Consumption data were collected with a reference

period of the last 30 days just preceding the date of survey. The study was conducted in Rajasthan state by adopting multistage sampling technique for collection of data for rural households. The households of state were grouped under two strata, one representing the households belonging to irrigated and other the rain-fed area of Rajasthan. Two districts namely, Sri-Ganganagar from irrigated area and Churu belonging to rain-fed area of Rajasthan were randomly selected. Two tehsils from each district and three villages from each tehsil were randomly selected through draw a lot, thus, making a sample of twelve villages for the purpose of study. A representative sample of 25 households from each selected villages was selected using probability proportional to size technique, making a total of 300 respondents, constituting 173 small, 88 medium and 39 large farmers. The information collected through personal interview with rural households was analyzed according to the socio- economic groups.

ANALYSIS AND DISCUSSION

The findings of the present study as well as relevant discussion have been summarized under following heads:

Food expenditure pattern:

The food expenditure pattern is an excellent indicator of existing economic well being of people. If a society is wealthy, proportionally higher expenditure will be incurred on higher value foods. On the other hand, if society is not wealthy, then people will spend proportionately more on cereals.

Table 1 shows the proportionate expenditure share on different food items in rural area of Rajasthan state as well as all India (rural) level and revealed that per capita monthly food expenditure was estimated Rs. 448 for rural households in Rajasthan. It was estimated higher than the all-India rural average (Rs. 289) by 55.02 per cent.

The wide disparity on per capita food expenditure can be clearly observed between irrigated and rainfed areas of state. The monthly expenditure on food items was estimated higher in irrigated area (Rs. 567) than of rain-fed area (Rs. 329) by 72.34 per cent. An examination of the expenditure share of different food items to total food expenditure in both groups, *i.e.* irrigated and rain-fed farm households, revealed that expenditure on cereal dominated in total food expenditure, followed by vegetables, milk and its products and pulses.

The share of cereals in the food budget ranged from 17 to 45 per cent for rural population. The households from irrigated area incurred higher level of expenditure on milk and its products, fruits, pulses meat, fish and eggs as compared to rain-fed households. Thus, households in irrigated area exhibited a more diversified food basket. The results also showed that the share of pulses, vegetables, fat and edible oils, sugar and jaggery in total food expenditure was higher in rural areas of Rajasthan than the national average.

The combined expenditure on protein rich food items like pulses and vegetables in rural areas of Rajasthan state followed the all-India average trend. The share of expenditure on cereals was found to be considerably higher while that on pulses, milk and its products, fruits and meat, fish and eggs was much lower in rain-fed rural areas as compared to the irrigated area of Rajasthan state. This indicates the economic backwardness of rural population in rain-fed area relative to

irrigated area of state.

Share of all food items other than cereals, to total food expenditure showed more or less similar trend in irrigated and rain-fed households as well as different categories of socio-economic groups. Cereals expenditure share showed inverse relationship with monthly per capita expenditure class as well farm size. Thus, development of dairy enterprises may be given priority to supplement purchasing power of rural community

Table 1 : Share of different food-items in total food expenditure in irrigated and rain-fed area of rural Rajasthan (%)										
Socio-economic groups	Cereals	Pulses	Vegetables	Milk and its product	Fats/oils	Fruits	Meat / fish/ eggs	Sugar and jaggery	Other food-items	Monthly food expenditure [#]
Irrigated area										
Expenditure class¹										
Very poor	45.05	4.27	13.57	12.01	7.53	6.51	-	3.87	7.19	303
Moderately poor	30.91	8.02	15.98	14.49	6.38	12.11	2.33	4.10	5.68	455
Non-poor lower	23.08	9.79	18.39	15.48	6.18	12.56	6.62	3.79	4.11	619
Non-poor higher	18.04	8.73	17.51	14.51	6.45	14.43	12.78	3.51	4.04	807
Social groups										
Schedule caste	31.89	6.79	16.56	11.35	7.62	9.58	6.19	3.93	6.09	410
Schedule tribe	-	-	-	-	-	-	-	-	-	-
Other backward	24.43	8.69	16.82	14.89	6.28	12.97	7.48	3.79	4.65	594
General	22.37	9.17	18.90	15.91	6.16	13.68	6.25	3.57	3.99	611
Land class²										
Small	30.77	7.64	16.69	13.82	6.49	11.04	4.06	3.84	5.65	463
Medium	21.28	9.00	17.59	15.94	6.20	12.91	9.34	3.66	4.08	672
Large	17.15	10.02	17.02	14.09	6.64	16.61	10.96	3.84	3.67	844
All households	24.98	8.53	17.08	14.62	6.41	12.68	7.17	3.78	4.75	567
Rainfed area										
Expenditure class¹										
Very poor	44.22	4.87	15.85	10.76	7.42	3.71	1.31	4.73	7.13	254
Moderately poor	28.41	11.09	17.54	14.97	6.04	7.39	5.64	4.64	4.28	416
Non-poor lower	21.05	10.72	19.36	16.32	6.53	11.29	7.36	4.28	3.09	584
Non-poor higher	17.94	5.63	21.24	15.23	5.07	15.37	12.93	4.25	2.36	769
Social groups										
Schedule caste	43.44	5.37	17.33	7.28	7.28	5.87	3.04	4.03	6.36	263
Schedule tribe	38.92	6.27	9.82	12.96	9.19	4.81	7.68	5.07	5.28	286
Other backward	32.64	8.73	17.52	14.09	6.39	6.60	3.95	4.78	5.30	351
General	34.90	3.35	17.16	14.92	7.40	7.64	5.05	4.35	5.23	344
Land class²										
Small	43.80	4.58	16.53	10.74	7.29	3.98	1.73	4.51	6.84	261
Medium	33.35	7.73	15.92	13.69	6.85	8.14	4.10	4.93	5.29	355
Large	23.36	11.26	19.48	15.59	5.98	8.67	7.59	4.46	3.61	527
All households	34.99	7.35	17.16	12.96	6.79	6.56	4.09	4.60	5.50	329
Overall	29.99	7.94	17.12	13.79	6.60	9.62	5.63	4.19	5.13	448
All India ³	37.29	6.61	10.40	14.74	6.29	2.39	5.59	4.01	12.68	289

Note: ¹ Monthly per capita expenditure class, Very poor <Rs. 370, Moderately poor Rs.370-510, Non-poor lower above Rs. 510-700 and Non poor higher above Rs. 700.

² Land class : Small up to 2.0 ha, Medium 2-4 ha and Large farmer above 4.0 ha,

³ National sample survey (55th round, 1999-2000) and [#] MFE: Monthly food-expenditure (Rs./Person)

for diversify the food basket of rural folk specially households belonging to rain-fed area of Rajasthan.

Dietary intake pattern:

Food-items consumed by rural population were categorized as cereals, pulses, vegetables, milk and its products, fat and edible oils, fruits, meat, fish, eggs, sugar

and jaggery. Dietary intake pattern of rural households was assessed by socio-economic groups. The consumption of various food-items was computed on per adult consumer unit per day basis. The per capita intake of food items (g/person/day) for irrigated and rain-fed households in Rajasthan are shown in Table 2.

The results further confirmed our earlier observations

Table 2 : Consumption of food-items by socio-economic groups (Gram/ Person/ Day)								
Socio-economic groups	Cereals	Pulses	Vegetable	Milk and its product	Fats/ edible oils	Fruits	Meat/ fish/ eggs	Sugar and jaggery
Irrigated area								
Expenditure class¹								
Very poor	540	15	170	122	14	35	-	22
Moderately poor	520	48	270	194	17	111	4	33
Non-poor lower	505	73	419	274	21	150	17	43
Non-poor higher	500	81	529	330	29	219	44	51
Social groups								
Schedule caste	512	37	260	137	19	74	9	29
Schedule tribe	-	-	-	-	-	-	-	-
Other backward	520	62	376	255	21	148	19	41
General	478	69	423	290	22	169	16	41
Land class²								
Small	530	44	295	190	18	103	8	32
Medium	493	72	438	309	23	173	27	45
Large	480	104	538	328	31	242	38	59
All households	514	59	363	241	21	139	17 (74)	39
Rainfed area								
Expenditure class¹								
Very poor	564	19	164	79	11	21	2	22
Moderately poor	568	62	281	182	16	75	9	35
Non-poor lower	552	81	441	290	21	129	24	46
Non-poor higher	586	79	545	350	28	263	43	63
Social groups								
Schedule caste	575	21	178	52	11	35	3	19
Schedule tribe	552	31	111	107	15	28	11	27
Other backward	559	42	239	145	13	49	7	31
General	571	20	230	149	15	62	7	27
Land class²								
Small	568	19	175	80	11	25	2	21
Medium	562	38	222	144	14	68	7	32
Large	554	84	382	246	19	91	19	43
All households	564	34 (15)	220 (37)	124 (17)	13 (35)	47	6 (91)	28 (7)
Overall	539	47	292 (17)	183	17 (15)	93	12 (82)	34
All India ³	424	28 (30)	173 (51)	134 (11)	17 (15)	21 (43)	14 (78)	28 (7)
RDA	460	40	350	150	20	37	65	30

Note: ¹ Monthly per capita expenditure class, Very poor <Rs. 370, Moderately poor Rs.370-510, Non-poor lower above Rs. 510-700 and Non-poor higher above Rs. 700.

² Land class, Small upto 2.0 ha, Medium 2-4 ha and Large farmer above 4.0 ha,

³ National sample survey (55th round, 1999-2000) and RDA: Recommended dietary allowance, National Institute of Nutrition, Hyderabad and Figures

that cereals dominated dietary intake pattern in the state which is also the cheapest sources of calories and nutrients in both categories of rural households. It is evident from Table 2 that in the irrigated households, the per capita consumption of cereals was 514 g/person/day and in rain-fed households 564 g/person/day as compared to all India consumption of 424 g/person/day. Wheat, bajra and rice were main contributors to total cereals consumption in Rajasthan state. It was observed that the Recommended dietary allowance (RDA) in terms of quantity was far ahead than that observed in Rajasthan. The deficit from the RDA to the tune of 30 per cent in pulses, 51 per cent in vegetables, 11 per cent in milk and its products, 15 per cent in fats and edible oils, 43 per cent fruits and 78 per cent meat, fish and eggs was observed in the Rajasthan.

Cereals also dominated the food basket across socio-economic groups. Consumption of pulses, which are generally considered to be low cost protein for vegetarians, was lower by 15 per cent in rainfed area of Rajasthan as compared by recommended dietary allowance. In contrast to it, the consumption of cereals (27.12 %), pulses (67.86 %), vegetables (68.79 %), milk and its products (36.57 %), sugar and jaggery (21.43 %) and fruits more than three time was found higher in rural area of Rajasthan than that of all India rural level.

The result showed that pulses, milk and its products and fruits consumption levels in Rajasthan were reasonably high. In the state, per capita consumption of pulses, milk and its products and fruits were found to be 47, 183 and 93 g for rural population as compared to all India average consumption of 28, 134 and 21 g, respectively.

Among different socio-economic groups of Rajasthan, pulses and vegetables are given equal importance in dietary pattern. However, per capita consumption of fruits in state was found to be much higher in Rajasthan as compared to all-India level for both irrigated and rain-fed households.

Consumption of sugar and jaggery was found to be higher in Rajasthan as compared to all India average. It was estimated higher in rain-fed households and same level to all India consumption observed in irrigated area of Rajasthan.

Per capita consumption of milk and its products showed a wide range in rural area of Rajasthan. It ranged from less than 125 g / person/ day among rain-fed households to more than 240 g/person/ day to irrigated households. Although, the consumption of milk and its products were observed higher (183 g) in Rajasthan as compared to all India (rural) average (134 g). The consumption of fats and edible oils were lower than that is recommended, but its consumption was in line of all India rural average. The consumption of foods like meat, fish and eggs was extremely low (12 g / person/ day) in the study area. The consumption of these items has been estimated three times higher in irrigated areas as compared to rain-fed area of Rajasthan.

Table 2 also shows that cereals were consumed in large quantities across all the socio-economic groups. This was followed by vegetables and milk and its products while the least consumed items were meat, fish, eggs and fruits. The low consumption of these was basically due to combined effect of various social, economic and cultural effects. A high proportion of the rural population was vegetarian and even non-vegetarians did not consume meat and fish regularly. This might be explained by the fact that major proportion of rural population was vegetarian either of traditional persuasions or for economic reasons (Musebe and Kumar, 2000). It was observed that for various socio-economic groups, the consumption of cereals decreased and non-cereals items increased with increase in monthly per capita expenditure, social status and farm holding size of households. As expected, the lowest consumption of non-cereals was observed for the small farmers, scheduled caste and scheduled tribe and poor households.

Dietary intake across socio-economic groups portrayed lower consumption by the scheduled caste and scheduled tribe for most of food-items. An interesting feature was the high consumption of higher value food-items by households with higher purchasing power, larger farm size with higher social status.

Status of nutrient intake:

The nutrients considered in the present study were calories, protein, fat, calcium, phosphorus, iron and vitamins. The quantities of respective nutrients consumed from each food item were computed by multiplying the quantity of food-items consumed with the per cent of nutrient available in each of food-items. The summarization of this product over all food items for each nutrient gives an approximation of the quantity of each nutrient available for consumption.

Date of Table 3 indicate that the nutrient consumption increased with increase in farm size and there were significant differences in consumption of almost all nutrients between irrigated and rain-fed households as well as socio-economic groups. Average intake of calories ranged from 2350 to 3677 Kcal among the rural population. Protein intake ranged from 74 to 118 g. The intake of all nutrients showed direct correlation with monthly per capita expenditure, social status and farm size. Although, the intake of all nutrients was estimated higher than the recommended dietary allowance in both irrigated and rainfed areas of Rajasthan but a remarkable portion of rural households was estimated deficient to RDA level. The proportion of such deficient rural households were estimated 20 per cent to energy, 16.7 per cent to calcium, 9 per cent to vitamin, 6.5 to iron and 1.7 to protein. Assessment of nutrient intake revealed that the extent of diet diversification increased with monthly per capita expenditure, social status and farm size.

The poor and low resource households had lower consumption of non-cereals compared to other households. The share of non-cereals in the total intake of nutrient was relatively low since cereals are main sources of nutrient. Thus, cereals are considered very important food items, especially by weaker section of society. At the same time, diet diversification is essential for improvement in the nutritional

status because different types and amount of nutrients were supplied by different food items. Analysis of nutritional status revealed that intake of nutrients was lower in rain-fed area as compared to irrigated area of Rajasthan. The intake level of nutrient varied across socio-economic groups. The nutritional status improves as the monthly per capita expenditure, social status and farm size increase. This corroborated the Musebe

Table 3 : Nutrients intake pattern by socio-economic groups

Socio-economic group	Energy (Kcal)	Protein (g)	Fat (g)	Calcium (mg)	Phosphorus (mg)	Iron (mg)	Vitamins (mg)
Irrigated area							
Expenditure class¹							
Very poor	2350	74	30	494	1884	31	98
Moderately poor	2646	84	39	689	2067	33	145
Non-poor lower	2938	97	48	903	2293	35	201
Non-poor higher	3246	109	61	1059	2484	37	245
Social groups							
Schedule caste	2491	80	36	569	1951	31	134
Schedule tribe	-	-	-	-	-	-	-
Other backward	2912	95	48	853	2266	35	187
General	2860	93	49	918	2221	34	196
Land class²							
Small	2676	86	39	692	2104	34	152
Medium	2990	99	53	968	2322	35	208
Large	3314	110	64	1073	2485	37	252
All households	2838 (11.3)	93 (2.0)	46 (---)	816 (2.7)	2210 (---)	34 (13.0)	179 (0.7)
Rainfed area							
Expenditure class¹							
Very poor	2442	76	43	441	1888	46	79
Moderately poor	2895	94	54	706	2226	49	135
Non-poor lower	3204	106	64	965	2460	48	198
Non-poor higher	3677	118	76	1149	2728	52	252
Social groups							
Schedule caste	2478	77	42	410	1912	47	83
Schedule tribe	2510	80	47	489	1924	45	69
Others	2679	85	49	610	2068	47	111
General	2655	82	50	597	2033	47	118
Land class²							
Small	2463	77	43	447	1907	47	84
Medium	2696	85	49	602	2061	47	110
Large	3091	103	59	860	2384	48	168
All households	2626 (28.7)	83 (1.3)	47(--)	555 (30.7)	2024 (--)	47 (--)	105 (17.3)
Overall	2732 (20.0)	88 (1.7)	47 (--)	685 (16.7)	2117 (--)	41 (6.5)	142 (9.0)
RDA	2400	60	20	400	800	30	60

Note: ¹ Monthly per capita expenditure class : Very poor <Rs. 370, Moderately poor Rs.370-510, Non-poor lower above Rs. 510-700 and Non-poor higher above Rs. 700.

² Land class : Small up to 2.0 ha, Medium 2-4 ha and Large farmer above 4.0 ha,

³ National sample survey (55th round, 1999-2000) and RDA: Recommended dietary allowance, National Institute of Nutrition, Hyderabad and Figures in parentheses indicates percentage of population deficit in the specified nutrient.

and Kumar (2002) and Bhakar and Banafar (2012) dissertation that the deficiency of nutrients was among poor households, scheduled caste and scheduled tribe with low purchasing power. Therefore, they required special attention for improvement of their nutritional status. These results suggested that increase in the household's income and purchasing power could greatly improve the nutritional status of rural households.

Elasticities of food items:

Income has been identified as one of important determinants of dietary intake; however its impact may vary among irrigated and rain-fed households. The expenditure elasticity coefficient measured the percentage change in consumption for one per cent change in expenditure. The sign and magnitude of elasticity of coefficient indicates nature of the commodities. Expenditure elasticities of the demand for each of the food items for irrigated and rain-fed households were computed separately and are presented in Table 4. It may be seen from the table that expenditure coefficients for all the food items were lower for irrigated households as compared to rain-fed households.

Expenditure elasticities for cereals, fat and edible oils and sugar and jaggery were lower than unity, implying that with an increase in income level there will be small increase in demand for these items. The expenditure elasticities for pulses, vegetables, milk and its products, fruits, meat, fish and eggs were more than unity and higher in irrigated households. The expenditure elasticities for all food-items were more than unity except cereals to rain-fed households in Rajasthan state. This may be mainly due to lower per capita income and food expenditure on rain-fed households.

The expenditure elasticities for all food-items were estimated higher in rain-fed area as compared to irrigated area (Table 4). This demonstrates that an increase in income in rain-fed households has comparatively higher bearing on consumption expenditure of food items. Thus, the study suggests that poor households would diversify their dietary intake pattern as their income increase.

Conclusions and policy implications:

The paper has examined food consumption pattern and nutritional status of rural household's in Rajasthan state. The food consumption pattern of rural households was mainly based on cereals. There were deficiencies in food and nutrients intake when compared with recommended dietary allowance. It is important to emphasize that among the food items the expenditure on all food-items increased except cereals as farm size, monthly expenditure and social status improve. This shows a substantial diversification in the consumption baskets of the rural population in favour of items such pulses, vegetables, milk and its products, meat, fish and eggs towards the nutritional security. A substantial portion of rural population was consuming less than recommended dietary allowance. The highest relative gap occurred in vegetables, fat and edible oils, and meat, fish and eggs. Similarly, the major nutrient problem was calories, protein, calcium, and vitamins deficiency. The magnitude between intake and requirement is an indicator of mal-nutrition and under-nutrition. The household income, farm size and social status has a direct relevance to the nutritional standard of the family. Higher the income and farm size greater would be the nutritional efficiency.

Taking cue from the tone of Musebe and Kumar (2002), the study also indicated that the per capita intake of food-items and nutrients varied across socio-economic groups. A relative higher proportion of deficiency in food consumption and nutrient intake was found among scheduled caste, scheduled tribe, poor households. These groups also had relative low diet diversification. These groups have to be targeted first in any programme aimed to improving the nutritional status. The greatest variation in dietary intake was observed across the monthly per capita expenditure class. This indicates the vital role of income in diversifying food basket and improving nutritional status. The evidence presented here further suggested that increase in consumer income would lead to diversification in food basket from cereals to other components of food items such as milk and its products, vegetables, fruits and edible oils and may result in considerable improvement in nutritional status. Expenditure

Table 4 : Expenditure elasticities of different food-items at rural area of Rajasthan

Food-items	Irrigated area	Rainfed area	Overall
Cereal	0.071	0.096	0.192
Pulses	1.288	1.815	1.401
Vegetables	1.179	1.175	1.118
Milk and its products	1.129	1.588	1.280
Fat and edible oils	0.877	2.091	1.977
Meat, fish and eggs	2.887	3.593	2.686
Fruits	1.603	2.681	6.566
Sugar and jaggery	0.933	1.012	0.687

elasticities for cereals, fat and edible oil and sugar and jagger were lower than unity while expenditure elasticities for all other items were more than unity in irrigated area while expenditure elasticity for all food-items except cereals were higher than unity in rain-fed area of Rajasthan. Results further demonstrated that an increase in income in rain-fed households has comparatively higher bearing on consumption expenditure of the food items. In addition, the main policy measures for improving the nutritional status of rural masses will be to improve their income from agriculture and dairying so that their purchasing power increases to ensure food security. The dependence on plant products suggests the need for urgent improvement in agricultural production and productivity. This can be accomplished through the use of improved production technologies such as high yielding and drought resistant varieties, fertilizers and irrigation. This will also help the populace of the region in maintaining their dietary standards in tune with the recommended dietary allowance. The policies aiming at improving the nutritional status of rural population include intensifying rural development programmes and agro-based industries to increase purchasing power of rural population. Development of dairy enterprises needs to be given priority for raising income levels, diversifying food basket and raising nutritional status of rural population.

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