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ECONOMIC ANALYSIS OF THE EMBOUCHE PAYSANNE PROGRAM ADMINISTERED BY ECIBEV UNDER MALI II

by

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INTRODUCTION

The November, 1981, review of the Mali II Livestock Project Paper identified several unresolved questions concerning the embouche paysanne program administered by ECIBEV. Of primary importance were economic questions --costs and returns to various program components; magnitude of subsidy, if any; farmers' ability to pay; and farm-level profitability. Other questions were concerned with the importance of credit, equity, the role of the private sector, and marketing. The major focus of my three-week consulting mission has been on the economic questions, dealing mainly with costs of ECIBEV embouche operations derived from examination of ECIBEV accounts. Other questions were dealt with much more briefly with reliance on previous studies by OMBEVI and BECIS of embouche in Mali, and by CRED of embouche in Niger.

The first and largest section of this report deals with ECIBEV's costs and returns. The second section discusses farmers' profits and ability to pay. The remaining sections offer brief discussions of credit, equity, marketing, and private farmer associations.

I. ECIBEV'S COSTS AND RETURNS

This section is based on data for the ECIBEV embouche campaign of October, 1980, through September, 1981. Dr. Ousmane Guindo, Director of ECIBEV, kindly made that data available. Ousmane N'Diaye, bookkeeper for ECIBEV, and Dennis Mc Carthy, livestock specialist for USAID, painstakingly went through all daily entries in the ECIBEV books to extract the information used here. All of the above individuals and Stanley Wills, USAID's Manager for the Mali II Livestock Project made themselves available to answer questions and provide all needed assistance. I am very grateful to all of them for their complete cooperation.

This section first presents a summarized picture of ECIBEV costs, and it shows that with 1300 animals in 1980/81 the operation suffered a loss of 21,334 FM per head. Costs are then recalculated for projected operations with 2500 to 3000 head, which reveals a break-even point between 5000 and 6000 animals with current farmer fees, and a break-even point at 3000 head if fees are raised by about 25%. Next, ECIBEV's costs are re-examined with an eye to possible savings. Based on this, new costs are calculated and the operation is shown to break-even between 3000 and 4000 head with current farmer

fees and at 2500 head if fees are raised by only ten percent.

A. Costs and Returns in 1980/1981

ECIBEV's costs are here divided into three major categories : (1) Feed, Medicine, and Death Loss; (2) Delivery of Services and Materials; and (3) Administration. As shown below, the first category covers material and animal costs; the second covers the personnel, vehicles, and fuel directly involved in delivering services and materials; while the third category covers administrative personnel, materials, and vehicles based in the Bamako headquarters. Some administration costs were totally for the embouche program while others were common to embouche, the Tienfala feedlot, and other activities. One half of the common administrative expenses are attributed to embouche in most of this analysis, with comparison to the 1/3 case. The cost of credit is dealt with separately.

The costs for each of the above three categories are as follows :

Cost Summary
(FM)

	Total Cost	Cost per Head (1300head)
Feed, Medicine, Death Loss	15,059,945	11,584
Delivering Services and Materials	19,915,280	15,319
Administration	21,228,475	16,330
Total	56,203,700	43,234

During 1980/1981 farmers paid 21,900 FM per animal as a fee to cover all feed, technical advice, veterinary care, and credit (75,000FM) provided by ECIBEV. Thus ECIBEV suffered a loss of 21,334 FM per animal.

If only one third of common administrative costs are attributed to embouche, the revised costs are as follows :

	Total	Per Head
Administration	15,193,946	11,688
Total	50,169,121	38,592

In this case the loss per animal is 16,692 FM

The details of ECIBEV costs in the above three categories are shown in the appendix.

B. Costs and Returns with More Animals

Individuals at ECIBEV and USAID have often stated that the embouche program should have many more animals, and Dr. Guindo has said that up to 6000 animals can be handled by the present staff. I assume this means the increase would all be within villages currently in the program. Thus costs are recalculated with the assumption that outlays remain constant for all items except feed, medicine, death loss, and diesel fuel to deliver feed. This may be an optimistic assumption but in that case it at least provides a lower bound cost estimate as animal numbers rise. The variable and fixed costs of this scenario are shown below.

Variable Costs	
Feed, medicine, death loss (for 1300)	15,059,945
Diesel fuel to deliver cottonseed (for 1300)	5,317,000
Total Variable Costs for 1300 head	20,376,945

Fixed Costs	
Delivery of services and materials minus diesel fuel	14,598,280
Administration (Direct embouche plus ½ common)	21,228,475
Total Fixed Costs	35,826,755

The following table shows variations in costs as the number of animals in the program increases. Costs per head are in parentheses.

Number of Animals fed	Variable Costs	Fixed Costs	Total Costs
1300	20,376,945 (15,675)	35,826,755 (27,559)	56,203,700 (43,234)
2500	39,186,433 (")	" (14,331)	75,013,188 (30,005)
3000	47,023,719 (")	" (11,942)	82,850,474 (27,617)
4000	62,698,292 (")	" (8,957)	98,525,047 (24,631)
5000	78,372,865 (")	" (7,165)	114,199,620 (22,840)
6000	94,047,438 (")	" (5,971)	129,874,193 (21,646)

With the current farmer fee of 21,900, ECIBEV covers costs at somewhat less than 6000 head. However, only 3000 head are required if farmers' fees are raised by 26%. As shown in the section on farm-level profitability this may not be an unreasonable increase. However, before any such action is taken efforts should be made to lower ECIBEV costs, as pointed out in the next subsection. Before proceeding to that discussion, however, the above table should be compared to the following one in which only one-third of common administrative costs are attributed to embouche.

Number of Animals fed	Variable Costs	Fixes Costs	Total Costs
1300	20,376,945 (15, 675)	29,792,226 (22,917)	50,169,171 (38,592)
2500	(As in previous table)	" (11,917)	68,978,659 (27,592)
3000		" (9,931)	76,815,945 (25,606)
4000		" (7,448)	92,490,518 (23,123)
5000		" (5,958)	108,165,509 (21,633)
6000		" (4,963)	123,839,664 (20,640)

In this case ECIBEV covers costs with less than 5000 animals with current farmer fees, and only 2500 animals are needed if there is a 26% increase of fees. However, as noted above, fee increases should not be recommended until ECIBEV's costs are examined with an eye to possible reductions, which is done in the next section.

C. Cost Reductions

As shown above, in subsection A, farmers in the embouche program received materials and death-loss reimbursement costing ECIBEV an average of 11,584 FM per animal in 1980/81. The costs of "delivery" and administration (with ½ common) added another 31,649 FM, which might be termed an overhead of 273%. This is a somewhat uncharitable characterization because the value of materials depends on their location, so that the figure of 11,584FM should be increased to carry some of the "delivery" costs. Nevertheless, this characterization does seem to point to a problem that ECIBEV probably shares with many similar agencies, namely, high costs of delivering and administering materials and services. Our short mission did not permit detailed examination of means to cut costs, but a review of cost data in the appendix does suggest some likely areas for reduction. Thus we proceed below with a suggestive exercise that might be followed by a more detailed analysis undertaken by resident staff at ECIBEV and USAID.

1. "Delivery" Costs. -- The 6 encadreurs who conduct field operations receive an average salary of 575,824 FM, which is about midway between the salaries of ECIBEV's top secretary (503,844) and its mechanic (685,140). However, the encadreurs also receive a variety of "primes" and " frais" that bring their total compensation up to an average of 1,073,324 FM per year, which is midway between the salaries of ECIBEV's bookkeeper and Assistant Director. That may be high and so a total compensation package of 800,000 FM is proposed for this hypothetical exercise. This provides about a 40% payment above salary to cover extraordinary expenses (e.g., per diem for trips to Bamako) and bonuses for good work.

   ECIBEV has 12 mobylettes for 6 encadreurs and one veterinary nurse. This might be reduced to only 7.

   Fuel for these mobylettes cost 3,593,070 FM in 1980/81. This works out to about 75 liters per month for each of the 6 encadreurs plus veterinary nurse if the price is between 500 and 600 FM per liter. This may be high especially since the embouche campaign is concentrated in the six or seven months following October. Hence mobylette fuel costs are taken as only 2/3 their 1980/81 value for this exercise.

2. Administration Costs. -- At present there appear to be 6 vehicles (cars, land cruisers, small trucks) at ECIBEV headquarters to serve the Director, the Assistant Director, and the Embouche Director. It may be possible to reduce this to only two vehicles, one for the Embouche Director, who presumably uses it to go to the field, and one for the rest of headquarters staff for use in Bamako. Thus the amortization costs for headquarters "common" vehicles is reduced from 6,352,986 to 993,400. The fuel costs for these vehicles is reduced from 9,900,000 to 1,143,000, the 1980/81 amount for the Embouche Director's car.

   The primary ECIBEV administrative staff of concern are the Director, the Assistant Director, the Embouche Director, and the bookkeeper. The support staff includes 3 secretaries, 3 chauffeurs (plus one for the tractor trailer that delivers cottonseed, but the is not counted here), 2 chauffeur apprentices, a full-time mechanic, 2 bookkeeping assistants, and two general office aides. The Direction of ECIBEV might economize by combining the roles of Assistant Director and Embouche Director, but that is not proposed here. The reductions for this hypothetical exercise consist

of limiting the support staff to one chauffeur, a half-time mechanic (or equivalent services purchased outside), one bookkeeping assistant, one general office aide, and retaining all 3 secretaries.

The costs of maintaining and repairing 5 vehicles at headquarters (this excludes the Embouche Director's vehicle) plus the tractor trailer truck were 7,824,512 FM in 1980/81. The average purchase price of the 5 headquarters vehicles was 5,889,828 FM. Thus costs of maintenance and repair seem high. In addition, this exercise posits a reduced headquarters fleet. Accordingly, maintenance and repair of headquarters vehicles plus the tractor trailer are halved to 3,912,256 FM.

All hypothetical reductions for this exercise are shown in the appendix.

The reduced costs may be summarized as follows :

	Total Cost	Cost per Head (1300)
Feed, Medicine, Death Loss	15,059,945	11,584
Delivering Services and Materials	16,733,161	12,872
Administration (Embouche + ½ common)	9,795,055	7,535
Total	41,588,161	31,990

An expansion of the embouche program with these reduced costs would result in the cost schedule shown below. Costs per head are in parentheses.

Number of Animals Fed	Variable Costs	Fixed Costs	Total Costs
1300	20,376,945 (15,675)	21,211,216 (16,316)	41,588,161 (31,991)
2500	39,186,433 (")	" (8,484)	60,397,649 (24,159)
3000	47,023,719 (")	" (7,070)	68,234,935 (22,745)
4000	62,698,292 (")	" (5,303)	83,909,508 (20,977)
5000	78,372,865 (")	" (4,242)	99,584,081 (19,917)
6000	94,047,438 (")	" (3,535)	115,258,654 (19,210)

Under this scenario, with current farmer fees, ECIBEV would cover costs at between 3000 and 4000 animals. If farmer fees were raised only ten percent, ECIBEV would cover costs with 2500 animals in the program. The question of whether farmers can afford higher fees is addressed in the section on farm-level profitability.

D. Rate of Return to ECIBEV

ECIBEV's expenditures include 75,000 FM credit to farmers for purchases of an animal, plus the costs of materials, delivery, administration, and so forth detailed above. Taking the case of 3000 animals with one half of common administration charged to ECIBEV, those latter costs are 27,617 per head. Thus all costs total 102,617 FM per head. Assuming that all these expenditures are made at once and are all recovered after four months (this is approximately true for credit but not the rest), and that the nominal interest rate is 12% per year, then a return of 4% is warranted. This amounts to 4,105FM per animal. For this example farmers would then have to pay a fee of 31,722 FM for ECIBEV to achieve a 12% annual rate of return on its expenditures. This fee represents a 45% increase over what is now charged.

For the case of reduced costs presented above in subsection C, ECIBEV's outlays would be 22,745FM per animal in addition to 75,000 FM for credit, giving a total of 97,745 FM. With the same assumptions as for the first example, a 12% annual rate of return amounts to 3,910 FM in four months. In this case the farmer's fee would have to be 26,655 FM per head for ECIBEV to realize 12% on its expenditures. Thus fee is about 22% greater than is presently charged.

The next section considers the ability of farmers to pay such fees.

II. FARMERS'COSTS AND RETURNS

This section draws on the following three reports :
(1) Ba, et. al, "Etude sur l'Embouche Paysanne : Economie et Perception" (in Ségou, Banamba, and Fana zones), Bureau d'Etudes de Conseil et D'Interventions au Sahel, (BECIS), Bamako, October, 1981;
(2) Diarra, et. al., "Impact de l'Activité Embouche Paysanne de l'ECIBEV," (in Banamba zone), Office Malien du Bétail et de la Viande, (OMBEVI), Bamako, August, 1981; and
(3) Thomas, "The Stratification of the Production and Marketing of Livestock in South-Eastern Niger in the Department of Zinder : Preliminary Report of Results", Center for Research on Economic Development, (CRED), University of Michigan, Ann Arbor, May, 1981.

These reports do not provide an unambiguous picture of the profitability of embouche to farmers. Rather they suggest that some farmers earn considerable returns and probably could pay higher fees, while others barely find the enterprise worthwhile with current fees. Most of the former seem to be in the Banamba zone while farmers earning lower returns seem to be in the Segou zone. These conclusions are highly tentative. There has been no detailed study of on-farm costs (labor and other resources), and we have not been able to determine the accuracy of the sale prices obtained through farmer recall in the first two studies cited above.

The BECIS study provides purchase and sale prices for eleven households in 1980/1981. This information is summarized in the following table.

Purchase and Sale Prices 1980/1981

Zone	Number of Animals	Average Purchase Price	Average Sale Price	Average gain Per animal
Segou	3	75,000	110,000	35,000
	1	75,000	112,500	37,500
	2	75,000	88,500	13,500
	2	75,000	140,000	65,000
	2	90,000	113,925	23,925
	2	75,000	152,000	77,000
Banamba	7	83,571	114,285	30,714
	5	88,200	140,000	51,800
	2	90,000	126,000	36,000
	8	75,000	146,500	71,500
	14	89,500	156,429	66,929

The weighted average household gain per animal was 53,040 FM.). The BECIS report also presents summarized 1979/80 return data that we cannot interpret, but it appears to indicate lower returns than shown above (Table 3.20,p.26). In fact Segou farmers are shown to average less than 750FM above the 19,000 fee that was in effect in 1979/1980 while Banamba farmers average 11,000 above that fee.

In the OMBEVI Banamba survey, 95% of farmers sampled reported a net gain over fees in each campaign. The following table reports the distribution of those gains. It is important to note that these are net gains per animal above purchase price and above fees paid to ECIBEV.

YEAR	Amount of Net Gain Per Animal	Number of Farmers
1980/81	5,000 - 15,000	18
	15,000 - 25,000	29
	25,000 - 35,000	44
	35,000 - 45,000	17
	45,000 - 50,000	6
1979/80	5,000 - 15,000	15
	15,000 - 25,000	25
	25,000 - 35,000	11
	35,000 - 45,000	5
	45,000 - 50,000	-

For 1980/81 this shows a weighted average gain of 26,710 per animal above fees paid, which is 48,610 before fees. This is close to the BECIS figure.

Neither the BECIS nor OMBEVI study attempted to determine the value of home produced forage, the value of farm family labor, and the value of manure from the embouche animals. The Thomas/CRED study in Zinder, Niger was conducted over 14 months and did attempt to value these items. Thomas' preliminary estimates, which are now being refined, show an average of 14 full-day equivalents of labor devoted to embouche one animal. If this is valued at 500FM per day, the labor cost is 7000FM per animal.

As is true in some of the Mali embouche areas, there was a market for home grown forage in Zinder. Thomas estimated that the average embouche animal consumed 4000 FCFA or 8000FM worth of home-grown forage in a season. On the other side of the ledger is the value of manure, for which there also existed a market in Zinder. Estimating 6 kilos per animal per day for 120 days gives 720 Kg, which was worth 3000 FCFA or 6000FM.

The OMBEVI and BECIS data on net returns should be revised to include these on-farm costs and returns. Labor and forage cost 15,000 FM while manure is worth 6,000FM, which leaves a net additional cost of 9,000FM. This brings the average gain (before deducting fees) for the 11 BECIS households reported above down to 44,040. For the OMBEVI survey, subtracting 9,000FM per head essentialy moves the whole distribution down one class. (For example, the 29 farmers who earned 15,000 to 25,000 per animal, in 1980/81 may now be said to have earned only 5,000 - 15,000 after deducting on-farm costs.)

The deduction of net on-farm costs brings the 1980/81 OMBEVI reported net average gain down to 17,710 FM after ECIBEV fees are paid. Deducting ECIBEV fees from the average 1980/81 gain reported by BECIS brings that figure to 22,140 FM per animal. Taking the midpoint between these two figures gives us <u>an average 19,925 FM profit per animal, above all fees and on-farm costs</u>. However, both the OMBEVI and BECIS studies show that this average hides large differences among farmers in each zone, and perhaps larger differences between the Banamba and Segou zones.

With all due caution and qualification, we can use the 19,925 FM farmer profit in assessing the overall profitability of embouche and farmers' ability to pay higher fees. As an extreme, one might say that farmers could pay the entire 19,925 FM in higher fees, because that figure represents profit above a fair return to home-grown forage and labor. This gives a potential fee of 41,825 FM, a 91% increase over present levels.

41,825 is clearly too high a fee, in that many farmers could not afford it and many of those who could would not consider embouche attractive if forced to pay such an amount. However, it is useful number for comparison with the fees ECIBEV must collect to cover costs in the three scenarios presented in part I. For 3000 animals, those three scenarios call for fees between 26,655 FM and 31,722 FM for ECIBEV to cover all costs and earn a 12% rate of return.[1] In other words, the embouche program seems to pass a rough benefit/cost test with a 12% discount rate. This point is pursued in the next section.

III. OVERALL RATE OF RETURN

Consider the case of 3000 animals, which ECIBEV is said to be able to handle easily, and charge half of common administration costs to embouche. For this case ECIBEV incurs costs of 27,617 FM per animal along with 75,000 FM in credit for a total outlay of 102,617 FM. Farmers incur a cost (either implicitely or in cash) of 7000 FM for labor to feed, water, guard and care for an animal, and 8000 FM for forage (value if purchased or implicit value of home-grown). In addition, many farmers supplement the ECIBEV credit to buy better animals. The average price in the BECIS data is 83,104 and we assume 85,000 for the OMBEVI Banamba data. Averaging the two gives about 84,000 or an additional 9000 FM outlay by the farmer. Total cost per animal is thus 126,617, of which 102,617 is from ECIBEV and 24,000 from the farmer.

The OMBEVI study does not report sales and purchase prices, but using the reported profits and an estimate of 85,000 purchase price for the OMBEVI sample, we can estimate sale price. The ECIBEV fee is 21,900 and the average reported profit above fees was 26,710, indicating an average sale price 48,610 above purchase price. If the purchase price was 85,000, the average sale price was 133,610. This is very close to 136,144 FM,which is weighted average of sales prices reported by BECIS. We use 135,000 as a rough estimate of average sales price for the two groups.

The sale price must be compared to total costs, which are calculated above as 126,617 FM. The difference between the two is 8,383 FM, which is a 6.6% return in 4 months or an annual rate of return of 19.8%. If one adds 6000FM as the value of manure, the difference between costs and returns is 14,383 FM which is an 11.4% return in 4 months or an annual rate of return of 34.2%. It must be recalled that these are rates of return calculated after deducting fair returns to farmers'labor and to home-grown forage.

1. For 2500 animals the required fees range between 28,125 and 34,205.

We must note that the accuracy of this analysis is no greater than the accuracy of the two reports from which price and sales data were derived. However, the estimates finally used are comfortably within the range of estimates we received in discussions during our visit. Finally, one must not forget that this analysis is conducted in average terms. This may be alright for an overview of the program, but it does hide the aforementioned differences between Segou and Banamba zones, as well as variability among farmers within zones.

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NOTES ON A VISIT TO THREE EMBOUCHE VILLAGES IN SEGOU ZONE AND DISCUSSIONS WITH A PEACE CORPS VOLUNTEER STATIONED IN AN EMBOUCHE VILLAGE IN BANAMBA ZONE

On February 16th and 17th I visited the villages of Doukolomba, Tongo, and Diouanna, all enrolled in the embouche program in Segou Zone. I was accompanied by G. Cashion, D. McCarthy, and P. Bisaccia. Bisaccia is a Peace Corps volunteer stationed at Touba, a village in the embouche program in Banamba Zone. The overriding impression of the field visit and of discussion with Bisaccia is one of great variability in the capacity of different villages to take on more of the embouche program themselves. At one extreme is Touba where the village seems to be running the entire operation and using ECIBEV agents as assistants. At the other extreme is Doukolomba where there is total reliance on the agent. Diouanna is somewhere in the middle, already undertaking the marketing phases of the program and perhaps ready to take on more. The lesson to be learned may be that many villages can become responsible for most aspects of the program in time, but that the required time and intensity of initial assistance will be highly variable. There may be a role for Peace Corps volunteers to help villages in this regard, especially in setting up record-keeping systems.

Doukolomba

In Doukolomba, eight farmers were registered for the program but no animals had been delivered as of our visit. (We later learned that the agent was in the process of buying the cattle.) The villagers said it may now be too late for a proper embouche effort because it would conflict with the start of the farming season. Doukolomba farmers do not seem to have any input into buying the cattle.

Similarly, no Doukolomba farmers sold animals themselves but rather all sold to ECIBEV, even though they dislike the system. There were complaints that on occasion they have been told to bring their animals to another village for weighing, only to find that the scales have not arrived so they must return home and go again another day.

Other problems cited concerned salt, cottonseed, and medical care. Both salt and cottonseed have arrived as much as one month after the animals.

Neither had arrived by the time of our visit. Veterinary care was also raised as a problem because agents were said to not come when called by farmers.

The assembled farmers, who included six of the registered embouchers, said they believed they could undertake the purchase and sale of animals on their own but would need help keeping records. They also felt they could give shots themselves and they know where to get cottonseed. Obviously, we could not test the reality of these statements in our short visit, but, personally, I was skpetical. One surprising part of the discussion came when farmers said that if given the credit to use as best they could, they would engage in buying and selling small ruminants in a variety of nearby markets, rather than undertake cattle feeding.

The first problem cited in their own embouche activities was drawing water. There was no mention of lack of water, but strong agreement that drawing water for animals took a long time (see Cashion's discussion in the Mali II social soundness analysis). There was an indication that forage also was sometimes a problem. They feed millet stalks, grasshay, fonio husks, peanut hay, niebe hay, sorghum stalks, and the ECIBEV-provided cottonseed. All farmers were said to intercrop millet and niebe.

Tongo

At Tongo, farmers believed that the animals ECIBEV provided were not worth 80,000 FM, this year's credit. Several animals were pointed out to us as being worth only 55,000 to 60,000 FM and indeed they appeared extremely thin. The animals arrived about 40 days before our visit but the cottonseed only 15 days before. The typical age of the eight embouche animals was judged by the farmers to be 10 to 12 years. They pointed out that younger ones, 6 to 7 years, would be too expensive, or if they were thin it might mean illness. In contrast, a 10 to 12 year old animal is expected to be thin.

All farmers sold all their embouche animals to ECIBEV. This seems necessary if they are provided with poor animals that cannot recoup an 80,000 credit on the free market. Farmers expressed this opinion.

Farmers gave the following as prices they felt would have been appropriate for the six embouche animals we saw:

Animal	Price
1	60,000
2	57,500
3	60,000
4	70-75,000
5	no price given
6	55-60,000

The farmer with the 4th animal hoped to get 140,000 for it after embouche.

The variability in animals led us to ask how they were given out. Evidently, on the day the animals arrive, it is first come first served. This year, the chief got first choice, as may usually be the case.

The farmers knew of a merchant in Bousain who sold cottonseed.

We saw two nonembouche plow oxen in excellent condition.

We measured at 84 feet the length of rope lowered to draw water from a well.

My general impression was that farmers at Tongo knew how to care for their animals and with some initial help, could develop an association to take over several embouche operations. However, a one- to two-hour visit can hardly be definitive.

Diounna

At Diounna we interviewed M. Diko, the ECIBEV agent, and his brother, head teacher in the village school. The village had requested 168 animals but received credit for only 75, which were distributed to 38 farmers. Fifty animals were delivered by January 20th and the second gorup of 25 had been delivered just prior to our visit. Funds for these two groups of cattle were delivered by ECIBEV to the village in mid-December and mid-January, respectively. This was said to be too late because by that time the price of animals was already rising. October 15 to December 15 was said to be the best period for buying good animals at low prices.

There were several indications that farmers could take over a number of ECIBEV functions. At present, farmers choose a representative to go to the market with the ECIBEV agent. The representative selects animals which the ECIBEV agent has the power to approve or not. At the end of the embouche season, only 2 of the 76 head were sold to ECIBEV while the remainder were sold privately by the farmers. Farmers were organizing a niebe seed cooperative to pool funds for buying good seeds early enough to get a low price. Niebe hay is an important forage. ECIBEV delivered cottonseed February 2nd, but farmers know of other sources. Cottonseed is sold in the local market. One large farmer obtained two truck-loads of cottonseed from the Koutiala ginnery and sold much of it. Finally, there are livestock cooperatives in the Segou area which submit cottonseed purchase requests to Elevage which passes the cottonseed on to the cooperative. Most members use it primarily to feed work oxen in the dry season, but some feed animals for the market as in the ECIBEV embouche program. Veterinary care may be more difficult for farmers to obtain. Although Elevage agents are in the area, they do not provide frequent enough health services for embouche farmers at present, but perhaps this could be changed.

It seems Diounna may be a case where farmers can soon take on more functions now performed by ECIBEV. Perhaps such greater local responsibilit should be an objective of ECIBEV agents, who could then move on to other villages while maintaining only a light monitoring role in the successful, self-managed villages.

Touba

I did not visit Touba village in the Banamba Zone but did interview the Peace Corps volunteer stationed there. At Touba the farmers formed an association that seems to have taken over most ECIBEV functions. This year the association's leader came to Bamako to collect the credit funds. He then distributed them to farmers he judged competent to select their own animals and bought animals for the rest (about half). The cottonseed is delivered by ECIBEV to the association's leader and distributed by him to participants.

The association leadership spent two weeks in September with the ECIBEV agents selecting participants. In July the association leader collected the loans himself. During the embouche season ECIBEV agents visit Touba four days a week. (They do not come on Friday, the Moslem sabbath, nor on the Sunday and Monday market days.) They spend one month innoculating all animals and thereafter tend to sick animals. The agents are taken to participating farms, many in outlying areas, by the association's leaders. Between May and July the agents visit Touba about once a week to keep in contact.

This account by the Touba Peace Corps volunteer shows that most operations are handled by the village association. One exception is veterinary care, but suggestions have been made that farmers may be trained to do some of this or that Elevage could expand its activities to relieve ECIBEV of this role. Thus, it may be possible for ECIBEV to adopt a pattern that starts with intensive embouche development for several years and then gradually tapers off to a pure credit operation in the long run. The intensive effort would then shift to new villages and areas.