



GOVERNMENT OF BOMBAY

REPORT

ON THE

DIET AND NUTRITION STUDIES

IN THE

**DHARWAR COMMUNITY
DEVELOPMENT BLOCK
(DISTRICT DHARWAR)**

SEPT.—OCT. 1956

By

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COMMUNITY DEVELOPMENT BLCK (GARAG VILLAGE),
DISTRICT DHARWAR.

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REPORT ON THE DIET AND NUTRITION STUDIES IN THE DHARWAR COMMUNITY DEVELOPMENT BLOCK (DISTRICT DHARWAR), 1956.

INTRODUCTION.

The study of dietary habits of rural population in the State has been one of major activities of the Department. During the last few years, studies in dietary habits and nutrition surveys were carried out in the Districts of Dangs (1950), Kolaba (1953-54), Poona (1954), Mehsana (1955) and Surat (1956).

These studies give a fairly good picture of the dietary conditions and the nutritional status of the rural population. Further, the studies are also useful in planning out programmes for the betterment of the rural population.

In 1956 it was planned to conduct a similar survey in one of the Southern Districts of the former Bombay State. At the suggestion of the Development Department and the Collector-cum-Project Officer, Dharwar, a village called Garag in the Dharwar Taluka of Dharwar District was selected for the purpose.

A diet survey of 40 families and a nutrition survey of these families together with school children from primary schools and Kalyan Kendra were carried out by a Senior Lady Nutritionist and the Medical Officer, respectively in September and October 1956.

THE PEOPLE AND GENERAL OBSERVATIONS ON THE DIETARY CONDITIONS.

Garag is a village about 12 miles to the north-west of Dharwar, on the bus route from Dharwar to Belgaum (Belgaum District). The State Transport bus service was extended to this area from October 1956.

There are about 845 families with a total population of 5,120 in the village. Out of these 1,924 are males, 2,218 females, 460 boys and 518 girls.

There are two primary schools—one for boys and one for girls. A Kalyan Kendra (Welfare Centre) for pre-school children (from 4-6 years), on Montessori lines, was recently started at the time of the survey. This Kalyan Kendra and a Sewing class for village women are situated in the school building.

There is a dispensary-cum-Primary Health Unit, in charge of a doctor. There is also a Public Health Nurse for looking after the antenatal, postnatal and delivery cases.

The families belong to different communities, such as Lingayat, Maratha, Brahmans, Barbers, Weavers, Walmiks, etc. The Lingayats are vegetarians, while most of the others are non-vegetarians.

The earning members of the families are mainly farmers, labourers on farms, weavers, barbers, shop owners, teachers, hotel owners, business men, etc.

The diet survey was carried out by Shrimati S. UDAS, Senior Lady Nutritionist and the nutrition survey by Dr. V. N. JAI, Medical Officer. The statistical analysis of the data was carried out by Shrimati K. LOTLIKAR, Statistician.

The main agricultural products of the area are *jowar*, paddy and millets such as *Samai* and *Sawa*. Pulses such as *Tur*, *Chana*, *Chavli*, *Kulceth*, etc., are also grown.

Potatoes and groundnuts are produced in the area. Vegetables including chillies are also produced. On the market day (every Thursday), leafy vegetables such as *shepu*, fenugreek leaves, onion leaves and *ambadi*, root vegetables such as potatoes and onions and other green vegetables, such as *dodka*, *waluk*, red pumpkin, cucumber, *tondli*, green tomatoes, ladies fingers, cluster beans, green peas, etc., are available for As. 2 to As. 3 per lb. on an average.

Bananas and guavas are the fruits of the season. A peculiar oilseed known as *niger seed* is grown and consumed here. Betel leaves are also produced on a large scale.

Most of the families possess either cows or buffaloes. About 600 seers of buffaloes' milk and 400 seers of cows' milk are produced daily; of these 400 seers are sent outside for sale, especially to Dharwar City. The cost of milk is As. 6 to As. 8 per seer (32 ozs.).

The houses are well built of bricks and stones. However, there is not sufficient lighting in the house. Sometimes two or three families stay in one house. In many cases, joint family system was observed. The well-to-do families possess cows, buffaloes, bullocks, poultry, etc.; and a corner in the house is used for the cattle. At the backside of the house, there is usually some space for growing vegetables. The most common vegetable grown is red pumpkin. The other vegetables grown in the kitchen garden are fenugreek, tomatoes and brinjals.

Some flowering plants are also grown. Every day in the morning, the small space in front of the door of the house is properly cleaned and then it is sprinkled with water. The flowers are kept on the door step.

There are about 40-50 wells in the village, out of which only three wells have potable water. The housewife has, therefore, to spend a lot of time and energy for fetching drinking water from a distance. There are no adequate sanitary arrangements in the village.

The language spoken is Kannada. The main occupation of the people is farming; some work as labourers on the farm on daily wages, varying from As. 10 to Rs. 1-4-0. A labourer works on an average on the farm for seven to eight hours. The women also go for work along with men, but their main duty is to look after the house and children. There are also people who are cloth merchants, weavers, barbers, goldsmiths, hotel owners, etc.

SELECTION OF THE FAMILIES FOR THE SURVEY.

Out of the 845 families in the village, 156 possessed more than seven acres of land and were economically better placed, compared to the other families. These have been excluded; from the remaining 689 families, 40 i.e. 6 per cent. were selected at random for the purpose of the survey. The information was obtained from the register maintained by the local village-level worker.

METHOD USED FOR THE SURVEY.

(a) *Diet Survey*.—The collection of the data was by the questionnaire-cum-weighing method.

As the mother tongue of the people was Kannada, the Senior Lady Nutritionist had to take the help of an interpreter. The Public Health Nurse helped for some time but subsequently an interpreter was appointed who explained the nature and purpose of survey to the members of the family.

The families were visited twice during the day at the time of preparation of meals and as usual foods to be cooked during the whole day, were weighed and measured, to the nearest ounce (oz.), for seven successive days. In the morning, the families were visited between 8-15 and 11-15 and in the evening between 5 and 7. A group of about 10 families was taken at a time for collecting the data simultaneously.

The schedule used for the collection of dietary data is given as Appendix A.

During the period of survey, some members were absent for one or two meals or some times guests were present. In such cases, the ages of the absentees and the guests were noted. In calculating the food intake per C. U. per day, allowance has been made for these absentees and guests.

Similarly, some of the families gave bread to dogs, cows or to beggars, etc. This was recorded and deductions on this account in the total food taken were made.

Further it was observed that there was generally no plate waste in these families. As far as possible, just sufficient food as required was prepared, and left overs, if any, were consumed at the subsequent meal. No allowance for wastage has, therefore, been made in calculating the nutritive values of the diets of the families.

(b) *Clinical Nutrition Survey*.—Members of the 40 families, covered by the diet survey, and the children attending the two primary schools in the village as also the Kalyan Kendra, were clinically examined by the Medical Officer by the "Rapid" method of clinical nutrition assessment—recommended by the Indian Council of Medical Research. The form used for the purpose is given as Appendix B.

CLASSIFICATION OF FAMILIES.

The families surveyed have been divided into two groups, according to their economic status, as judged from the area of land under cultivation, production of food grains, income per month, occupation and personal observations of the Senior Lady Nutritionist.

Group I—Farmers who till their own land or are holders of rented land, the area under cultivation being about 2-6 acres, or having some other means of earning.

Group II—Persons who are mostly labourers on farm getting daily about Re. 0-8-0 to Rs. 1-8-0 only.

RESULTS OF THE DIETARY STUDIES.

(a) *Average Diet*.—The average intake of each class of foodstuffs per C. U. per day for each family have been calculated from the seven days' dietary data collected by the Senior Lady Nutritionist during her visits to the families. The diets are analysed for their nutritive values. The average diets, their nutrient analysis and the general information about each family are shown in Appendix D.

TABLE I.

Statement showing the average diet of the families, standard deviation, maximum and minimum values for each item of foodstuff and the diet recommended by the Indian Council of Medical Research.

Foodstuff	Balanced Diet recommended by I. C. M. R. (in ozs.).	Average Diet of the 40 families surveyed (in ozs.).	Standard Deviation.	Maximum.	Minimum.
Rice	....	4.9	....	....	....
Wheat	....	0.6	....	....	....
Jowar	....	15.1	....	....	....
Other cereals	....	0.6	....	....	....
Total cereals	14.0	21.2	+5.16	33.6	11.6
Pulses	3.0	1.6	+0.83	4.3	0.4
Leafy vegetables	4.0	0.5	+1.33	1.3	....
Roots and Tubers	3.0	1.8	+1.12	5.8	0.5
Other green vegetables	3.0	2.1	+1.24	5.7	....
Fruits	3.0	....	....	0.4	....
Sugar and Jaggery	2.0	1.4	+1.03	4.0	....
Vegetable oils and fats	2.0	0.4	....	....	....
Butter and ghee		0.2	+0.04	2.5	....
Milk and Curds	10.0	4.2	+2.78	10.5	....
Buttermilk		0.5	+0.94		....
Fish	2.0	....	....	0.1	....
Meat		0.1	+0.23	1.1	....
Egg (One)	1.5	....	....	....	....
Groundnuts and niger seeds	*	0.2	+0.17	0.6	....
Red and green chillies	*	0.5	+0.28	1.2	....
Betel leaves	*	0.2	+0.30	1.0	....

* No separate allowances for these items are recommended.

TABLE II.

Statement showing the differential consumption of foodstuffs in the families surveyed.

Foodstuffs.	No. of families not including particular foodstuff in their diets.		Number of families including particular foodstuff in their diets.				
			Below desired level.		To desired level and above.		
	No.	Per-centage.	No.	Per-centage.	No.	Per-centage.	
Cereals	1	2.5	39	97.5	
Pulses	37	72.5	3	7.5	
Leafy vegetables	3	7.5	37	72.5	....
Root vegetables	36	90.0	4	10.0
Other green vegetables	2	5.0	29	72.5	9	22.5
Fruits	35	87.5	5	12.5	....	....
Sugar and Jaggery	1	2.5	31	77.5	8	20.0
Oils, fats, butter and ghee	1	2.5	38	95.0	1	2.5
Milk and milk-products	1	2.5	38	95.0	1	2.5
Fish and meat	36	90.0	4	10.0	....	....
Eggs	40	100.0	....	....	....	....

TABLE III.

Statement showing the nutrient analysis of the average diet compared with the recommended allowances.

Nutrients.			Nutrient intake recommended by I. C. M. R.,	Average intake of Nutrients.
Total proteins	...	(in g.)	82	80.9
Animal proteins	...	(in g.)	16-27	5.5
Fats	...	(in g.)	85*	39.9
Carbohydrates	...	(in g.)	350*	537.2
Calcium	...	(in g.)	1.00	0.437
Phosphorus	...	(in g.)	.....	1.97
Iron	...	(in mg.)	20-30	45.1
Vitamin A	...	(in I.U.)	3,000-4,000	2,750
Vitamin B ₁	...	(in mcg.)	1,000-2,000	2,179
Vitamin C	...	(in mg.)	50	45
Calories	...		2,400-3,000†	2,831
<i>Distribution of Calories—</i>				
Proteins	...	...	16—10 per cent.	11 per cent.
Fats	...	...	25—30 per cent.	13 per cent.
Carbohydrates	...	...	55—60 per cent.	70 per cent.

* Approximate requirements for a balanced diet.

† Varies with the nature and extent of work.

From these values for the average intake of foodstuffs for each family, the average values for all the families together have been calculated to give an estimate of the average diet of the rural families of Garag Village. The diet is shown in Table I. The Table also gives the standard deviation of the respective average values of foodstuffs and the levels of intake recommended by the Nutrition Advisory Committee of the Indian Council of Medical Research in November 1944. The maximum and minimum values observed in case of each item of foodstuff have also been given to indicate the variation in the average intake values of the families.

The average diet is far from satisfactory. The average intake of all items of foodstuffs except cereals, is below the recommended levels, particularly those of leafy vegetables, roots and tubers, oils and fats, milk and fleshy foods. The intake of non-leafy green vegetables and sugar and jaggery, though not up to the recommended level, is fairly satisfactory.

The differential consumption of foodstuffs in the families are shown in Table II. The families have been divided into (i) Those *not* consuming a particular foodstuff; (ii) Those consuming a particular foodstuff with the average intake below the desired level; and (iii) Those consuming a particular foodstuff with the average intake up to the desired level and above.

It will be noticed that there were very few families showing adequate consumption of foodstuffs except cereals, which was consumed in adequate quantities in 39 out of 40 families.

In addition, there were 3 families with adequate consumption of pulses, 4 families with adequate consumption of root vegetables, 9 families with adequate consumption of non-leafy green vegetables, 8 families with adequate consumption of sugar and jaggery and one family each with adequate consumption of oils/fats and milk.

It is seen from Table II that fruits, fish and meat and eggs were not consumed at all in 35, 36 and 40 families respectively. Three families did not consume any leafy vegetables, 2 families did not consume any non-leafy green vegetables, while one family each did not consume any sugar and jaggery, oils/fats and milk and milk products.

TABLE IV.

Statement showing the average diet and their nutrient analysis of the two economic groups.

Foodstuff.	Average intake per C. U. per day (in ozs.).		Nutrients.	Average intake per C. U. per day (in ozs.).	
	Group I	Group II		Group I	Group II
Cereals	22.4	19.5	Proteins (g.)	84.5	72.4
Pulses	1.6	1.5	Animal Proteins (g.)	6.2	3.6
Leafy vegetables	0.5	0.6	Fats (g.)	47.5	23.6
Roots and Tubers	1.9	1.6	Carbohydrates (g.)	568.0	489.2

TABLE IV—*contd.*

Foodstuff	Average intake per C. U. per day (in ozs.).		Nutrients	Average intake per C.U. per day (in ozs.).	
	Group I	Group II		Group I	Group II
Other green vegetables ..	2.2	2.0	Calcium .. (g.)	0.43	0.39
Fruits ..	0.1	..	Phosphorus .. (g.)	2.09	1.78
Sugar and Jaggery ..	1.5	1.2	Iron .. (mg.)	45.7	42.0
Oils and fats ..	0.6	0.3	Vitamin A .. (I.U.)	2,888	2,618
Butter and Ghee ..	0.2	0.1	Vitamin B ₁ .. (mcg.)	2,272	1,983
Milk/curds ..	5.2	2.7	Vitamin C .. (mg.)	50	43
Butter-milk ..	0.5	0.5	Calories ..	3,037	2,504
Fish ..	..	..	
Meat ..	0.1	0.1	<i>Distribution of Calories</i>		
Eggs ..	..	..	
Groundnuts ..	0.1	..	Proteins ..	11 per cent.	12 per cent.
Niger-seeds ..	0.1	0.1	Fats ..	14 per cent.	10 per cent.
Red chillies ..	0.3	0.2	Carbohydrates ..	75 per cent.	78 per cent.
Green chillies ..	0.2	0.2			
Betel-leaves ..	0.2	0.2			

Thus, the majority of the families consumed most of the foodstuffs in inadequate quantities.

The nutrient analysis of the average diet, shown in Table III, reveals low intake of animal proteins, fats and calcium. The intake of vitamin A and C though not up to the recommended level, are fairly satisfactory. The intake of carbohydrates, iron and vitamin B₁ are satisfactory.

The average diets of the two economic groups and their nutrient analysis are given in Table IV. The diets are similar except for a slightly higher intake of cereals, oils and fats and milk in group I than in group II.

The nutrient analysis of the diet of group I reveals a low intake of animal proteins, fats and calcium, while that of group II reveals a low intake of vitamin C in addition to the nutrients mentioned above.

Thus, it is seen that even slight improvement in the economic condition helps to improve the diet.

(b) *Preparation of meals, cooking practices, etc.*—The housewife cooked food twice a day. The staple cereals in the diet were *jowar* and rice. The well-to-do people consumed more quantity of rice than the poorer class of people and the housewives from this class cooked food thrice a day.

The breakfast usually consisted of *jowar bhakar* with some vegetable or *dal* ; a few families prepared *sweet shira* (wheat-rawa, *jaggery* and ghee).

The mid-day meal consisted of rice, *jowar bhakar*, vegetables and *dal*. This meal was either taken at home or on the farm.

In the evening, rice was prepared. If there were no left-over of *jowar bhakar* and vegetables, then *jowar bhakar* and some vegetable or *Zunka*—a semi solid preparation of *mug* and *chana* flours was made. *Chatney* of niger seeds was also made.

Some of the cooking practices of these people are described below ;—

A peculiar preparation called “*nuchu*” is prepared by these families. The *jowar* grain is coarsely ground and is soaked in either water or buttermilk overnight. Then, it is cooked adding water while cooking. After cooking, buttermilk and salt are added. This is taken by the family-members in the morning.

For preparing rice, the rice-grains are put in cold water in a vessel and then the vessel is kept on the fire. As for *dal*, it is added to the boiling water. It was reported that water is hard and *dal* takes a long time for cooking.

Hot water is used for preparing *jowar* dough. Thin *bhakers* but of big size, each weighing about 2 to 3 ozs. are prepared. Water is applied to the *bhakar* on roasting pan by means of a piece of cloth. Children eat *jowar bhakar* with *Jaggery*.

• Leafy vegetables are generally washed after they are finely cut.

Potatoes are boiled with the peel. Similarly, the peels of *waluk*, ridge gourd etc. are not removed. Cucumber is generally eaten raw with *jowar bhakar*.

A few families prepared salad of *mung dal*, soaked in water and onions.

If there is sufficient milk in the house, then rice and *jowar bhakar* are taken with milk or buttermilk.

The niger-seeds are pounded, then red chillies, garlic, salt, etc. are added. The *chatney* is taken with *jowar bhakar*.

Bananas are served with sugar to the guests in the house.

Most of the families do not prepare tea at home. The male members generally take tea in the restaurants.

Both men and women are in the habit of chewing betel-leaves ; 5 to 6 leaves are consumed daily.

Soup is prepared from tamarind-pulp. Children eat Amla (Indian Gooseberry) and tamarind plucked from trees.

Puffed rice, rice-flakes, *shev*, *bhajias* are the other foods consumed by these families.

(c) *Foodstuffs : Cereals.*—The staple cereal is *jowar*. Rice is also consumed daily. Puffed rice and rice-flakes are also taken occasionally. Wheat is generally consumed on festive days.

The average consumption of cereals is 21·2 ozs. per c.u. per day, the maximum being 33·8 ozs. per c.u. per day and minimum 11·6 ozs. per c.u. per day. Out of the 21·2 ozs. per c.u. per day, 15·1 ozs. is *Jowar*, 4·9 ozs. rice, 0·6 oz. wheat and 0·6 oz. *Samai* and *Sanwa* per c.u. per day.

The total cereal consumption of group I is 22·4 ozs. while that of group II is 19·5 ozs. Thus, it is observed that the intake of cereals show an increase as the economic condition improves; similar findings were observed in the diet surveys conducted in Sirur Health Unit area and Humgaon, Karjat Community Project area.

Pulses.—The average consumption of pulses, such as cowgram (*chouli*), redgram, Bengal gram and *malki*, is 1·6 oz. per c.u. per day. There is no significant difference in the intake of pulses, between the two groups. The range is from 0·4 oz. to 4·3 oz. per c.u. per day.

Vegetables.—This was the season for green vegetables. Leafy vegetables such as *shepu*, *ambadi*, fenugreek, onion leaves were commonly consumed. Corriander leaves were used occasionally. Roots such as onions and potatoes, other green vegetables such as cucumber, ridge gourd, cluster beans, green peas, green tomatoes, red and white pumpkins were commonly consumed.

The average consumption of vegetables and roots is 4·4 ozs. per c.u. per day. Out of these, 0·5 oz. are leafy vegetables, 1·8 ozs. are roots and tubers and 2·1 ozs. are other green vegetables.

There is not much variation in the consumption of vegetables between the two economic groups.

Fruits.—Fruits available during the season were guava and bananas (yellow peel). These were consumed by better-class families. Only five families surveyed included fruits in the diet. The average consumption of Group I was 0·1 oz. per c.u. per day, while in group II they were completely absent.

This was also the season for Amla (Indian Gooseberry) and tamarind. These were consumed by the children on the farms. It was, therefore, difficult to record the exact quantities consumed; only, whatever was purchased or collected by the family was included in the dietary data.

Sugar and Jaggery.—The average intake was 1·4 ozs. per c.u. per day. The consumption of this item though not up to the required level was fairly satisfactory in both the groups.

Vegetable oils and fats.—Good quality of *kardai* oil was produced in the village but being costly, groundnut oil was consumed by the families. The average consumption of oil was 0·4 oz. per c.u. per day. The average consumption of oil, in group I was 0·6 oz. and in group II it was 0·3 oz. The intake was thus very low in both the groups.

Butter and ghee.—The average consumption of each of this item is 0·1 oz. per c.u. per day. However, butter was totally absent in group II.

Milk and milk-products.—Generally, the milk of buffalo or cow was consumed. However, a few families who possessed goats, consumed goats' milk, 29 families consumed buffaloes' milk; 5 families consumed cows' milk; 2 families consumed buffaloes' and cows' milk; three families consumed only goats' milk, while one family did not include any milk in their diet.

Curds was prepared from the milk and was sold to the people. Butter-milk was generally prepared at home or was obtained from better-class families.

The average consumption of milk and milk-products was 4.2 ozs. per c.u. per day. Out of these, 0.5 oz. was curds. In addition, 0.5 oz. per c.u. per day of buttermilk was consumed.

In group I, the average consumption was 5.7 ozs. per c.u. per day and in group II it was only 3.2 ozs. per c.u. per day.

Fish, Meat and Eggs.—The consumption of all these items was negligible. Out of the 40 families surveyed, 23 were vegetarians; besides, some of the families did not consume non-vegetarian food because of the *navaratra* festival. This is celebrated for nine days prior to *Dassara* and the families are not supposed to consume any non-vegetarian foods during this period.

The average consumption was only 0.1 oz. per c.u. per day.

Condiments.—As green chillies were available, both dried red chillies and green chillies were used as condiment. The average consumption was 0.3 oz. and 0.2 oz. per c.u. per day, respectively in the two groups.

Other foods.—Niger-seeds are grown in this area. They were consumed in the form of *Chatney*. The nutritive value of this foodstuff, was not known; hence these were analysed by this Department, and these values were taken for the nutrient analysis. The protein and fat contents are similar to those of groundnuts. It was gathered that groundnuts were also consumed during the season. The average consumption of niger-seeds was 0.1 oz. per c.u. per day, in both the groups.

Betel leaves.—Betel leaves are grown in this area and men consumed them as a habit; occasionally females also consumed them. The average consumption in both the groups, was about 0.2 oz. per c.u. per day.

(d) *Nutrients—Proteins.*—The average protein intake was fairly satisfactory, the average value being 80.9 gm. Eighteen families had an intake above the recommended value of 82 gm. while 18 families had the intake between 60.0 gm. to 82.0 gm. and 4 families had less than 60.0 gm., the lowest value being 39.0 gm. All these four families belonged to group II.

Animal proteins.—The intake of animal proteins was far below the recommended level, the average value being only 5.5 gm. There were only two families with an average intake above 10 gm., but less than the minimum of the recommended range of 16–27 gm. In 16 families the intake was between 5 gm. and 21 families it was between 0.1–5 gm.; in one family, the consumption of animal proteins was nil.

Fats.—The average intake of fat was 39.9 gm. which is far below the recommended level. Twenty-three families had an intake of less than 35.0 gm., 13 families had an intake of between 35–60 gm., one family had an intake between 60–85 gm., while only two families had it above the recommended level of 85.0 gm.

Carbohydrates.—The average intake of carbohydrates was 537.2 gm. per c.u. per day, which is much more than the recommended level. There were only two families with an intake of carbohydrates less than the required quantity.

Calcium.—The average intake of calcium was only 0.43 gm. Only one family had an average intake that was just the recommended allowance. There was no significant difference in the intake of calcium of the two economic groups.

Iron.—The average intake of iron was 45.13 mgs. There was no significant difference in the intake of the two groups.

Vitamin A.—The average intake of vitamin A was 2,750 I. U. per c.u. per day. Though this was below the recommended level, it is fairly satisfactory. The consumption of betel leaves (0·2 oz. per c.u. per day) contributed nearly 500 I. U. of vitamin A.

Vitamin B₁.—The average intake of vitamin B₁ was 2,179 mcg. per c.u. per day. It was satisfactory in both the groups.

Vitamin C.—The average intake of vitamin C was 45 mg. per c.u. per day. It was satisfactory in both the groups.

Calories.—The yield of calories of the average diet was 2,831 calories and this is fairly satisfactory. The caloric yield of the average diet of group I was adequate, while in group II it was low by about 500 calories per c. u. per day.

In both the groups, cereals contribute the major portion of calories.

(e) *Comparison with the average diets of other rural areas.*—Tables V and VI give the average diets and their nutrient analysis of the two economic groups of families surveyed in Garag village (Oct. 56), Sirur Health Unit area (Jan. 54) and Humgaon village, Karjat (April 1954); the three rural areas surveyed recently in Bombay State.

The economic conditions and the occupations of the families are similar. All are agriculturists working on farms, either as small landholders, tenants or labourers or doing some petty business in the villages.

It will be seen from these Tables that the dietary patterns of the families in the three rural areas are similar in many respects.

TABLE V.

*Statement showing the average diets of families surveyed in rural areas
Bombay State.*

Foodstuff (in ozs. per c.u. per day).	Economic Group I.			Economic Group II.		
	Garag.	Sirur Non-municipal Area.	Humgaon.	Garag.	Sirur Non-municipal Area.	Humgaon.
(No. of families)	23	11	19	17	8	25
Rice	5·3	0·1	25·0	4·3	....	21·6
Wheat	0·6	0·4	0·2	0·6	0·1	..
Jowar	16·1	9·0	..	13·8	6·0	..
Bajra	..	16·6	..	..	9·8	..
Other cereals	0·4	....	1·0	0·8	....	..
Total cereals	22·4	26·1	26·2	19·5	15·9	21·6
Pulses	1·6	2·9	2·3	1·5	4·0	1·5
Leafy vegetables	0·5	0·3	0·02	0·6	0·2	0·1
Roots and Tubers	1·9	1·0	0·9	1·6	0·7	0·7
Other green vegetables..	2·2	0·8	0·6	2·0	0·8	0·3

TABLE V—*contd.*

Foodstuffs (in ozn. per c.u. per day).	Economic Group I			Economic Group II		
	Garag.	Sirur Non- Municipal Area.	Hum- gaon.	Garag.	Sirur Non- Municipal Area.	Hum- gaon.
Total vegetables ..	4.6	2.1	1.5	4.2	1.7	1.1
Fruits ..	0.1	0.1	0.3	..	....	0.2
Sugar and Jaggery ..	1.5	1.7	1.9	1.2	0.9	1.1
Vegetable oils and fats.	0.6	0.4	0.5	0.3	0.2	0.3
Butter and ghee ..	0.2	Tr.	..	0.1	....	..
Milk/Curds ..	5.2	3.4	1.8	2.7	1.1	1.0
Buttermilk ..	0.5	....	..	0.5	....	..
Fish ..	..	0.1	0.6	..	0.1	0.5
Meat ..	0.1	....	0.1	0.1	....	0.1
Eggs ..	..	Tr.	..	..	Tr.	..
Groundnuts ..	0.1	1.0	0.1	..	0.1	0.1
Niger-seeds ..	0.1	....	(Coconut). ..	0.1	....	..
Red chillies ..	0.3	0.3	0.5	0.3	0.3	0.3
Green chillies ..	0.2	....	..	0.2	....	..
Betel leaves ..	0.2	....	..	0.2	....	..
Other foods ..	..	0.2	0.1	..	0.2	..

TABLE VI.

[Statement showing the nutrient analysis of the average diets per c.u. per day of groups I and II of families surveyed in three rural areas in Bombay State.

Nutrients.	Economic Group I.			Economic Group II.		
	Garag.	Sirur Non- municipal Area.	Hum- gaon.	Garag.	Sirur Non- municipal Area.	Hum- gaon.
(No. of families) ..	23	11	19	17	8	25
Proteins (g.)	84.5	116.2	90.4	72.4	81.1	71.4
Animal Proteins (g.)	6.2	4.9	8.7	3.6	2.0	7.2
Fats .. (g.)	47.5	58.7	25.5	28.6	27.7	14.0
Carbohydrates (g.)	568.0	629.9	683.5	489.2	417.6	542.7
Calcium .. (g.)	0.43	0.80	0.47	0.39	0.70	1.26
Phosphorus (g)	2.09	3.10	1.76	1.76	2.11	1.34
Iron .. (mg.)	45.7	70.6	30.0	42.0	48.1	22.6
Vitamin A (I.U.)	2,886	2,455	638	2,618	1,520	540
Vitamin B ₁ (mcg)	2,272	1,022	552	1,983	552	420
Vitamin C (mg.)	50	18	16	43	17	11
Calories ..	3,037	3,512	3,325	2,504	2,244	2,583

The total quantity of cereals consumed by the families in the economic group I in the three areas is between 22·0 ozs. to 26·0 ozs. per c.u. per day. Only the staple cereal consumed is different, depending on the produce of the area. In economic groups II also, there are similar trends in the average intake of cereals, except that in Sirur area the consumption of cereals is 15·9 ozs. But here the consumption of pulses is high, i.e., 4·0 ozs. per c.u. per day; pulses are used in place of cereals.

The consumption of pulses in groups I and II of Garag Village is less compared to that in the respective groups at Sirur and Humgaon.

The consumption of leafy vegetables, roots and tubers and other green vegetables per c.u. per day is high in groups I & II of Garag Village than in groups I and II of Sirur and Humgaon respectively.

The difference in the intake of vegetables is appreciable in both the groups. The Humgaon survey was carried out in April-May, i.e., in Summer months; the Sirur survey was conducted in January, i.e., in Winter and the Garag survey was carried out in September-October, i.e., in Autumn.

Thus, the period of survey may have an effect on the intake of vegetables. It is also true that this area of the former Bombay State is known for producing vegetables and roots.

The milk intake is also comparatively high. Milk is also available cheap, in this area. This area is known for producing milk and milk products; butter and ghee are transported out to other Districts.

There is not much difference in the intake of fruits, sugar and jaggery, vegetable oil and red chillies.

The total intake of fleshy food is comparatively more in the average diets of Humgaon and Sirur. This is mostly due to an increased intake of dried fish, when fresh vegetables are not available. Besides, it also depends on the dietary habits of the people; 60% of the families surveyed from Garag Village were vegetarians.

The average diet of group II of all the rural areas show similar trends. Only because of poor economic conditions, the consumption of each item is low.

The nutrient analysis (Table VI) reveal a high intake of carbohydrates and a low intake of animal proteins, fats, calcium and vitamins A and C. Only in the diets of the two groups from the Garag Village, the vitamin C content is satisfactory.

The caloric yield of the diets of the economic group I in the three rural areas is satisfactory; but that of the diets of the economic group II are not so satisfactory compared to the physical activities of these people.

RESULTS OF THE CLINICAL NUTRITION SURVEY.

A clinical nutrition survey by the "rapid" method was carried out by the Medical Officer of the Department in October 1956.

(a) *Family Members.*—The total number of persons in the 40 families surveyed for diet study was 230. Of these, 141 persons (61%) could be examined, the remaining being absent for one reason or the other. Fifty-nine children—27 boys and 32 girls and 82 adults, 33 men and 49 women were examined. The distribution of these persons in the three grades of nutritional status is shown in Table VII.

Out of the total 141 persons examined 44, i.e., 31% were in grade I, 87 i.e., 62% were in grade II and 10 i.e., 7% were in grade III of the nutritional status. Thus, every two out of three persons were undernourished and need attention to raise them to the accepted standards of health and physique.

It will be seen from the Table VII, that adults are better nourished than children. Men are better nourished than women and girls are better nourished than boys.

Table VIII, gives the incidence of deficiency signs in the members of these families.

It will be seen that the main deficiency sign is deficient subcutaneous fat, mainly in children (65%).

TABLE VII.

Statement showing the distribution of members of families in the three grades of nutritional status.*

	Nutritional Grades*.						Total.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	
	I.		II.		III.		
Boys	5	19	16	59	6	22	27
Girls	10	31	20	63	2	6	32
Total Children	15	25	36	61	8	14	59
Men	18	54	15	46	..	..	33
Women	11	22	36	73	2	4	49
Total Adults	29	35	51	62	2	3	82
Total	44	31	87	62	10	7	141

*Grade I.—Physique and General Health, good.

II.—Undernourished.

III.—Evidence of malnutrition—single or multiple deficiency states, present.

TABLE VIII.

Statement showing the incidence of deficiency signs in the members of the families.

Deficiency Signs.	Boys (27).	Girls (32).	Men (33).	Women (49).	Total (141) (Per cent.).
Poor Musculature	8	6	..	..	14
Deficient Subcutaneous Fat	17	21	2	12	52
Mild anaemia	6	8	3	26	43
Fissured Tongue	..	..	..	1	1
Angular Stomatitis	..	..	..	1	1
Rickets	1	..	..	..	1
Dental Caries	1	..	..	1	2

*Marked anaemia.

The other signs are poor musculature (24 per cent.) and mild anæmia (30 per cent.); poor musculature is present in children only, while mild anæmia is present in 24 per cent. children, 55 per cent. women and only 9 per cent. men. Dental caries were observed in only two members. Rickets, fissured tongue and angular stomatitis were observed in only one person each.

Of 11 nursing mothers, covered by the survey, 8 showed mild anæmia.

(b) *School Children.*—The total number of children examined from the three schools is 249. Of these, 170 are boys and 79 are girls. The distribution of these boys and girls in the three grades of nutritional status, according to age is shown in Table IX. The age range was 5 to 17 years.

It will be seen from this Table that only 8 per cent. of the children were in grade I of the nutritional status; all the rest are either in grade II or grade III of the nutritional status.

Girls are slightly better nourished than boys.

Table X shows the incidence of deficiency signs in the boys and girls from these schools. As in the members of the families examined, the main deficiency sign is Deficient Subcutaneous Fat. Poor musculature and mild anæmia are fairly present in these children also. In addition, deficiency signs like Bitot's spots and dry and/or rough skin are also fairly present. Dental caries was present to an extent of 10 %.

Two cases (both of them pre-school age girls) of nutritional œdema together with gross muscular wasting were also reported.

HEIGHTS AND WEIGHTS.

The number of children in each age group from families surveyed is rather small for working out averages; in some age groups, there is no child at all. The averages are therefore not given.

The average heights and weights of adults are, however, given in Table XI, together with those for adults from the Karjat Community Project area. It will be seen from this Table that men are taller and heavier than women.

TABLE-IX.

Statement showing the distribution of boys and girls of the schools in Garag Village in the three grades of nutritional status, according to age.

Age in Years.	Boys.				Girls.				Remarks.
	I.	II.	III.	Total.	I.	II.	III.	Total.	
4	....	....	....	....	....	1*	....	1*	*Girls from Kalyan Kendra.
5	....	1	....	1	1*	9*	....	10*	
6	....	9	3	12	..	2+4*	2+1*	4+5*	
7	1	16	7	24	2	8+1*	..	10+1*	

16
TABLE IX—*contd.*

Age in Years.	Boys.				Girls.				Remarks.
	I.	II.	III.	Total.	I.	II.	III.	Total.	
8	....	27	5	32	....	6	1	7	
9	....	15	1	16	1	5	....	6	
10	....	12	7	19	1	15	2	18	
11	1	20	1	22	2	3	1	6	
12	....	8	1	9	....	5	....	5	
13	2	9	1	12	....	2	....	2	
14	1	9	1	11	1	1	....	2	
15	....	4 1†	1	5 1†	2	....	....	2	† age not noted.
16	5	....	5	5	....	....	....	....
17	....	....	1	1	....	....	....	....
Total ..	10	131	29	170	9+1*	47+15*	6+1*	62+17*	
Percent- ages.	6%	77%	17%	..	13%	78%	9%	..	

TABLE X.

Statement showing the incidence of deficiency signs in the boys and girls in the primary and the pre-primary schools.

	Boys.	Girls.	Total (249)	
			No.	Percent.
Poor Musculature	69	33
Deficient subcutaneous fat	149	79
Nutritional oedema and Gross muscular wasting	2	1
Mild Anaemia	15	10
Dry and /or rough skin	21	10
Bitot's Spots	6	2
Pigmentation of conjunctivae	3	1
Angular Stomatitis	1	..
Fissured tongue	1	..
Dental caries	22	10

TABLE XI.

Statement showing the average heights and weights of men and women from Dharwar and Karjat Community Project Areas.

		No. of men.	Ht. in inches.	Wt. in lbs.	No. of women.	Ht. in inches.	Wt. in lbs.
Dharwar	.. ..	28	63.1	105.7	36	58.8	93.8
Karjat	.. ..	36	63.5	98.4	90	57.6	85.0

TABLE XII.

Statement showing the average heights and weights of boys and girls from the schools at Garag.

Age.	No. of boys.	Ht. in inches.	Wt. in lbs.	No. of girls.	Ht. in inches.	Wt. in lbs.
4	....	....	....	1	32.0	27.0
5	1	37.0	26.0	10	37.5	28.5
6	12	41.2	33.4	9	40.7	31.7
7	23	42.5	34.6	12	43.0	35.7
8	32	45.7	41.7	6	44.5	37.3
9	16	46.9	42.9	6	46.3	41.8
10	19	48.6	45.6	18	50.0	48.6
11	20	50.9	52.4	6	52.2	50.8
12	9	52.6	55.8	5	52.4	52.4
13	10	52.6	58.9	2	56.0	62.5
14	10	56.3	69.9	2	57.3	70.5
15	5	57.6	70.6	2	58.5	72.0
16	....	....	....	....	....	....
17	....	57.0	78.0	....	....	....

There is not much difference in the average heights of men and women in the two areas. However, both men and women from Dharwar are heavier than the men and women of Karjat Community Project area.

The average heights and weights of the school boys and girls examined are shown in Table XII. The average heights and weights of the boys and girls steadily increase with the age. Here also the number of children in some age groups are small and no comparison is, therefore, made.

SUMMARY.

A survey of dietary habits and nutritional status of 40 families from the Garag Village in the Dharwar Community Development Block was conducted by the Department of Nutrition in September-October 1956.

The families belong to agricultural class, either working as landholders or labourers. The families have been divided into two economic groups—landholders and landless labourers.

The average diets of the two groups are not very satisfactory. The average intake of all items of foodstuffs except cereals is below the recommended levels. The diet of group I shows slightly better intake of foodstuffs, particularly cereals and milk.

The diet is similar to those of the families surveyed at Humgaon, Karjat Community Project Area and Sirur Health Unit Area, Poona, except that the staple cereal is different at the three different areas.

The nutrient analysis reveal low intake of animal proteins, fats and calcium. The intake of vitamin A and C though not up to the recommended level, is fairly satisfactory compared to other rural diets studied.

A clinical nutrition survey by the "rapid" method of 141 members of 40 families and 249 school children—170 boys and 79 girls from local primary schools and the Welfare Centre in the village was carried out.

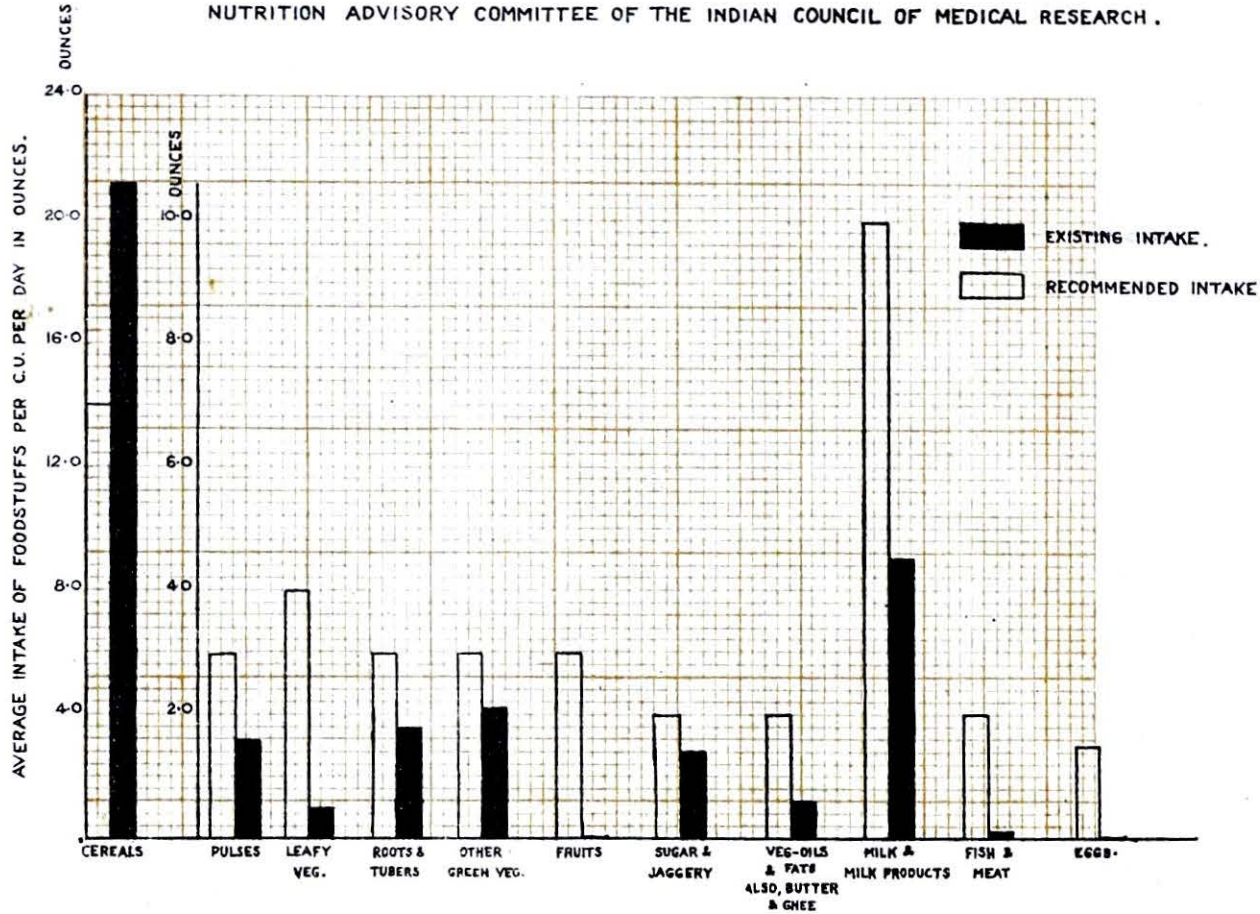
Every two out of three persons from the families surveyed are undernourished and need attention to raise them to the accepted standard of nutrition. The condition of the school children is also unsatisfactory. Only 8 per cent. being in grade I of the nutritional status.

The main deficiency sign is Deficient Subcutaneous fat; Poor musculature and mild anaemia are fairly common. In school children dry skin and dental caries were also observed.

The adult males and females in the Garag Village in Dharwar Community Development Block and in the Humgaon Village in the Karjat Community Project Area have nearly the same average heights respectively. However, both men and women from the Dharwar area are, heavier than the men and women from the Karjat area.

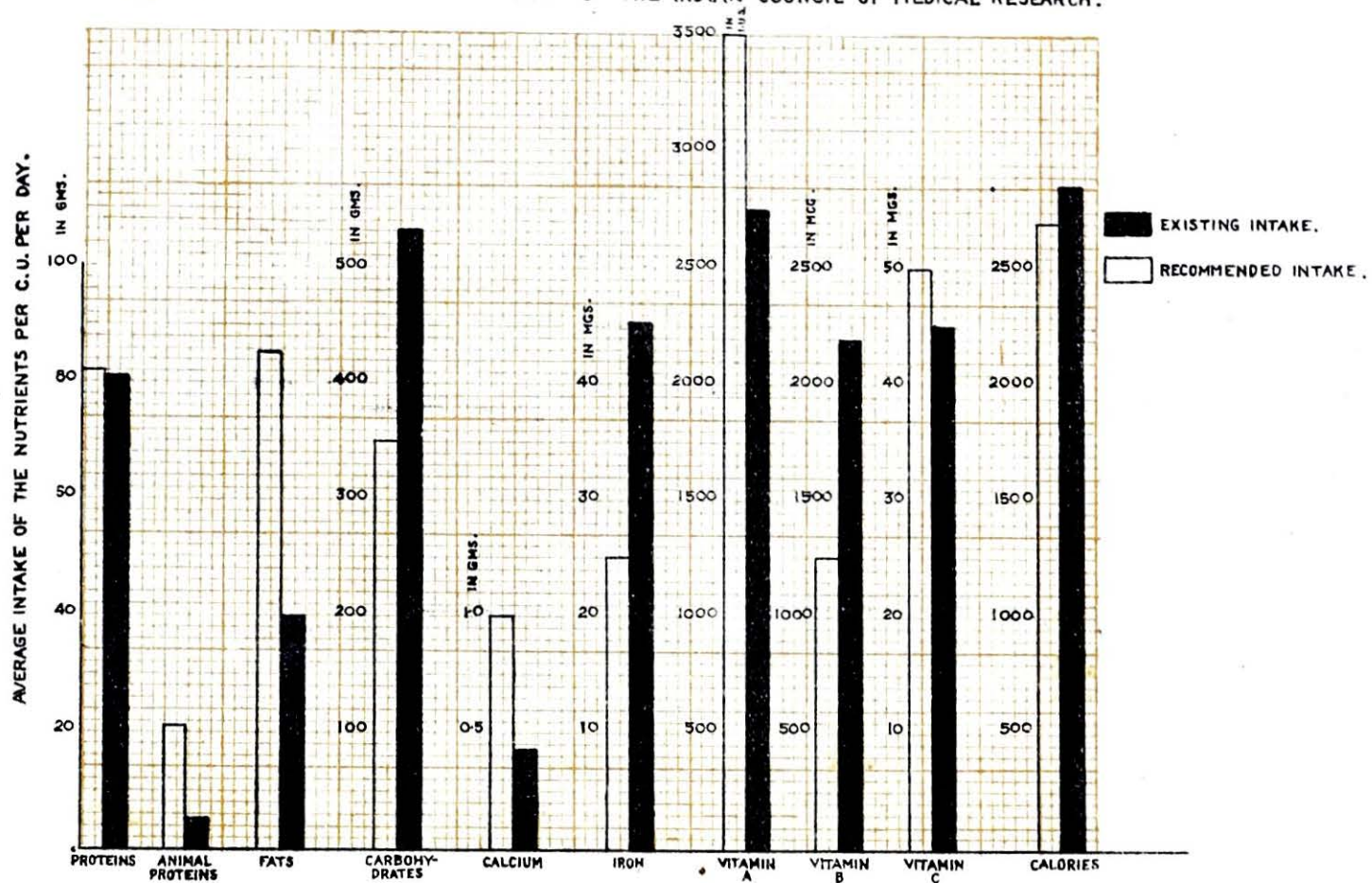
APPENDIX C.

FIG. 1. THE AVERAGE INTAKE OF FOODSTUFFS COMPARED WITH THE DIET RECOMMENDED BY THE NUTRITION ADVISORY COMMITTEE OF THE INDIAN COUNCIL OF MEDICAL RESEARCH.



APPENDIX C

FIG.2. THE AVERAGE VALUES OF NUTRIENTS COMPARED WITH THE ALLOWANCES RECOMMENDED BY THE NUTRITION ADVISORY COMMITTEE OF THE INDIAN COUNCIL OF MEDICAL RESEARCH.



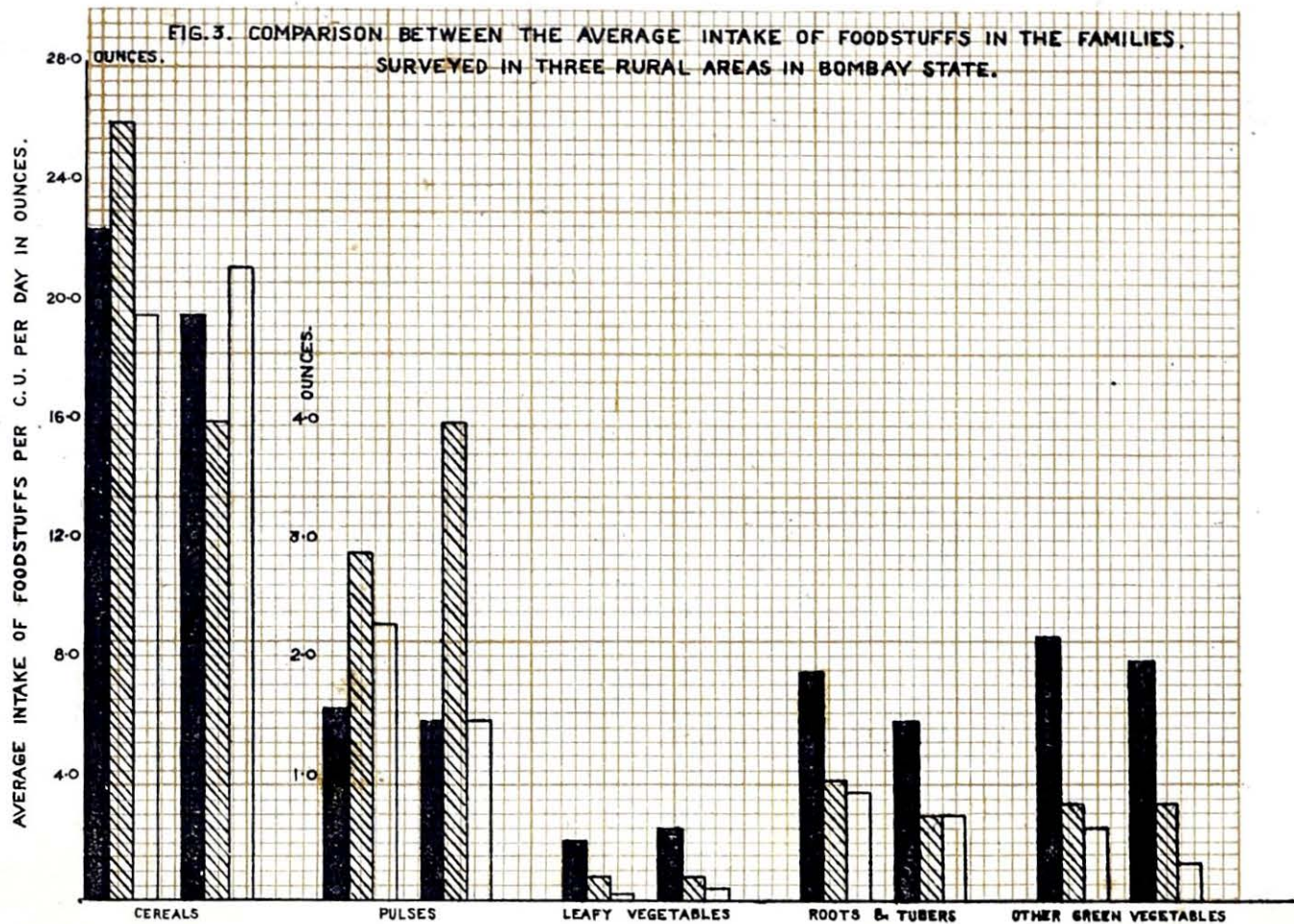


FIG. 3. CONTD.

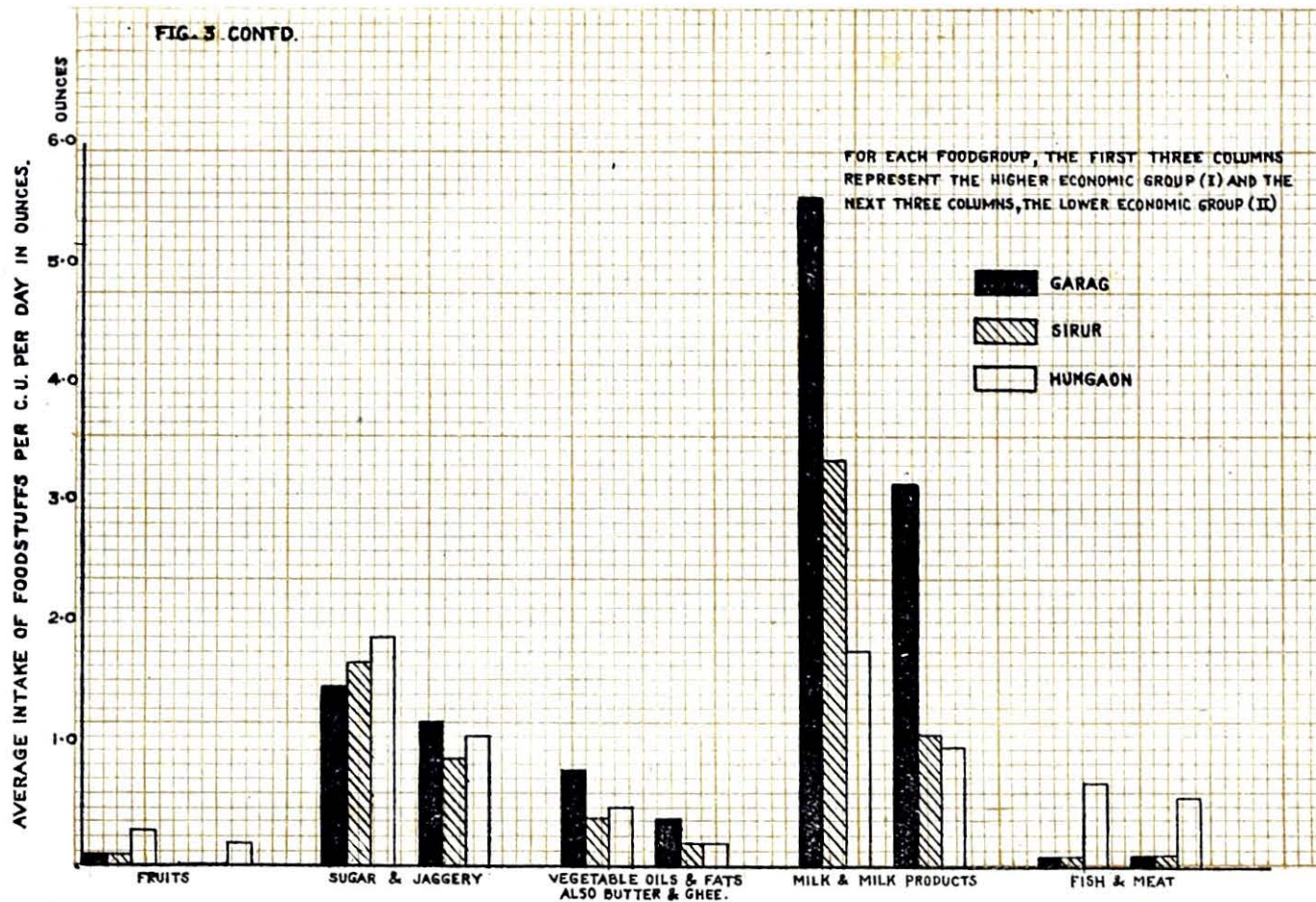


FIG. 4. COMPARISON BETWEEN THE AVERAGE VALUES OF NUTRIENTS IN THE THREE RURAL AREAS OF BOMBAY STATE, SURVEYED.

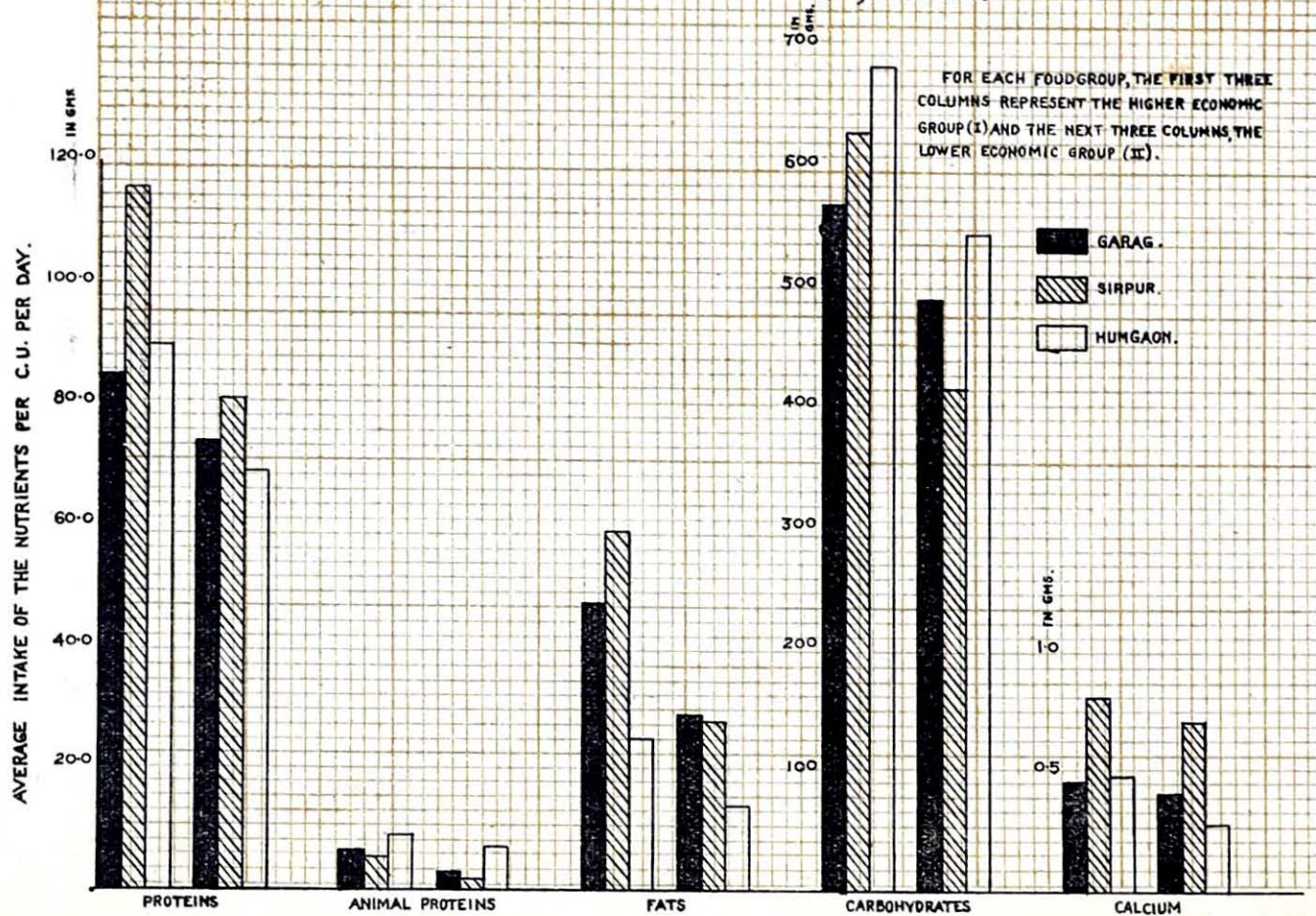
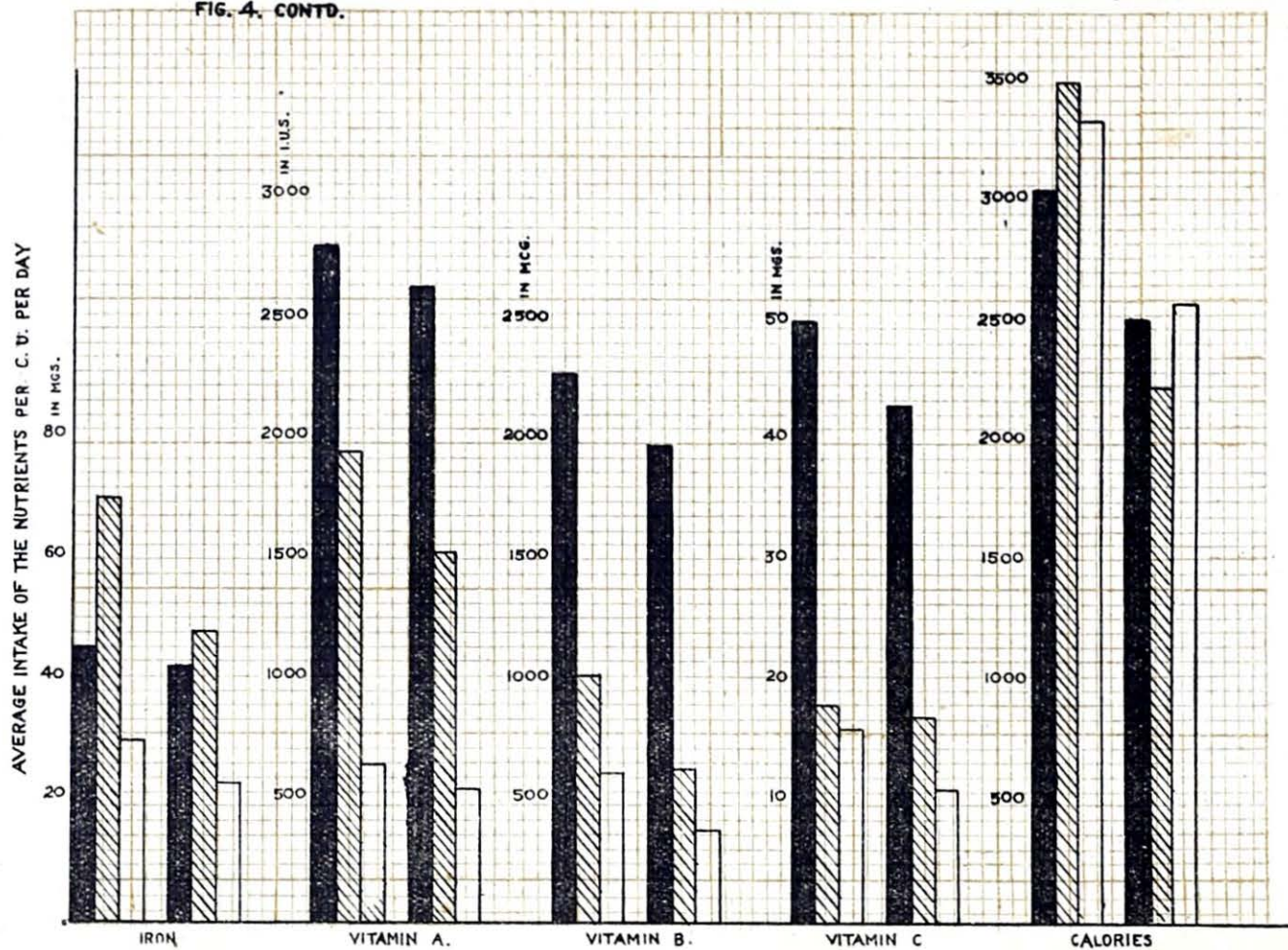


FIG. 4. CONTD.



APPENDIX A.

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

SCHEDULE FOR DIET SURVEYS IN RURAL AREAS.

Serial No.

Name of the Head of the family

AddressVillageTalukaDistrict

Rent Rs.No. of rooms occupied

Caste or CommunityOccupation

No. of earning members in the family :MalesFemales

Mother tongueVegetarian/Non-vegetarian.

Place of origin :VillageDistrict

How long has the family been staying in

Land in acres (a) As land owner(b) As tenant

Annual tax (a) Rs.(b) Rs.

Procurement of grains :

Varieties.	Quantity.
.....
.....
.....
.....

Cattle wealth : Bullocks :Cows :Other

Poultry : Yes/No.

Total income of the family (per month) :

Approximate expenditure on food per month—Home Rs.Outside Rs.

Expenditure on the following items :

(i) Clothes Rs.(ii) Entertainment Rs.Feeding for cattle Rs.

Health matters :—

(i) Water supply :

(ii) Sanitation :

(iii) Living conditions :

(iv) Common ailments :

General remarks (including dietary habits/cooking practices).

Date :

Name of the investigator.

No.	Name.	Sex.	Age.	Relation with the head of the family.	If earning the income per month.	Whether takes food outside.	Expenditure on outside food.	Remarks, if any.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Total quantity of Foods Consumed by the Family in lbs. (give other units, wherever necessary).

Food groups. Days.	1st		2nd		3rd		4th		5th		6th		7th		Total.	Remarks.
	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.		
Cereals {	Rice (polished)															
	Rice (unpolished)															
	Wheat ..															
	Jowar ..															
	Other cereals ..															
Pulses {	'Tur' ..															
	'Chana' ..															
	Other pulses ..															
Leafy Vegetables ..																
Roots and Tubers {	Potatoes ..															
	Onions ..															
	Others ..															
Other Vegetables ..																

Foodgroups.	Days.	1st		2nd		3rd		4th		5th		6th		7th		Tctal.	Remarks.
		Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.	Morn- ing.	Even- ing.		
Fruits—																	
	Dry fruits ..																
	Sugar ..																
	Jaggery ..																
Vege- table oils	Groundnut oil ..																
	Til oil ..																
	Coconut oil ..																
	Hydrogenated vegetable oils.																
	Other oils ..																
Butter	..																
Ghee	..																
Milk Pro- ducts	Milk ..																
	Toned Milk ..																
	Curds ..																
	Buttermilk ..																

Fleshy foods	Fish ..																			
	Fish dried ..																			
	Meat ..																			
	Eggs ..																			
Nuts and Oilseeds	Groundnuts ..																			
	Coconuts ..																			
	Others ..																			
Condiments ..																				
Other foods ..																				
Foods taken outside home. ..																				
Absentees for the particular meals. ..																				
Guest	Males																			
	Females (with approximate ages).																			

Period of SurveyDays (fromto)

Name of the investigator.

Date :

APPENDIX B.

DEPARTMENT OF NUTRITION, GOVERNMENT OF BOMBAY.

SCHEDULE FOR RAPID CLINICAL NUTRITION SURVEY.

Serial No. Date

Name School

Age Years Months. Sex. Place

Weight Lbs. Height Inches.

Hæmoglobin g/100 ml. Std. Div.

GRADE I.

GRADE II—

- (a) Poor musculature.
- (b) Deficient subcutaneous fat.
- (c) Mild anæmia.
- (d) Lack of interest in surroundings.

GRADE III—

Group I—Equal weightage—highly significant of malnutrition :

- (a) Nutritional Oedema (dependent parts or generalized).
- (b) Gross muscular wasting.
- (c) Marked anaemia.
- (d) Xerosis of the cornea.

Group II—Significant of malnutrition :

- (e) Tenderness of the calf.
- (f) Red and/or raw tongue.
- (g) Glazed tongue.
- (h) Stomatitis.
- (i) Bleeding gums.
- (j) Angular conjunctivitis (bilateral)—Excoriation of Eye-lids.
- (k) Night blindness.
- (l) Early Rickets (Delayed Dentition).

Group III—Less significant :

- (m) Xerosis of conjunctivæ.
- (n) Bitot's spots.
- (o) Dry and/or rough skin.
- (p) Crazy pavement skin.
- (q) Hyperkeratosis.
- (r) Stigmata of past rickets.
- (s) Caries (Dental).
- (t) Pigmentation of conjunctivæ.

Special remarks, if any—

APPENDIX C.

Results of the Diet Survey of Families

1. Serial No. of the family ..	1	2	3	4	5
2. Caste/Community ..	Maratha ..	Ksyatriya.	Ksyatriya.	Lingayat..	Maratha ..
3. Language spoken ..	Kanarese..	Kanarese..	Kanarese..	Kanarese..	Kanarese..
4. Vegetarian/Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Vegetarian.	Non-vegetarian.
5. Occupation ..	Agriculturist.	Agriculturist.	Gr o c e r's shop.	Tea-shop..	Agriculturist.
6. No. of Members—					
Adults—					
Males ..	1	1	5	1	1+1 Serv.
Females ..	2	1	4	1	1
Children—					
Males ..	1	....	2	1	2
Females ..	....	1	2	2	2
Total ..	4	3	13	5	6+1
7. Total Consumption Units of the family.	3·5	2·4	10·8	3·4	4·5+1·0
8. No. of earning members—					
Males ..	1	1	2	1	1
Females ..	....	....	....	....	....
9. Landowners/Tenants/Labourers.	Landowner.	Landowner.	....	....	Landowner.
10. No. of acres of land cultivated.	20 Gunthas	4 Acres and 15 Guns.	....	....	5 Acres
11. Income from other sources wherever obtained.	....	....	Rs. 75 per month.	Rs. 30 per month.	....
Daily consumption of foodstuffs— (per C. U. in ozs.)—					
(i) Cereals ..	31·5	31·0	23·1	33·8	29·2
(ii) Pulses ..	3·1	1·1	1·7	2·7	1·9
(iii) Leafy vegetables ..	1·1	0·2	0·8	0·3	0·5
(iv) Root vegetables ..	1·9	2·3	1·0	1·5	2·5
(v) Other (green) vegetables..	4·1	....	2·5	3·3	1·5
(vi) Fruits ..	....	....	....	....	....
(vii) Sugar and Jaggery ..	1·1	0·7	1·3	1·2	2·2
(viii) Vegetable oils and fats ..	0·3	0·2	0·4	0·7	0·4
(ix) Butter and ghee ..	....	....	0·3	0·3	0·4

C.

residing in Garog Village, Dharwar.

6	7	8	9	10	11	12
Lingayat..	Lingayat..	Lingayat..	Maratha ..	Lingayat ..	Lingayat ..	Lingayat ..
Kanarese..	Kanarese..	Kanarese..	Kanarese..	Kanarese ..	Kanarese ..	Kanarese ..
Vegetarian.	Vegetarian.	Vegetarian.	Non-vegetarian.	Vegetarian.	Vegetarian ..	Vegetarian.
Agriculturist.	Agriculturist.	Agriculturist.	Teacher ..	Agriculturist.	Cloth Merchant.	Agriculturist.
2+2 Servs.	1	1	1	1	4	2
4	2	3	1	1	3	1
2	2	1	....	....	4	4
....	2	1	....	2	1	1
10	7	6	2	4	12	8
7.6+2.0	5.4	4.9	1.9	2.9	9.7	6.8
1	1	1	1	1	4	3
....	....	2	....	....	....	....
Landowner..	Tenant ..	Tenant	..	Landowner	..	Landowner.
5 Acres and 7 Acres as tenant.	20 Acres.	3 Acres	Rs. 75 per month.	6 Acres and 14 Acres as tenant.	Rs. 100 per month.	2 Acres.
....
28.7	17.7	17.8	20.6	18.3	20.8	18.2
2.3	0.9	1.0	1.9	1.1	1.8	1.2
0.8	0.7	0.8	0.4	0.8	0.1	0.2
1.6	0.6	1.0	5.8	3.8	2.1	0.7
2.7	1.8	0.8	3.4	3.2	4.7	1.7
....	....	....	....	0.4	0.1	....
0.9	1.5	0.3	1.5	2.1	0.9	1.0
0.3	0.2	0.3	1.7	1.1	0.7	0.2
0.1	....	....	0.8	0.8	....	....

1. Serial No. of the family	...	13	14	15	16	17
2. Caste/Community	...	Lingayat..	Barker (Pujari).	Dhobi. . .	Lingayat.	Lingayat ..
3. Language spoken	...	Kanarese.	Kanarese.	Kanarese.	Kanarese.	Kanarese ..
4. Vegetarian/Non-vegetarian.		Vegetarian.	Vegetarian.	Vegetarian.	Vegetarian.	Vegetarian.
5. Occupation	...	Farmer selling vegetables.	Agriculturist.	Agriculturist and Dhobi.	Agriculturist.	Clerk in shop.
6. Number of Members— <i>Adults—</i>						
Males	...	1	2	1	1	3
Females	...	1	2	3	1	1
<i>Children—</i>						
Males	...	1	1	.....	2	2
Females	...	.....	.....	1	1	2
Total	...	3	5	5	5	8
7. Total Consumption Units of the family.		2.4	4.2	4.1	3.4	5.9
8. No. of earning members—						
Males	...	1	2	1	1	2
Females	...	1	2	2	2	1
9. Landowners/Tenants/Labourers.		Landowner.	Landowner.	Landowner.	Landowner.	.....
10. No. of acres of land cultivated.		3 Acres.	3 Acres.	2 Acres.	3 Acres.	Rs. 50 per month.
11. Income from other sources wherever obtained.	.....	.....	.....	.....	.....	.....
<i>Daily consumption of foodstuffs (par C.U. in ozs.)—</i>						
(i) Cereals	...	21.6	17.0	26.5	22.1	18.0
(ii) Pulses	...	1.6	0.6	1.4	0.8	1.9
(iii) Leafy vegetables	...	0.2	0.9	0.4	0.3	0.4
(iv) Root vegetables	...	3.8	1.9	0.5	1.0	1.5
(v) Other (green) vegetables	...	2.4	0.4	2.9	1.4	2.1
(vi) Fruits	...	.....	.....	.....	.....	.....
(vii) Sugar and Jaggery	...	2.8	0.5	3.9	2.7	1.8
(viii) Vegetable oils and fats	...	0.5	0.1	0.6	0.3	0.7
(ix) Butter and ghee	...	.....	.....	0.1	.....	.....

C—contd.

18	19	20	21	22	23	24
Sonar ...	Sonar ...	Lingayat...	Kshatriya.	Lingayat ...	Lingayat ...	Mohomedan.
Kanarese...	Kanarese...	Kanarese...	Kanarese...	Kanarese ...	Kanarese ...	Kanarese ...
Vegetarian.	Vegetarian.	Vegetarian.	Non-Vegetarian.	Vegetarian ...	Vegetarian ...	Non-vegetarian.
Goldsmith.	Goldsmith.	Teacher and Agriculturist.	Peon/Panchayat and Shop	*Service outside in village.	Business and Agriculturist.	Labourer.
3	2	3	3	1*	2	4
3	2	2	3	1	4	2
1	Nil	2	.....	3	2	.....
.....	1	1	1	.....	4	1
7	5	8	7	5	12	7
6.3	4.1	6.4	6.1	3.0	9.1	6.5
3	2	3	2	1*	2	.....
2	.....	1	.....	.....	.....	.....
Landowner.	.....	.....	.....	.....	Landowner...	.....
4 Acres (given for cultivation).	Rs. 50 per month.	Rs. 500 per year and Rs. 30 per month.	Rs. 80 per month.	Rs. 25 per month.	4 Acres and 4 Acres as tenant.	Rs. 35 per month.
Rs. 75 per month.	.....	.....	.....	.....	.....	.....
17.7	18.6	18.2	24.6	21.0	20.3	22.0
1.2	1.0	1.0	1.1	2.7	1.8	1.7
0.3	0.8	0.1	0.2	0.5	0.7	1.3
1.9	1.3	1.7	1.5	1.7	0.8	0.8
1.5	1.5	2.1	1.2	2.4	1.9	1.2
0.4	.....	0.3	0.4	.....	.....	.....
1.5	1.0	3.1	1.3	0.2	0.6	.....
0.4	0.4	0.4	0.6	0.8	0.4	0.2
0.4	.....	0.2	0.2	.....	.....	.....

1. Serial No. of the family	..	25	26	27	28	29
2. Caste/Community	..	Sadaru	.. Lingayat..	Barber	.. Barber	.. Lingayat..
3. Language spoken	..	Kanarese	Kanarese	Kanarese	Kanarese	Kanarese
4. Vegetarian/Non-vegetarian	..	Non-vegetarian	Vegetarian	Non-vegetarian	Vegetarian	Vegetarian
5. Occupation	..	Weaver and Agriculturist	Labourer in firm and selling of vegetables	Labourer	Barber	.. Barber
6. No. of Members—						
<i>Adults—</i>						
Males	..	1	2	3	2(-1)*	2
Females	..	1	3	1	3(-2)*	1
<i>Children—</i>						
Males	..	1	....	3	....	1
Females	..	....	....	1	....	2
Total	..	3	5	8	5-3:2	6
7. Total Consumption Units of the family.		2.6	4.8	6.9	1.9	4.8
8. No. of earning members—						
Males	..	1	2	2	2	1
Females	..	1	3	1	3	....
9. Landowners/Tenant/Labourers.		Tenant	Landowner	Landowner	Landowner	Landowner and Barber.
10. Number of acres of land cultivated.		3 Acres	.. 2 Acres	.. 2 Acres	.. 4 Acres	.. 2 Acres
11. Income from other sources wherever obtained.		Rs. 1.8 per day.	....	Rs. 30 per month.	Rs. 35 per month.	Rs. 30 per month.
<i>Daily consumption of foodstuffs— (per C. U. in ozs.)—</i>						
(i) Cereals	..	16.1	23.2	11.6	28.0	20.3
(ii) Pulses	..	1.5	0.4	0.5	0.6	1.3
(iii) Leafy vegetables	..	1.3	0.6	0.8	....	0.4
(iv) Root vegetables	..	2.1	1.6	0.5	1.7	1.9
(v) Other (green) vegetables	..	2.0	4.0	1.5	5.7	3.0
(vi) Fruits	..	....	....	....	....	....
(vii) Sugar and Jaggery	..	0.9	0.6	0.6	0.1	1.7
(viii) Vegetable oils and fats	..	0.4	0.2	0.1	0.6	0.5
(ix) Butter and ghee	..	....	....	....	....	....

*Gone out of the Village.

APPENDIX C—contd.

1. Serial No. of the family ..	37	38	39	40
2. Caste/Community ..	Mohomedan	Lingayat	Maratha	Hindu
3. Language spoken ..	Kanarese	Kanarese	Kanarese	Kanarese
4. Vegetarian/Non-vegetarian.	Non-vegetarian.	Vegetarian.	Non-vegetarian.	Non-vegetarian.
5. Occupation ..	Labourer Carpenter.	Labourer in hotel.	Labourer	Labourer
6. Number of Members—				
<i>Adults—</i>				
Males ..	3	1	Nil.	1
Females ..	4	1	1	1
<i>Children—</i>				
Males ..	2	....	....	....
Females ..	2	....	1	....
Total ..	11	2	2	2
7. Total Consumption Units of the family.	8.3	1.9	1.6	1.9
8. No. of earning members—				
Males ..	3	1	....	1
Females ..	3	....	1	1
9. Landowners/Tenant/Labourers.	....	....	....	....
10. No. of acres of land cultivated.	....	....	....	....
11. Income from other sources wherever obtained.	Rs. 40 per month.	Rs. 20 per month.	Rs. 20 per month.	Rs. 45 per month.
<i>Daily consumption of foodstuffs—</i> (per C. U. in ozs.)—				
(i) Cereals ..	16.7	25.3	19.8	23.4
(ii) Pulses ..	1.1	1.9	3.2	4.3
(iii) Leafy vegetables ..	0.2	....	1.0	0.8
(iv) Root vegetables ..	1.5	1.3	2.6	1.5
(v) Other (green) vegetables ..	....	3.3	1.1	2.1
(vi) Fruits ..	....	....	....	....
(vii) Sugar and Jaggery ..	0.4	1.2	4.0	3.6
(viii) Vegetable oils and fats ..	0.1	0.3	....	0.3
(ix) Butter and Ghee ..	....	0.6	....	0.6

APPENDIX C. (contd.)

1. Serial No. of the family ..	1	2	3	4	5
2. Caste/Community ..	Maratha ..	Kshatriya.	Kshatriya.	Lingayat.	Maratha.
3. Language spoken ..	Kanarese.	Kanarese.	Kanarese.	Kanarese.	Kanarese.
4. Vegetarian/Non-vegetarian..	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Vegetarian.	Non-vegetarian.
5. Occupation ..	Agriculturist.	Agriculturist.	Grocer's shop.	Tea-shop.	Agriculturist.
(x) Milk and milk products ..	2.3	4.7+0.9 B.M.	6.0	9.4	5.8
(xi) Fish ..	....	....	....	....	....
(xii) Meat ..	....	0.4	....	....	....
(xiii) Eggs ..	....	....	....	....	....
(xiv) Nuts and oilseeds ..	....	0.3	0.4	0.3	....
(xv) Chillies (Red and Green) ..	0.7	0.4	0.3	0.6	0.4
(xvi) Betel leaves ..	0.8	0.8	....	....	0.7
(xvii) Other foods ..	....	....	....	....	....

Nutrient Analysis—

(i) Proteins (in g.) ..	111.1	106.9	87.9	126.8	109.3
(ii) Animal proteins (,,) ..	2.8	6.5	6.3	11.3	7.0
(iii) Fats (,,) ..	33.0	31.8	43.3	70.3	52.3
(iv) Carbohydrates (,,) ..	775.5	717.0	576.1	775.5	734.4
(v) Calcium (,,) ..	0.67	0.67	0.50	0.54	0.60
(vi) Phosphorus (,,) ..	2.95	2.65	2.12	3.11	2.83
(vii) Iron (in mg.) ..	71.3	60.5	48.2	58.5	62.6
(viii) Vitamin A (in I.U.) ..	5213	3831	2456	2291	4431
(ix) Vitamin B ₁ (in mcg.) ..	3406	3085	2421	3275	3245
(x) Vitamin C (in mg.) ..	80	18	46	46	38
CALORIES ..	3843	3581	3070	4242	3845

Distribution of Calories—

Proteins	per cent.	12	12	11	12	11
Fats	per cent.	8	8	13	15	12
Carbohydrates	per cent.	80	80	76	73	77

C—contd.

6	7	8	9	10	11	12
Lingayat.	Lingayat.	Lingayat.	Maratha ..	Lingayat ..	Lingayat ..	Lingayat.
Kanarese.	Kanarese.	Kanarese.	Kanarese.	Kanarese ..	Kanarese ..	Kanarese.
Vegetarian.	Vegetarian.	Vegetarian.	Non-vegetarian.	Vegetarian ..	Vegetarian ..	Vegetarian.
Agriculturist.	Agriculturist.	Agriculturist.	Teacher ..	Agriculturist.	Cloth Merchant.	Agriculturist.
6.6	7.6	6.5	5.9	10.5	4.2	0.4+1.7 B. M.
....
....
....
0.1	....	....	0.2	0.3	0.1	0.1
0.3	0.4	0.5	0.4	0.4	0.2	....
0.4	0.4	....	....	....	....	0.3
....
106.0	66.0	68.9	80.7	75.1	76.3	64.5
6.9	6.8	7.8	7.1	12.7	4.4	0.8
38.7	23.0	34.8	97.2	93.4	39.1	19.0
695.0	448.1	424.1	565.5	511.2	512.8	436.7
0.60	0.59	0.33	0.50	1.00	0.44	0.33
2.64	1.73	1.78	2.16	1.96	1.87	1.65
56.9	41.1	35.1	39.1	36.3	39.5	42.3
3228	3255	2054	2085	2818	1106	1991
2955	1903	1838	2040	1901	2029	1966
41	39	29	51	54	59	23
3553	2264	2285	2459	3186	2708	2185
12	12	12	13	10	11	12
10	9	14	36	26	13	8
78	79	75	51	64	76	80

B. M. = Buttermilk.

1. Serial No. of the family	..	13	14	15	16	17
2. Caste/Community	..	Lingayat.	Barker (Pujari).	Dhobi.	..	Lingayat .. Lingayat.
3. Language spoken	..	Kanarese.	Kanarese..	Kanarese.	Kanarese.	Kanarese.
4. Vegetarian/Non-vegetarian.		Vegetarian.	Vegetarian.	Vegetarian.	Vegetarian.	Vegetarian.
5. Occupation	..	Farmer, selling vegetables.	Agriculturist.	Agriculturist and Dhobi.	Agriculturist.	Clerk in shop.
(a) Milk and milk products	...	1·7+3·8 B.M.	3·7	4·7+3·3 B.M.	9·4	7·2
(xi) Fish	...	.....	.....	.....	.....	.....
(xii) Meat	...	.....	.....	.....	.....	.....
(xiii) Eggs	...	.....	.....	.....	.....	.....
(xiv) Nuts and oilseeds	...	.....	.....	.....	0·1	0·2
(xv) Chillies (Red and Green)...		1·2	0·4	0·3	0·7	0·4
(xvi) Betel leaves...	...	0·8	0·4	.....	0·5	.....
(xvii) Other foods	...	.....	.....	.....	.....	.....
<i>Nutrient Analysis—</i>						
(i) Proteins	(in g.) ...	78·5	59·7	88·0	80·6	75·6
(ii) Animal proteins	(,,) ...	1·6	3·3	6·0	8·5	7·9
(iii) Fats	(,,) ...	31·0	16·5	44·7	31·1	46·3
(iv) Carbohydrates	(,,) ...	588·2	398·7	693·0	575·1	486·7
(v) Calcium	(,,) ...	0·60	0·46	0·53	0·67	0·46
(vi) Phosphorus	(,,) ...	2·01	1·64	2·31	2·05	1·79
(vii) Iron	(in mg.)...	51·0	37·5	58·8	50·3	40·6
(viii) Vitamin A	(in I.U.)...	3692	3224	2074	3356	1630
(ix) Vitamin B ₁	(in mcg.)...	2222	1858	2521	2349	1938
(x) Vitamin C	(in mg.) ...	68	38	41	51	43
CALORIES	...	2945	1982	3526	2902	2665
<i>Distribution of Calories—</i>						
Proteins	per cent....	11	12	10	11	11
Fats	per cent....	9	8	12	10	16
Carbohydrates	per cent....	80	80	78	79	73

B. M. = Buttermilk.

C—contd.

18	19	20	21	22	23	24
Sonar ...	Sonar ...	Lingayat.	Kshatriya.	Lingayat ...	Lingayat ...	Mohomedan.
Kanarese.	Kanarese.	Kanarese.	Kanarese.	Kanarese ...	Kanarese ...	Kanarese.
Vegetarian.	Vegetarian.	Vegetarian.	Non-Vegetarian.	Vegetarian...	Vegetarian.	No n-V e g e-tarian.
Goldsmith.	Goldsmith.	Teacher, Agriculturist.	Peon Panchayat and Shop.	Service outside in village.	Business and Agriculturist.	Labourer.
7·8	2·2	3·7+0·7 B.M.	3·7	3·4+0·8 B.M.	3·2	0·4+0·6 B.M.
.....
.....	.....	.....	.....	.....	.....	0·7
.....
0·3	.....	0·2	.....	0·6	0·2	.....
0·4	0·3	.....	0·6	0·3	0·8	0·5
.....	0·5	.....	.....	.....	0·2	0·6
.....	.....	0·2	.....	.....	.....	.....
70·2	63·6	66·1	83·2	86·1	78·0	83·0
7·1	2·6	4·4	4·0	4·0	3·4	4·2
40·3	24·8	35·9	41·8	25·7	31·6	21·5
465·2	459·7	507·4	600·8	539·4	498·2	507·6
0·60	0·33	0·36	0·40	0·48	0·47	0·47
1·69	1·52	1·65	2·10	2·01	1·85	1·93
36·6	32·0	43·0	43·1	52·3	44·5	46·2
1749	3030	1268	1450	1668	2480	4271
1922	1694	1863	2273	2179	1970	2310
35	29	22	28	42	41	46
2503	2316	2617	3112	2733	2589	2556
11	11	10	11	13	12	13
14	10	12	12	8	11	8
75	79	78	77	79	77	79

1. Serial No. of the family	..	25	26	27	28	29
2. Caste/Community	..	Sadaru	Lingayat.	Barber	Barber	Lingayat.
3. Language spoken	..	Kanarese.	Kanarese.	Kanarese.	Kanarese.	Kanarese.
4. Vegetarian/Non-vegetarian..		Non-vegetarian	Vegetarian.	Non-vegetarian.	Vegetarian.	Vegetarian.
5. Occupation	..	Weaver and Agriculturist.	Labourer in farm and selling of vegetables.	Labourer.	Barber	Barber
(x) Milk and milk products	..	1.5	2.9+2.4 B.M.	0.8+1.4 B.M.	0.1	3.8
(xi) Fish	..	0.1	....	....	....	....
(xii) Meat	..	1.1	....	....	....	....
(xiii) Eggs	..	....	....	....	....	....
(xiv) Nuts and oilseeds	..	0.1	....	....	....	0.3
(xv) Chillies (Red and Green)	..	0.6	....	0.3	1.2	0.5
(xvi) Betel leaves	..	0.3	0.6	....	1.0	0.4
(xvii) Other foods	..	....	....	....	....	....
<i>Nutrient Analysis—</i>						
(i) Proteins	(in g.)	65.6	76.0	39.0	90.6	81.5
(ii) Animal proteins	(„)	7.5	4.9	0.7	0.1	4.6
(iii) Fats	(„)	27.1	25.7	10.6	32.5	39.5
(iv) Carbohydrates	(„)	418.3	532.9	277.2	623.5	517.7
(v) Calcium	(„)	0.50	0.50	0.25	0.47	0.51
(vi) Phosphorus	(„)	1.43	2.00	0.99	2.38	2.14
(vii) Iron	(in mg.)	33.3	45.7	28.2	54.1	52.0
(viii) Vitamin A	(in I.U.)	3234	3445	1600	4081	2750
(ix) Vitamin B ₁	(in mcg.)	1595	2294	1167	2808	2510
(x) Vitamin C	(in mg.)	57	16	29	91	43
CALORIES	..	2180	2666	1362	3148	2752
<i>Distribution of Calories—</i>						
Proteins	per cent.	12	11	12	12	12
Fats	per cent.	11	9	7	9	13
Carbohydrates	per cent.	77	80	81	79	75

B. M. = Buttermilk.

C—contd.

30	31	32	33	34	35	36
Maratha.	Sonar ..	Mohomedan.	Mohomedan.	Mohomedan.	Maratha ..	Shimpi ..
Kanarese.	Kanarese.	Urdu ..	Urdu ..	Urdu ..	Kanarese. ..	Kanarese ..
Non-Vegetarian.	Vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Non-vegetarian.	Vegetarian.
Agricultural Labourer.	Carpenter.	Labourer.	Labourer..	Labourer ..	Labourer ..	Labourer..
4.8	.....	1.4	2.7	1.2	7.4	5.0+2.0 B.M.
.....
.....
.....
.....	.....	.....	.....	.....	0.5	0.3
1.0	0.4	0.4	0.4	0.4	0.6	0.7
.....	.....	0.2	.....	.....	.....	.....
.....
87.4	47.0	57.2	60.6	66.0	97.7	70.3
5.8	.....	1.7	3.2	1.4	7.6	5.8
30.6	13.1	18.1	25.4	19.0	40.9	53.5
442.2	328.9	368.2	421.3	452.7	671.6	441.9
0.42	0.20	0.34	0.38	0.40	0.62	0.63
1.71	1.18	1.41	1.38	1.68	2.48	1.68
37.7	26.3	32.4	26.8	41.4	62.2	35.4
1823	600	2085	1011	2566	1984	2301
1909	1407	1631	1493	1981	2642	1710
58	21	36	23	38	54	44
2314	1622	1864	2156	2246	3447	2530
12	12	12	11	12	11	11
12	7	9	11	8	11	19
76	81	79	78	80	78	70

APPENDIX C—concl.

1. Serial No. of the family ..	37	38	39	40
2. Caste/Community ..	Mohomedan	Lingayat	Maratha	Hindu.
3. Language spoken ..	Kanarese	Kanarese	Kanarese.	Kanarese.
4. Vegetarian/Non-vegetarian.	Non-vegetarian.	Vegetarian.	Non-vegetarian.	Non-vegetarian.
5. Occupation ..	Labourer, Carpenter.	Labourer in hotel.	Labourer	Labourer.
(x) Milk and milk products ..	0.5+1.3 B.M.	6.9	4.1+0.5 B.M.	3.2
(xi) Fish ..	....	....	....	....
(xii) Meat ..	0.3	....	....	....
(xiii) Eggs ..	....	....	....	....
(xiv) Nuts and oilseeds ..	0.02	....	0.4	0.2
(xv) Chillies (Red and Green)..	0.3	0.9	....	0.3
(xvi) Betel leaves ..	....	....	....	....
(xvii) Other foods ..	....	....	....	....
<i>Nutrient Analysis—</i>				
(i) Proteins .. (in g.) ..	59.7	94.3	81.6	97.6
(ii) Animal proteins (,,) ..	2.4	7.2	4.3	2.6
(iii) Fats (,,) ..	15.2	49.8	20.3	43.0
(iv) Carbohydrates (,,) ..	392.1	624.8	610.3	689.0
(v) Calcium (,,) ..	0.29	0.49	0.62	0.70
(vi) Phosphorus (,,) ..	1.49	2.31	1.96	2.19
(vii) Iron (in mg.)	32.6	47.7	52.5	60.0
(viii) Vitamin A (in I.U.)	972	1801	2605	2756
(ix) Vitamin B ₁ (in mcg.)	1703	2467	2188	2512
(x) Vitamin C (in mg.)	9	58	39	38
CALORIES ..	1943	3324	2951	3533
<i>Distribution of Calories—</i>				
Proteins per cent. ..	12	11	11	11
Fats per cent. ..	7	14	6	11
Carbohydrates per cent. ..	81	75	83	78

APPENDIX D.

The botanical names and the equivalent terms in regional languages of foodstuffs commonly consumed in the Dharwar Community Development Block.

Serial No.	Name.	Botanical name.	Hindustani.	Kanarese.	Marathi.	Gujarati.
1	Jowar ..	.. Sorghum vulgare ..	.. Juar ..	.. Jola ..	.. Jwari ..	.. Juar. ..
2	Paddy ..	.. Oryza sativa ..	.. Chawal ..	.. Kotnuda Akki ..	.. Tandool ..	.. Chokha. ..
3	Samai ..	.. Panicum miliare ..	.. Kutki, Sonwali ..	.. Semai ..	.. Sava ..	.. Samo. ..
4	Sanva ..	.. Echinochloa colona ..	.. Sawan ..	.. Sanva ..	.. Shamula ..	.. Sawo ..
5	Red gram ..	.. Cajanus cajan ..	.. Arhar ..	.. Thugare Bele ..	.. Toor ..	.. Tuver. ..
6	Bengal gram ..	.. Cicer arietinum ..	.. Chana ..	.. Hu Kadale ..	.. Hurbara ..	.. Chana. ..
7	Cow gram ..	.. Vigna catjang ..	.. Lobia bada ..	.. Thadaguni ..	.. Chawli ..	.. Choli. ..
8	Horse gram ..	.. Dolichos biflorus ..	.. Kulthi ..	.. Huruli ..	.. Kuleeth ..	.. Kuleeth. ..
9	Green gram ..	.. Phaseolus aureus Roxb ..	.. Mung ..	.. Hesaru ..	.. Mug. ..	.. Mag. ..
10	Dow bean ..	.. Phaseolus aconitifolius ..	.. Krumilak Madga ..	.. Matki ..	.. Matki ..	.. Muth. ..
11	Dill ..	.. Peucedanum graveoleus ..	.. Sova ..	.. Shepu ..	.. Shepu ..	.. Suva. ..
12	Fenugreek ..	.. Trigonella foenumgraceum ..	.. Methi ..	.. Menti ..	.. Methi ..	.. Methi. ..
13	Onion ..	.. Allium cepa ..	.. Pyas ..	.. Dadda Erull ..	.. Kanda ..	.. Dungli. ..
14	Red sorrel ..	.. Hibiscus sabdariffa ..	.. Patwa or Palsan ..	.. Pundipalli ..	.. Ambadi ..	.. Ambadi. ..
15	Potatoes ..	.. Solanum tuberosum ..	.. Alu ..	.. Urula Gadda ..	.. Batata ..	.. Batata. ..
16	Ridge gourd ..	.. Luffa acutangula ..	.. Torai ..	.. Heerai kai ..	.. Dodka ..	.. Turia. ..
17	Red Pumpkin ..	.. Cucurbita maxima ..	.. Kaddu ..	.. Kumbala ..	.. Lal Bhopla ..	.. Kohlu. ..

Serial No.	Name.	Botanical name.	Hindustani.	Kanarese.	Marathi.	Gujarati.
18	Cucumber ..	.. Cucumis sativus ..	.. Kakri ..	.. Southai Kayi ..	.. Kakdi (Khire) ..	.. Kakdi.
19	Tondli ..	.. Coccinia cordifolia ..	.. Kundree ..	.. Tonatakayi ..	.. Tondali ..	.. Tindora.
20	Green tomatoes	.. Lycopersicon esculentum	.. Vilayati Baingan ..	.. Aasvru dapparu .. Chapparau. Bandedane.	.. Tomato ..	.. Tameto.
21	Ladies fingers	.. Abelmoschus esculentus ..	.. Bhindi ..	.. Bende ..	.. Bhendi ..	.. Bhinda.
22	Cluster beans	.. Cyamopsis tetragonoloba	.. Guarki phalli ..	.. Gori kayi ..	.. Gavar ..	.. Guvar.
23	Green peas ..	.. Pisum sativum ..	.. Matar ..	.. Semai Batani ..	.. Vatana ..	.. Watana.
24	Calabash cucumber	.. Lagenaria siceraria ..	.. Lowki, Ghia kadu.	.. Sorekai ..	.. Pandhara bhopla ..	.. Dudhi.
25	Niger seeds ..	.. Guizolia abyssinica ..	.. Ramtil ..	.. Karale ..	.. Karale ..	.. Khursani.
26	Safflower ..	.. Carthamus tinctorius ..	.. Karrah ..	.. Kardi ..	.. Kardai ..	.. Karad.
27	Groundnuts ..	.. Arachis hypogea ..	.. Mangphali ..	.. Kadale Kayi ..	.. Bhuimug ..	.. Bhoising.
28	Banana ..	.. Musa paradisiaca ..	.. Kela ..	.. Bale ..	.. Kele ..	.. Kelu.
29	Guavas ..	.. Psidium gujava ..	.. Amrud ..	.. Seebai ..	.. Peru ..	.. Jamrukhi
30	Indian Gooseberry	.. Phyllanthus emblica ..	.. Amla ..	.. Nelli Kayi ..	.. Anvala ..	.. Amla.
31	Betel leaves ..	.. Piper betle ..	.. Pan ..	.. Yele ..	.. Pan ..	.. Pan.
32	Chillies Capsicum frutescens Mirchi Hasi Menasinakayi.	.. Mirchi Murcha.
33	Tamarind Tamarindus indica Imli Hunise Hannu Chinch Amli.

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