DRAFT

RIO GRANDE DO NORTE RURAL DEVELOPMENT PROJECT (RURALNORTE)

Midterm Evaluation: Rural Credit

Judith Tendler
September 1978

Table of Contents

	Page
Introduction	1
A. Investment in New Cotton	2
Expansion at the Farm Level	4
Conclusion	6
B. Adoption of Animal Traction	6
C. Beef and Dairy Cattle	10
D. The Target Group: Size of Farms and Loans	12
The Relation Between Loan Size and Farm Size	14
Large Farms and Large Loans	16
Small-farmer Access to Credit	18
E. The Target Group: New Borrowers	20
The Impact of Credit on Production	21
The Bias Toward Old Borrowers	23
New Borrowers and Land Documents	26
CAP and New Borrowers	27
F. The Target Group: Serrana vs. Seridó	28
G. The Costs of Project Credit	31
Costs to the Supplier	32
Cooperatives and Costs	36
H. Credit Insurance - PROAGRO	40
J. Conclusions	43

List of Tables

Table 1 RURALNORTE Project: Number and Value of Project Subloans--Seridó and Serrana, 1976-1978

Table 2 RURALNORTE Project: The Role of Project Credit in Total BB and BNB in the Project Area

Table 3 RURALNORTE Project: Number of Extensionists and Subloans, 1976-1978

Table 4 RURALNORTE Project: Investment Credit by Use, 1976-1977

Table 5 RURALNORTE Project: Investment Credit by Size of Loan and Size of Farm, 1976-1977

Table 6 RURALNORTE Project: Distribution of Farms by Size in the Eleven Municipios of Phase I

Table 7 RURALNORTE Project: Percent of Farms Receiving Project Credit, 1976-1978

Table 8 RURALNORTE Project: Distribution of Subloans by Size, 1976-1978

Table 9 RURALNORTE Project: Distribution of Subloans by Farm Size, 1976-1978

Table 10 RURALNORTE Project: Seasonal Credit by Size of Loan and Size of Farm, 1977-1978

Table 11 RURALNORTE Project: Large Loans and Large Sub-borrowers, 1976-1978

Table 12 Small Loans of RURALNORTE Project Compared to Small Loans of Bank of Brazil in the State of Rio Grande do Norte

Table 13 RURALNORTE Project: Comparison of a Sample of Project Borrowers to All Project Borrowers

Table 14 RURALNORTE Project: Distribution of a Sample of Project Borrowers by Farm Size and Percentage of Property Cultivated--Seridó

Table 15 RURALNORTE Project: Distribution of a Sample of Project Borrowers by Farm Size and Percentage of Property Cultivated--Serrana

Table 16 RURALNORTE Project: Comparison of Seridó and Serrana with respect to Farm Size and Property Cultivated by a Sample of Borrowers

Table 17 RURALNORTE Project: Borrowers without Previous Bank Credit by Farm Size, 1976-1978

Table 18 RURALNORTE Project: Borrowers without Previous Bank Credit--BB and BNB, 1976-1978

Table 19 RURALNORTE Project: Comparison of a Sample of New Borrowers with respect to Farm Size and Percentage of Property Cultivated--Seridó

Table 20 RURALNORTE Project: Increases in Area Planted to Cotton by a Sample of Old and New Borrowers

Table 21 RURALNORTE Project: Livestock Purchases by Size of Farm--Seridó and Serrana, 1976-1977

Table 22 RURALNORTE Project: Livestock Purchases with Credit by Size of Farm and Type of Animal--Seridó Region, 1976-1977

Table 23 RURALNORTE Project: Livestock Purchases with Credit by Size of Farm and Type of Animal--Serrana Region, 1976-1977

Table 24 Project Area: Bank and Project Credit for Animal Acquisitions, 1973-1977

Table 25 RURALNORTE Project: Traction Animals Previously Owned by a Sample of Traction-animal Purchasers

Table 26 RURALNORTE Project: Animals Previously Owned by a Sample of Traction-animal Purchasers

Table 27 RURALNORTE Project: Previous Access to Credit of a Sample of Traction-animal Purchasers

Table 28 RURALNORTE Project: Animals Previously Owned by a Sample of Beef-animal Purchasers

Table 29 RURALNORTE Project: Animals Previously Owned by a Sample of Milk-animal Purchasers

RIO GRANDE DO NORTE RURAL DEVELOPMENT PROJECT (RURALNORTE)

Midterm Evaluation: Rural Credit

Introduction

1.01 Because of the slow start of the RURALNORTE project, credit fell considerably short of objectives at appraisal. Instead of the three years of credit disbursements expected by the time of the midterm evaluation, there were only a little more than one and a half years of credit experience--two investment-credit cycles (1976 and 1977) and almost two seasonal-credit cycles (1977 and 1978 through April). By April 1978, the project had provided 1,219 investment loans and 729 seasonal loans to about 1,100 farmers.[1/] (Table 1) This represented one third of the number of project borrowers expected for the third year, and a little more than half of those expected for the second year. In 1976, project credit channeled through BB and BNB branches in the project area accounted for 6% of the credit of those branches. In 1977, project credit accounted for 8% of the credit of the BNB branches (Table 2).[2/]

1/ Credit data is available only for the number of loans (1,948) and not for the number of borrowers. Based on information from the Project Unit, the number of farmers receiving project credit was estimated at 58% of the number of loans (58% of 1,948 = 1,100).

2/ The BNB accounts for about 30% of project credit. BB data were not available for 1977. Because the Bank of Brazil has a considerable amount of its own resources, in contrast to the BNB, the share of special credit lines like POLONORDESTE is always considerably lower in the BB portfolio than in the BNB. Since the BB and BNB bank branches covered other municipios in addition to the ones served by the project, the shares cited in the text do not represent the share of project credit in total BB/BNB credit of the project municipios. The latter shares would be higher.

A. Investment in New Cotton

2.01 An important objective of Phase I of the project was the planting of an expected 3,800 new hectares of cotton. The evaluation mission expected a substantial shortfall in this area, not only because of the slow startup of the project but because of a marked fall in relative cotton prices in 1977. Supervision reports noted that the price situation in 1977 resulted in a lack of demand for investment credit. By the end of 1977, the number of loans for investment in new cotton had increased by 27% over 1976, whereas the number of borrowers was expected to more than double in the project's second year (Table 4). The new cotton hectareage financed with these loans increased by 25%, although almost all of the increase was concentrated in the Seridó region, where loans for cotton investment increased by 39% and the new cotton hectareage financed was double that of 1976. In the Serrana region, in contrast, there was no increase in the number of such loans in 1977, and new cotton hectareage financed with project credit declined by 12%.[1/]

2.02 In the face of the cotton-price decrease and the shortfalls in demand for project credit, it is surprising to learn that the new area planted to cotton during the two years of project credit was double

1/ The increase of all investment loans was higher than that for new cotton investment only. Total investment loans increased by 27% from 1976 to 1977, as opposed to 16% for cotton. For the Seridó, the increase in all investment loans was 34%, still lower than the 39% increase for cotton. For the Serrana, the increase of 24% for all investment loans was much higher than the 1% increase for cotton. These findings suggest that the cotton price decrease was more strongly felt in the Serrana, which is less served with infrastructure. The Serrana has only two cotton gins, for example, in contrast to the seven gins of the Seridó.

that expected for the first three years--7,799 hectares vs. 3,800 expected. The increase in cotton hectareage in the Seridó, it turns out, was almost totally concentrated in the municipio of Florânia; 41% of that increase occurred on farms over 200 hectares, which had taken no investment credit for cotton expansion in 1976. (The 50-200-hectare farms accounted for 38% of the increase in cotton hectareage, and the 0-50-hectare farms, 21%.) Thus the increase of cotton hectareage financed with project credit in 1977 resulted partly from the introduction into the project of large farmers from one municipio and from outside the target group. (These large farmers are discussed further in para. 5.07.)

2.03 Even without the new large-farmer group, new hectareage planted in cotton under the project was still 78% greater than that expected after the first three years of the project. Similarly, the share of new cotton in project investment credit was also higher than that expected at appraisal, despite the decline in cotton prices. New cotton was expected to absorb 34% of investment credit, rather than the 47% in 1976 and 49% in 1977 that actually occurred (Table 4).

2.04 Part of the unexpectedly large increase in new cotton hectareage financed under the project probably represents a continuation of traditional cotton activities in the area rather than a net expansion of area under cotton attributable to the project. Farmers who were already receiving bank credit before entering the project accounted for 65% of those taking investment credit in 1976 and 82% in 1977 (Table 18)--though it was expected at appraisal that no more than 19% would have previous access

to bank credit. These farmers may simply have been re-commencing cotton planting on fallow land--an activity routinely financed with regular bank credit.

Expansion at the Farm Level

2.05 At the individual farm level, the percentage increases in hectareage planted to cotton were also surprisingly large, given the decline in cotton prices and the slack in demand for project credit. A sample of project borrowers shows that 23% increased their cotton plantings by more than 100% (Table 20). A further 38% of those sampled increased their cotton plantings by between 50% and 100%, for a total of 61% who increased their plantings by more than 50%.[1/] These increases are not only remarkable in light of the decline of cotton prices, but they are also much higher than the percentage increases expected at the farm level at appraisal. The average new borrower, that is, was expected to increase his cotton hectareage by 77% over a two-year period; but new borrowers accounted for only 26% of the sample in the Seridó and 6% in the Serrana. The old borrower, who dominated the sample, was expected to increase his cotton hectareage by only 25%--most of his income increases to result from productivity increases.

2.06 As assumed at appraisal, the new borrowers of the sample increased the area planted to cotton to a greater extent than old borrowers (Table 20). The percentage of new borrowers increasing their cotton hectareage by more than 100% was almost triple that of all

1/ The sample represents 44% or 207 of the investment loans in the Seridó, and 11% or 80 of the investment loans in the Serrana. The sample is biased toward 1977, at least in the case of the Seridó, in that the non-included cases represent those files from the beginning of the project that were not kept. See Table 13 for a further description of the sample.

borrowers--46% vs. 16%. Among all borrowers, moreover, the percentage increase in area planted to cotton was considerably higher for the smaller farms (less than 50 hectares) than for the larger ones: 28% of the small farms expanded their cotton plantings by more than 100% in contrast to only 16% of the medium and large farms. Conversely, small expansions of no more than 25% occurred on only 7% of the small farms in comparison to 19% of the medium and large farms.

2.07 The puzzling increase in cotton production during a marked fall in relative cotton prices may be partly attributable to the fact that tree cotton is the only economic alternative for agricultural production in the semi-arid Seridó, where average rainfall is 400 millimeters per year. Some farmers, that is, may react to a price decline by increasing rather than decreasing the area planted to cotton, in order to maintain their only source of income at a certain minimum. This would be consistent with the finding that small farmers increased their cotton plantings by larger percentages than large farmers, who would be likely to have other alternatives for investing their capital when cotton prices fall.[1/] If this is the case, then an important role for the project would be to provide opportunities to small farmers for diversifying their incomes. The exclusive cotton focus of the project, then, may have facilitated the economically "perverse" response of some

1/ With a relatively small additional amount of field work, it would be relatively easy to determine whether this explanation is accurate.

farmers who are forced to invest more in cottonwhen prices fall.

Conclusion

2.08 Project credit for new cotton planting, in sum, seems to have financed a surprising amount of cotton expansion at all farm levels. At the larger farm sizes and among old borrowers, project credit probably substituted for traditional sources of credit. At the smaller farm sizes, this expansion fit better the objectives of the project, to the extent that it was undertaken by new borrowers. Though these new borrowers were a minority, they were concentrated among the smaller borrowers. Farms less than 20 hectares accounted for 56% of the new borrowers, an additional 30% were from 20-50-hectare farms, 8% were from 50-100-hectare farms, and the rest were from larger farms (Table 17). Indeed, the unexpected degree of expansion of cotton planting on these small farms suggests a much greater potential than was thought for increasing small-farmer incomes through expanding cultivated area (see paras. 6.04 - 6.06).

B. Adoption of Animal Traction

3.01 Inaddition to the projected increase in new cotton hectareage, the only other physical objective of the credit component was the number of traction animals to be financed. At appraisal, the substitution of animal power for manual labor in weeding was considered to be one of the

project's key productivity-increasing features. Animal traction would improve yields as a result of timely weeding, would increase labor productivity, and would allow an expansion of area under cultivation as a result of reduced labor requirements at peak periods. The return to the adoption of animal traction was estimated at 35%.

3.02 The project was to finance the purchase of 2,750 traction animals--1,100 during the first three years of Phase I. The number of traction animals actually financed during the first two investment-credit cycles was about half that number, or 563. (Table 2.1) This shortfall was consistent with the slow start of the project, and is even slightly less than proportionate to the shortfall in the number of farmers receiving credit. Disaggregated by year, however, the traction-animal purchases seemed on the decline; the total number of purchases and purchasers declined absolutely between 1976 and 1977. (Reasons for this decline are discussed in para. 3.05.)

3.03 At appraisal, traction-animal purchases were expected to be made only by farms with less than 50 hectares and without previous credit experience. Small farmers with previous credit experience were assumed to already have traction animals; those over 50 hectares were assumed to be already using animal traction, or to have a large enough stock of work animals to initiate traction with the purchase of a cultivator. For traction-animal credit to have achieved its productivity-increasing impact, then, one would have expected most of the purchases to have been made by small farmers with no previous credit experience--i.e., those without traction animals.

3.04 In the Serrana region, a majority of farmers purchasing traction animals in 1977 were in the under-50-hectare category--75% in 1976 and 85% in 1977 (Table 23). In the Seridó, the majority was smaller--66% in 1976 and 55% in 1977 (Table 22). The large minority of farms over 50 hectares among the purchasers of traction animals was in contrast to project objectives, which foresaw such purchases only for farms less than 50 hectares. Moreover, the share of farms over 200 hectares in the number of traction animals purchased went as high as 26% in 1976 in the Seridó, and 12% in the Serrana in 1977. Also in contrast to project objectives, the traction-animal purchases were not concentrated among farmers without previous credit experience. In a sample of 50% of all project farmers, 11% had no previous credit experience and only 13% of those who bought traction animals had no credit experience. (Table 27) Either the majority of traction-animal purchases, then, were not made by the type of farmer envisioned at appraisal--or the use of animal traction in the project area among previous credit users and larger farmers was much less than was assumed.

3.05 A sample of the traction-animal borrowers suggests, at first glance, that animal traction was hardly in use among project borrowers --in contrast to the assumption of 50% usage at appraisal. Of the farmers who purchased traction animals, that is, 90% had no service animals before the project (Table 25). Of all sample farmers with any kind of project credit, moreover, a high of 94% were shown to have had no service animals in the year previous to obtaining the credit. This conflicts sharply with the appraisal estimate of an average of 50% of target-group

farms using animal traction and of at least one service animal on all farms, whether or not it was used for traction. The only explanation reconciling the two facts is that the traction-animal purchases were a replacement of previously sold animals. The credit evaluation of the Project Unit actually suggests this explanation. Many of the traction animals, that is, were said to be purchased by farmers who already used animal traction but had sold their animals before participating in the project--partly because of drought conditions in 1975. This would explain the relative and absolute decline in traction-animal purchases, noted above, from 1976 to 1977.

3.06 A look at the data on all livestock of traction-animal purchasers also suggests that the previous-sale explanation may indeed be the case. If one counts the stock of all large animals (beef, dairy and service) on sample farms before the project, one finds that only 31% of the farmers buying traction animals with project credit had no large animals of any kind; 33% had 1-10 animals, another 32% had 11-40 animals, and 3% had more than 40 animals. (Table 26) (Most of these animals were beef cattle.) In that most farmers who could afford beef cattle also had traction animals, it can be assumed that only 31% of the traction-animal purchasers were buying traction animals for the first time. The evidence seems to suggest, then, that only a small part of the productivity increases expected to result from the adoption of animal traction occurred, because the majority of traction-animal purchasers were already using such traction.

C. Beef and Dairy Cattle

4.01 With the exception of traction animals, the project did not include a livestock component, though acquisition of dairy and beef animals was not proscribed. Purchases of dairy and beef cattle played a modest role in the project's investment credit--accounting for 13% in 1976 and 17% in 1977 (Table 4). For all livestock (including service animals), the share in investment credit was 19% for 1976 and 22% for 1977. This is below the average of 35% for banks in the project area in 1975 and 26% in 1976--though the 1977 project livestock percentage of 22% is higher than the 15% average for BNB branches in the project area that year.[1/] (Table 24)

4.02 Cattle purchases with project credit were more concentrated in the Serrana region, and show a 39% increase between 1976 and 1977--from 18% of investment credit in 1976 to 25% in 1977. When traction-animal purchases are included, this latter percentage reaches 30%--the same percentage for animal acquisitions in total investment credit of the BB branch in Umarizal in 1976, and double the livestock percentage of the BNB branches serving the Serrana region in 1977. The increased importance of livestock in 1977 in the Serrana went along with an increased concentration of this credit on larger properties. In 1976, farms with less than 50 hectares accounted for 41% of livestock purchases. In 1977, however, these small farms represented

1/ This 1977 average of 15% represents BNB branches only. BB data were not available for 1977. BNB livestock credit shares are normally higher than those of the BB; in 1975, they averaged 47% as opposed to 25% for BB.

only 22% of the farms purchasing livestock.[1] (Table 23) Even on these smaller farms in the Serrana, there was some tendency to concentration of cattle purchases. In 1976, the average purchase of fattening steers on small farms was five per farmer (Table 23). In 1977, the average purchase of heifers by small farms was eleven per farm; of cows, six; and of fattening steers, five.[2] Purchases were considerably smaller on small farms in the Seridó, averaging one-to-two animals per small farm in 1976 and 1977. The exception was the purchase of 40 steers by two small farmers in 1976. (Table 22)

4.03 The majority of farmers who purchased cattle under the project already had animals on their farms--as was the case with those who purchased traction animals. Of a sample of 56 project borrowers who purchased beef cattle, 57% already had more than 11 animals (beef, dairy or service) prior to taking project credit; another 21% of these purchasers had 1-10 animals and 21% had no animals. (Table 28) Similarly, of a sample of 32 farmers who bought milk animals with project credit, 41%

1/ The largest number of animals purchased by a single borrower in the Serrana was 92 heifers in 1977 by a farm over 200 hectares in Umarizal. Following that was a purchase of 40 cows in 1976 by a farm over 200 hectares (Antônio Martíns); the purchase of 41 cows by two farms between 50-200 hectares in 1977; and the purchase of 464 heifers by 27 farms between 50-200 hectares in 1977 (mainly by the cooperative of Alexandria). These purchases for 1977 total 38% of all cattle purchases financed by the project in the Serrana in 1977.

2/ Given the low stocking ratios of the project area, it is difficult to understand how this number of animals could have been grazed on farms less than 50 hectares--especially since most farmers purchasing livestock under the project already had animals. It may be that the animals were pastured on other properties of the borrowers, in which case they would not be in the small-farmer category.

already had 11 or more animals (mostly beef cattle) previous to taking project credit. (Table 29) Thus less than a quarter of the farmers reached with the livestock credit of the project had not owned animals beforehand. In that livestock in general was not a project component, of course, the reaching of non-cattle owners was not a project objective. But since cattle are a highly complementary component of the cotton complex in the project area, the introduction of a few animals on small cotton farms without animals would represent a considerable increase in the economic efficiency of the cotton-producing system.

4.04 Livestock acquisitions financed by the project, in sum, did not seem to get out of hand--with the exception of the direction taken by cattle purchases in the Serrana in 1977. Since investment-credit programs in Brazil have a tendency to become dominated by livestock investments, as was the case with PROTERRA, this increasing tendency in the Serrana region should be of some concern. In that the second phase of the project will specifically include livestock purchases, and in that there was considerable interest among project and extension technicians in expanding livestock credit, this component of project credit should be carefully watched in the second phase.

D. The Target Group: Size of Farms and Loans

5.01 The target group for Phase I was meant to be small and medium farm owners--less than 50 hectares for the former, and between 50 and 200 hectares for the latter. Of the farmers taking project credit, 78% were expected to be in the small category. The value of project credit was expected to be divided equally between the small and medium groups.

In that the Bank placed first priority on the small farmers, it agreed to disburse only against small loans--less than 25 MVR for seasonal credit and less than 50 MVR for total credit outstanding to any individual (which effectively limited investment credits to no more than 50 MVR).

5.02 Unlike many credit projects, the small farm category was well represented in Phase I--though somewhat less than expected. Small farmers accounted for 70% of the loans in the four credit cycles of Phase I, as compared to the 78% expected (Table 9). The Serrana region did much better than the Seridó, the latter showing a much smaller proportion of small farmers than was expected. Small farmers in the Seridó accounted for only an average of 57% of total loans in comparison to the 78% expected, while in the Serrana they accounted for 75%.[1/] Less credit value also went to small farms in the project area than was expected at appraisal --about 38%, in comparison to the 50% expected. (Table 9) The shortfall in value was proportionately greater than that in the number of small farmers.

5.03 In the 1973-1976 period, the share of small loans in total Bank-of-Brazil loans in the project area was about the same as that achieved by the project. Loans less than 50 MVR accounted for between

1/ The share of small farms in the total number of farms of each region does not seem to differ that much. The IBGE censuse shows the proportion of small farms in each region to be roughly the same (79% for the Seridó and 81% for the Serrana). According to INCRA, the respective percentages are 80% and 73%. The SUDENE/IBRD survey does show a higher share of small farms in the Serrana (72% vs. 65% in the Seridó), though the difference in the land distribution between the two regions in this case is not as great as that of the credit distribution. The Seridó-Serrana difference is discussed further in paras. 7.01 - 7.05.

80% and 89% of BB loans, and about 90% of project loans (Table 12).[1] In contrast to the number of loans, project credit did considerably better than BB lending with respect to loan value. Whereas loans less than 50 MVR accounted for only 18%-27% of BB loan value during the 1973-1976 period, such loans accounted for 53%-61% of project loan value--more than double the BB proportion. This marked difference is a result of the emphasis on investment credit for project farms, and the new credit regulations exempting such credit from property guarantees. The BB's small loans, in contrast, are mostly for seasonal credit.

The Relation between Loan Size and Farm Size

5.04 The investment credits qualifying for Bank reimbursement (less than 50 MVR) represented 53% of the value of investment credit in 1976 and 61% in 1977.[2] (Table 8) These values corresponded to 89% of the number of loans in both years. The seasonal credits qualifying for Bank reimbursement (less than 25 MVR) accounted for 42% of seasonal credit in 1977 and 33% in 1978. These values corresponded to 84% of the number

1/ The comparison to BB lending must be made with loan-size rather than property-size data, since the BB does not tabulate its credit data by property size. Loan-size distribution data were not available from the BNB. The difference between project and BB small-loan shares is actually somewhat greater than appears, since the BB's loan-size intervals are measured in highest minimum salaries rather than MVRs. The highest salary has averaged a few percentage points higher than the MVR since the latter was established in 1975. The decline in the BB's proportion of small loans over the 1973-1976 period is to a certain extent a result of the lag of the minimum-salary adjustments behind the rate of inflation.

2/ The Bank limit of 50 MVR, it should be noted, applied to outstanding debt rather than to loan size. Project data allowed only for computation of individual loan sizes and not of outstanding debt. The 50 MVR loan-size data, then, overstates to some extent the number of loans falling within the category for reimbursement by the Bank.

of loans in 1977 and 72% in 1978. The Bank expected at appraisal that these ceilings would more or less limit its reimbursements to small borrowers. The Simple Investment Plan I, for investments up to 50 MVR, was designed with this 50-hectare maximum property size in mind; the Simple Plan II, from 50-200 MVR, was meant for the 50-200 hectare farms. The new Central Bank regulations on simplified credit, moreover, contributed to this dividing point by allowing the waiving of property guarantees on investment loans less than 50 MVR.

5.05 The correlation between 50 MVRs and 50 hectares turned out to be only half true, holding for small properties but not for the large ones. Of the investment loans to small farms, that is, 89% were less than 50 MVR (Table 5). They were even well within that limit, in fact, 61% of these small-farm investment loans being no greater than 25 MVR. Farms over 50 hectares, however, turned out to account for 29% of the number of loans less than 50 MVR. Of the project's investment loans to over-50-hectare farms, 73% were less than 50 MVR (and 30% were even less than 25 MVR). Even properties over 200 hectares were represented among the small loans; they accounted for 8% of the investment loans between 25 and 50 MVR. Of the loans to over-200-hectare properties, 51% were less than 50 MVR. The record on seasonal credit shows similar trends, though the participation of large farms in small seasonal loans is not as marked. Of the loans to small farms, 90% fell within the Bank limit of 25 MVR (Table 10). Farms over 50 hectares accounted for 18% of these small loans. Almost a quarter of all the loans against which the Bank disbursed, in

sum, were for properties over 50 hectares.

5.06 These results suggest that the common practice of citing small loans as a proxy for loans to small farmers--as used for some time by the Bank of Brazil--does not provide an accurate picture of such lending, overestimating the number of loans to small farmers. The large percentage of small loans to the medium and large farms, moreover, may attest to credit saturation on these farms, since a large majority were already bank clients. The small loans to these large farms may also mean that the credit did not have much impact on productivity. Finally, the loan-size distribution results suggest that the 50-MVR limit on investment was not too restrictive for properties less than 50 hectares --as is sometimes claimed by project technicians--because the majority of investment loans did not even exceed 25 MVR on these properties. The 25-MVR limit on seasonal credit, in contrast, seemed to represent some constraint, since 17% of the small farms took seasonal loans greater than 25 MVR.

Large Farms and Large Loans

5.07 Contrary to expectations at appraisal, a certain amount of project credit went to farms over 200 hectares. Though the appraisal report and loan agreements contained no proscriptions against lending to such large farmers, the target group was spelled out as encompassing only small and medium farmers with no more than 200 hectares. In the project area as a whole, credit going to farms over 200 hectares accounted for an average of 25% of the value of project credit, and

7% of the number of loans (Table II). The large farms were more pronounced in the Seridó, where 50% of investment credit in 1976 went to farms over 200 hectares; that percentage was almost halved to 27% in 1977. In 1977, 42% of seasonal credit went to these over-200-hectare farms in the Seridó; the percentage fell somewhat to 39% in 1977.

5.08 The situation was the same, though not as marked, for credits over 200 MVR--also considered outside the range of the project at appraisal. Eight investment loans over 200 MVR accounted for 19% of total loan value in 1976, five investment loans for 8% in 1977, and two seasonal loans for 6% in 1978 (Table II). As in the case of loans by property size, the Seridó percentages were roughly double those of the Serrana.[1/]

5.09 Some in the Project Unit and EMATER did not feel that the "slippage" into large properties and large loans was out of hand. Given the freezing of other lines of investment credit noted in para. 6.10, they felt that it was difficult to resist the pressures of influential borrowers to gain access to this credit. In their minds, the lack of a

1/ In 1978, POLONORDESTE credit regulations were changed to limit total indebtedness of any individual borrower to 200 MVR--including credit outstanding from non-POLONORDESTE lines of credit. Before that change, POLONORDESTE credits could be as high as 1,500 MVR, though the Bank of Brazil had imposed its own limit of 100 MVR for PN credits in 1977, which it subsequently raised to 200 MVR with the general PN change in 1978. The new POLONORDESTE limit of 200 MVR would be too recent to have applied to project credits; the BB regulations, however, were in force during at least a part of the project.

hard-and-fast limitation against larger propertyowners--which would have taken the responsibility out of their hands and protected them from the pressures of such farmers--was not the whole problem. Even with the protection of such an arbitrary limitation, some felt, they would not be protected at the community level from the difficulties that would be created for their work by turned-down large farmers. The best protection for them, they felt, would be the availability of an alternative line of credit for large farmers, with terms as attractive as that of POLONORDESTE and in equally abundant supply.

Small-farmer Access to Credit

5.10 It was pointed out at appraisal that a very low percent of small and medium farms had access to institutional credit--9% of the farms less than 50 hectares and 17% of those over 50 hectares. Though the project was successful in concentrating more loan value in the smaller loan sizes than had previously been the case for BB credit, it did not seem to be able to change the low share of small farms in the project area who received institutional credit. Whereas 9% were said to receive institutional credit at appraisal, the project reached only 8% (Table 7).[1/]

1/ The data on the number of farms is taken from the 1972 INCRA census and is uncorrected for growth in the intervening years. Thus the share of small farmers is likely to be even lower.

5.11 The project was also not able to reverse, even within its own credit distribution, the traditional better access of the larger farmers. The share of medium farmers in the project area who received project credit, that is, was almost double the share of small farmers receiving this credit (15%). The share of large farmers receiving project credit, moreover, was also double that of the small farmers (14%)--even though the large farmers were not meant to be beneficiaries of the project. Interestingly, project credit did better at reaching farmers in the Serrana than in the Seridó even though the latter region is more served by banks, extension and transport infrastructure. Of farms less than 50 hectares, 6% received credit in the Seridó and 10% in the Serrana (Table 7). Of the medium and large farms, 16% and 13% received credit in the Seridó, and 15% and 22% in the Serrana.1/

5.12 The proportionate shares of the different farm-size classes in project credit, in sum, were very similar to the access of these classes to credit before the project. These results suggest that even when a project devotes a large share of its credit resources to small farmers, much more exclusive concentration on this group will be required if there is to be any significant departure from the traditional shares of institutional credit held by larger farmers.

1/ The high percent of large farms obtaining project credit in the Serrana is attributable mainly to the investment-credit cycle of 1977, when 31% of large farms in the region received project credit. See note c of Table 7.

E. The Target Group: New Borrowers

6.01 One of the important goals of the project was to create access to institutional credit for those without it. Only a small minority of target-group farmers was estimated to have access--9% of the small farmers and 17% of the medium farmers. The lack of credit was considered to be a constraint upon the full utilization of cultivable area, and hence on income. Lack of credit was also said to limit the adoption of productivity-increasing techniques such as animal traction and the use of pesticides. Project farmers with no previous bank credit were estimated to cultivate a smaller share of their property than those with credit--an estimate borne out by field data collected for the evaluation (see para. 6.04). Thus the average farmer without previous credit was expected to expand the area planted in cotton by 77%, while the farmer with previous credit was expected to expand by only 25%. Project credit, then, was to be focused mainly on those without previous access--as reflected in the assumption at appraisal that 81% of the project's sub-borrowers would be using bank credit for the first time.

6.02 The project fell far short of its mark for new borrowers. The best it did was the 36% new borrowers of the first investment-credit cycle of 1976, which was halved to 18% during the second investment-credit cycle of 1977 (Table 18). Seasonal credit showed an even poorer record, with only 12% new borrowers in 1977 and 10% in 1978. One would expect some decrease through time in the share of new borrowers, as a result of repeat loans to new borrowers in later years. The low share of new borrowers in the first year, however, gave little room for expanding the reach of the project. Thus by the

last credit cycle of 1978, only 47 new borrowers were reached by the project.

6.03 The new borrowers were more than proportionately concentrated among the smallest farms within the under-50-hectare group (Table 19). Whereas farms less than 20 hectares accounted for 25% of all the borrowers in a sample of half the borrowers in the Seridó, these smallest farms accounted for almost double this share of new borrowers (49%). This may mean that the project will have to adapt its technical pitch to these particularly small farms if it is to reach those with no previous access to institutional credit.

The Impact of Credit on Production

6.04 The sample data confirm the hypothesis that those without credit cultivate a smaller proportion of their land than those with credit. The same sample of farms in the Seridó showed that whereas 45% of all project borrowers cultivated no more than 20% of their land, this percentage for new borrowers was 60% (Table 19).[1/] The sample also showed that new borrowers increased the area planted to cotton much more than did old ones (Table 20). Whereas only 16% of old borrowers increased their cotton plantings by more than 100%, that percentage was tripled for new borrowers (46%).

1/ The sample size of new borrowers for the Serrana region was somewhat small (18). Cultivated shares for all borrowers in the Serrana, however, were considerably higher than in the Seridó, reflecting the better soils and rainfall of the former region (Tables 14-15). Despite these different conditions, the same distinction between cultivated shares of old and new borrowers was found in the Serrana sample. Whereas 40% of all borrowers in the Serrana cultivated no more than 40% of their property, the percentage for new borrowers was 61%.

6.05 The findings on new borrowers represent some confirmation of the hypothesis that the lack of credit does represent a constraint to the expansion of area cultivated and to increased income on small farms. In that the new borrowers had a smaller proportion of their property cultivated, tended to increase their planted area more and had the smallest farms--means that a significant opportunity to increase target-group incomes was largely bypassed by the project.

6.06 The findings on new borrowers suggest that there is more opportunity for increasing income through expansion of cultivation on existing smallholdings than has been assumed. Many analyses of Northeast agriculture assume that cultivable shares of landholdings are low; in discussions with the Project Unit, a 25% cultivable share was frequently cited. For small farms, moreover, it is correspondingly assumed that cultivation has already reached its limits--as was stated in the appraisal report. These assumptions limit the proposed solutions to (1) productivity-increasing improvements that do not require additional land, (2) getting people off the land, and (3) giving people more land through agrarian reform or land credit. The possibility of expanding production on existing small properties is thus excluded from consideration. Yet the data from the project show that not only was there considerable room for expansion on existing holdings--especially those of non-credit users--but that cultivable shares of small farms could be quite high (see Tables 14 and 15). This means that the project does not need to rely mainly on productivity increases to have an impact on

small farmers.

The Bias towards Old Borrowers

6.07 The project ended up with so many more old borrowers than had been expected for various reasons. Most important, the Project Unit and EMATER did not consider new borrowers an important goal of the project. The project's objective, they felt, was to achieve income increases through improvements in agricultural productivity--and this could be done by new and old borrowers alike. Some felt that old borrowers were often preferable, because they were "more developed" and hence receptive to changing their production techniques.

6.08 The evaluation revealed that the productivity improvements expected on project farms occurred to a much lesser extent than was expected, a not infrquent outcome in such projects. Either the "modern inputs" were not available in the area and not delivered by the state-supply company as planned, or the effects on productivity of the new practices recommended by extension turned out to be ambiguous. Research had not been able to show, for example, that the modified spacing of cotton plants--one of the key recommendations of the extension package--had had any marked impact on yield. Similarly, research had not been able to show any significant increase in cotton yield resulting from pruning or from the application of chemical or organic fertilizer, though these practices were also a part ot the package recommended by

extension.[1/] Thus the possibilities for increasing the incomes of the target group through productivity-increasing practices were more limited than was assumed, casting doubt on the justification for lending to old borrowers. In that the clearly productivity-increasing practices of animal traction, pesticides and early planting were dependent on access to credit, moreover, credit to new rather than old borrowers was much more likely to maximize the adoption of these particular practices.

6.09 Also favoring old borrowers was the fact that the banks preferred sending their old clients to the project because, they said, this took a considerable amount of work off their hands. A loan proposal prepared by the project, it was said, could be evaluated and approved in ten minutes, if that long; the only other time required was for typing the loan contract. With respect to small loans, then, the interest of bank managers was to substitute project credit for normal credit among existing clients.

1/ Organic fertilizer, in contrast, is said to have very high impact on the yields of crops planted in the beds of subsiding rivers. When one project borrower told the extension agent that he used corral manure to fertilize his riverbed crops but not his cotton, the agent told him he was wrong and should do precisely the contrary.

The recommendations that were agreed to cause a significant increase in yield were early planting and the use of insecticide. (There was no data on the extent to which these practices had been adopted by project farmers or the extent to which yields had increased after their adoption.)

6.10 Perhaps more important in sending old borrowers to project credit was the curtailment of most investment credit by the Central Bank in early 1977, affecting both regular credit and the PROTERRA line. The latter had accounted for the major part of rural investment credit in the project area during the 1973-1976 period, reaching a high of 60% in 1975 and 1976. When old clients seeking additional investment loans found the PROTERRA and regular credit lines closed, the bank managers suggested that they avail themselves of the only other alternative, project credit. Even when some investment credit was available from the banks' own resources, as in the case of the BB, the managers recommended project credit to their old clients because of the more desirable interest rate (10% vs. 13%-15%). As long as the non-project investment credit lines are not re-opened and interest rates on alternative sources of investment credit remain higher, the problem of old clients and their pressure to participate in project credit will remain a serious one for the project.

6.11 To a certain extent, it was also in the extension agent's interest to work with old borrowers rather than new ones. One of the time-consuming credit tasks of the extension agent is the preparation of the "ficha cadastral," the document relating to the legal status of the borrower's landholding. Once the "ficha cadastral" is prepared, it serves for all subsequent loans; extension does not need to do this work for old borrowers. Since the amount of time spent on credit work is a frequent complaint of the extension agents, it is understandable

that a client requiring much less paperwork be more desirable.

New Borrowers and Land Documents

6.12 A significant impediment to the entry of new borrowers into the project, according to extension, is the branch bank's requirement of notarized documents attesting to landownership. Many landowners in the project area, particularly small ones, do not have such documents. Most of these farmers are squatters on state-owned lands or acquired their land through inheritance, at which time a larger property was subdivided among surviving children. Even if the larger property had been titled, the subsequent subdivisions were usually not. This is partly because of the expense of obtaining such title, and the fact that many subdivisions fall below the one-module minimum (about 45 hectares in the project area) required by INCRA on land transactions.

6.13 The regulations of the Bank of Brazil for POLONORDESTE credit allow for some relief from this problem. Carta Circular No. 2,602 of 18 October 1977 allowed branch managers to waive the presentation of notarized land documents in the case of less-than-50-MVR investment credits (Section 4.i.I); the bank would simply take note of the type of title of the applicant (legal purchase receipt, inheritance, etc.) For seasonal credits, the presentation of any type of land document was waived for farmers working public lands or lands acquired through inheritance (Section 4.i.III)--as long as the applicant's right to work that land is verified informally by the extension agent in the community. BB managers were not applying the waiver, however, which is

not mandatory; extension agents and the Project Unit, in turn, did not know that the waiver existed. (The BNB regulations do not allow for such a waiver, requiring the presentation of a notarized land document for all investment and seasonal credit.)

6.14 The banks' requirements of notarized land documents cancels out some of the benefit resulting from the exemption from mortgage guarantees of POLONORDESTE investment credits less than 50 MVR. The small farmer is not able to offer land as mortgage for an investment loan, in many cases, precisely because he is without a notarized document of land possession. In addition to the land documentation, moreover, some bank branches were requiring new borrowers to provide a third-party guarantor. For many small farmers without previous credit access the guarantor was virtually impossible to obtain. The various impediments to the broadening of credit to new borrowers, then, would have to be explicitly dealt with in the second phase of the project, if the objective of opening up credit access were not to continue unmet.

CAP and New Borrowers

6.15 The advance-purchase component of the project (CAP), which was not envisioned at appraisal, was much more successful in reaching new borrowers than was the credit program itself. This was achieved simply by prohibiting the participation of farmers who already had access to institutional credit, either directly from a bank or through membership in a cooperative.[1/] Among the target group itself, moreover,

1/ That this exclusion was being strictly enforced was evidenced by the fact that several small farmers who were inactive members of the cooperatives complained vigorously about their not being able to participate in CAP.

CAP seemed to be more associated with the project than was project credit. Several small propertyowners and sharecroppers in the Serrana region, when asked whether they had heard of the RURALNORTE project, assumed we were referring to CAP. When they said that RURALNORTE was "doing good things for small farmers" and we asked them to specify, they responded "CAP."

6.16 With the CAP proscription against old borrowers, then, CAP had no problem reaching all-new borrowers from the start. Thus CAP succeeded much more in reaching the Bank's target group than did project credit. The extension agents who organized farmers for the CAP program, moreover, were the same as those who worked with the bank credit. Thus the low proportion of new borrowers in the bank-credit program was not for lack of contact by extension agents with such farmers. Given the various pressures to lend project credit to old rather than new borrowers and the resulting tendency for project credit to substitute for previous credit, the CAP-type exclusion of old borrowers might be copied by the bank-credit program.

F. The Target Group: Serrana vs. Seridó

7.01 In various ways, the project seemed to come closer to the target group in the Serrana region than in the Seridó. The proportion of loans going to properties less than 50 hectares was considerably greater in the Serrana for both the number and value of loans

(Table 9).[1] This was especially true in the last credit cycle (seasonal credit of 1978), when 80% of the number of loans in the Serrana went to small farms, as opposed to 54% in the Seridó; 57% of the value of this 1978 credit went to small farms in the Serrana, while the share for the Seridó was less than half that (24%).[2] Following the same tendency, the proportion of loans going to large farms outside the target group (greater than 200 hectares) was considerably greater for the Seridó than for the Serrana. (Livestock purchases, however, tended to be more concentrated in the Serrana than in the Seridó, as discussed in para. 4.02.) The Serrana extensionists also did better than the Seridó in reaching sharecroppers through the CAP program. There was a substantial minority of sharecroppers among the CAP participants in the Serrana but none in the Seridó. Finally, extension in the Serrana was more productive in placing loans than in the Seridó; in 1977, the average number of loans per extension agent was 34 in the Serrana and 22 in the Seridó. (Table 3)

1/ The Serrana is said to have a higher proportion of smaller farms than the Seridó, see note to para. 5.02.

What may be more significant for the differing results between the two regions is the proportion of large farms in the total. For the Serrana, farms over 200 hectares are 4% of the total number of farms; in the Seridó, the share of the large farms is double that (7%).

2/ Along with the higher percentage of small properties in the Serrana, one would have expected a higher share of new clients, which was not the case. The share of new clients was always somewhat higher in the Seridó, except for the last credit cycle (seasonal credit of 1978) when the new-borrower share in the Serrana was double that of the Seridó (13% vs. 6%).

7.02 The Serrana region has somewhat better soils and rainfall than the Seridó and at the same time is less developed. It is further inland than the Seridó, and less served with physical and institutional infrastructure. The Seridó has seven cotton gins to the Serrana's two, and extension services and bank credit are more available there. Until the first year of the project, there were no BB or BNB bank branches in the seven project municipios of the Serrana region.

7.03 The more homogeneous landholding structure of the Serrana, in combination with its less established institutions, may have made it easier for extension to reach a target group that it was not accustomed to working with. In the Serrana, extension was breaking completely new territory to a much greater extent than in the Seridó, where it was already working and finding it necessary to break with an already established clientele. That project results differed between the two regions in this way is not an unusual outcome; similar variations have been found in other Northeast projects. The more developed areas--usually nearer to the coast and showing higher concentrations of wealth --have a more difficult time reaching the small farmer than the less developed, more homogeneously poor areas.

7.04 The Serrana also shows the potential for achieving a higher percentage of cultivated land than the Seridó, at least on small farms. This greater potential may have contributed to the greater facility with which the project reached the target group in the Serrana. A sample of small project farms (less than 50 hectares) showed that, in the Seridó,

only 33% cultivated more than 50% of their land, whereas that proportion was 56% for the Serrana (Tables 14 and 15). Of the sample farms less than ten hectares, 45% in the Seridó cultivated more than 50% of their land as opposed to 77% in the Serrana. These data reflect the lower proportion of arable land that is said to exist in the Seridó, though they also may represent more difficult access of small farmers to credit and capital in the Seridó.

7.05 The possibilities for having a significant impact on the target group through increases in planted area, in sum, seem to be considerably greater in the Serrana than in the Seridó. For the second phase of the project, therefore, resources should be concentrated more than proportionately in sub-areas like the Serrana, with greater physical and institutional opportunities for reaching the target group.

G. The Costs of Project Credit

8.01 The project has reduced the costs of borrowing to farmers, though the data is not complete enough to estimate the magnitude of the reduction.[1/] The Central Bank regulations for POLONORDESTE credit are one of the main sources of cost reduction, in that they allow simplified credit procedures to be followed for loans less than 50 MVR. To farmers, the cost reduction of these procedures results from the dispensation with

1/ The data were collected mainly from extension offices, rather than by directly consulting borrowers as well. Though the data show the number of visits made by borrowers to the banks, they do not indicate the number of addtional visits that needed to be made to the extension office. Similarly, waiting time at the extension office was not estimated, though farmers usually make their visits to extension on market days, when lines are quite long.

certain notarized documents, from the reduction in time required by the bank to process the loan application, and from the reduction in the number of visits to the bank. The Project Unit estimates that a new client, taking a project loan for less than 50 MVR, would have to wait for seven to nine days, from the time extension starts to work on the credit proposal to the time that the new proposal is signed. For new clients taking credit directly from the bank, in contrast, the normal delay is estimated to be more than double--from 19 to 24 days. (For new borrowers taking loans directly from banks outside their municipio, waiting time was estimated at 23 to 31 days.) Interestingly, the longest delay (23-35) days was for credit contacts drawn up by extension agents for new clients under programs outside POLONORDESTE, like PROTERRA. The reduced time taken by the small POLONORDESTE loans is attributable to the simplicity of the credit plan drawn up by the extension agent for small loans, and the reduced requirements for documentation and analysis by the banks.

Costs to the Supplier

8.02 Upon observing how project credit works in the field, one would think that it would cost much more to supply farmers with credit this way than directly from the bank. Data gathered during the mission was not sufficient to obtain a comparison of the costs to the public sector of providing credit through extension rather than directly from banks--not to mention the conceptual difficulty of comparing such different types of programs.

8.03 The higher cost of supplying credit to farmers through extension rather than directly from banks is usually justified on the grounds that the technical assistance of extension results in increases in income and productivity. Whether such increases have occurred, or are significant enough to justify the increased costs, is a question raised by the experience with this project as well as many others like it.[1/] Even if this justification turned out to be true, it would still need to be shown that credit-cum-technical-assistance is more efficiently supplied by extension than by the banks, as does the Bank of the Northeast. (EMATER says the BNB's extension services are minimal and the BNB says the same of EMATER).

8.04 Complicating the cost justification of credit via extension is the fact that there is an inherent contradiction between the extension approach to credit and one of the main objectives of the project, which is to maximize the impact on the rural poor. The extension approach to credit is by nature a limited one in terms of impact; extension wants to work with the same group of farmers for a period of years, in order to bring them up to productive par. This makes it more difficult for them to bring in new borrowers during the successive years of the project--as was seen in the discussion of new clients above (paras. 6.01-6.16). Yet the reason for giving credit such a key role in the project is because the

1/ The Project Unit has no records on the extent to which new practices were adopted nor on yield and income increases among project borrowers.

lack of it is considered a constraint on the ability of small farmers to increase agricultural production and productivity. Extension does not consider the access-to-credit objective of major importance, because they look at credit as an instrument by which they can induce farmers to adopt certain practices. Without being able to demonstrate a significant change in access to rural credit, however, extension must justify its higher-cost approach to credit completely on productivity-increasing grounds. The latter has not been demonstrated, at least for this project.

8.05 The experience with this project and others suggests that the higher-cost extension approach to credit may be justified on grounds other than the productivity-increasing argument. That is, the extension component of POLONORDESTE projects represents the only public-sector institution in the countryside that works with small farmers at the farm level. Working together with small farmers on a daily basis makes it important for the execution of the extensionist's job that he do everything in his power to get that farmer supplied with what he needs to make his agriculture work well--mainly, access to inputs and credit. Since rural poverty is characterized by a structural inequality of access to these agricultural inputs, the role of the extensionist in opening up such access is an important one. No matter how plentiful the branches of a bank may be in the countryside, the banker's work will not be as dependent as is that of the extensionist on the access attained by the small farmer to inputs and services. The extensionist, in short,

becomes a public-sector intermediary or advocate for the small farmer. It was in this capacity that extension made a considerable contribution in the first phase of the project--doing what it could to make good seeds and other inputs available to its small-farmer clients, helping small farmers to overcome obstacles to obtaining bank credit, prodding laggard state agencies to come through with services to small farmers, pressuring the Project Unit to change procedures that would allow a better meeting of small-farmer needs.

8.06 Extensionists do not like this characterization of their major contribution. It gives only second priority to the value of the extensionist as a knower of things about agriculture, and as a conveyer of these things to the farmer. The evaluation showed, however, that what was being conveyed was not always that relevant to any given farm. It may be, then, that extension sets itself up to do something it will never be able to do well; at the same time, it is not fully exploiting the opportunity to do well something slightly different. If the contribution of the extensionist as advocate or intermediary were recognized as such, that is, then project design could be modified so as to maximize that contribution. Training in agriculture, for example, would not be as important for playing this intermediary role. The potential effectiveness of persons without agricultural training can already be observed in the work of the social extensionists of theproject. They often displayed more understanding than the agricultural extensionists of the small-farmer condition and more vigor in attempting to overcome the difficulties of

getting services to them.[1]

8.07 More work needs to be done on comparing the costs of credit through extension and directly from the banks. If the costs through extension are significantly higher, as one would assume, then it needs to be demonstrated (1) that significant productivity increases are resulting from this approach and/or (2) that small-farmer access to credit and other inputs is being significantly increased. If it is true that the latter impact is greater, then the design of the extension component should be modified so as to maximize this impact.

Cooperatives and Costs

8.08 It is often said that the best way to reach many small farmers at reasonable costs is through the creation of cooperatives, or the rejuvenation of existing ones. The Project Unit, the banks and extension would like to follow this approach. Experience with cooperative-supplied services in the project area (mainly, cotton purchasing/ginning and credit repasse) suggests that even if coops lower costs to the credit-wholesaling institution, this is often being accomplished at a higher cost to the final user--the small farmer. Cooperatives in the project area, for example, were not able to buy cotton from small farmers at prices competitive with those offered by the

1/ In one municipio, the arrival of the agricultural extensionist assigned to the two-person local extension office was delayed for several weeks. This period of delay coincided with the time during which credit proposals were being taken for the first round of the advance-purchase program (CAP). The social extensionist, though not having participated in the training for CAP, enthusiastically promoted the program among the sharecroppers in her area and prepared and processed several CAP contracts.

traditional farm-gate intermediary. Thus though cooperatives may promise economies of scale in distributing small-farmer marketing credit and in purchasing cotton, these economies may be reaped only by the institution supplying the cooperative, and not by the final user. The "cooperative solution," then can end up saving money for the public sector at the cost of the target group.

8.09 Cooperatives often end up charging and paying uncompetitive prices to their members partly because they become monopolies in the local areas they supply. This happens when they are set up and protected by banks and other public-sector agencies, precisely because there were no private-sector suppliers in a particular locality and public-sector supply of the target group was considered too costly. After a time the patronage of these coops by their public-sector creators with subsidized credit and other services helps them become powerful institutions within their limited areas. This makes it even more unlikely that private or public-sector suppliers can make a successful entry into the area, introducing some competition into price-setting. The locally powerful cooperative will have the strength to successfully oppose such moves. Thus the "monopoly" coops, bounded neither by the public-service controls of public-sector institutions nor by the competition of private suppliers, can end up being the most costly way for the target group to acquire services.

8.10 The two cotton coops in the Serrana region illustrate the monopoly position that is often acquired by protected coops in isolated

regions. Both buy and gin cotton, repass bank credit, and sell inputs. From these coops came a strong reaction against the advance-purchase program (CAP), though one might have expected this kind of reaction from landlords with sharecroppers. The coops reacted because CAP was breaking their monopoly position, in effect, by offering credit and cotton-purchase facilities to sharecroppers and small farmers. Similarly, the CAP input-supply store set up in the same town as one of the coops during the first phase of the project (Alexandria) drew strong criticism from the coop. It sold veterinary supplies, available nowhere else in the town but at the coop supply store, at a lower price than that store.

8.11 The establishment of a BB branch in Umarizal during the first year of the project also brought strong opposition from the coop. The latter ultimately succeeded in having the manager transferred to another branch. Previous to the opening of this new branch, the coop had been the only institution in several municipios that supplied credit and bought, stored and ginned cotton. The new BB branch represented not only an alternative source of credit; it also represented an alternative buyer and warehouser of cotton through its minimum price program. The conflicts between the coop and the new BB branch, not surprisingly, revolved around the coop's desire to get credit for repasse at more desirable terms than the bank would grant, and the bank's insistence on storing any coop cotton it financed in its own warehouses, as the minimum price regulations require.

8.12 The Project Unit has been under considerable pressure to

channel credit and CAP through the existing coops. Both received repasse credits from the project; the Umarizal coop was slated by the Project Unit to take over CAP from CIDA in the Serrana region, but this change was introduced into the annual operating plan for 1978 too late for approval. At the time of the evaluation, the Project Unit hoped to execute next year's CAP program through the Umarizal coop, as that coop had requested. As noted above, the Umarizal coop had strongly opposed the CAP program as executed by CIDA.

9.13 It would be unfortunate if project resources channeled through coops only increased costs of these services to the target group, or diminished their access to them. A rule of thumb for working with coops should be established whereby project support is given under conditions that stimulate rather than stifle the competitive supply of these services. The Project Unit could agree to grant repasse credit to coops, or a portion of the CAP program, on the condition that the coop show that it could at least meet, if not do better than, existing prices. In the case of project credit for cotton purchases, for example, coops would have to agree to meet the price paid and the transport services supplied by the intermediary; in the case of credit, coops would have to meet the prices charged by banks in the region, including the real costs to the borrower of waiting time, etc. Only in this way is the "coop solution" acceptable as a cost-reducing one.

H. Credit Insurance - PROAGRO

9.01 The Project Unit agreed at appraisal to work out arrangements for insuring subproject borrowers with the credit insurance of the Central Bank's PROAGRO program. Section 3.03(c) of the loan agreement repeated this commitment. Charges for PROAGRO are 1% of the value of outstanding debt, in the case of total crop loss, and claims payments are 80% of the value of the insured loan. In case of partial loss, a correspondingly lower percentage is paid.

9.02 Almost none of the project's subloans were guaranteed under the PROAGRO scheme because the Project Unit, extension and the bank managers were against it.[1/] Paperwork and bureaucratic requirements, it was felt, were excessive. Some Project-Unit technicians also felt, based on experience with their own cotton operations, that compensation paid by PROAGRO was not worth the 1% charge and the trouble of applying for the insurance and verifying the losses. Bank managers, moreover, actually dissuaded some farmers who wanted to buy PROAGRO coverage out of doing so. Some bank managers complained that PROAGRO caused them extra work because it required a monthly accounting of the borrower's repayment records, rather than the quarterly accounting customarily practiced by the branch bank.

1/ The RURALNORTE credit-proposal form includes a space for indicating whether the applicant desires PROAGRO coverage. A sample of 50% of project borrowers showed no interest in PROAGRO among project borrowers in the Seridó, and interest on the part of only 9% or 38 of the borrowers in the Serrana. The 38 interested borrowers were concentrated in one municipio, Olho D'agua, representing all but one of the sample borrowers in that municipio.

9.03 The experience with PROAGRO in RURALNORTE contrasts sharply with that of other Bank-financed projects in Brazil. In the Paraguaçu project, for example, all borrowers are insured with PROAGRO. Extension requires, in effect, that farmers buy the insurance if they are to participate in the project. Bank managers are not only going along with the program, but are even enthusiastic because it reduces the risks to them of lending to new small farmers. By the second year of the Paraguaçu project, borrowers had already received claim payments for losses suffered from drought in 1977.

9.04 Some PU technicians suggest that the problem with PROAGRO in Rio Grande do Norte relates in part to the fact that the insured crop, tree cotton, is a perennial crop with a five-year cycle. This makes calculations somewhat more complicated than those for annual crops. Also, claim payments will be somewhat less than for annual crops, unless one has taken and insured both seasonal and investment credit. This greater complexity of insuring perennial crops seems not to have been a problem with coffee, one of PROAGRO's most important insured crops. The program's greatest payments until now were made for this tree crop's losses suffered during the freeze of 1975.

9.05 PU technicians also cite as problematical the fact that PROAGRO claim payments are calculated on the basis of the minimum price. When minimum prices are well below market prices, as they usually are, the claim payment will represent much less than 80% of the value of the lost production. (It should be remembered that the amount of credit

granted is calculated according to an estimate of expected income that is also based on the minimum price.) Though this way of calculating claims payments may seem prejudicial when market prices are high, it will also be quite favorable when market prices are at or below the minimum prices, as has occurred with cotton prices in the project area in 1977 and 1978. Protection against this latter phenomenon is more likely to be highly valued by small farmers, who live closer to subsistence than larger ones.[1/] It is for this reason that the experience of PU technicians with PROAGRO on their own farms may not be relevant to the decision made by the project whether or not to work with PROAGRO.

9.06 The inadequacies of PROAGRO, as experienced by the Project Unit, have also been pointed out by technicians working with PROAGRO on other POLONORDESTE projects, though the problems have not kept these other projects from getting their borrowers insured. The program is relatively new and in the process of being modified, partly in response to the problems that have been noted. Despite its obvious inadequacies, PROAGRO represents a significant step toward diminishing the wide swings in income experienced by small farmers. The Paraguaçu experience shows that PROAGRO can also be an important instrument in getting the banking system to lend to small farmers. If for some reason the problem of

1/ Of the 38 borrowers requesting PROAGRO credit, 79% or 30 owned farms less than 30 hectares. All were requesting seasonal cotton credit.

insuring tree cotton turns out to be an insuperable one, the project could start out insuring the annual crops it finances--beans and corn, and any other annual crops to be included in the second phase.

J. Conclusions

10.01 The first phase of the RURALNORTE project cannot be judged without taking into account the considerable delays in funding. The fact that extension personnel, the key institutional actors in the project, were not paid for several months cannot help but to have contributed to the shortfalls discussed above. Added to these problems were those caused by the freeze on other lines of investment credit. This resulted in considerable pressure on the project to lend to non-target-group farmers. Finally, there was a basic ambiguity surrounding the definition of project objectives, which contributed to a lack of definition of the target group and of the kinds of technical assistance and production practices best suited to that group. Certain questions about the appropriateness for small farmers of an exclusively-cotton project, or of the suitability of the technical recommendations to the small-farmer group, were therefore never really raised. For all these reasons, the project ended up providing credit to all kinds of farmers--and to a greater proportion of medium and large farmers in the project area than of the small ones. Thus the Bank's approach of reimbursing only small loans was not sufficient to change the traditional structure of limited access by small farmers to institutional credit.

10.02 The first phase of the project showed that the possibilities

for increasing the incomes of target-group cotton farmers through the adoption of productivity-increasing practices were more limited than was assumed. At the same time, there turned out to be more slack in the cultivable land situation of small farmers than was thought. When provided with institutional credit for the first time, these smallest farmers undertook significantly large increases in the amount of land they cultivated. This suggests that the supply of credit to farmers without previous access to it can have a considerable impact on the incomes of the target-group, regardless of whether productivity-increasing practices and inputs are available or adopted. In Phase II of the project, then, credit should be expanded to other income-increasing activities that, like increased planting, are not exclusively dependent for their realization on the existence and adequate supply of improved agricultural inputs and technologies.

10.03 One of the major accomplishments of the project was that the extension agents themselves arrived at an understanding of many of the project inadequacies through their own experience with the target group. They expressed many of the same concerns and suggested many of the same improvements as those noted by the evaluation team. They felt that the exclusively cotton focus of the project, for example, made it difficult for them to reach small farmers, because the small-farm enterprise was one composed of many income-generating activities. They felt that small farmers needed credit for and assistance with these other activities--such as subsiding crops and other dry-season activities. They realized

that some of the recommendations they were promoting for cotton cultivation might increase the yield of cotton at the cost of the production of interplanted food crops, or make excessive demands on family labor, or not give good results on a given farm.

10.04 Many extension agents came to feel, through their attempts to assist small farmers without previous credit, that land was a major problem. Tenants were anxious to buy land but could not do so without credit; without land they could not be provided with seasonal or investment credit by the project (with the exception of the advance-purchase credit program). Many small propertyowners without bank credit, moreover, did not have the appropriate land documentation to obtain such credit. Thus the agents felt that they could not effectively cover the target group unless the latter had credit to buy land and assistance in regularizing their land title situation. Finally, the extension agents felt that the sharecroppers were too significant in the agricultural production of the region to neglect them in the project. Many estimated that sharecroppers repreented 50% of the small farmers in their area. Though the advance-purchase program was making a first step in the sharecroppers' direction, the extensionists felt that they were not able to attend this group satisfactorily.

10.05 The second phase of the project should take advantage of this learning experience of the first phase. The target group should be more carefully defined, and production practices and financeable items should be identified that are most suited to it. The adoption of animal traction in the first phase of the project is an example of such an item, though

the majority of purchasers already used animal traction or were outside the target group.

10.06 Extension agents should be able to devote themselves exclusively to the target group. This will enable them to understand better and specialize in the practices that are best-suited to that group--rather than to the medium and large farms they are more accustomed to working with and that are the model of their training. Working with only the target group will also facilitate the extensionists' role as intermediary between the target-group and public-sector supplies and services, a role that was probably their most important contribution in the first phase of the project. Finally, the commitment of the extensionists to the target group will be a difficult one to make if they must also serve medium and large farmers, whose interests often conflict with those of the target group.

10.07 In order to achieve this concentration of the project on the target group, it will be necessary to set forth more arbitrary standards for who can be served with project credit. Limiting access to project credit will not in itself be sufficient. There will be considerable pressure on the project to serve farmers outside the target group and for extension to spend time handling the non-project credit proposals of this group, unless a non-project line of investment credit for large farmers is opened and an explicit agreement is made limiting the role played by project extension workers in this non-project credit. Unless explicit arrangements are made to deal with this pressure, there is no reason to think that it will not exert the undermining influence in the second phase that it did in the first.

List of Tables

Table 1 RURALNORTE Project: Number and Value of Project Subloans--Seridó and Serrana, 1976-1978

Table 2 RURALNORTE Project: The Role of Project Credit in Total BB and BNB in the Project Area

Table 3 RURALNORTE Project: Number of Extensionists and Subloans, 1976-1978

Table 4 RURALNORTE Project: Investment Credit by Use, 1976-1977

Table 5 RURALNORTE Project: Investment Credit by Size of Loan and Size of Farm, 1976-1977

Table 6 RURALNORTE Project: Distribution of Farms by Size in the Eleven Municipios of Phase I

Table 7 RURALNORTE Project: Percent of Farms Receiving Project Credit, 1976-1978

Table 8 RURALNORTE Project: Distribution of Subloans by Size, 1976-1978

Table 9 RURALNORTE Project: Distribution of Subloans by Farm Size, 1976-1978

Table 10 RURALNORTE Project: Seasonal Credit by Size of Loan and Size of Farm, 1977-1978

Table 11 RURALNORTE Project: Large Loans and Large Sub-borrowers, 1976-1978

Table 12 Small Loans of RURALNORTE Project Compared to Small Loans of Bank of Brazil in the State of Rio Grande do Norte

Table 13 RURALNORTE Project: Comparison of a Sample of Project Borrowers to All Project Borrowers

Table 14 RURALNORTE Project: Distribution of a Sample of Project Borrowers by Farm Size and Percentage of Property Cultivated--Seridó

Table 15 RURALNORTE Project: Distribution of a Sample of Project Borrowers by Farm Size and Percentage of Property Cultivated--Serrana

Table 16 RURALNORTE Project: Comparison of Seridó and Serrana with respect to Farm Size and Property Cultivated by a Sample of Borrowers

Table 17 RURALNORTE Project: Borrowers without Previous Bank Credit by Farm Size, 1976-1978

Table 18 RURALNORTE Project: Borrowers without Previous Bank Credit--BB and BNB, 1976-1978

Table 19 RURALNORTE Project: Comparison of a Sample of New Borrowers with respect to Farm Size and Percentage of Property Cultivated--Seridó

Table 20 RURALNORTE Project: Increases in Area Planted to Cotton by a Sample of Old and New Borrowers

Table 21 RURALNORTE Project: Livestock Purchases by Size of Farm--Seridó and Serrana, 1976-1977

Table 22 RURALNORTE Project: Livestock Purchases with Credit by Size of Farm and Type of Animal--Seridó Region, 1976-1977

Table 23 RURALNORTE Project: Livestock Purchases with Credit by Size of Farm and Type of Animal--Serrana Region, 1976-1977

Table 24 Project Area: Bank and Project Credit for Animal Acquisitions, 1973-1977

Table 25 RURALNORTE Project: Traction Animals Previously Owned by a Sample of Traction-animal Purchasers

Table 26 RURALNORTE Project: Animals Previously Owned by a Sample of Traction-animal Purchasers

Table 27 RURALNORTE Project: Previous Access to Credit of a Sample of Traction-animal Purchasers

Table 28 RURALNORTE Project: Animals Previously Owned by a Sample of Beef-animal Purchasers

Table 29 RURALNORTE Project: Animals Previously Owned by a Sample of Milk-animal Purchasers

TABLE 1.

RURALNORTE PROJECT: NUMBER AND VALUE OF PROJECT SUBLOANS — SERIDÓ AND SERRANA, 1976 - 1978

Year	Project subloans					
	Number			Value (Cr$1000)		
	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL
1976 investment [a]	201	335	536	5,083	8,685	13,768
1977 seasonal	85	156	241	791	1,766	2,557
1977 investment	269	414	683	7,167	12,875	20,042
SUBTOTAL 1977	555	905	1,460	13,041	23,326	36,367
1978 seasonal [b]	237	251	488	5,653	4,445	10,098
TOTAL [c]	792	1,156	1,948	—	—	—

[a] Starting in July.

[b] Through April.

[c] Values are not totaled because Cruzeiros are current rather than constant.

Source: Based on data from the Project Unit of RURALNORTE

RURALNORTE PROJECT: TABLE 2
THE ROLE OF PROJECT CREDIT IN TOTAL BB AND BNB CREDIT IN THE PROJECT AREA

Year	VALUE OF RURAL LOANS (cr$1000)						RURALNORTE as % of total [e]		
	BB [a]	BNB [b]	SUBTOTAL BB & BNB	RURALNORTE					
				BB	BNB	SUBTOTAL BB & BNB	BB	BNB	TOTAL
1975	64,671	20,750	85,421	—	—	—	—	—	—
1976 [d]	148,404	49,958	198,362	8,063	4,573	12,636	5.4	9.2	6.3
1977	—	55,024	—	16,946	4,482	21,428 [c]	—	8.1	—

a/ BB data not available for 1977. Data are from BB branches in Caicó, Catolé da Rocha, Currais Novos and Umarizal.

b/ Data are from BNB branches in Catolé da Rocha, Pau dos Ferros and Jardim do Seridó.

c/ Excludes Cr$472,000 of BNCC loans and Cr$1,151,000 to the Umarizal Cooperative (COMPAL).

d/ RURALNORTE credit starts in July 1976.

Source: Based on data from the Bank of Brazil, the Bank of the Northeast, and the Technical Unit of RURALNORTE

e/ Bank branches served other municipios outside the 11 served by RURALNORTE. Hence these percentages are lower than would be a percentage calculated solely on the basis of the 11 project municipios.

TABLE 3

RURALNORTE PROJECT: NUMBER OF EXTENSIONISTS AND SUBLOANS, 1976 - 1978

Year	Number of extensionists			Number of loans			Number of loans per extensionist		
	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL
1976 [a]	16	17	33	201	335	536	13	20	16
1977	16	17	33	354	570	924	22	34	28
1978 [b]	16	17	33	237	251	488	15	15	15
TOTAL	16	17	33	792	1,056	1948	50	62	59

[a] Starting in July.

[b] Through April.

Source: Based on data from Project Unit of RURALNORTE

TABLE 4

RURALNORTE PROJECT: INVESTMENT CREDIT BY USE, 1976 - 1977

ITEM	1976			1977		
PERENNIAL CROP FORMATION (ha)	QUANTITY	VALUE (Cr$)	% OF TOTAL	QUANTITY	VALUE (Cr$)	% OF TOTAL
COTTON FORMATION	3,463	6,411,807	46.6	4,336	9,777,199	48.8
COTTON RENOVATION	109	98,790	0.7	206	294,071	1.5
SUBTOTAL COTTON	3,572	6,510,597	47.3	4,542	10,071,270	50.3
PASTURE FORMATION	194	201,771	1.5	278	464,830	2.3
OTHERS	74	46,983	0.3	7	79,133	0.4
SUBTOTAL	268	6,758,351	49.1	285	10,615,233	53.0
STRUCTURES AND IMPROVEMENTS (units)						
FENCING	219,554	1,416,743	10.3	204,423	1,820,329	9.1
HOUSE	73	737,749	5.3	81	834,322	4.2
RESERVOIR	38	473,603	3.4	25	704,267	3.5
CORRAL	9	55,767	0.4	4	10,099	0.1
"BRETE"	3	25,713	0.2	3	3,361	0.0
METAL SILOS	7	7,362	0.1	90	41,990	0.2
DRINKING TROUGHS	1	15,760	0.1	6	25,530	0.1
OTHERS	–	–	–	161	33,745	0.2
SUBTOTAL	–	2,732,697	19.8	–	3,473,643	17.4
MACHINERY AND EQUIPMENT (units)						
TRACTOR	12	833,231	6.1	4	540,580	2.7
IMPLEMENTS	41	405,508	2.9	63	271,602	1.4
CULTIVATOR	101	34,890	0.3	113	45,954	0.2
PESTICIDE PUMP	110	51,526	0.4	191	112,896	0.6
"MOTOFORRAGEIRA"	17	242,398	1.8	23	376,612	1.9
OTHERS	148	72,576	0.5	189	192,124	1.0
SUBTOTAL	–	1,640,129	12.0	–	1,539,768	7.8
LIVESTOCK (head)						
BULLS	39	139,900	1.0	14	126,000	0.6
COWS	416	1,150,728	8.4	466	1,902,809	9.5
HEIFERS	260	394,750	2.9	1,074	1,245,220	6.2
STEERS	44	44,700	0.3	18	16,250	0.1
FATTENING STEERS	53	79,100	0.6	97	171,300	0.9
SUBTOTAL BEEF/DAIRY	812	1,809,178	13.1	1,669	3,461,579	17.3
TRACTION ANIMALS	189	826,800	6.0	269	952,000	4.7
SUBTOTAL	1,001	2,635,978	19.1	1,938	4,413,579	22.0
TOTAL	–	13,767,155	100.0	–	20,042,223	100.2

Source: Based on data from the Technical Unit.

TABLE 5

RURALNORTE PROJECT: INVESTMENT CREDIT BY SIZE OF LOAN AND SIZE OF FARM, 1976 - 1977

MVRs	HECTARES																	
	<20			20 - 50			SUBTOTAL <50			50 - 200			>200			SUBTOTAL >50			TOTAL	
	no.	percentages		no.	percentages		no.	percentages		no.	percentages		no.	percentages		no.	percentages		no.	percentages
		column	row		column	row		column	row		column	row		column	row		column	row		column
0-25	335	80.5	51.0	192	51.9	29.2	527	67.0	80.2	117	34.0	17.8	13	14.6	2.0	130	30.0	19.8	657	53.9
25-50	80	19.2	18.7	162	43.8	37.9	242	30.8	56.7	153	44.5	35.8	32	36.0	7.6	185	42.7	43.4	427	35.0
SUBTOTAL <50	415	99.8	38.3	354	95.7	32.7	769	97.8	70.9	270	79.5	24.9	45	50.6	4.1	315	72.7	29.0	1,084	88.9
50-200	1	0.2	0.9	15	4.1	13.3	16	2.0	14.2	66	19.2	58.4	31	34.8	27.4	97	22.4	85.8	113	9.3
>200	—	—	—	1	0.3	4.5	1	0.1	4.5	8	2.3	36.4	13	14.6	59.1	21	4.8	95.5	22	1.8
SUBTOTAL >50	1	0.2	0.9	16	4.3	11.9	17	2.2	12.6	74	21.5	54.8	44	49.4	32.6	118	27.3	87.4	135	11.1
TOTAL	416	100.0	34.1	370	100.0	30.4	786	100.0	64.5	344	100.0	28.2	89	100.0	7.3	433	100.0	35.5	1,219	100.0

Source: Based on data from Technical Unit of RURALNORTE

TABLE 6

RURALNORTE PROJECT: DISTRIBUTION OF FARMS BY SIZE IN THE ELEVEN MUNICIPIOS OF PHASE I

Region	Number of farms[a]					
	<25ha	25-50 ha	SUBTOTAL ≤50 ha	50-200 ha	>200 ha	TOTAL
SERIDÓ	1,459	420	1,879	509	188	2,576
SERRANA	1,880	449	2,329	486	102	2,917
TOTAL	3,339	869	4,208	995	290	5,493

Region	Percentage of Total Farms				
	<25ha	25-50ha	SUBTOTAL ≤50ha	50-200ha	>200ha
SERIDÓ	56.6	16.3	72.9	19.8	7.3
SERRANA	64.4	15.4	79.8	16.7	3.5
TOTAL	60.8	15.8	76.6	18.1	5.3

[a] From INCRA Cadastral Survey of 1972.

TABLE 7

RURALNORTE PROJECT: PERCENT OF FARMS RECEIVING PROJECT CREDIT, 1976 - 1978

SIZE OF FARM (ha.)	No. of farms [a]			Percent receiving project credit [b]		
	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL
<50	1,879	2,329	4,208	6.4	9.9	8.3
50 - 200	509	486	995	15.8	15.1	15.2
>200	188	102	290	12.9	21.7 [c]	14.2
TOTAL	2,576	2,917	5,493	8.6	10.9	9.8

[a] For the 11 municipios of Phase I. Source is INCRA Cadastral Survey of 1972, which defines farms as one or more contiguous parcels belonging to the same owner. Data are uncorrected for growth in the 1972-1978 period, so that the percentages are probably slightly overestimated.

[b] Calculated from number of loans of Table 9. Because credit data were available only by number of loans and not by number of borrows, these percentages are averages of the percentages of the four credit cycles (1976 investment, 1977 seasonal, 1977 investment, 1978 seasonal. The averages are weighted by the number of loans in each cycle. Credit starts in mid-1976 and ends in April 1978.

[c] This high percentage is caused mainly by a percentage of 31% for the investment-credit cycle of 1977. The data are recorded in the municipios of Alto Araguaia and Rio Verde.

RURALNORTE PROJECT: TABLE 8
DISTRIBUTION OF SUBLOANS BY SIZE, 1976 – 1978

Year and region	Number and value of loans				Percentage of total loans [a]			
	<50 MVR		>50 MVR		<50 MVR		>50 MVR	
	no.	value (CVE 1000)	no.	value (CVE 1000)	no.	value	no.	value
1976 investment [b]								
SERIDÓ	182	2,311	19	2,772	90.5	45.5	9.5	54.5
SERRANA	297	5,014	38	3,671	88.7	57.7	11.3	42.3
SUBTOTAL 1976	479	7,325	57	6,443	89.4	53.2	10.6	46.8
1977 seasonal								
SERIDÓ	79	454	6	337	92.9	57.4	7.1	42.6
SERRANA	147	1,114	9	652	94.2	63.1	5.8	36.9
SUBTOTAL 1977 SEASONAL	226	1,568	15	989	93.8	61.3	6.2	38.7
1977 investment								
SERIDÓ	235	4,233	34	2,935	87.4	59.1	12.6	40.9
SERRANA	370	8,063	44	4,812	89.4	62.6	10.6	37.4
SUBTOTAL 1977 INVESTMENT	605	12,296	78	7,747	88.6	61.3	11.4	38.7
1978 seasonal [c]								
SERIDÓ	202	2,626	35	3,027	85.2	46.5	14.8	53.5
SERRANA	236	3,483	15	962	94.0	78.4	6.0	21.6
SUBTOTAL 1978 SEASONAL	438	6,109	50	3,989	89.8	60.5	10.2	39.5
TOTAL	1,748	27,298	200	19,168	89.7	59.1 [d]	10.3	40.9 [d]

Footnotes to Table 8

a
Totals used in the calculation of the percentages can be found in Table 1.

b
Starting in July. Since the investment cycle starts after the cotton harvest in July and August, the investment credit of 1976 probably would not have been much greater if the project had started operations at the beginning of the year.

c
Through April.

d
Given that the cruzeiro values are current rather than constant, these value percentages are calculated as simple averages of the four subtotal percentages.

Source: Based on data from the Project Unit of RURALNORTE

TABLE 9
RURALNORTE PROJECT: DISTRIBUTION OF SUBLOANS BY FARM SIZE, 1976-1978

Year and region	Number and value of loans				Percentage of total loans [a]			
	< 50 ha		> 50 ha		< 50 ha		> 50 ha	
	no.	value	no.	value	no.	value	no.	value
1976 investment [b]								
SERIDÓ	115	1,105	86	3,977	57.2	21.7	42.8	78.3
SERRANA	245	3,875	90	4,810	73.1	44.6	26.9	55.4
SUBTOTAL 1976	360	4,980	176	8,787	67.2	36.2	32.8	63.8
1977 seasonal								
SERIDÓ	56	228	29	563	65.9	28.9	34.1	71.1
SERRANA	121	704	35	1,062	77.6	39.9	22.4	60.1
SUBTOTAL 1977	177	932	64	1,625	73.4	36.5	26.6	63.5
1977 investment								
SERIDÓ	140	2,039	129	5,128	52.0	28.5	48.0	71.5
SERRANA	266	6,386	128	6,489	69.1	49.6	30.9	50.4
SUBTOTAL 1977 investment	426	8,425	257	11,617	62.4	42.0	37.6	58.0
1978 seasonal [c]								
SERIDÓ	129	1,338	108	4,315	54.4	23.7	45.6	76.3
SERRANA	201	2,525	50	1,919	80.1	56.8	19.9	43.2
SUBTOTAL 1978 seasonal	330	3,863	158	6,234	67.6	38.3	32.4	61.7
TOTAL	1,293	18,200	655	28,263	70.0	38.3 [d]	30.0	61.8 [d]

Footnotes to Table 9

a
Totals used in the calculation of the percentages can be found in Table 1.

b
Starting in July. Since the investment cycle starts after the cotton harvest in July and August, the investment credit of 1976 probably would not have been much greater if the project had started operations at the beginning of the year.

c
Through April.

d
Given that the cruzeiro values are current rather than constant, these value percentages are calculated as simple averages of the four subtotal percentages.

Source: Based on data from the Project Unit of RURALNORTE

TABLE 10

RURALNORTE PROJECT: SEASONAL CREDIT BY SIZE OF LOAN AND SIZE OF FARM, 1977 - 1978

MVRs	HECTARES																	
	<20			20-50			SUBTOTAL <50			50-200			>200			SUBTOTAL >50			TOTAL	
	no.	percentages column	percentages row	no.	percentages column	percentages row	no.	percentages column	percentages row	no.	percentages column	percentages row	no.	percentages column	percentages row	no.	percentages column	percentages row	no.	percentages column
0-25	290	98.0	52.4	166	78.7	30.0	456	89.9	82.5	90	51.4	16.3	7	14.9	1.3	97	43.7	17.6	553	75.9
25-50	6	2.0	5.4	43	20.4	39.7	49	9.7	44.1	53	30.3	47.8	9	19.1	8.1	62	27.9	55.9	111	15.2
SUBTOTAL <50	296	100.0	44.6	209	99.1	31.5	505	99.6	76.1	143	81.7	21.5	16	34.0	2.4	159	71.6	23.9	664	91.1
50-200	—	—	—	2	0.9	3.2	2	0.4	3.2	31	17.7	50.0	29	61.7	46.8	60	27.0	96.8	62	8.5
>200	—	—	—	—	—	—	—	—	—	1	0.5	33.3	2	4.3	66.7	3	1.4	100.0	3	0.4
SUBTOTAL >50	—	—	—	2	0.9	3.1	2	0.4	3.1	32	18.3	49.2	31	66.0	47.7	63	28.4	96.9	65	8.9
TOTAL	296	100.0	40.6	211	100.0	28.9	507	100.0	69.5	175	100.0	24.0	47	100.0	6.5	222	100.0	30.5	729	100.0

Source: Based on data from Project Unit of RURALNORTE

TABLE 11

RURAL NORTE PROJECT: LARGE LOANS AND LARGE SUB-BORROWERS, 1976 - 1978

Year and region	Loans > 200 MVR				Loans to farms > 200 ha			
			Percent of total				Percent of total [a/]	
	no.	value (Cr$1000)	no.	value (Cr$1000)	no.	value (Cr$1000)	no.	value (Cr$1000)
1976 investment [b/]								
SERIDÓ	5	1,583	2.5	31.1	23	2,563	11.4	50.4
SERRANA	3	1,022	0.9	11.8	10	1,543	3.0	17.8
SUBTOTAL 1976 investment	8	2,605	1.5	18.9	33	4,106	6.2	29.8
1977 seasonal								
SERIDÓ	—	—	—	—	6	330	7.1	41.7
SERRANA	—	—	—	—	6	291	3.8	16.5
SUBTOTAL 1977 seasonal	—	—	—	—	12	621	5.0	24.3
1977 investment								
SERIDÓ	2	798	0.7	11.1	24	1,922	8.9	26.8
SERRANA	3	722	0.7	5.6	32	2,214	7.7	17.2
SUBTOTAL 1977 investment	5	1520	0.7	7.6	56	4,136	8.2	20.6
1978 seasonal [c/]								
SERIDÓ	2	560	0.8	9.9	29	2,174	12.2	38.5
SERRANA	—	—	—	—	6	332	2.4	7.5
SUBTOTAL 1978 seasonal	2	560	0.8	5.5	35	2,506	7.2	24.8
TOTAL	15	4,685	0.8	8.0 [d/]	136	11,369	7.0	24.9 [d/]

Footnotes to Table 11

a
Totals used in the calculation of the percentages can be found in Table 9 .

b
Starting in July.

c
Through April.

d
Given that the cruzeiro values are current rather than constant, these value percentages are calculated as simple averages of the four subtotal percentages.

Source: Based on data from the Project Unit of RURALNORTE

TABLE 12.

SMALL LOANS OF RURALNORTE PROJECT COMPARED TO SMALL LOANS OF BANK OF BRAZIL IN THE STATE OF RIO GRANDE DO NORTE

Year and institution	Percentage of loans < 25 MVR [b]		Percentage of loans < 50 MVR [b]	
	no.	value	no.	value
BB/RGdN [a]				
1973	80.1	13.4	89.3	20.2
1974	75.1	16.9	87.4	26.6
1975	71.8	10.0	83.8	16.3
1976	63.2	10.0	79.6	18.3
Ruralnorte Project [c]				
1976 investment	51.1	17.2	89.4	53.2
1977 seasonal	84.2	42.2	93.8	61.3
1977 investment	56.1	24.6	88.6	61.3
1978 seasonal [d]	71.7	33.2	89.8	60.5

[a] Data are for all BB branches in the State of Rio Grande do Norte and are provided by the Bank of Brazil.

[b] BB size distributions are based on the highest minimum salaries rather than the MVRs, the latter being a few percentage points less than the former. Thus the BB percentages would have to be slightly lower to be strictly comparable to the project percentages, which are based on MVRs. The declining tendency of the BB percentages is partly a result of the lag of the minimum salary adjustments behind inflation.

[c] Based on data from the Technical Unit of RURALNORTE.

[d] Through April 1978.

TABLE 13

RURALNORTE PROJECT: COMPARISON OF A SAMPLE OF PROJECT BORROWERS TO ALL PROJECT BORROWERS [a]

ITEM	SAMPLE			ALL BORROWERS			% OF SAMPLE IN TOTAL		
	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL	SERIDÓ	SERRANA	TOTAL
No. of loans									
seasonal	219	353	572	322	407	729	68.0	86.7	78.5
investment	231	80	311	470	749	1219	49.1	10.7	25.5
total	450 [b]	433	883	792	1,156	1948	56.8	37.5	43.3
No. of new borrowers	—	—	92	—	—	393	—	—	23.4
No. of traction-animal purchasers [a]	65	22	87	136	285	421	47.8	7.7	20.7
No. of farmers expanding cotton area	—	—	258	—	—	1002	—	—	25.7

Footnotes to Table 13(continued)

encountered in finding the files on a weekend. Thus it is not clear whether the bias in the Serrana sample is only one of later vs. earlier years. Despite the incompleteness of the sample, it still represents a considerable share and number of project loans for both regions.

The tables based on the sample show some small divergences from this one, and between them, in the total number of borrowers for any particular category. This results mainly from the inadequacy and rejection of some items for a particular borrower, and not of others. It also results from mistakes in the hand counting of the items, of which time did not permit correction. The differences in these totals rarely amount to more than 5%.

The number of loans was distinguished from the number of borrowers in the data collection process. Of the 884 loans, 39 represent repeat loans, meaning that the sample represents 845 borrowers. The repeat loans were all in the Seridó. It is not possible to determine what share these borrowers are of total borrowers, since data exist only for the number of loans. (This is one reason why a complete sample was hopied for--i.e., to find out the total number of farmers receiving project credit.) EMATER estimates that 58% of the project subloans represents individual borrowers, the rest being repeats. This would give a total number of borrowers of 1,100, as opposed to 1,948 loans. If this estimate is accurate, then the sample would represent 78% of total borrowers, which seems to be on the high side.

b
Includes 39 repeat loans, as explained above. There were no repeat loans in the Serrana.

c
It was not possible to determine the number of total beef- and dairy-animal purchasers. Project data list the number of purchasers for each kind of beef animal and each kind of dairy animal. Thus there is double-counting in the number of purchasers for all kinds of beef animals or of dairy animals

Footnotes to Table 13

[a] Data for this sample of 884 loans were collected by the midterm evaluation team from the credit-application forms of each borrower. These files are located in the regional offices of EMATER in the project area. The work took two days apiece of two university students.

The following items of information were taken from each credit form: whether the borrower had previous credit experience; the size of the property in hectares; the utilization of the property in the year previous to project credit--number of hectares cultivated, type of crop (cotton, beans, corn, pasture, other), number of animals (beef, dairy, service); the planned utilization of the property with project credit (the same as items/for the year previous to project credit); the type of loan (seasonal or investment); the value of the loan; and whether the applicant wished PROAGRO credit insurance. This information is found on the forms POLO 1 and POLO 3 of the Plano Simples I and II.

The original intention of this effort was to collect information for all 1,948 subloans made during the first phase of the project. No more than 43% of the loan files, however, could be located. As the table shows, more than three-fourths of the seasonal-credit files were found, in contrast to only a quarter of the investment files. A much broader sample was obtained in the Seridó, moreover, in contrast to the Serrana.

It seems that the missing files are from the early period of the project, when loan files were not as well maintained. This accounts for most of the missing files in the Seridó, and means that the sample is therefore biased toward the later loans in mid-1977 and 1978. The small number of files found in the Serrana result also from problems

TABLE 14

RURALNORTE PROJECT: DISTRIBUTION OF A SAMPLE OF PROJECT BORROWERS BY FARM SIZE AND PERCENTAGE OF PROPERTY CULTIVATED – SERIDÓ [a]

% OF THE PROPERTY CULTIVATED	SIZE OF FARM (ha.)			
	<20.1	20.1 – 50	>50	TOTAL
>50%	51 (46.4)	25 (21.4)	30 (13.5)	106 (23.6)
20.1% – 50%	39 (35.4)	41 (35.0)	56 (25.2)	136 (30.3)
<20.1%	20 (18.2)	51 (43.6)	136 (61.3)	207 (46.1)
TOTAL	110 (100.0)	117 (100.0)	222 (100.0)	449 (100.0)

[a] See Table 13 for a description of the sample. Numbers in parentheses are column percentages.

TABLE 15

RURAL NORTE PROJECT: DISTRIBUTION OF A SAMPLE OF PROJECT BORROWERS BY FARM SIZE AND PERCENTAGE OF PROPERTY CULTIVATED - SEPRANA a/

% OF PROPERTY CULTIVATED	SIZE OF FARM (ha.)			
	<20.1	20.1-50	>50	TOTAL
>50%	130 (66.3) b/	45 (37.5)	33 (29.5)	208 (48.6)
20.1%-50%	54 (27.6)	51 (42.5)	48 (42.8)	153 (35.7)
<20.1%	12 (6.1)	24 (20.0)	31 (27.7)	67 (15.7)
TOTAL	196 (100.0)	120 (100.0)	112 (100.0)	428 (100.0)

a/ See Table 13 for description of the sample. Numbers in parentheses are column percentages.

b/ Cultivating more than 80% of their properties. Were 38% of these smallest farmers, as compared to 25% for all farmers

TABLE 16

RURALNORTE PROJECT: COMPARISON OF SERIDÓ AND SERRANA WITH RESPECT TO FARM SIZE AND PROPERTY CULTIVATED BY A SAMPLE OF BORROWERS [a]

SIZE OF FARM (ha.)	No. of borrowers		% of total	
	SERIDÓ	SERRANA	SERIDÓ	SERRANA
<10.1	44	111	9.8	26.0
10.1-20	66	85	14.7	19.9
SUBTOTAL <20	110	196	24.5	45.9
20.1-30	58	76	12.9	17.8
30.1-40	35	27	7.8	6.3
40.1-50	26	17	5.8	4.0
SUBTOTAL <50	229	316	51.0	74.0
50.1-200	158	88	35.2	20.6
>200	62	23	13.8	5.4
SUBTOTAL >50	220	111	49.0	26.0
TOTAL	449	427	100.0	100.0

% OF PROPERTY CULTIVATED	No. of borrowers		% OF TOTAL	
	SERIDÓ	SERRANA	SERIDÓ	SERRAN
<10.1	93	15	21.0	3.
10.1-20	107	44	24.2	10.
20.1-30	83	52	18.8	12.
30.1-40	53	57	12.0	13.
40.1-50	35	41	7.9	9.
SUBTOTAL <50	371	209	83.9	50
>50 [b]	71	209	16.1	50
TOTAL	442	418	100.0	101

[a] See Table 13 for a description of the Sample.

[b] Cultivating more than 80% of their properties were 25% of the Serrana farmers and 4% of the Ser

TABLE 17

RURALNORTE PROJECT: BORROWERS WITHOUT PREVIOUS BANK CREDIT by FARM SIZE, 1976 - 1978

SIZE OF FARM (ha.)	No. of new borrowers	% OF TOTAL [a]
0-20	219	55.7
20-50	119	30.3
SUBTOTAL 750	338	86.0
50 - 100	30	7.6
100 - 200	19	4.8
>200	6	1.5
SUBTOTAL 7200	25	13.9
TOTAL	393 [b]	100.0

[a] It was not possible to calculate new borrowers as a % of total borrowers by farm size because loan data are available only for the number of loans and not for the number of borrowers.

[b] This total differs slightly from that of Table 18.

Source: Based on data from the Technical Unit of RURALNORTE

TABLE 18

RURALNORTE PROJECT: BORROWERS WITHOUT PREVIOUS BANK CREDIT — BB AND BNB, 1976 – 1978

Year and region	BB borrowers			BNB borrowers			OTHERS [b]		TOTAL		
	NEW	TOTAL [a]	% NEW IN TOTAL	NEW	TOTAL [a]	% NEW IN TOTAL	NEW	TOTAL [a]	NEW	TOTAL [a]	% NEW IN TOTAL
1976 (investment only)											
SERIDÓ	33	113	29.2	44	88	50.0	—	—	77	201	38.3
SERRANA	52	170	30.6	61	138	44.2	—	27	113	335	33.7
SUBTOTAL INVESTMENT	85	283	30.0	105	226	46.5	—	27	190	536	35.4
1977 (investment + seasonal)											
SEASONAL											
SERIDÓ	11	47	23.4	3	38	7.9	—	—	14	85	16.5
SERRANA	14	133	10.5	2	23	8.7	—	—	16	156	10.3
SUBTOTAL SEASONAL	25	180	13.9	5	61	8.2	—	—	30	241	12.4
INVESTMENT											
SERIDÓ	27	227	11.9	15	42	35.7	—	—	42	269	15.6
SERRANA	47	229	20.5	31	114	27.2	1	71	79	414	19.1
SUBTOTAL INVESTMENT	74	456	16.2	46	156	29.5	1	71	121	683	17.7
1978 (seasonal only) [d]											
SERIDÓ	10	161	6.2	4	76	5.3	—	—	14	237	5.9
SERRANA	3	140	2.1	5	26	19.2	25	85	33	251	13.1
SUBTOTAL 1978	13	301	4.3	9	102	8.8	25	85	47	488	9.6
TOTAL (1976, 1977, 1978)	197	1220	16.1	165	545	30.3	26	183	388 [c]	1948	19.9

[a] Totals include repeat loans, except in 1976.

[b] National Bank for Agricultural Credit (BNCC) and Nicaraguan Investment Corporation (COMPAL).

[c] This number is slightly different from that of Table 17.

[d] Through April.

Source: Based on data from the Technical Unit of RURALNORTE.

TABLE 19

RURALNORTE PROJECT: COMPARISON OF A SAMPLE OF NEW BORROWERS TO ALL BORROWERS WITH RESPECT TO FARM SIZE AND PERCENTAGE OF PROPERTY CULTIVATED — SERIDÓ

SIZE OF FARM (ha)	No. of borrowers		% of total borrowers	
	new	all	new	all
<10.1	20	44	27.0	9.8
10.1-20	16	66	21.6	14.7
20.1-30	8	58	10.8	12.9
30.1-40	12	35	16.2	7.8
40.1-50	5	26	6.8	5.8
SUBTOTAL <50	61	229	82.4	51.0
50.1-200	12	158	16.3	35.2
>200	1	62	1.3	13.8
TOTAL	74	449	100.0	100.0

% OF PROPERTY CULTIVATED	No. of borrowers		% OF TOTAL BORROWERS	
	new	all	new	all
<10.1	31	93	41.9	21.0
10.1-20	13	107	17.6	24.2
20.1-30	13	83	17.6	18.8
30.1-40	9	53	12.2	12.0
40.1-50	2	35	2.7	7.9
SUBTOTAL <50	68	371	92.0	83.9
>50	6	71	8.0	16.1
TOTAL	74	442	100.0	100.0

a/ See Table 13 for a description of the Sample. The Seridó sample is excluded because the number of new borrowers in the sample was found (18) — and was more than proportionately smaller than the number of all borrowers for both regions (18 and 74 vs. 433 and 450.

TABLE 20

RURAL NORTE PROJECT: INCREASES IN AREA PLANTED TO COTTON BY A SAMPLE OF OLD AND NEW BORROWERS[a]

SIZE OF FARM (ha.)	Percentage Increase in area planted to cotton[b]												TOTAL			% OF TOTAL		
	>100%			50%-100%			25.1-50%			<25.1%								
	new	old	total	new	old	total	new	old	total	new	old	total	new	old	total	new	old	total
0-25	14	10	24	12	20	32	3	18	21	1	5	6	30	53	83	53.6	26.5	32.4
25.1-50	10	4	14	4	14	18	5	10	15	—	4	4	19	32	51	33.9	16.0	19.9
50.1-100	1	8	9	2	20	22	—	7	7	—	10	10	3	45	48	5.3	22.5	18.8
>100	1	10	11	2	22	24	1	25	26	—	13	13	4	70	74	7.1	35.0	28.9
TOTAL	26	32	58	20	76	96	9	60	69	1	32	33	56	200	256	100.0	100.0	100.0
% of TOTAL	46.4	16.0	22.7	35.7	38.0	37.5	16.1	30.0	26.9	1.8	16.0	12.9	100.0	100.0	100.0	—	—	—

[a] See Table 13 for a description of the sample.

[b] The increase represents the new cotton hectarage financed with project credit in comparison to the hectarage in cotton before the project.

TABLE 21

RURALNORTE PROJECT: LIVESTOCK PURCHASES BY SIZE OF FARM — SERIDÓ AND SERRANA, 1976-1977

REGION and TYPE OF ANIMAL	SIZE OF FARM (ha.)											
	< 50		50 - 200		> 200		SUBTOTAL > 50			TOTAL		
	No. of animals	% of total	No. of animals	% of total	No. of animals	% of total	No. of animals	% of total		No. of animals		
SERIDÓ												
1976:												
BEEF/DAIRY	61	43.3	50	35.4	30	21.3	80	56.7		141		
TRACTION	50	45.9	32	29.3	27	24.8	59	54.1		109		
1977:												
BEEF/DAIRY	34	44.2	41	53.2	2	2.6	43	55.8		77		
TRACTION	37	50.0	37	50.0	—	—	37	50.0		74		
SERRANA												
1976:												
BEEF/DAIRY	219	34.3	232	36.3	188	29.4	420	65.7		639		
TRACTION	122	65.9	55	29.7	8	4.3	63	34.0		185		
1977:												
BEEF/DAIRY	401	25.2	642	40.3	549 [a/]	34.5	1,191	74.8 [a/]		1,592		
TRACTION	130	66.7	41	21.0	24	12.3	65	33.3		195		
TOTAL												
BEEF/DAIRY	715	29.2	965	39.4	769	31.4	1,734	70.8		2,449		
TRACTION	339	60.2	165	29.3	59	10.5	224	39.8		563 [a/]		

Source: Based on data from the Technical Unit of RURALNORTE.

a/ This total is slightly different from that given by the summing of the corresponding figures in Tables 22 and 23 563 vs. 548.

TABLE 22

RURALNORTE PROJECT: LIVESTOCK PURCHASES WITH CREDIT BY SIZE OF FARM AND TYPE OF ANIMAL
SERIDÓ REGION, 1976 - 1977

TYPE OF ANIMAL	0 - 50 ha						50 - 200 ha					
	1976			1977			1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm
BULLS	5	10	2.0	1	1	1.0	2	2	1.0	1	1	1.0
COWS	11	11	1.0	14	30	2.1	8	28	3.5	7	9	1.3
HEIFERS	–	–	–	–	–	–	1	20	20.0	1	1	1.0
STEERS	2	40	20.0	2	3	1.5	–	–	–	1	15	15.0
FATTENING STEERS	–	–	–	–	–	–	2	32	16.0	1	15	15.0
SUBTOTAL BEEF/DAIRY [a]	18	61	3.4	17	34	2.0	13	82	6.3	11	41	3.7
TRACTION ANIMALS	47	50	1.1	36	37	1.0	17	27	1.6	29	37	1.3
TOTAL [a]	65	111	1.7	53	71	1.3	30	109	3.6	40	78	2.0

TYPE OF ANIMAL	> 200 ha						TOTAL					
	1976			1977			1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm
BULLS	–	–	–	1	2	2.0	7	12	1.7	3	4	1.3
COWS	1	20	20.0	–	–	–	20	59	3.0	21	39	1.8
HEIFERS	1	10	10.0	–	–	–	2	30	15.0	1	1	1.0
STEERS	–	–	–	–	–	–	2	40	20.0	3	18	6.0
FATTENING STEERS	–	–	–	–	–	–	2	32	16.0	1	15	15.0
SUBTOTAL BEEF/DAIRY [a]	2	30	15.0	1	2	2.0	33	173	5.2	29	77	2.6
TRACTION ANIMALS	7	27	3.9	–	–	–	71	104 [b]	1.5	65	74 [b]	1.1
TOTAL [a]	9	57	6.3	1	2	2.0	104	277	2.7	94	151	1.6

Footnotes to Table 22

a Totals and subtotals for the number of farmers are overstated to the extent that the same farmer purchased more than one type of animal.

Source: Based on data from the Technical Unit of RURALNORTE.

b The sum of tractor animals for 1976 and 1977 of the Sendó and Serrana (Table 23) regions is slightly different than that of Table 21 (548 vs 563).

TABLE 23

RURALNORTE PROJECT: LIVESTOCK PURCHASES WITH CREDIT BY SIZE OF FARM AND TYPE OF ANIMAL - SERRANA REGION, 1976-1977

0-50 ha

TYPE OF ANIMAL	1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farms	No. of animals	Average animals per farm
BULLS	10	11	1.1	6	6	1.0
COWS	95	164	1.7	18	111	6.2
HEIFERS	11	34	3.1	9	96	10.7
STEERS	2	4	2.0	—	—	—
FATTENING STEERS	1	6	5.0	2	10	5.0
SUBTOTAL BEEF/DAIRY a/	119	219	1.8	35	223	6.4
TRACTION ANIMALS	112	112	1.0	115	130	1.1
TOTAL a/	231	331	1.4	150	353	2.4

50-200 ha

TYPE OF ANIMAL	1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farms	No. of animals	Average animals per farm
BULLS	10	10	1.0	4	4	1.0
COWS	18	111	6.2	14	173	12.4
HEIFERS	9	96	10.7	28	465	16.6
STEERS	—	—	—	—	—	—
FATTENING STEERS	1	15	15.0	—	—	—
SUBTOTAL BEEF/DAIRY a/	38	232	6.1	46	642	14.0
TRACTION ANIMALS	35	55	1.6	14	41	2.9
TOTAL a/	73	287	3.9	60	683	11.4

>200 ha

	1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm
	6	6	1.0	—	—	—
	4	82	20.5	2	20	10.0
	2	100	50.0	18	457	25.4
	—	—	—	—	—	—
	—	—	—	1	72	72.0
	12	188	15.7	21	549	26.1
	3	8	2.7	6	24	4.0
	15	196	13.1	27	573	21.2

TOTAL

	1976			1977		
	No. of farmers	No. of animals	Average animals per farm	No. of farmers	No. of animals	Average animals per farm
	26	27	1.0	10	10	1.0
	117	357	3.0	34	304	8.9
	22	230	10.4	55	1,018	18.5
	2	4	2.0	—	—	—
	2	21	10.5	2	82	41.0
	169	639	3.8	102	1,414	13.9
	150	175 b/	1.2	135	195 b/	1.4
	319	814	2.6	237	1,609	6.8

Footnotes to Table 23

a
Totals and subtotals for the number of farmers are overstated to the extent that the same farmer purchased more than one type of animal.

Source: Based on data from the Technical Unit of RURALNORTE.

b
The sum of fractions animals for 1976 and 1977 of the Sertana and the Sertão (Table 22) regions is slightly different from that of Table 21 (548 vs. 563)

TABLE 24

PROJECT AREA: BANK AND PROJECT CREDIT FOR ANIMAL ACQUISITIONS, 1973 - 1977

Year	Share of animal acquisitions in total rural investment credit (percentages)[a]			
	BB[b]	BNB[a]	BB SUBPROJECT / BNB	RURALNORTE[d]
1973	36.9	—	—	—
1974	33.5	—	—	—
1975	24.6	46.8	34.5	—
1976	19.4	40.9	26.1	19.1
1977	—	15.8	—	22.0

Source: Based on data from BB, BN and technical as of RURALNORTE.

[a] Includes traction animals, as well as beef, dairy and other livestock. BB and BNB data were not available for beef/dairy livestock only.

[b] Data not available after 1976. Covers the branches of Caucó, Catolé da Rocha, Cuimbra Nova and Umarizal.

[c] Data not available for 1973 and 1974. Covers the branches of Catolé da Rocha, Jardim do Seridó, and Pau dos Ferros. BNB classifies animal livestock purchases as seasonal rather than investment credit. BB and RURALNORTE include all livestock purchases in their investment credit. BNB seasonal credit figures, which are therefore added to the total investment credit, include animal purchases.

[d] Project investment cred was available only i 1976 and 1977.

TABLE 25
RURALNORTE PROJECT: TRACTION ANIMALS PREVIOUSLY OWNED BY A SAMPLE OF TRACTION-ANIMAL PURCHASERS, a/

No. of traction animals previously owned	Traction-animal purchasers	
	No.	% OF TOTAL
0	78	89.7
1	5	5.7
2	2	2.3
>2	2	2.3
TOTAL	87	100.0

a/ See Table 13 for a description of the sample.

TABLE 26

RURALNORTE PROJECT: ANIMALS PREVIOUSLY OWNED BY A SAMPLE OF TRACTION-ANIMAL PURCHASERS[a]

No. of animals previously owned by (beef/dairy/service)	No. of traction-animals purchased with project credit [a]					Project borrowers not purchasing traction animals	
	1	2	>2	TOTAL		No.	% of total
				no.	% of TOTAL		
0	24	1	2	27	31.0	191	26.7
1-10	24	5	—	29	33.4	229	32.0
11-40	21	5	2	28	32.2	205	28.7
>40	11	1	1	3	3.4	90	12.6
TOTAL	70	12	5	87	100.0	715[b]	100.0
% of TOTAL	80.4	13.8	5.7	100.0	—	—	—

Footnotes to Table 26

a
See Table 26 for a description of the sample.

b
The Technical Unit reports that many farmers in the project area had sold off their animals as a result of drought in 1975. Thus the number of animals owned may be somewhat unrepresentative and biased in a downward direction.

c
Includes 421 seasonal loans and 294 investment loans. Repeat loans are excluded.

TABLE 27

RURALNORTE PROJECT: PREVIOUS ACCESS TO CREDIT OF A SAMPLE OF TRACTION-ANIMAL PURCHASERS

PREVIOUS ACCESS	BORROWERS			
	TRACTION-ANIMAL PURCHASERS		ALL BORROWERS	
	No.	% of total	No.	% of total
YES	76	87.4	753	89.2
NO	11	12.6	91	10.8
TOTAL	87	100.0	844	100.0

a/ See Table 13 for description of the sample.

TABLE 27

RURALNORTE PROJECT: PREVIOUS ACCESS TO CREDIT OF A SAMPLE OF TRACTION-ANIMAL PURCHASERS

PREVIOUS ACCESS	BORROWERS			
	TRACTION-ANIMAL PURCHASERS		ALL BORROWERS	
	No.	% of total	No.	% of total
YES	76	87.4	753	89.2
NO	11	12.6	91	10.8
TOTAL	87	100.0	844	100.0

a/ See Table 13 for description of the sample.

TABLE 28

RURALNORTE PROJECT: ANIMALS PREVIOUSLY OWNED BY A SAMPLE OF BEEF-ANIMAL PURCHASERS [a/]

No. of animals previously owned beef/dairy/bovine	BEEF ANIMAL PURCHASERS	
	No.	% OF TOTAL
0	12	21.4
1-10	12	21.4
11-40	18	32.1
>40	14	25.0
TOTAL	56	100.0

No. beef animals purchased	BEEF-ANIMAL PURCHASERS	
	No.	% of total
1-10	31	55.4
11-40	24	42.8
>40	1	1.8
TOTAL	56	100.0

a/ See Table 13 for a description of the sample.

TABLE 29
RURALNORTE PROJECT: ANIMALS PREVIOUSLY OWNED BY A SAMPLE OF MILK-ANIMAL PURCHASERS[a]

No. of animals previously owned (beef/dairy/service)	Milk-animal purchasers	
	No.	% of total
0	8	25.0
1-10	11	34.4
11-40	10	31.2
>40	3	9.4
TOTAL	32	100.0

No. of milk animals purchased	Milk-animal purchasers	
	No.	% of TOTAL
1	9	28.1
2	9	28.1
>2	14	43.8
TOTAL	32	100.0

[a] See Table 13 a description of the sample.