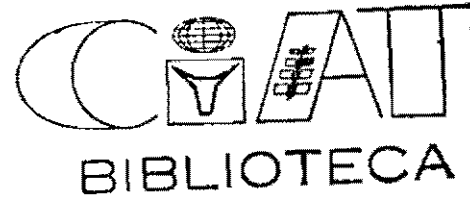


761072

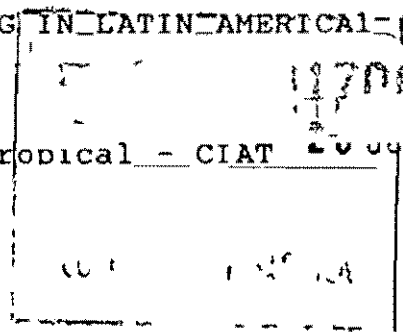


WOMEN AND CASSAVA PRODUCTION AND PROCESSING IN LATIN AMERICA

Susan V Poats  
Anthropologist

Centro Internacional de Agricultura Tropical - CIAT 20 Jul 1994

September 1993



Cassava, the most important root crop in the tropics, is the major carbohydrate food for 500 million people (CIAT 1992). In 1990, an estimated 150 million tons were produced, 22% of this in Latin America. Despite its importance, prior to 1960, little formal research was conducted on cassava globally, and in Latin America, few agricultural research programs had focused on the crop. For many researchers it was an "orphan crop," grown by the poor and used mostly for subsistence. This situation is now rapidly changing. Research on cassava varietal improvement, agronomic and cultural practices, and plant protection is conducted throughout the region. Recently, PROCINDINO, a research network for the Andean countries, sponsored by IICA (Instituto Interamericano de Ciencias Agrícolas), declared cassava one of its five research and development priorities. The United Nations Development Program (UNDP), the Kelloqq Foundation, and the International Fund for Agricultural Development (IFAD) are funding large cassava research and development projects in N E Brazil.

One area of research on cassava that still remains thin is the socioeconomics of cassava production, processing and marketing. CIAT has brought attention to this area through the annual publication of statistics on cassava production and utilization (CIAT 1991, 1992, 1993), by focusing on demand and market issues (Lynam et al, 1987, CIAT, 1987) and through collaboration in Integrated Cassava Projects (Gottret, Henry and Cortez, 1992, Perez-Crespo, 1991). Many programs and projects in the region are beginning to add researchers from socioeconomic disciplines to their teams. While attention to market definition and cost considerations are logical high priorities, these researchers also need also to focus their skills on improving the understanding of the people---especially those of limited resources---who process and produce cassava in order that their problems and priorities are considered in the definition of research agendas and the allocation of resources. In particular, a better understanding of the differential roles, responsibilities and problems of men and women in Latin American cassava systems, will facilitate the design of successful research and development to serve their needs. In this article, I would like to draw attention to what we know---and don't know---about Latin American women and cassava.

Why is it important to understand women's roles in cassava production and processing?

The past twenty years of research and development literature have witnessed a virtual explosion of studies and projects on women, gender and development. Spanning all continents, south and north, results specifically concerning agricultural development demonstrate that agricultural technology innovations and their intended benefits targetted to rural families often inadvertently by-passed female family members, have proved institutionally inaccessible to women farmers---especially those who are the heads of households---or have remained unadopted because they were inappropriate to the needs and limitations of women users (Ashby 1985, Feldstein and Poats 1990, Leon 1991, van Herpen 1992). On the other hand, it has been demonstrated that when gender issues, that is, women's and men's roles and needs, are considered in the design of agricultural projects and mechanisms are used to include both women and men in the process of design and testing solutions for their problems, the resulting technology is more appropriate, more rapidly adopted and benefits are more equitably distributed to rural populations.

The first step in a gendered approach to agricultural technology development is to understand who does what and why. In Latin America, agricultural production has been historically thought of and approached as a men's problem. Women, though responsible for important aspects of production, have been systematically overlooked and are largely invisible in the literature and thinking regarding agricultural development. A brief look at the available literature demonstrates that cassava is no exception. To rectify this bias requires a shift in the other direction in order to define what women do. From this, we can then move forward to a balanced gendered approach to cassava research and development.

CIAT, with a global mandate for cassava research, has collected over 15,000 documents on cassava. In a recent search of CIAT's cassava literature, only 41 citations on women were included in the collection. Of these, the majority deal with Africa and only nine concern women and cassava in Latin America. From this, one might assume that little systematic research has been done on the role of women in cassava production and processing in the region. However, as B. de la Rive Box-Lasocki (1982) notes in her excellent annotated bibliography on cassava cultivation and processing among Amerindians, the CIAT collection has a more technological orientation and much of the anthropological literature cannot be traced easily due to the index categories used. Like the women themselves, the literature on cassava producers and processors is often invisible because it is written by anthropologists, geographers, historians and travelers who have largely remained outside the circles of agricultural research. Though a thorough review of this literature is too

large a task for this short article, it is possible to divide the available information into two large categories that describing producers and processors within indigenous Latin American cultures and societies, and that describing peasant, mestizo and non-Amerindian cultures and societies

For the former category, several reviews are available, including de la Rive Box-Lasocki's (1982) bibliography and a review article on the bibliography by L. Box and B. de la Rive Box-Lasocki (1982). These provide a clear picture of the gender division of roles and responsibilities in indigenous cassava systems and highlight the central position occupied by women. The situation is much less clear for the latter group. No systematic reviews of peasant or small farmer production or processing in Latin America were found. Only a handful of case studies dealing with this group turned up in the computer search of the CIAT collection, more likely due to problems of indexing than to a lack of studies. A more painstaking search of the ethnographic literature on small producers in Latin America will likely reveal a far greater wealth of existing information on these producers and processors. Nonetheless, a preliminary portrait of women and cassava in Latin America can be drawn from the sources currently at hand.

L. Box and de la Rive Box-Lasocki describe the Amerindian cassava systems practiced in northern South America and Meso-America as strongly associated with nuclear family farming with a woman at the center. "Although she may engage in drudgery, like cassava processing, her position is by no means sub-servient or slavish. On the contrary she decides what to plant, where and when. She makes processing decisions. She gives her opinion on food plot location" (1982: 33). The authors argue that men are involved but only to a limited extent, and that their knowledge does not particularly relate to cassava cultivation, but rather to the arts and crafts of forest clearance or the making of particular utensils (Ibid: 27). Cutting, burning and clearing to prepare a food plot are generally male tasks, but locating the plot usually involves wives' decisions. "Women may help in clearing, do the larger share of planting and the weeding (if any), harvest, replant and carry the heavy tubers home. Processing is almost entirely a female task" (Ibid).

Women employ a wide range of processing technologies including grating, separating of toxic elements, decanting, fermentation, roasting, toasting, milling, and starch extraction. These are well described in the literature and offer an ample arena for technical improvements in quality and labor efficiency in order to ease the burden of processing and improving the quantity and value of products produced.

Regarding cassava planting and the selection of varieties among the Amerindian groups, on the whole, women decide what and where

to plant "They know the different varieties and the peculiarities of the terrain which might favor or inhibit their growth" (Ibid 16) Women employ several criteria in selecting planting locations such as distance from field to home, varietal differences in root weight and yield, shading from the forest and soil slopes and type They may decide to monocrop or intercrop, yet even when virtually monocropped, there will be variation bitter or sweet varieties, those for eating fresh and those for processing The authors speculate that the "Amerindian cultivatress" has "knowledge of a far greater diversity of plants than her peasant colleagues, who often work with a far smaller number of plants and a smaller number of varieties of each species" (Ibid )

Technological change and innovation have occurred among the indigenous groups of Latin America since well-before the arrival of European explorers While there are exceptions, generally, new technology has tended to ease the work of men, making forest clearing easier and has favored the extension of the land surface under cassava cultivation Without an equal focus on tools for harvesting and processing, the new technology has upset the equilibrium and placed a larger burden on women As the authors note, "when this process is embedded in the incorporation of males in a labor market, traditional male tasks (i.e. protein capture) may no longer be exercised This may lead to an unbalanced diet, in which a cassava based diet is not complemented by proteins " (Ibid 31) The authors call for further attention to potential ecological disruption when the social organization of cassava is not considered in planning and implementing technological and commercial innovations

Turning now to non-Amerindian or peasant cassava producers and processors, the literature is more sketchy and invisible We know that the majority of the cassava produced today in Latin America is concentrated on the fields of these farmers They tend to be small-holders with few resources They employ primarily family labor and tend to farm areas of lower soil fertility Through land fragmentation, concentration of "good lands" in the hands of a few, these farmers have increasingly small plots With only a small amount of land of poor quality, one of the few crop alternatives for producing food and feed is cassava These farmers often rely on cassava to feed their families, to supplement other livestock feeds for their animals and to process it for sale

Women's roles in peasant and small farmer agriculture vary according to their economic strata Women in the lower strata generally have a much higher participation in agriculture Since cassava is mostly grown by poorer farmers, it is likely that women play a significant role in cassava cultivation, even though their domestic duties are often more visible They are likely more involved in planting and harvesting activities, and in the

feeding of laborers In very poor family units, women often must replace the men in agricultural tasks due to male migration for wage labor This tendency is likely very true for cassava producing areas Women also tend to be dominant in home processing activities and cassava remains a largely home-processed commodity

Rather than speculating further on the possible roles of women in peasant production systems, I would like instead to share three vignettes or case studies of such cassava producers The first two are summarized from very detailed cases from Northeast Brazil and the Dominican Republic The last case is based on my own current field work in coastal Ecuador These vignettes offer windows into typical cassava systems and the women who work there

#### Case No 1 Northeastern Brazil

Sylvia dos Reis Maia's (1989) case study of Sapeaçu, in the Reconcavo region of Bahia, Brazil, describes the "casa de farinha", or village cassava flour processing facility, as privately owned but treated as "public"---an important place where men, women and children of local households gather regularly to process their cassava and exchange information

"It is open to the outside with no doors or windows The instruments necessary to process the manioc [cassava] into farinha are placed in such a way that there is an empty space in the centre of the room where women and children can sit in a circle peeling manioc as they talk Beside the circle stand either men or women who manage the motor, those who press the manioc and those who toast the farinha Sometimes, the people who are not working stop by to talk In this way the casa de farinha becomes an important place where information is exchanged about everyday life "

Maia's study provides a detailed view of "who does what" in the production and processing of cassava in this Northeastern Brazilian small town and her observations are summarized in Table I All members of the household participate in the planting, weeding and harvesting, however, the extent of participation varies Men play the dominant role in preparing the land and fertilizing, assisted by the women but without involvement of children Women participate in all tasks but dominate the weeding In the manioc mill, women play the dominant role and are largely responsible for the most time and labor-consuming tasks peeling, toasting, and stoking the fires Men are responsible for tasks requiring greater labor force at given moments transporting, pressing and sacking With the exception of the baling of the tobacco leaves, tasks within the house are performed by the women

In Sapeaçu, women are 53% of the population and account for 65% of all adults over 15 years of age. Low prices for agricultural products, fragmentation of land for small farmers, and a lack of local sources of off-farm income have contributed to out-migration of males, teenagers and young adults. Married women with small children are left running the farms and processing the cassava. In some cases they assume off-farm seasonal wage tasks previously done by their husbands, such as harvesting oranges for larger landowners, however, in most cases they are paid only half the male wages for the same tasks. In her discussion of Sapeaçu household survival strategies, Maia describes specific ways in which women deal with increasing their labor effectiveness: 1) helping each other peel cassava in reciprocity relationships rather than for cash wages, allowing all women to continue processing even when household labor is limited by migration, 2) managing small gardens for income purposes, 3) selling prepared foods at the market, 4) rearing animals for sale on a shared basis, and 5) communal childcare. These strategies allow women to continue to produce cassava and tobacco as cash crops and provide a minimum needed for survival. Over time, migration of men has changed the roles of men and women, especially with respect to cassava.

"With the husband's migration the wife becomes the head of the household. She deals with every problem concerning the roça (family farm) and the house. Before, women did not feel ready to deal with warehouses, nor to take their manioc flour to sell in the market. In the recent past the management of the warehouse did not like to do business with women. Likewise, both women and men saw the market place for selling of manioc flour as man's space. But now women decide how much manioc flour they are to sell. When the manioc flour is sold at the farm gate, they deal directly with the middlemen. Women decide themselves what and how much will be planted. They do, of course exchange ideas with relatives and compadres, but they are now the ones who manage the family roça."

#### Case No 2 Dominican Republic

Agrosociological research conducted between 1981 and 1985 by F Doorman, L Box and B de la Rive Box (1985) on cassava in the Dominican Republic provides detailed information on the cassava production and processing system of this Caribbean nation. In the area of Moco and Moncion, the average age of cassava farmers is 50 years and most have grown the crop for over 25 years. Education levels are low, almost 30% of the farmers are illiterate, and only 20% completed primary school. Farmers produce cassava primarily for sale, keeping a part for household consumption. Only a few grow it exclusively for home consumption. The farmers of the region are poor and most have very little land. According to surveys conducted by the team,

average landholdings are between 2 and 3 hectares, but 52% of the cassava growers have no land of their own (Ibid p 71)

In the Dominican Republic, as in many parts of Latin America, it is often thought that women play little or no role in the production of cassava. However, as in Sapeacu, women can be involved in nearly all production tasks, especially in poor households where family labor is short, where cash to hire labor is not available, or male adults are absent. The part of the cassava system dominated by women since pre-Colombian times is the production of cassabe, a toasted flatbread made of grated and washed cassava which is consumed and sold locally and for export.

Cassabe is made in small rural processing plants which may use family labor, two to 30 employees or operate via cooperative organization. In the plants, women's tasks are primarily to peel the cassava roots and to toast the grated mass on a wood-fired oven. Men do the grating and the pressing to produce the mass using traditional implements. In recent years, improved graters and presses have been introduced which have eased the men's labor but little effective technological improvements have been introduced to alleviate women's work. The agrosociological research showed that women processing cassabe could earn as much or more in a day as male day workers in the area, however, the women's day was twelve hours long, in front of a hot oven.

In general, 30% of the households in the Dominican Republic are headed by women, but in the study area, 60% of the houses were identified as women-headed. Among these households, income generated from cassabe processing was a significant part of the total income for the family and critical to survival.

### Case No 3 Coastal Ecuador

Cassava has been produced and processed in the seasonally-dry coastal region of Ecuador for several hundred years. Though today there are some larger holdings, the majority of the cassava is produced by small farmers with less than five hectares. Traditionally, these farmers grow about a half a hectare of cassava, mixed in various arrangements primarily with maize, on steep, rainfed hillsides. Women are generally thought to have little involvement in the production of cassava, however, as in the Dominican Republic, in poorer or in smaller, labor-short households or where male labor is absent, women may be engaged in all aspects of production. Even in households where women are not involved directly in the field production, they usually manage and prepare the food that is considered a part of the wages for daily hired laborers.

Women, as to be expected, are heavily engaged in cassava processing. Traditionally, cassava starch was the only processed

product and it was extracted using manual processing technologies for home use in cooking and for starching clothing. Over the past 100 years, starch processing for local and regional markets expanded, resulting in the establishment of approximately 200 small, family operated starch extraction plants. These usually employ family labor. In recent years, new cassava products, such as whole and white milled industrial flours, new markets have been opened and cassava starch processing has expanded into semi-mechanized operations. Though still small-scale, these employ male and female dayworkers and pieceworkers, and provide an important source of income during the dry season when little other local off-farm employment is available.

In small plants, operated with family labor, processing tasks are usually shared by men and women, with men tending to predominate in the heavier lifting tasks (weighing, grating), and women mostly doing the repetitive tasks of longer duration, such as peeling roots and washing ("colando") the grated mass. In medium and large-sized starch extraction plants, women work on a piece-rate basis peeling roots and on a daily wage basis for washing the grated cassava mass to extract the starch. However, their daily wages are usually 25% less than the men employed on a daily wage basis to lift roots for grating or to dry starch. In nearly all of the larger starch plants, men are the managers and control all aspects of buying fresh roots and selling finished flour and starch.

In the mid-1980's an integrated cassava research and development project was initiated in the coastal province of Manabí. Through the project, several women's cassava processing associations were created. These took the traditional starch processing technology and adapted it to a small infrastructure and collective operation. For many of the women, this was the first time they were regularly employed outside of the home for cash income. During the first two years of operation, the women were content with the extent of their work and earnings, but by the third year, they had become more efficient processors and wanted to expand their processing activities in order to earn more money. Confronted with a lack of "technical fit" between the processing technology they were currently using, the size of their physical structure and the number of women in the association who wanted to earn regular wages, the women of one association, San Vicente, solicited assistance from the farmer processor union to solve their problem.

The response was to assist the women's association in moving to a new parcel of land in order to build a new plant that would incorporate new processing technology to increase the number of women working each day but at the same time make their work more efficient and yield a higher quality product. This last feature would allow them to enter higher quality markets and earn more profits for each unit of starch produced. In developing the new



plant, the union entered into a collaborative effort with the women to test and adapt technologies for starch processing to the needs and limitations of women processors. Prior to this, women processors had had little direct interaction with the mostly male union leaders and integrated project specialists concerning new technology. Together they began to experiment.

Today, two years after the introduction of the new processing technology---which includes an improved sawblade grater, a water filter and treatment tank, direct flow grating and washing system, a mechanical wet sifter and sedimentation canals---the women have increased their annual wage earnings by tenfold, have created a greater demand for cassava roots in the immediate area of their processing plant and have created income earning opportunities for non-members who work and peel cassava at the plant. More importantly, the women members and the technical assistance team have learned how to work together to improve processing technologies. Now, other processing associations are following the example piloted at San Vicente and improving on the initial model.

#### Some Conclusions and Recommendations

From the review of the two types of cassava producers and processors, Amerindian and peasant small farmers, we can argue that women play important roles in both cassava production and processing. These roles are more predominant in production among the Amerindian groups, however, in processing, women are comparably dominant in both groups. Larger economic forces causing male migration are changing the roles of women in cassava production, resulting in increased burdens as women's responsibilities are uncompensated and they are forced to assume men's roles. Even without migration, women working in comparable tasks, are often paid less than men. Much of the new technology for cassava has focused on men's areas of responsibility rather than women's, creating imbalances in the social organization framing traditional cassava production and utilization systems.

From the case studies in particular, we see that cassava operates as part of the social system, providing a vehicle for community members to exchange information and to collaborate in mutual survival mechanisms. Though not presented in great detail, the brief cases demonstrate the importance to women of the income generated in cassava processing and the importance of this in local and regional economies.

The San Vicente case from Ecuador demonstrates the positive benefits of discerning the needs of both women and men cassava processors and of engaging women processors directly in the testing of new technology components. In this case, for example, understanding the needs of women to maintain manual labor in the plant in order to absorb the labor of the members was crucial in

the design of the new technology. As a result, the number of workers was not reduced, instead, their labor was made more efficient. A focus on maximizing profits per unit of starch produced emphasized the need for high quality starch and markets willing to pay for quality materials such as cassava starch.

This article represents a first attempt to organize the information available on women in cassava production and processing in Latin America. It is obvious that far more information exists and efforts should be made to see that this is reviewed and added to the sources on cassava at CIAT. The more we are able to learn about what people do in cassava systems and why, the better we will be able to target resources towards solving problems that will make a difference.

Table 1

## DIVISION OF LABOUR BY SEX AND AGE ON BASIS OF OBSERVATION

1980

	Percentage of Tasks Performed Predominantly by			Total
	Women %	Men %	Children %	
<b>WORKING IN THE ROCA</b>				
Soil Preparation	8 6	91 4	0	100
Fertilization	17 7	82 3	0	100
Seeding	42 4	52 0	5 6	100
Planting	38 1	61 9	0	100
Weeding	76 3	20 4	3 3	100
Harvest	41 8	53 1	5 1	100
<b>WORKING IN THE MANIOC MILL</b>				
Transporting manioc roots	9 9	76 0	14 1	100
Peel of manioc	94 2	0	5 8	100
Pressing	17 0	83 0	0	100
Toasting	93 3	6 7	0	100
Maintaining the stove	98 0	2 0	0	100
Sifting	37 2	62 8	0	100
Sacking	2 7	97 3	0	100
<b>WORKING IN THE HOUSE</b>				
Stretching tobacco leaves	87 0	9 0	4 0	100
Hanging tobacco leaves	83 2	16 8	0	100
Bales tobacco leaves	0	100 0	0	100
Cooking	96 1	5	3 4	100
Care of children	96 1	0	3 9	100
Feeding animals	78 3	2 1	19 6	100
Fetching water	85 8	1 4	12 8	100
Gathering wood	77 5	6 3	16 2	100
Washing clothes	93 3	0	6 7	100

SOURCE Field data, S M Dos Reis Mala, 1989

## REFERENCES

- Ashby, J A 1985 Women, Agriculture, and Rural Development in Latin America CIAT/IFDC, Cali, Colombia
- Box, L 1982 Man and Manihot, Volume I , Case Studies on Cassava Cultivators Occasional Papers of the Departments of Sociology, Agricultural University, Wageningen, The Netherlands
- CIAT 1987 Global Cassava Research and Development The Cassava Demand Studies and Implications for the Strategies for the CIAT Cassava Program Cali, Colombia
- CIAT 1992 Trends in CIAT Commodities 1992 Cali, Colombia
- De la Rive Box, B 1982 Casaberas y Arroceras Informe Preliminar Sobre Estudio de Casos Investigacion Agrosociologica Sobre Yuca y Arroz, CENDA, Republica Dominicana
- De la Rive Box, B 1982 Man and Manihot, Volume II , An Annotated Bibliography on Cassava Cultivation and Processing Among Amerindians Occasional Papers of the Departments of Sociology, Agricultural University, Wageningen, The Netherlands
- Doorman, F , L Box and B de la Rive Box 1985 Contribuciones Agrosociologicas a las investigaciones sobre yuca y arroz en la Republica Dominicana Informe Final de la Investigacion Agrosociologica sobre Yuca y Arroz 1981 - 1985, Centro Norte de Desarrollo Agropecuario, CENDA, Republica Dominicana
- Dos Reis Maia, S M 1989 Market Dependency and Subsistence Strategy The Small Producers in Sapeacu, Bahia Centre of Latin American Studies, University of Cambridge, England
- Feldstein, H S and S V Poats 1990 Working Together Case Studies in Gender and Agriculture Kumarian Press, W Hartford
- Gottret, M V , G Henry, and M Cortez 1992 Impact of Integrat-ed Cassava Projects in the North Coast of Colombia CIAT, Cali
- Leon, M 1991 De La Mujer en el Desarrollo al Genero en el Desarrollo Politicas y Recomendaciones Mimeo Universidad Nacional de Colombia, Bogota
- Lynam, J K , L R Sanint, C Ibanez-Meier, A Gontijo, W Janssen, and R Saez 1987 The Cassava Economy of Latin America A Food Staple in Transition CIAT, Cali, Colombia
- Perez-Crespo, C , ed 1991 Proyectos Integrados de Yuca Documento de Trabajo No 79, CIAT, Cali, Colombia

Van Herpen, D 1992 Participacion de la Mujer y de los Menores en la  
Agricultura de America Latina y el Caribe In La Variable Genero en la  
Investigacion Agricola, CIAT, Cali, Colombia