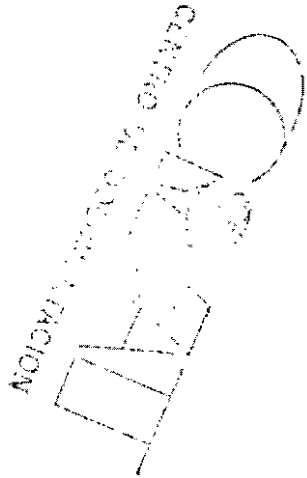




**Looking at the Books: Social Accounting of three
Cassava Drying (Appropriate Technology)
Cooperative Associations in Colombia**



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(Appropriate Technology) Cooperative Associations in Colombia

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Social diversity can effect cooperative-like groups in many ways. Observers in Colombia and generally have stressed the advantages of a socially homogeneous membership, at least in local sections (Hernandez 1962); and the manual of DANCOOP, the Colombian national agency that promotes cooperatives, declares they unite people of like interests. If members are socially diverse, small cooperatives may be unable to accomodate dissent, as Dobyns theorized (1969) and Huizer showed in detail with a Peruvian case (1983).

Cooperatives reflect a stratified social environment in their internal affairs, notably in officer-member or financer-cooperative relations (see Tendler 1983; she takes an unusual position by suggesting that internal stratification is a factor in cooperative success). Most cooperatives serve a middle-class membership, but there are cooperatives for all classes, and each cooperative recruits differentially from social classes.

This paper will isolate one of the many relations between social variety and cooperative action, namely internally-generated differences among beneficiaries: how members' participation differs from that of non-members, how the volume of members' transactions varies, and how members and non-members receive differential benefits and diverse benefit mixes. These differences in participation can create tensions within cooperative-like groups, even when membership is restricted to people with relatively similar backgrounds and

interests. On the other hand, what seem to be relatively minor benefits can make participation attractive to members who are different from the majority.

In particular, some farmer/members of the yuca-processing associations on Colombia's North Coast receive more benefits than others, despite the general social homogeneity of these 15 to 20-member groups. The relative importance of the different benefits of association membership (yuca purchases, wages, distributed profits, and others) varies from member to member, and access to some of these benefits is open to non-members as well. Other aspects of the relation between social stratification and these same quasi-cooperatives have been described by Eode (1984).

Having demonstrated diversity in kinds and volumes of benefits, I turn to their social consequences as the groups pursue different types of benefits and as they deal with internal differentiation. From there it is a small step to policy consequences, particularly the effects of changing the Colombian "associations" to "cooperatives" organized by the Rochdale principals.

This study is based on a survey of three quasi-cooperative associations in rural Colombia that produce dried, chipped yuca. In 1981, a team of development agencies began field experiments to solar-dry yuca for one component of animal feed. The technology is based on concrete drying floors and a small, motor-driven chipper, a method in use in Asia, but not previously in Latin America (for the adaptation of the technology, compare East 1979 and CIAT 1984). The north coast of Colombia was a promising site because of its long rainless season from December to April, its production of yuca, and its problems in marketing that crop, including low demand, insufficient

transportation, unreliable purchasers, and low prices. To the "Post-Harvest Committee" seeking solutions to marketing problems, transforming yuca into a less-perishable product offered a solution.

The institutional context was also propitious. The three agencies involved were the integrated rural development program of Colombia's Ministry of Planning (DRI, now part of the Ministry of Agriculture), the Canadian International Development Agency (CIDA, which was funding this DRI), and the International Center for Tropical Agriculture (CIAT, which took the lead in technological matters). At the local level, there were also farmer marketing organizations that were failing; a new technology could save some of these. Using DRI's prior contacts, an association built a small pilot plant on a land-reform beneficiary's farm in Sucre Department.

After the 1981 experiments, the pilot plant began to operate as a business. By the 1982-83 drying season, there were four plants in operation in two departments. The following season, 1983-84, saw seven plants in three departments with 4000 square meters of drying floor where they produced 946 tons of dry yuca from 2,395 tons of fresh material (Ospina 1984). In the current year, 1985, there are 20 plants across the North Coast, making periodic 25-ton shipments in tractor-trailers, though management functions are still subsidized by government contributions. The project is considered a success by all three of the implementing institutions, and DRI is considering forming several hundred new plants in the next few years.

Since the technology has been proven and the market seems strong for the new product, a major remaining issue facing DRI is the cost of promoting and supporting the plants. Although there are only 15 to

20 members per plant, the total cost from 1981 to 1984 to develop the seven drying plants in Sucre Department was about \$US750,000. Costs include research, training, technical assistance, agricultural trials, overhead and many others, using 1984 prices; the estimate is probably low (Romanoff 1985). The seven plants of Sucre had about 120 members in December 1984, so the per-member cost was about \$US6,250 -- a figure that is more usual for an irrigation project than an appropriate technology project. Even stripping away the peripheral costs and the capital investment costs, the per-member cost is \$US2876. Tendler (1983) has identified benefits to non-members as being essential to justifying cooperative promotion, given its high cost per beneficiary. The associations purchase about half of the yuca they process from non-members. If "beneficiaries" covers all those who sell yuca to the plants, and if there are many of those, then costs-per-person-benefited seem more reasonable.

But how many farmers should be classified as "beneficiaries"? If there is considerable variation among members, some may not rate that label. Of the non-members, one wonders how many sell to the plants? Are they poor? Do they sell as much as the members? For a typical plant the quantity of yuca sold by non-members might be supplied by seven farmers selling five hectares each to the plant or by 350 farmers selling small lots of left-over third-class roots.

There is a further problem. The memberships of four of eight associations on the western coast (1985) have declined, while only two have increased in size, including those bringing in kin of members. On the basis of mean figures, it is hard to see why members would leave or find membership duties onerous. The answer is that the mean of benefits does not represent the situation of all members.

I thus aim to provide information on several practical issues, but my central theme is discovering variations among benefits to association members and non-members. From this follows the analysis of tensions within cooperating groups and how the associations behave in response to those tensions. Complete equality of benefits in a cooperative activity, such as these yuca processing associations, is not a realistic goal, despite the considerable efforts made to recruit farmers in similar situations to each particular association. Yet, inequality of benefits threatens the viability of the associations, which were chartered as tools of anti-poverty development.

BACKGROUND

The three associations surveyed are located near Sincelejo, the capital of Sucre Department, in the midst of the vast, dry, interfluvial grasslands of the North Coast. The low hills are populated by many cows and few people; the yearly *corraladas*, a kind of bull fight in which the animal wins, offers an apt metaphor for the relative importance of bull and man. The dominant land use is extensive cattle ranching, with *haciendas* coming to the very edges of nucleated settlements that have scarcely any peri-urban horticulture. Only near the seasonally-flooded depressions and in the mostly-deforested higher hills have peasants competed somewhat successfully with ranchers.

In this area of relatively low land values, the Colombian land reform purchased and distributed more land than anywhere else in the country. The 60,000 hectares distributed in Sucre Department now support most of the small-scale farmers of the northern part of the department. Members of two of the three associations surveyed here

are land-reform beneficiaries. Of these, the members of one association obtained about 10 hectares per family in the reform; another's members have only 3.5 hectares. The third group comprises non-land-reform, small-scale property owners. In the mid-1970's, the land reform institute tried to form collective land-holding groups; though these failed, they were the basis for the later "associations" of small-scale farmers with individual holdings. A few of these were conspicuously successful, but most were not.

Three changes led farmers of the study area to produce yuca for sale. Tractors made it easier to prepare larger lots; buyers for starch factories sought raw material; the road to the regional highway was improved. Still, demand was insufficient to absorb potential production. This is the situation that the development agencies already described found in Sucre.

CIAT has sponsored at least five social studies in the area of the associations. Bode (1984) studied the propensity of campesinos to join and some organizational aspects. Boering's study (nd) usefully highlights the mix of cropping and cattle-raising that characterizes campesino farm systems in the area. Two studies -- one of land-holding and one of production costs -- are in the analysis stage.

My focus here is on a simple data set taken from archived records of sales, of plant operations, and of agricultural plans, complemented by observations of association meetings and by extended discussions with members. The term "social accounting" refers to the financial source of most of my data and their use to illuminate social phenomena. Since cooperatives regularly receive accounting assistance, appending social indices only slightly more complicated than "number of customers" would be feasible and, as I hope to show

here, useful. Other details of method are found in an appendix.

A. BENEFITS FROM ASSOCIATIONS ARE DIVERSE

Association members receive income from sales, wages, distributed profits, ownership of a share of undistributed profits (including government's contribution to capital), use of capital goods, credit secured through the association, education, and government investments that follow the decision to invest in a yuca plant (e.g. improved roads). Some of these have been noted by Bode (1984); they can be systematically presented (see Table 1) and analysed.

In the first years of an association, the major benefit to members is their equity from partial ownership of capital goods financed by government funds and accrued from members' labor. When a plant begins operations, yuca purchases become its main benefit. In later years, an association accumulates more capital from profits and from fresh government assistance/subsidies. Members benefit in several ways from this capital.

Members of the three surveyed associations are still in the stage where they have gained more from government subsidies and contributions to capital than they have from other sources. Apart from such benefits, they have gained more from selling yuca to the plants than they have from wages or profits (Table 2). Wages and profits account for only 19 % of benefits from these three sources.

Table 1. Cash or Value Benefits to Members of An Association

- Sale of Own and Family's Yuca Production
- Wages, Salary, or Commission
- Part of the Association's Net Income
 - Distributed to Members
 - * Profit from Sale of Members' Yuca
 - * Profit from Sale of Non-members' Yuca
 - * Income from bank interest on association funds
 - * Funds from Government Subsidy
 - Undistributed Part (equity in the association)
 - * with the same categories
- Members' use of Capital Goods
 - * Drying Floor and Warehouse (for Corn)
 - * Tractor (reduced rate and credit)
 - * Tractor -- for transport
- Benefits of Individual or Group Credit
 - * Use of the Money
 - * Avoiding Past Bad Debts
 - * Loans Never Paid
 - * Credit for Cattle Secured on Basis of Goodwill to
- Value of Education (including training and technical assistance, using current value of future income)
 - * Agricultural technical assistance
 - * Accounting, administration
- Value of Trips, Conferences, etc.
- Part of Value of Investments that Accompany an IRD
 - * Road, Water, Rural Electrification, etc.
- Benefits for Kin
 - * Wages
 - * Free Entry into the Association for Sons
 - * Preferential Purchase of Yuca
- Stolen Funds (unfortunately)

Table 2. Cash Benefits to Association Members from Sales, Wages, and Profits (Per-Member Approximations)

2.a Benefits, Using Gross Sales as a Benefit

Association	Number of Members	Average Sales	Wages	Profit	Total
		\$US	\$US	\$US	\$US
1	17	928	56	0	984
2	20	370	31	67	468
3	15	467	30	49	546

2.b Benefits, Using Estimated Profit in Place of Gross Sales

Association	Number of Members	Sales Profit Est.	Wages	Profit	Total
1	17	529	56	0	585
2	20	211	31	67	309
3	15	266	30	49	345
Total		1006	117	116	1239
		81 %	9%	9%	100%

Notes: This is a table of rough approximations.

Exchange rate for 1984 = \$COL 100 = \$US 1

Guess of 43% of gross sale as gain (Boering nd); this is very rough and open to interpretation.

Sales price of yuca standardized as \$COL 5/Kilo

B. MEMBERS SELL DIFFERENT AMOUNTS TO THE ASSOCIATIONS

Members' yuca sales to associations are quite variable, as measured by the size of the standard deviations and means calculated for kilos sold in the 1983-1984 season (Tables 3 and 4). While some members sold nothing to the association, others sold more than 20 tons. In two of three cases, the top 25 percent of members sold 32 to 40 times more yuca to the association than did the bottom 25 percent. This kind of differentiation can be described using the same index and graphical representation used to measure stratification of land ownership. We find that one association is much more egalitarian than the other two. Such "between-group" variation is beyond the scope of this paper, which concerns "within-group" variation, though the topic is worthy of investigation.

Table 3. Differential Sales to Association 1

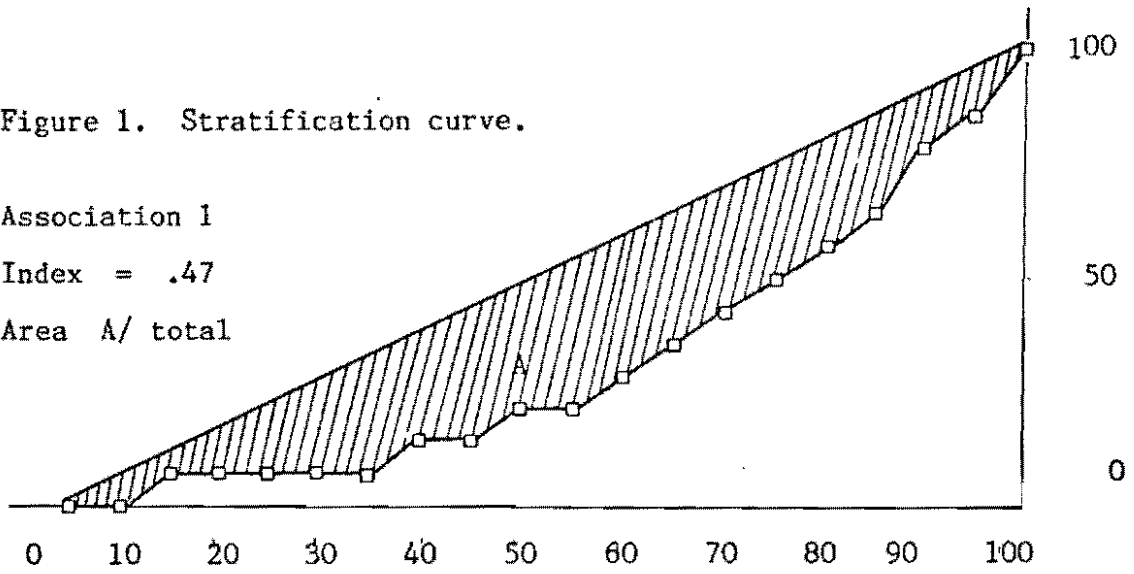
SALES KG 1)	AREA PLANTED 1983 (HECTARES)	TENENCY
0	1	owner
0	2	owner
40	0.5	renter
399	2	renter
2116	1	renter
2363	0	renter
2649	3	owner
3063	3	owner
5956	2	owner
6115	2.5	renter
6649	3	renter
6821	n.d.	
7457	1	renter
10325	3.5	owner
12252	3.5	renter
12774	2.5	land ref. beneficiary
13101	3	owner
13472	4	owner
16594	2.5	owner
25131	5	renter

Figure 1. Stratification curve.

Association 1

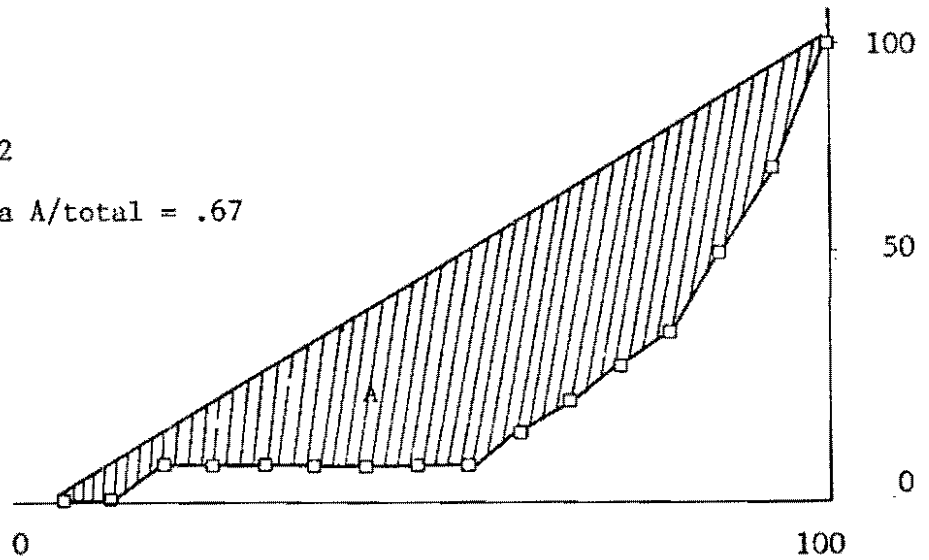
Index = .47

Area A/ total



Association 2

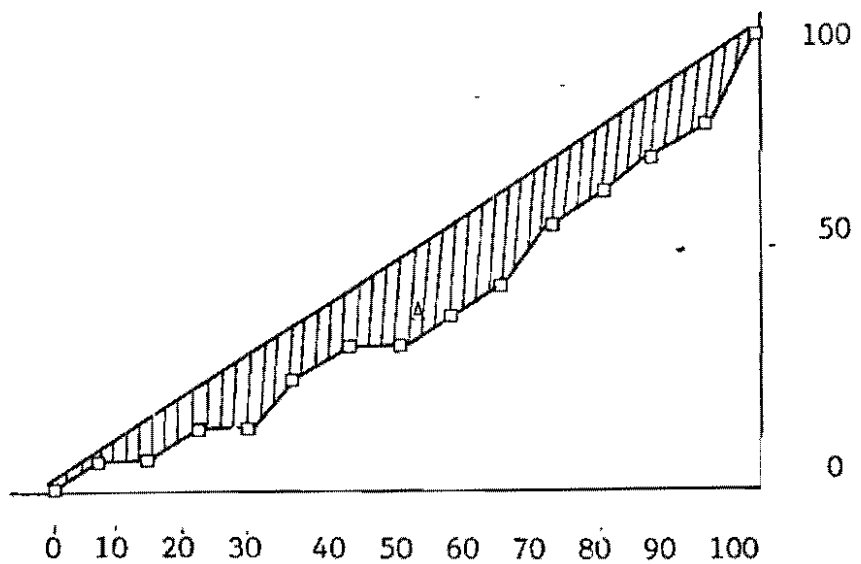
Index = Area A/total = .67



Association 3

Index = .32

Area A /total



Cumulative % of members

Cumulative % of sales (1983-84)

Table 4. Summary Indices of Variability in Members' Sales

	ASSOCIATION		
	1	2	3
TOTAL KILOS BOUGHT	147277	315491	134277
MEAN KILOS BOUGHT PER MEMBER	7364	19718	9591
STANDARD DEVIATION	6654	15609	6585
STRATIFICATION INDEX	.67	.47	.32

Why is there so much variation? The amount that a member sells to the association is equal to the amount he produces multiplied by the proportion sold to the association. Since associations' members generally use agricultural production credit, the areas they expect to plant are known. Their normal-year production is 8000 kilos of yuca per hectare (and 1000 kilos of corn, plus minor crops). These data permit a rough estimate of the proportion sold to the associations (Table 5).

Those who sold more yuca to the association both produced more and sold a higher percentage of what they produced to the association. Of the two factors, however, the percentage sold to the association was much more important than the estimated amount produced. The associations would have gotten 10% more yuca from members if they had gotten their low-sales members to plant the same AREA as the members who sold a lot to the chippers, but they would have gotten 33% more yuca if the low-sales members had sold the same PROPORTION of their yuca to the association.

Table 5. Estimated Production, Sales, and Proportion Sold to Two Associations

	Estimated Production	% Sold to the Association
Association X		
Those under the median of sales	15 TON	13%
Those over the median of sales	25 TON	56%
Association Y		
Those under the median of sales	24 TON	35%
Those over the median of sales	35 TON	104%

Interpreting skewed sales and proportions sold requires some knowledge of alternative markets. Farmers reported that they sold yuca to market intermediaries for fresh consumption, which, at the start of the harvest, offers a higher price, and they kept yuca for home consumption. Astute farmers sell their better roots on the fresh yuca market and sell remainders to the plant. If these two uses (home consumption and fresh market) took priority, and the farmers sold only their left-overs to the plant, then differential sales and proportions sold to the association would reflect one of the roles planned for the associations: a sink for excess or low-quality production. To a degree, this is the case. However, the choice between fresh or dry markets is more complex than average prices would indicate. For example, the highest-priced roots for the fresh market are immature and small. The farmer really chooses between November prices for immature roots and February prices for larger roots.

Further, some members had yuca to sell when the plants stopped purchases in April, when rain curtailed drying. Five months later, at the start of the next drying season, some of those members still had

their unharvested yuca. The quantities of unharvested roots are substantial. In Association 1, there were between 9 and 14 hectares of "old yuca" at the start of the 1984-1985 drying season (the status of one member's 5 hectare planting is unclear). This represents 20 to 30 percent of the members' total area planted. In a third plant, four members had a total of 2.5 hectares of yuca in January 1985, or about 20 tons. Since all the members of the association sold only 144 tons to the plant, the unharvested residual represents 12 percent of the total harvest.

The causes for this problem were various, complex, and debated. Plants had bought yuca from non-members. Some members' yuca was slow to mature because of late planting, possibly because of late-arriving credit and delayed rains. There were charges that the plant manager had closed sales too early.

Whatever the complexity of these cases, the simple facts remain that sales to the association vary from person to person, and that not all the variation is due to alternative markets.

C. MOST MEMBERS' GET ROUGHLY EQUAL WAGES AND PROFIT-SHARES, THOUGH SPECIALISTS WORK MORE DAYS AND MAY GET A PERCENTAGE

Members earn wages for the days when they (or a replacement) take a turn laboring at the plant and, in some cases, they get a share of the yearly net income. With a few exceptions, these benefits are relatively uniform among members.

Members of two associations reported that most members work in turns and that they do in fact follow the schedule. The exceptions are the few who work nearly every day (e.g. motor operator, full-time employee, manager in some cases) and a few who are excused from work (e.g. a member said to suffer from severe allergies in one case and a

manager in the other). I did not examine work records for two plants, accepting statements about equal work as the basis for my calculations. In the third case, the number of days worked by members is in fact roughly, but only roughly, equal.

Table 6. Number of Days Worked in 1983-1984 Season, One Association

Frequency	4	5	6	7	8	9	10	11	12	14	51	57
5												
4												
3				X								
2		X		X	X	X						
1		X	X	X	X	X	X		X 1/		X 2/	X 3/
	-----										///	///
	Number of Days											

Notes: 1) treasurer 2) full time 3) motor operator

The wages paid to member/workers at one plant were 500 pesos per day without food; this is about the going rate for labor. At the second, they received 400 per "turn" and they claimed that a turn could last more than one day, in which case the payment is well below the market rate for agricultural labor. At the third, they got 400 per day. Managers, and in one case, the treasurer, got a percentage of the coop's net income for their work.

Thus, most members receive equal benefits from wages, but some specialized workers receive more than others.

Profits, if they are distributed, comprise the other main payment to members. In one case, profits were retained, while in the other two they were distributed. They are given out on a one-person, one-share basis, except for the cases where a manager receives a share of profits in place of a wage.

D. THE MIX OF BENEFITS VARIES

In aggregate terms, juca sales were the only important benefit

from being a member of an association (Table 1). When we look at individual members, we find that some got their major benefits from wages or profits, and that many got a substantial share (at least 20 percent) from these sources. My perception is that the year 1984-1985 will show wages, distributed profit, and undistributed profit to be much more important.

For example, in Association 2, four members got more than one-quarter of their benefits from wages and more than one-half from distributed profits. In Association 1, five (actually six-- I lack data on one specialized worker) members got at least 20 percent of their benefits from wages; this group did not distribute profits last year. Six members of Association 3 got more than 20 percent from wages and profits. These figures result from using the gross figure for sales to the association; use of the estimated net figure would increase the apparent importance of wages and profits. They also refer to only three sources of benefits - wages, profit, and sales, when we have already noted that subsidized equity is a substantial benefit.

Now let us turn to hypothetical situations to show the relation between benefit mix and the price that an association pays for its yuca. It is intuitively true that if an association pays less for its yuca (given that there is enough yuca available at even low prices), it will have more money to spend on other things or to distribute as profit. If it pays for yuca, then it will have less profit or it will go into debt. We can see these intuitive relations in the following table of an hypothetical association with a limited amount of money to distribute among purchases, wages, and profit.

Table 7. Sensitivity Analysis Showing Effects of Yuca Prices on the Distribution of Benefits among Wages, Sales, and Profits

Price peso/kg	Total yuca purchases (147277 kg)	Wages (fixed)	Net Profit Share
\$8	1178216	79153	-308771 (i.e. the ass-
\$7	1030939	79153	-161494 ociation lost
\$6	883662	79153	-14217 money.)
\$5	736385	79153	133060
\$4	589108	79153	280337
\$3	441831	79153	427614

Totals as a Proportion of All Costs

\$8	1.24	.08	-.32	(the member
\$7	1.08	.08	-.17	loses equity,
\$6	.93	.08	-.01	but gets cash)
\$5	.77	.08	.14	
\$4	.62	.08	.29	
\$3	.46	.08	.45	

NOTE: THIS IS BASED ON 1983-1984 DATA AND IS NOT MEANT AS A GUIDE FOR PRICING YUCA IN 1985

In the case of the lowest price paid for yuca (\$3/kilo), the average member got 45 percent of his benefits from profits. If the association pays more for yuca, it loses money (negative net profits), but the average member makes money on sales (of course, such an organization could not long continue without subsidies).

Now let us introduce variation in sales, which has already been shown to characterize two out of three associations. In particular, let us take the case of a member who sells relatively little to the association. Such a member gets two-thirds of his benefits from profits if the association pays a low price for yuca. The high-sales member, of course, wants higher prices for his yuca; he does better if the association de-emphasizes distributed profits (though he also does well if the association buys a tractor).

Table 8. The Case of A Typical Low-Sales Member, who Sells 2500 Kilos to the Association (or 1.7% of the total)

Price peso/kg	Total yuca purchases (147277 kg)	Wages (fixed)	Net Profit Share	TOTAL PAYMENT TO MEMBER
\$8	19999	3958	-15438	8519
\$7	17499	3958	-8074	13383
\$6	14999	3958	-710	18247
\$5	12499	3958	6653	23110
\$4	9999	3958	14016	27974
\$3	7499	3958	21380	32838

Proportion of Total Cost for the Low-Sales Member

\$8	2.3	.46	-1.81
\$7	1.30	.29	-.60
\$6	.82	.21	-.03
\$5	.54	.17	.28
\$4	.35	.14	.50
\$3	.22	.12	.65

NOTE: THIS IS BASED ON 1983-1984 DATA AND IS NOT MEANT AS A GUIDE FOR PRICING YUCA IN 1985

The same sort of analysis applies to most issues of allocating resources and risk. Tractors benefit large-volume producers far more than small. Officers benefit from government sponsored meetings. Credit benefits those who produce more; it puts others at risk. One could thusly check any set of topics that might come up at an association meeting.

E. NON-MEMBERS SELL SMALLER AMOUNTS LOTS THAN MEMBERS

The two plants where I examined non-members sales chits bought yuca from 215 non-member farmers in the 1983-1984 season (or, more strictly, they had receipts in the name of 215 people). Of the two, Plant 1 bought from slightly more people, but in slightly smaller lots. The amount purchased from each seller was near one ton -- a low figure, given that one hectare produces about eight tons. At \$COL5 per kilo, this implies an average gross benefit of \$COL5000, the

equivalent of 10 days' wages as a rural laborer (mid-1984 wage) or of \$US50. Net benefits are probably about \$US 30 if the farmer paid for land and labor. In each plant, the members sold about 10 times more yuca than the average non-member.

On the average, farmers were said to travel 18 minutes to bring yuca to one plant and 40 minutes to the other. Plant 2 has the larger average figure because it attracted two sellers from two-hours' distance and several from one-hour's; its larger radius is probably due to the fact that it is older and better known in the region. However, most of the sellers are within fifteen minutes of the plant by loaded (slow-moving) truck, and relatively few are at or beyond an hour's distance. Some of the close-by farmers bring small lots by burro, but truck is the main form of transportation. I tried a correlation of distance and amount sold; for Association 2, there is a slight correlation between the amount that people sold and their distance from the plant (.43 -- close-by people sold less), but this is not so for Association 1.

The geographic proximity of sellers is reflected by social proximity. The sellers' residences are predominantly in the one nearby town (45 cases), with a few people living in the surrounding satellites or on their farm (16 cases). I have no cases of sellers from more distant municipalities. For both plants, sellers are known people, not strangers. A notable number of sellers are close relatives (and I think that the figures presented underestimate this). Plant 2, which processes more yuca and buys more from more-distant places, also buys more from strangers.

One effect of buying from friends, neighbors, and relatives is the large number of small lots. Non-members show up with a few sacks

of yuca and in need of cash; it is hard to refuse them. In the extreme case, the brother of a member sold yuca on nine days; the sizes of the lots were in the one-sack range: 50, 45, 43, 40, 57, 56, 50, 70, and 57 kilos. Purchases of yuca remainders ("rabo") also contribute to small lot size.

Sellers are mostly land-reform beneficiaries and renters, less often owners of their own land. In this, they reflect the tenancy situation of members and presumably they are in the low-income population that DRI intends to help.

Table 9. Number of Non-members Selling, Distance to Plant, and Mean of Kilos Sold

	Asoc. 1	Asoc. 2	Both
Number of Non-members Selling	114	101	215
Mean farm-to-plant distance, in minutes	10	40	25
Mean kilos sold per non-member	891	1052	966

Notes: The mean of distance and kilos are taken from a sample, while the number selling is a count.

The mean of kilos is based on the sum of all sales by particular people.

Table 10. Farm-to-plant Distance Decay

Distance (minutes)	N	%	
0 - 14	25	53	*****
15 - 59	15	32	*****
60+	7	15	***
Total	47	100	

Table 11. Social Distance of Yuca - Sellers

Relation to Members	Number of Sellers	% of Sellers
Family	12	.17 ***
Known person	46	.65 *****
Unknown ind.	11	.15 ***
No data	2	.03
Total	71	1.00

Relation to Members	Kilos Sold	% of Kilos
Family	13113	.19 ***
Known person	46666	.68 *****
Unknown ind.	8083	.12 **
No data	766	.01
Total	68628	1.00

Table 12. Tenancy of Yuca - Sellers

Land-reform	23	.32 *****
Renter	21	.30 *****
Assigned (reform)	1	.01
Son of owner	7	.10 *
Owner	4	.06 *
No data	15	.21 ****
Total	71	1.00

This short diversion into the characteristics of non-member sellers will be useful in a moment for calculating the number of beneficiaries. The points to be used are the numbers of sellers and the fact that they appear to be kin, friends, and neighbors of members as well as small-holders; that is, they seem to be proper beneficiaries.

F. TYPES AND NUMBERS OF BENEFICIARIES

We have now seen variation in the benefits received by members, as well as the contrast between non-members and members. We have fairly exact data on the cash benefits. Still, it is hard to say how many people should count as beneficiaries, a designation that derives, after all, from bureaucracy rather than science. There are many types

of beneficiaries, classified by the way they use the associations. Within each kind of beneficiary, there are quantitative variations; some receive benefits that may be judged insignificant and others incur costs greater than the benefits they receive. To proceed to a single figure that represents all beneficiaries, there is need for a "full beneficiary equivalent factor"; it is hard to equate a member selling three hectares of yuca with a non-member selling a half-sack. Beyond all these factors, there is the simple fact that only a special study following a sample of beneficiaries over time could tell us how many people, with their kin and neighbors, really benefit.

The following exercise in calculating the number beneficiaries of Association 1 is useful in that it clearly presents some of the decisions that one has to make. One sees the lack of data, particularly for estimating indirect beneficiaries or disbeneficiaries. One also sees the importance of context: someone interested only in organizing farmers might say that the conversion factor from non-members to members should be .01, bare acknowledgement, while an office interested only in reducing per-beneficiary costs would use a 1:1 conversion factor. The terms "pseudo-beneficiary" and "primary purpose" introduce other context factors highlighting the ideological aspect of the calculation.

Figure 2a. Worksheet for Calculating Number of Beneficiaries

Project DRI Dried Yuca___ Group Association 1 _____

Type Ia. Primary Purpose Beneficiaries: Members selling more than 4000 kilos of yuca

	Total	13__	
- number outside the beneficiary group	-	0__	
- number not substantially benefited	-	0__	
- number not NET benefited (costs > ben.)	-	?1*	
- number of pseudo-beneficiaries	-	0__	
	NET	= 12__	
Conversion factor = 1	x factor		= ___ 12 ___

* for the farmers left with yuca at the end of last year

Type Ib. Secondary Purpose Beneficiaries Members selling less than 4000 kilos

	Total	__5__	
- number outside the beneficiary group	-	0__	
- number not substantially benefited	-	1__	
- number not NET benefited (costs > ben.)	-	?__	
- number of pseudo-beneficiaries	-	2__	
	NET	= 2__	
Conversion factor = 1	x factor		= _ 2 _

Note: Members earning less than \$0.5000 are not substantially ben. Ib

Note: "Pseudo-beneficiaries" benefit only from aspects of the program not intended as sole benefits, like subsidized equity.

Type II. Peripheral Beneficiaries Non-members selling to asoc.

	Total	__114__	
- number outside the beneficiary group	-	0__	
- number not substantially benefited	-	21__	
- number not NET benefited (costs > ben.)	-	?__	
- number of pseudo-beneficiaries	-	0__	
	NET	= 93__	
Conversion factor = .5	x factor		= ___ 47 ___

II

Note: Non-members selling less than 250 kilos are not substantially benefitted.

Type III. Disbeneficiaries No data _____

	Total	__ 7 __	
- number outside the beneficiary group	-	_____	
- number not substantially harmed	-	_____	
- number not NET harmed (ben. > harm)	-	_____	
	NET	= _____	
Conversion factor = ___	x factor		= ___ ? ___

III

Note: Conversion factors reflect "context" factors.

$$__12__ + ___ 2__ + ___ 47 ___ - ___ ? ___ = ___ 61 ___$$

$$Ia + Ib + II - III = Beneficiaries$$

Possible disbenefits, such as effects on rental fees and labor availability, are the subjects of on-going CIAT studies. One of the general benefits that is supposed to result from building yuca plants is risk reduction for farmers who increase their yuca plantings, whether members or not, and reduction of farmers' perception of risk, at least risk related to demand for yuca.

However, some members sell so little yuca to the plants that their risk has not been reduced; among them are some who found no alternative market. Further, for the average non-member farmer, the two plants studied absorbed the production of only one-tenth of a hectare. It is possible that, by being a source of small amounts of cash, the plants obviate the need for a farmer to sell his year's production to get cash for medicine, for example. This reduces market risk a bit, but I presume that the non-member farmer who plants an extra three hectares faces basically the same risk as he did before the plants were built; the member farmer also continues to face substantial risk. Anecdotes about the region and members' experiences indicates that some have not benefited.

G. GROUP DYNAMICS, DIFFERENTIAL PARTICIPATION, AND DIFFERENTIAL BENEFITS

The variety of benefits to members and the fact that benefits differ among members can lead the associations to develop in ways unanticipated by bureaucrats. When confronted by opportunities, decisions, and internal differences, associations and their members evaluate distinct benefits, not just the opportunity to produce and process more yuca.

To document this, I will present cases of behavioral adaptation to benefits that are diverse (called "Type of Benefit" and "Origin of

Benefit" cases) and unequal (called "Benefit Ratio" cases).

Benefit Ratios-I: Member/Non-member Benefit Ratio as Pressure to Join

Tendler (1983) reports that Bolivian cooperatives do not grow because, in part, non-members get the same benefits as members. This is not the case with the yuca chippers; we have seen that an average member sells the association ten times more than a non-members. Hence, non-member sellers try to gain entry. Further, members get 0.5 pesos more per kilo of yuca than non-members. In an extreme case, dozens of such farmers sent a letter to DRI and attended a meeting, unsuccessfully asking to be allowed to join their town's association.

Benefit Ratios-II: Handling Internal Stress

One of the main issues of a meeting that I attended was compensation to a member who had not been able to sell to the association. He described the effect of not harvesting his yuca -- income both deferred and lost because he could not use his field. In this case, the association management held firm; there would be no recompense.

Benefit Ratios-III: Handling Internal Stress

Association 2 shows the pattern of skewed sales to the association and a high proportion of benefits from wages and profits. Differential benefits and other problems led to internal dissention. The association manager kept the group together by offering very high wages for members (600 pesos, while the local wage is 400 to 500 pesos) and by sponsoring a move to allow the sons of members to substitute their labor for absent fathers. Opposition to this move came from the plant manager, who was in favor of capitalization. Here we have two kinds of behavioral consequences of different interests.

First, the interest of low-sales members and plant manager differed. Second, the dissention between interest groups was resolved by giving higher wages to one group.

Kind of Benefit-I: Cattle Credits as an Unanticipated Benefit

When credit was scarce one year, members of one of the associations had access to relatively large cattle loans because they were known to the bureaucracy and thought to be relatively stable because of their membership.

Kind of Benefit-II: Members' Kin and Paying back Credit

A benefit to members that is proving very important is the opportunities offered to their sons and, less frequently, to other relatives. Members of some associations substitute their sons' labor for their own at the plant, and the sons of some members work full-time at the plants. Under government pressure to increase membership, some associations have reacted by taking in members' sons (and a nephew), fulfilling the quota but not the intent of the bureaucrats. Within the associations surveyed, there is strong feelings to restrict membership to relatives, though other groups are more amenable to government plans to increase membership.

Restricted membership is undesirable from the point of view of government functionaries, who are evaluated on the number of people benefitted. However, benefits to kin make the program more attractive to some members. Functionaries know that the whole chipper program is based on unsecured loans to the associations and that members' commitments to pay back the loans depend on their commitment to long-term involvement. While future credit is one reason for such an enduring bond (see below), members cite their sons' future as the reason for paying back the loans (see also discussion of bureaucrats'

behavior, below).

When I attended a meeting where the members discussed paying a note that had come due, the conversation repeatedly switched from the treasurer's figures to members' emotional discussion of the benefits of the association for their progeny. They were justifying paying off the loan in a social environment characterized by the highest default rates in Colombia and, until recently, by the opinion that loans need not be paid.

Kind of Benefit-III: The Option of Milking the Association and Bureaucrats' Adaptation

The possibility that associations could "milk" their assets and forget about their debt motivates bureaucrats to seek ways to keep the associations in line. In particular, it motivates them to seek solutions to problems of credit payments and to advocate low interest rates. Second, entities seek to provide more loans to the associations -- a "pyramid" scheme in which the level of debt keeps rising and the motivation to pay the debt is the hope for further credit (but see also the discussion of members' kin above and of rejection of additional credit, below).

Origin of Benefit-I: Purchases from Non-members versus Members

Table 1 distinguishes between the benefits of processing members' yuca from that of processing non-members' yuca. There are some real benefits to relying on non-members' yuca. For example, members can harvest more kilos of yuca by leaving their own in the ground longer while the plant operates on non-members' yuca. (The plants pay the same price all season long; for the fresh market, there is a premium for harvesting early, when prices are high.) Further, by using non-

members' yuca, members avoid production risk. Thus, plants continue to buy yuca from non-members even if they grow enough to supply their plant.

This raises the issue of the degree to which the plants are groups of farmers banding together to process their product and the degree to which they are processing companies. The association of farmers with very small plots bought 70 percent of its yuca from non-members last year. These marginal farmers are compensating for their poverty by buying more non-members' yuca.

Origin and Type of Benefit: "No thanks" to an Offer of More Credit.

The fact that some low-sales members still had unpaid debt contributed to an association's decision to emphasize processing non-members' yuca and to reject an offer of so much credit that it could become self-sufficient in supplies. The members preferred to take a modest amount of credit. There was also a feeling that others could assume the risk of production, while the association made a profit on processing. High-production members gain from production credit, while low-production members gain little from such credit beyond a minimum; in fact, insofar as the association is put at risk, their equity and wages are put at risk.

H. CURRENT ISSUES: COOPERATIVE PRINCIPALS

In October, 1984 DRI sponsored a meeting for association members and for government staff from the institutions working with the plants. Among the most discussed issues of this Monteria, Cordoba meeting was a proposed shift from "association" to "cooperative" status. Such a shift would allow the associations to tap new sources of credit and to form a federation. However, the term "cooperative"

carries considerable connotation regarding goals and internal organization. These changes would affect members differently depending on the predominant way in which they benefit from the association.

In the acerbic debate that culminated a monumental United Nations study of cooperatives (UNRISD 1977; orig.1975), detractors and defenders of cooperatives focused briefly on a small chicken-breeder cooperative and, for just a moment, agreed on something: the cooperative took on the (disreputable) coloration of private profit when it blocked the admission of new members. Even the defenders of cooperativism had to admit that this contravenes cooperative principles. However, the cooperativists held that an organization maintains its special character so long as it distributes its net income in proportion to members' transactions with the cooperative (UNRISD 1977:67).

Currently, the associations that distribute profits do so on a one-person-one-share basis. However, cooperatives, by the Rochdale principals, distribute profits (or "rebates") in proportion to "use" or "transactions". In the case of yuca plants, "use" could be taken to mean "sales to the plant." Those members who sell most yuca to the plants would benefit from such a definition; in effect, it would raise the price of yuca. Those who act as intermediaries (selling others' yuca to the plant as if it were their own) would also benefit. However, the low-sales members would lose part of their year-end share. Since they sell little to the association, they would lose a major incentive to remain in the association.

At Monteria the discussion between farmers and bureaucrats

revealed two different perspectives on the question of open membership and equity. Most of the bureaucrats voiced opinions showing a development-project perspective (which judges success on the basis of number of beneficiaries) or a cooperative-ideal perspective. The campesinos, on the other hand, were concerned with maintaining their equity in the capital goods of the association. New members, some suggested, would be admitted if they paid a fee (in cash or deducted from future payments) equivalent to a current member's equity. When pressed, one campesino estimated that this would amount to \$COL 100,000 (equivalent to 200 days' wages or 2.5 hectare's of yuca delivered to the plant). One bureaucrat suggested that this might be reduced; it rules out most farmers, given the size of sales that this report has documented.

Open membership, like distribution of profits proportional to sales, most directly reduces the benefits of low-sales members. However, those with the most yuca to sell lose from having more people with priority rights to sell to the plant. In the case of the low-sales people, the issue is equity and profits; in the case of high-sales people, the issue is preference in selling. There are other factors to analyse to understand the option of opening membership: issues of possible stagnation, of declining membership, of government's interests, and of other factors. Here, I am concerned only with individual interests.

If a significant number of members can earn their benefits from wages and profits (rather than from selling yuca), then one should consider the possibility of organizing some yuca facilities as a rural industry (i.e. a worker-owned facility), or of a true cooperative (open membership) that emphasizes profit sharing for a limited number

of workers (i.e. pays lower prices for yuca). Such forms of organization would be appropriate where land holdings are small and where purchases from non-members are high. The data on diversity of benefits do not support the conclusion of some earlier studies that associations should be formed only among campesinos who own land and who own more land than others. Beside the fact that several associations not surveyed here have been formed among renters, campesinos who sell little or no yuca to the plant can contribute by their work and can benefit from membership.

H. CONCLUSIONS

1. There is important variation in the total monetary value of benefits that North Coast yuca association members derive from their affiliation.
2. The mix of benefits also varies from member to member.
3. Some farmers gained so little from the processing plants that we should not count them as beneficiaries. Political, ideological, and context factors enter into calculating the number of beneficiaries, though recognition of variation can make these calculations more realistic. "Social accounting" provides much, but not all, of the data needed.
4. No matter how homogeneous the membership of an association or cooperative, differential participation can create interest groups within the cooperative. These interests have behavioral consequences, not just for group cohesion, but also for how the cooperative uses its resources.
5. The lower the price an association pays for yuca, the more the low-sales members benefit from membership; the higher the price, the more

the high-sales members benefit. Low income members benefit more from wages and profits than from sales.

6. The ideal internal regulations of cooperatives may or may not be appropriate to particular yuca associations; if the associations convert themselves to cooperatives and if they take cooperative ideals seriously, then some association members will gain more than others.

7. Analysis of benefits and of policy questions facing such cooperative-like groups should avoid using "average" figures and should consider variation among beneficiaries and among benefits. Some types of unlikely-appearing potential beneficiaries, such as the near-landless, may gain important benefits from "minor" or unexpected aspects of the group, and this gives hints for the future development of the associations.

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APPENDIX 1. METHODS

Getting data on sales was not difficult, though it was tedious. Fortunately, the plants have kept receipts of their purchases, so with the treasurers of two plants I made lists of the sellers and the quantity sold. The tedious part was sorting through the names to catch the cases of two or more sales by the same person. Then I selected a sample of non-member sellers (every third one on the list, for a total of 71) and asked those present (treasurer plus assorted members) for information on the seller's relation to members, land tenancy, place of residence, place of farm, and farm-to-plant transport time. The data were processed using an Osborne-1 microcomputer running dBASE-II, a data base program.

To judge social distance of non-members, I decided to use three categories: family of any member (familiar), friend or known person to any member (conocido or amigo), and stranger or unknown person (no conocido).

The most likely bias in the data is an underestimate of the number of non-member sellers and of sellers' social proximity to members. This is so because the associations paid more for members' yuca than for non-members', so a member's son, for example, would be likely to sell to the association under his father's name. Thus, he would not be counted as a non-member seller, and the list of sellers would not include this close relative.

The data analysed here are readily available to government funcionarios. Except for taking an hour of time from plant treasurers, there was no bother to campesinos, who have been repeatedly surveyed. It is true that a special survey could answer more questions than this compilation of archived data, but the methodology used here is low cost and suitable for replication by coop members or bureaucrats interested in "reality testing".

APPENDIX 2. Some Simple Techniques for Social Accounting

The following indices can be calculated by a cooperative member or someone giving technical assistance to a cooperative-like group to judge internal variation and, at least, to begin to determine the number and kinds of beneficiaries. These indices do not replace sociological or anthropological analysis.

Table Index	Data	Use
Fig. 1 Benefits	interviews	perceive benefits
2 number of members	membership lists	determine beneficiaries
9 " " non-members	receipts	" "
Fig. 2 Beneficiary worksheet		calculate a total
2 average sales, wage, receipts, inter. and profits		volume and emphasis

3,6	sorted list of beneficiaries	individual data	visual distribution # inactive members # extra-actives
4	standard deviation/mean of benefits	*	variability
4	gini index	*	variability
5	mean produc./sales	loans, receipts	general import of assoc.
	indiv. produc./sales	*	functions of assoc.
text	benefits to non-members/ benefits to members	*	nature of assoc.
text	mean benefit to non-members/ mean benefit to members	receipts	pressure to join
7,8	sensitivity analysis		effects of change * on special group
10,11,12	social characteristics of sellers	third-party questions	are beneficiaries in target?
text	standardized projection	1)	weight changes

1) For example, hold one factor constant and hypothesize a change in another; then hold the second factor constant and hypothesize a change in the first. In the text, I used area planted as one factor and percentage sold to the second and concluded that the latter made more of a difference in the total of members' sales than the former.