

**NOURISHMENT, HEALTH, WORK AND SOCIO-ECONOMIC  
STATUS OF SIX SUGAR CANE AGRICULTURAL WORKER  
FAMILIES, IN BARREIROS, PERNAMBUCO, BRAZIL**

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The problem of malnutrition has been analyzed in a worldwide context. In the characterization of conditions of malnutrition various factors are interrelated, among them culture and education, which determine the kind and the quality of food. The income factor is related to purchasing capacity and to both, quantity and quality of food consumption in the population.

In Brazil's Northeast the majority of the population earn less than US\$ 90.00 per month and their diet is poor.

Some problems are consequences of malnutrition; for example, learning capacity or mental development is limited by malnutrition. Low physical stature, problems of health and low worker productivity are among the many additional consequences of malnutrition. Studies, by the Brazilian scientist Nelson Chaves, show the relationship between malnutritional status and the productivity of physical work in the sugar cane agriculture of the Brazilian Northeast.

I carried out this research in the "Zona da Mata Sul" of "Pernambuco", district of "Barreiros", in May, 1985. It focussed on health and nourishment patterns, work conditions and the socioeconomic status of sugar cane agricultural workers, belonging to six families.

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This is an exploratory study, accomplished through semi-structured interviews – with the head, wife and members of the family – and observations made in the rural homes.

Its units of analysis are families of “permanente”<sup>1</sup> workers, considering that they have homogeneous characteristics. The choice of the interviewed was made at random.

For each family the data was collected during four hours, through, approximately, fifteen questions and on-site observations. There was no resistance to the research, neither by the interviewed, nor by the community.

This study allowed the development of a methodology for broader research, in the future, and the generation of initial descriptive material for analysis and presentation of a study case. It brought also, to the surface, new ideas about the relationship among nourishment, health and work in sugar cane agriculture.

## THE RESEARCH UNIVERSE

The research was carried out in a totally agricultural area, with sugar cane being the main product. Sugar production was initiated all over the “Zona da Mata”, through “engenhos” small and rudimentary sugar industries – in the XVI century, when the colonization of Brazil began. The “engenhos” abandoned production with the appearance of the large transformation industry.

Today, the large scale plantation and mill is mostly responsible for increased production of sugar cane products for export.

The social agrarian structure of the “Zona da Mata Sul” consists of big owners, having the major extension of land, and rural workers, compressed on the reduced remaining land. In general, this land has inferior quality, being utilized just to live on it.

The rural workers work for very low pay. They work long hours, and perform tasks that require excessive physical effort, given their deficient health. They possessed small portions of land, that were cultivated for their subsistence, before losing them, in the fifties. During this period, there was the transformation of labor relations that led to the appearance of workers movements through unions. Peasant’s Leagues – peasant’s political entity – and Church participation, as well as political parties. Workers demands were raised over land and workers rights, these having been discontinued in 1964 with the changes in the country’s political

<sup>1</sup> Those with permanent work contracts and regular income as opposed to “clandestino” workers who have no contract and perform seasonal, temporary labor.

scene. Nevertheless, the positive results of the struggles undertaken before 1964 in this region are recognized: the gain of the "ETR – Rural Worker Statute", the instrument that regulates labor relations; the creation of "CONTAG – Agriculture Workers National Confederation", the organism that coordinates the unions and the "Rural Workers Federations".

The salary has become the one and only source of income for sugar cane workers in "Barreiros". This fact, together with the low salary levels, does not benefit those agricultural workers, subjected to deficient work, nourishment and health conditions. Nevertheless, the gains of these workers, following the "Work Collective Convention", signed by syndicates representatives of two categories in opposition since 1979, and valid until now, must be remembered. We can list some of them: the salary increase; the payment by owners of sick-pay, that is, during the first fifteen days of a worker's illness; the achievement of wage scale according to task and even maternity leave pay for pregnant women. Each year, new reivindications are raised and achieved, and the workers have been fighting to improve their social and economic welfare.

## THE FAMILIES

The six families studied, although belonging to different rural properties, do not present differences among themselves, considering that they have the same social-economic status and the same way of life. They are composed of a high number of members, living in great poverty, displaying unhealthy appearances and physical growth deficiencies. They are, hence, families whose characteristics are very distinct from those of other regions or countries. I present in this article, descriptions of three of them, allowing a general view of the problem studied.

## THE FIRST FAMILY

The Rodrigues family presents a very simple way of life, typical of a rural community. They utilize the water from a stream, near the house, to cook their food, as well as to drink. Before drinking, it is filtered with a piece of fabric and kept in a deposit made of clay with a lid. The daily bath takes place in the same stream. All the members leave their excrement on the same piece of terrain where they fulfill their necessities, located near the house, that has no sanitary facilities and sinks. The walls of the house are made of brick, the floor is cemented and the roof is tiled. There is no electricity. The house is located on the sugar mill property and no payment for living there is demanded. In the mentioned house – that has only three small rooms, one living room, one bedroom and a kitchen – live the head of the family, his wife, a niece and six children. All of them have short stature, atrophied limbs and heads bigger than normal.

The monthly income of the family is composed of the agricultural earnings of each of the working members. The family head, who is 45

years old earns Cr\$ 240,000 \*US\$ 48.00). His oldest son, who is 16 earns approximately Cr\$ 168,000 (US\$ 33.00). Adding the contribution of the wife's income, when in those months close to some festivities – like São João and Christmas – she sews for the neighbors, the family income reaches approximately Cr\$ 580,000 (US\$ 116.00). The couple's son, Genildo, who is 15 years old, attends elementary school and helps his father with the sugar cane cutting, without any payment. The children, Gilvania, 14 years old, Edna, 13 years old, Gilberto, 11 years old and Gerson, 16 years old, are also attending elementary school. The head of the family his wife and his niece never attended school. The students are in the public school, located in the district center. The family expenses are mainly food, around 80%, and the remaining 20% products for personal hygiene and housecleaning, medicine, transportation and clothing. Clothing is purchased only once a year and in a minimum amount. Moreover, the head of the family makes a monthly contribution for the expenses of a daughter, who is a widow, and the mother of one daughter. She does not live in the same house. The father gives her Cr\$ 40,000 (US\$ 8.00) of his salary every month. There is always a deficit in the family budget. Expenditures for food are made only on that day when the head of the family receives his weekly salary. All purchases are paid in full. The majority of the purchases are made in the supermarket – in the district center – the exceptions are fish, manioc flour, beef, bought in the public market, and some vegetables, purchased in the open market. I tried to collect information about the quantity of the purchased and eaten food. But, because they are not reliable and dependable data I have excluded them from this presentation. I verified, nevertheless, that, in this family, everything purchased is eaten during the same week.

The family's diet is extremely deficient in nutritional terms: The composition of the diet is as follows: During the first meal of the day everybody drinks a small cup of coffee and, sometimes,, eats a few salt crackers. Bread is eaten only once a week. The midday meal, which is the main meal, consists of beans and manioc flour, sometimes substituted by pasta or rice. Complements, on alternate days, are fresh fish or chicken or dried meat. For evening meal, everybody eats "macaxeira" (tuber) and dried sardines during most of the days of the week. On a few days they have during this meal "macaxeira", dried meat and coffee with sugar. Eggs and corn flour are also eaten only once a week, for evening meal, when the supply of "macaxeira" and dry meat is low. Milk is drunk during evening meal only by those 10 years old or younger, in the quantity of one glass, twice a week. The only vegetables that are eaten are tomatoes, onions, coriander, and chives, utilized for seasoning the food. The consumption of fruit by this family does not exist. Between meals, sometimes, they eat a piece of cane or drink a cup of coffee in the work place.

According to Mrs. Rodrigues, the way food is prepared is very simple. Beans were taken as an example: they are soaked in water since

the day before they will be cooked, and they are seasoned with salt only. They are cooked in clay pots on a wood stove during many hours. There is no preservation method for cooked food, so they are fully consumed.

Dietary taboos were also identified in this family. Mrs. Rodrigues stated that nobody should eat banana, "jaca" or pineapple when sweaty, because the body being warm and the fruit cold, eating it can provoke a kind of "embrulho" (sickness) in the stomach. According to her husband, "drinking coffee and then water afterwards ruins the health".

The family does not have any crop that can be used for nourishment, because they do not own any piece of land. The same occurs to most of the workers living in the "engenho".

Diseases or certain maladies were mentioned by all family members. I present them in the language of the interviewed: "olhado" (symptoms are constant somnolence, lack of appetite and pain in the body), headache, cold, vermin, spinal problems, "franqueza" (anemia), rheumatism, pneumonia, "ar encausado" (gas in the stomach), cavities, earache, "mal de mulher" (menstrual cramps), "ventre caído" (diarrhea). Initially, the family treats these diseases, with home remedies, teas or even prayers and blessings. But, the family also looks for doctors of the FUNRURAL, a specific entity to assist the rural workers.

All agreed that present health care, compared to the past has improved. Medical services and hospitales are found only in the district center, usually far from the property. The shortage of transportation to where this service exists causes difficulties for everybody, mainly during emergencies.

From the point of view of the father and one of the sons, health and nourishment are associated with their economical status. For them, both health and nourishment are jeopardized, because of the family's low income and high food and medicine costs. The head of the family has little knowledge about nutritional value of the food. This is one consequence of his illiteracy. The son, talking about how important milk, meat, eggs and fruit are in the diet, reveals some knowledge acquired.

The head of the family referred to his difficulty in reaching a satisfactory work output, due to his deficient nourishment "eating so little I do not manage to earn a good salary". His daily average is cutting from one to one and a half tons of sugar cane, working from seven to eight hours.

## THE SECOND FAMILY

The family head is Mr. Berto, 49 years old, illiterate, agricultural worker since his childhood. He has always lived and worked in "Barreiros", having moved only once from one "engenho" to another. He lives there with his wife, a 42 year-old, illiterate, housewife and their seven children. The oldest two, Amaro and José, 21 and 19 years old respectively, agricultural workers, have never attended school. The remaining children, ages from 11 to 18, attended, without completing, the elementary school.

The family income is composed only of the father and the two oldest sons salaries, totalling Cr\$ 684,00 (US\$ 136.80) a month. During the harvest, the 14 and 11 year old children help the father in the tedious tasks to reach a production that allows a better salary. They themselves, however, do not earn any wage. The monthly family income is totally absorbed by their expenses, distributed among food (around 70%), medicine (20%), transportation and products for personal hygiene and housecleaning (10%). Expenses with clothing are made once a year, being likely to be cancelled in some years, due to other more important needs. All payments are made full and on a single day of the week, except medicine, which is paid in stallments in the district center drugstores. Food goods are purchased in the single supermarket and in the open market of the district center, and are totally consumed in a week.

In the "engenho particular" – private property, transferred by inheritance and managed with its own resources no rent is demanded. The house has one bedroom, one living room, a kitchen, and has neither sanitary facilities nor electricity. The walls are made of "taipa" – a grid made of wood sticks, filled with clay –, the floor is compressed clay and the roof is covered with tiles.

House and the personal hygienic care are minimal. They utilize water from the stream for bathing and cooking. The water for drinkings is filtered and stored in a closed deposit made of clay. On the same terrain, close to the house, everyone fulfills their necessities, leaving their excrement mixed with other rubbish.

Every family member looks unhealthy and displays atrophied limbs. They showed, during the interview, communication problems, giving the impression that those difficulties are due to deficient physical and intellectual condition. The children have stunted growth and their bellies are swollen, due to parasites.

Mr. Berto's family has the same diet of the first family described. They add to midday meal, one kilogram of meat, lettuce, chayote and tomatoes once a week. Pineapple, orange and a few mangoes are eaten between meals, twice a week. Milk is drunk, twice a week, only by the children. Bread and eggs appear once a week in the family diet. All food is cooked with a minimum of seasoning, and nothing is left or conserved.

The agricultural workers customarily extract cane juice during work, that according to them, "brings" more strength. This indicates the lack of calories that the workers suffer. Their work efficiency, given their mentioned condition, is not satisfactory. Those interviewed stated that they only manage to cut, daily, from one to two tons of sugar cane, due to their reduced physical strength. In general, the calculation of the tasks performed is less than what is really deserved, leading to smaller wages. They work from 7 to 8 hours a day. However, the fact of waiting, many times, for the transport to the work place, results in a work day of approximately 9 hours.

The dietary taboos found in the family are the followings: "you must not drink milk after eating pineapple; because, doing so, digestion should be very difficult"; you must not eat beans at night, because they are very heavy". Their nourishment, is, thus, affected by both those taboos and also by insufficient quantity and poor quality.

The family has a very small parcel of land, bad for cultivation very far from the house. Nevertheless, they manage to grow for themselves bananas, pineapples, "macaxeira", sugar cane and oranges. They also raise some hens to eat. The head of the family recalled, during the interview, that up until the fifties, he had a considerable piece of land, where he had a big crop. He lost everything when the "engenho" where he lived was dispossessed. Today he claims the right by law to receive two hectares of land.

The diseases and treatments, mentioned by this family are the same as the previous one described. All the members visit the FUNRURAL doctors and the doctors of the three municipal hospitals. They state to be not satisfied with the medical and hospital services. They recognize that although there was a smaller number of them, they were more efficient in the past.

The health of these agricultural workers is, nowadays, harmed by their working conditions. The oldest son described situations where handling fertilizer without the protection of a mask and gloves, and without drinking milk during the task, intoxication and burns on the skin occur. This worker showed awareness of the importance of health. The importance, or the nutritional value of certain kind of food is not recognized by everybody. The absence of many foods in the daily diet is explained by the high prices and low salaries. As a result the agricultural workers, more and more, reduce the volume of their purchases. This family stated that it is confident and hopeful about the present federal government, based on the fact that it had frozen the prices of some goods when this interview was made. In its reference to the acts of the present government, the family remembered with emphasis, the mandate of Pernambuco's governor Miguel Arraes, interrupted in 1964: "he was the man that improved the life of the peasants; he gave them a salary and there was no hunger". They also stated: "during that time the worker fought a lot for his rights".

The past political experiences provide background for the continuity to the present political attitudes and claims of these workers. Nevertheless, their living conditions continue to be very precarious.

### THE THIRD FAMILY

The Bezerra family lives in an "engenho" where the land is divided into parcels, cultivated by the agricultural workers. They do not take part in the profits of the cultivation, although some have access to small plots that they plant for their own subsistence.

Composed of nine members, the family has a monthly income of Cr\$ 764,000 (US\$ 152.80) that comes from the sugar cane agriculture work done by the couple and one 16-year-old son. Three sons, aged between 10 to 13, help the mother in the sugar cane cutting, but without payment. The other children are 7, 4 and 3 years old.

The couple, 50 and 35 years old, never attended school, and the children are all in the elementary level.

Utilizing around 70% of the monthly income for nourishment and the remainder for medicine, transportation and hygiene, the family pays these expenses in full, weekly. Except for medicine, purchased in drugstores and meat, bought approximately twice a month in the public market, everything else is purchased in the open market on a weekly basis. All purchases are made in the district center. The food is fully consumed in a week. The expenses for clothing are made once a year, in the smallest amount possible.

The family lives in a house of identical type to the previous one and in analogous hygienic conditions. It cultivates in a small terrain bananas, oranges, corn, beans, yam, "macaxeira", "maxixe", pumpkin and manioc that are also eaten. Most of the time they are raising three sheep and two goats for sale. The head of the family claims the right to a bigger and better quality piece of land, in addition to an honest evaluation of the 2 tons of sugar cane that he cuts during 8 hours daily to receive his salary.

In relation to the family diet, I found, although in small quantities, green peppers, lettuce, tomatoes, onions and chives that are purchased. Also part of the diet are pineapples, coconuts and lemons in small quantities. There are also the tubercles "macaxeira", and yams that substitute for bread, as the wife mentioned. Those are eaten for evening meal. For midday meal, they have beef only twice a month. Predominant dried meat is eaten four times during the week together with beans. The latter is eaten every day, with chicken or dried fish or eggs, for midday meal, on alternate days. The consumption of coffee by the adults is high, and only the children drink milk every day. Also, the children eat popcorn during most of the day, in order to, according to the mother, "deceive the hunger". The family understands that milk is an indispensable nourishment, and do their best for the children have it, despite the detriment of its purchase for the adults, due to the low family income. The nutritional value of the meat, eggs and fruits is also understood.

All the members, like the couple, stated that they are not satisfied with their present life conditions and recall that, in the past, their nourishment was less jeopardized by rising prices, that force them to reduce consumption. The head of the family emphasizes: "the life of the peasants improved when they began to receive a salary, in the Arraes government, but today this salary does not cover expenses".

Present health is also compared with that of the past, by the head of the family: "before, we had better health, because there was less work

and the nourishment was less weak". The worker stood the tedious and heavy tasks when had more food on the table. From the point of view of the head of the family, health conditions are related to those of nourishment and work. He was born in the district and he neither has any aspiration to move to another place, nor to change his activities in agriculture.

The family is physically deficient – their stature is very short, they display an unhealthy aspect and appear to be older than they really are. Their health problems are identical to the other families – previously described – and they are treated only by doctors of the assistential services of the district. The wife mentioned the delay in being attended by the doctors, and also the delays in commuting to the district center, due to the shortage of transportation, particularly in emergencies.

## THE OTHER FAMILIES

The other three families studied also present, average monthly incomes of Cr\$ 700,00 (US\$ 140.00). Each one has more than seven children. They utilize more than 80% of the income for food. They do not have, although they claim, the 2 ha of land that are destined to them by law. As the other families studied these have a minimum number of children working on a regular basis between harvests. The fact that some children are allowed to help their parents, without payment, during the harvest – when the need for a work force is great – suggests that there are irregularities in the application of working rights.

The nourishment of these workers is precarious. There is a lack of calories and vitamins. In addition to the fact that they do not have a clear notion of the nutritional value of the food, many items are not present in the diet, because of the high prices. Examples of missing items are: beef, milk and bread. The taboos also prevent the consumption of some kind of food under certain circumstances.

Many diseases found among the "permanentes" result from poor nourishment. The tedious sugar cane agriculture tasks also make them age at a higher rate and acquire spinal column problems. Doing manually tasks like fertilization, without any protection of masks and gloves, jeopardizes their health. This was mentioned by the interviewed. They stated that health care services were more precarious in past years and that, today, they visit their physicians when ill, instead of treating themselves with teas and home remedies. Many times, they do not achieve a cure, they say, because of financial difficulties in buying drugs.

The members of these families are, generally, illiterate. Some attend school, but their schooling level is very low.

Some "permanente" workers, describing the changes that took place in the sugar cane work, define a time reference: "before and after Arraes", Pernambuco's governor in 1964. They emphasize that their life was only improved by acts of this politician, who demanded employer

compliance with the work laws for agricultural workers. Nowadays, although these workers are having many of their reivindications attended in the "collective work convention", and are being respected by the employers, they consider that their living conditions are deficient. On the other hand, they do not want to change their place and activities, because they have always being attached to them. During the summer they cut from one to two tons of sugar cane dailly, although, many times, receiving less for the task. They feel harmed by the difficulties of carrying on their tasks – due to health problems – as well as by the earning of incomplete salaries.

## DISCUSSION OF FINDINGS

The analysis of the collected data shows that the monthly income factor presents itself homogeneous for all studied families. This income is low to cover the expenses of more than nine family members. With the shortage of jobs between harvests, only the head of the family and a maximum of two children, work to earn salaries from the agriculture that make the family income.

The fact of the income being low, together with the always growing inflation, lead these workers to underestimate their nourishment. The latter is also affected by the lack of knowledge of the nutritional value of the food, besides nourishment taboos. Proteins, calories and minerals were rarely found in the diet of these families. This confirms the results of Nelson Chaves' investigations all over "Zona da Mata". According to him: "the intake of calories by the sugar cane cutter is inferior to 1500 kcal and there is a permanent deficiency of proteins and the main nutrients (CHAVES, 1982;72).

As Nelson Chaves found all over "Zona da Mata", I also observed the occurrence of anemia and infectious diseases (CHAVES: 1987;171). Many of the diseases result from poor nourishment and lack of hygiene among the studied families.

The members of these families have physical statures below normal. The physical growth of the children is deficient. The results of many studies by Nelson Chaves, under this perspective, led him to conclude that: "in Zona da Mata agriculture and industry (established four centuries ago) the low stature of the population is due to endemic malnutrition, and it is due to many causes, among them inadequate consumption of proteins" (CHAVES, 1948;168). "The diet, poor in proteins, mineral elements and vitamins delays growth. Experiments in laboratories reveal systematically the role of food in growth" (CHAVES, 1948; 14-15).

The data analysed that relate to school education show that there is predominance of illiteracy among those of older ages. The majority of the youngsters, only attended the elementary level without finishing it.

The low school educational level is a drawback to the development of these families. This happens due to deficiencies in the educational

sector, present in all Brazilian rural areas. The number of public schools is not sufficient to serve the large rural population. The fact that the schools are located far from the workers' homes also make it difficult to study. The lack of a formal education contributes to the lack of basic knowledge about the nutritive value of foods.

Deficient work condition lead the "permanentes" to sacrifice their health. Health and nutrition levels are very low for them to undertake the tedious and heavy manual tasks of agriculture. In this way, the productivity of the work is low to allow a salary that fulfils the minimum needs of the workers and the sector itself as a whole. The investigations by Nelson Chaves in "Zona da Mata", concluded that "there is a direct correlation between the quality and quantity of food intaken, the physical environment, the work condition, the muscular efficiency and the productivity" (CHAVES, 1978;168)

Concern for the quality of life of these rural workers is, hence, minimal. There are neither programs nor social policies directed towards the improvement of their health and nutrition.

It is observed also, that in "Barreiros" new portions of land are more and more being utilized exclusively for the sugar mill of the district, although the rural workers claim the right to a fair utilization of the land by themselves, in accordance to the "Two Hectares Law".

According to the families interviewed, it is the constant growth of inflation indexes that affects them most. The reduction of such indexes is an important demand.

Finally, we highlight the strong political behaviour of these workers, observed in their demanding attitudes. These are developed, together with the past experiences, due to the exploitation of their work force.

## CONCLUSION AND SUGGESTIONS

These rural workers, hence, live in extremely precarious conditions. The loss of their land – since the fifties – constituted a total change in their lives that, up to now, brings consequences. They live exclusively dependent on the salary that is always being squeezed, due to the constant rising inflation. In addition, all food must be purchased instead of being produced. As a consequence, food is consumed in very small quantities, which represents deficient nourishment and health.

Having in mind the proposed goals of the "New Republic" government (among them the agrarian reform, that will encompass the studied "Zona da Mata") and the results of this research, I propose that the land distribution among workers, should be followed by a technical orientation regarding their utilization, credit instruments and agricultural implements. I would recommend, in addition, programs aimed at changes in food habits, to permit a lower utilization of the income for food, e.g., utilize soy, that is less expensive than beans, being besides a valuable nourishment. It is also important to create regulations to make employers

supply meals to the rural worker in the work place. This could be, I believe, a way to reach a greater efficiency of the workers.

The increase in the number of schools, hospitals and medical services, located in the rural part of the district is, in my opinion, essencial.

I would propose research that could detect the aspirations and necessities of the rural workers, being this research done prior the establishment of new goals by the government.

The variables nourishment, health, schooling and income should be observed, under the same values and weight, by those who are in power, in order to allow an improvement in the workers quality of life. If not, the vicious cycle will continue, lack of instruction, malnutrition, low income and low productivity.

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