AFRICAN RURAL ECONOMY PROGRAM

WORKING PAPER

A PROPOSED STRUCTURE FOR THE MEDIUM-TERM
CREDIT PROGRAM IN THE EASTERN ORD
OF UPPER VOLTA

by
Tom Zalla

AID/afr-C-1182

Working Paper No. 10 February 1976

Department of Agricultural Economics
Michigan State University
East Lansing, Michigan 48824

AFRICAN RURAL ECONOMY PROGRAM

The African Rural Economy Program was established in 1976 as an activity of Michigan State's Department of Agricultural Economics. The African Rural Economy Program is a successor to the African Rural Employment Research Network which functioned over the 1971-76 period.

The primary mission of the African Rural Economy Program is to further comparative analysis of the development process in Africa with emphasis on both micro and macro level research on the rural economy. The research program is carried out by faculty and students in the Department of Agricultural Economics in cooperation with researchers in African universities and government agencies. Specific examples of ongoing research are, "An Analysis of Labor Allocation, in Small Holder Agriculture in Ghana, Sierra Leone, Upper Volta, Ethiopia and Kenya". Additional research studies in progress include, "Analyzing Benefits of Rural Development Programs and Policies," "Analysis of Rural Small Scale Industry in West Africa," "Dynamics of Female Participation in the Economic Development Process in West Africa," and "The Economics of Small Farmer Production and Marketing Systems in the Sahelian Zone of West Africa".

The African Rural Economy Library is a specialized collection of 2,500 volumes which is available to MSU faculty members and graduate students and visiting scholars.

Carl K. Eicher
Professor of Agricultural Economics
Michigan State University
East Lansing, Michigan 48824

TABLE OF CONTENTS

I. INTRODUCTION

In February, 1976, at the request of USAID, the author was sent by the Department of Agricultural Economics at Michigan State University to assist in the formulation of a medium-term credit program in the Eastern ORD (Organism Regional de Developpment) of Upper Volta. A previous MSU team had visited the area between October and December, 1975, and produced a very comprehensive analysis of some of the broader, longer range development problems which confront the region.[1] That study should be taken as background to the present effort and read in conjunction with it.

On the basis of the MSU report I decided to take a closer look at existing credit programs in the ORD, and the technological package being offered to farmers before attempting to formulate a new, longer range program. That report raised several questions about the adequacy of veterinary and extension services--the two most important supporting services for the animal traction package being offered on credit--and the repayment record of existing credit programs. During the course of my enquiries into these questions, I spoke in considerable detail with a dozen farmers who used animal traction (chosen by myself and not extension agents), ten of the ORD's 65 or so operating extension agents (encadreur), six of the 14 sub-sector heads and three of the four sector heads. The next three sections describe what I found.

II. A REVIEW OF CURRENT MEDIUM-TERM CREDIT PROGRAMS IN THE ORD

There are essentially four separate medium-term credit programs now being operated in the Fada N'Gourma ORD: 1) the ORD's own program; 2) a national program established by the Secrétariat Permanent with money from USAID; 3) Maurice Colas' private credit program; and, 4) a Fréres des Hommes program at Piéla.

---

[1] See Eicher, Sargent, Tapsoba and Wilcock. An Analysis of the Eastern ORD Rural Development Project in Upper Volta: Report of the MSU Mission, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, January, 1976.

A. The ORD's Own Program.

Since 1970 the ORD has provided medium-term credit for agricultural equipment from its operating funds. Until 1974 it offered a two year, three equal payments program. At that time it shifted to a one year, two payment system with required down payments ranging from 40-70%.[1]

Such records as exist for this credit program were examined in the sub-sectors of Diabo, Fada Est, Matiocali, Kanchari and Namounou. The proportion of loans in arrears one year or more in these sub-sectors was between 40-45% of those issued prior to the 75-76 campaign. Because the recording systems in use specify only the year of the loan and any payments made--and frequently not even that--loans on which payments are due this year have been classified as paid up. In fact, it is already late in the season and many of the loanees will find it difficult to make payments this long after the harvest. The proportion of arrears is therefore underestimated.

For loans given during the 1975-76 crop season, records were much better due to the arrival of a credit management officer at ORD headquarters. He has imposed a system of control which provides for a fairly effective global control. However, control over individual loanees is still exercised only at the sub-sector level. Moreover, at the sector and ORD levels, accounting procedures do not distinquish effectively between money received for cash sales, down payments and annual payments. In an expanding credit program this conceals the true extent of arrears because down payments and cash sales are growing more rapidly than required repayments. Furthermore, 10-20% of farmers taking credit make down payments greater than the amount required, providing additional cash which offsets and, consequently, further conceals the number of arrears. It is not surprising, therefore, that I observed a very large proportion of loans given for the 1975-76 campaign on which no payments had yet been made. If, as I suspect, most of these end up in arrears, then the arrears rate for last year's credit will approach 70%. The erosion in repayment rates since 1971-72 is a classical sign of a credit program in the advance stages of collapse.

B. FDR-ORD National Credit Program.

Other ORD medium-term credit is provided by a national revolving fund established with USAID R & R money. The fund is administered by the BND

---

[1]Diabo is still using a two year, three payment system.

(National Development Bank) through the Permanent Secretary's Office (Ministry of Rural Development), the Rural Development Fund (FDR) and the ORDs. Credit is provided for animals and equipment but not for the yoke, cords or traction chain; the latter constitutes an effective down payment. The credit, given for the first time during the 1975-76 campaign, is available only to Community Development Villages where intensive supervision is more or less assured. The terms include a year of grace, four annual installments and a 5 1/2% interest rate. In the future the program may allow credit to other villages or extension districts (unité d' encadrement) which meet specific and quite selective criteria. The Secrétariat is in the process of completing an elaborate system of control which will be imposed on the ORDs this year. The system is quite comprehensive and reflects a very serious attitude toward agricultural credit and the political will for effective control. This system, including its sanctions, should be adopted by the ORD for its own independent medium term credit program.

C. Maurice Colas' Credit Program.

During the period 1972-74 Mr. Maurice Colas, operator of an artisanal agricultural equipment manufacutring business in Fada, extended credit for animals and equipment to farmers in the Diabo area. There is some dispute over whether the terms ever were specified to farmers but Mr. Colas insists that his terms were the same as those extended by the ORD at that time--3 equal payments in 2 years. Judging from the size of most of the down payments, this is true. There was no interest charged and no credit contracts were signed. Most of his funds came from external philanthropic organizations.

Mr. Colas made about 110 loans between 1972-74 but his poor recording system does not permit a precise determination of the exact number. Of the 100 or so for which records are available and understandable the position as of February, 1976 is shown in Table 1.

Again, most transactions were undated or gave only the year. It is not known how many of the 1975 payments were made at the beginning of the year (last crop season) or at the end (current crop season). My impression is that most were made in the last crop season and are now approaching arrears. Even treating them as paid up gives an arrears rate of about 60% In all, about 2.2 million FCFA of equipment and animals were given out on these 100 loans. Of this 1.2 million FCFA (including down payments of about 700,000 FCFA) have been paid. By the end of this season, essentially right now, all this money will have been due. Thus the repayment rate, excluding down payments, is somewhere around 30-35%.

Table 1. Arrears Status of Maurice Colas' Loans

Status of Loan	Number of Loans
Paid up to date	17
Year last payment made:	
1975	22
1974	28
1973	13
1972	1
In arrears but do not know for how long	19
Total Loans Included	100

D. Piéla Fréres Des Hommes Credit Program.

The Fréres des Hommes, a French volunteer organization, have been manufacturing and distributing plows on credit at Piéla since about 1970. Their terms are the same as the ORD's were prior to 1974--3 payments in 2 years.

We arrived at Piéla just as the sub-sector chief, a Fréres des Hommes volunteer, was departing in a hurry for Fada. It was not possible to see his records but he was quite willing to talk about the program. Since 1970-71 they have distributed about 90 plows on credit and have only 1 farmer currently in arrears. He was excused because of unusual circumstances. The reason for the very low rate of arrears is prompt foreclosure--within a month or so of delinquent payments. In spite of this very firm policy they have repossessed only 4-5 plows over this time, reimbursing the farmer for all he has paid to date. The sub-sector chief remarked that this policy not only prevented any discontent but usually relieved a farmer of a plow he didn't want to keep anyway. Farmers who really see the benefit of a plow, he said, always find the money when faced with repossession.

E. Lessons to be Drawn.

According to the BND, the proportion of credit arrears in ORDs with a good extension service varies between 5-15%. In those with poor extension support, arrears rise to 50-70%, the current situation in the Eastern ORD. Most people who have experience with Upper Voltaic farmers will argue that the problem is not the farmer, that farmers take credit very seriously. Inquiries into traditional credit mechanisms substantiate such a claim.

Throughout the region I found evidence that some farmers who had outstanding credit on cultural equipment were not visited by the extension agent, even to instruct them in the use of their equipment, much less to remind them of their credit obligations and facilitate repayment. To often, extension agents seem to wait for farmers to come to them with the money rather than seek them out or inquire into arrears.

The experience of the Piéla credit program is instructive. Where the extension service works with farmers and ensures that they use the equipment properly, farmers find it sufficiently profitable to make their payments even when there is no monetary cost to their not doing so--they lose only their plow but not their money. Furthermore, repossessing a plow from a farmer who is not using it, or not getting the proper benefit from it, is often as much a service to him as a penalty, especially where the economic cost to him of repossession is minimized. If he has been properly instructed in the use of the equipment and the equipment is profitable in his farming system, he seems to be able to come up with the money. If not, either because he is left to himself or is in a system where profitably of the package is low, he misses his payments. Foreclosure in this situation is certainly a benefit for the nation as it reactivates idle equipment. And it need not be a heavy cost to the farmer if he is charged only actual wear and tear on the repossessed equipment and is reimbursed the rest.

The ORD recognizes that the level of performance of extension agents is a serious problem in the region. It has scheduled four short training or refresher programs for this year: one on credit administration, one on animal traction, one on rural animation and another on the general extension program. While these courses will no doubt help, it is not at all clear that the problem is one of a lack of training as opposed to a lack of motivation. Some of the extension agents who know the least about farmers who have credit in their area, speak the best french and received their training at Matourkou.

The problems with the extension program run deep, ranging from extremely low salaries to the lack of an effective system of extension management and control. Monthly reporting and programming activities are of little use unless someone follows them up at the farm level, at least with a spot check now and then. There seems to be no effective control over the allocation of credit by the extension agents because the system of following up arrears is ad hoc, to the extent that one exists at all.

It is absolutely imperative that the ORD asserts control over existing credit programs and moves against the unacceptably high levels of arrears. The last two crop years have been good ones. While there may have been isolated cases of individual crop failures this cannot be the reason for the 50% or more who are in arrears. The ORD is fooling itself if it thinks it can successfully implement a new credit program in the face of such high arrears on old programs. It would be far better to forget about credit and have a grant program for plows to the poorer farmers in the area. For, a credit program that is not controlled eventually ends up as a grant program to the wealthier farmers.

The worst of the credit programs is that of Maurice Colas. Admittedly, the program was poorly thought through and documented. But it is serving as a real millstone around the neck of the ORD credit program in Diabo where repayment rates in recent years have been as bad as any in the ORD. The ORD should take over this program, and with the system of control proposed in section V, instruct its extension agents and credit officers to follow up farmers with arrears. If the ORD is unwilling to do this then it should ask Mr. Colas either to write off his loans--and inform farmers that he is doing so--or act himself against those with arrears. This is a very serious situation with respect to any new credit program in the area.

III. THE TECHNICAL PACKAGE FOR MEDIUM-TERM CREDIT

The theoretical advantages of animal traction are well known and too much discussed. Little information on what farmers actually do with the package once it is part of the farming system exists. The poor repayment rate of the intensely supervised and subsidized Matourkou credit scheme (37% arrears[1])

[1] Eicher, et al., *op. cit.*, p. 57.

suggests that the divergence may be quite substantial and that it would be wise to proceed with caution.

Animal traction has a long history in the Eastern ORD, dating at least to a pilot farmers project in the mid-1950s, and no doubt beyond. All those early projects were based on oxen traction and were soon abandoned. It was only after Mr. Maurice Colas and others began manufacturing donkey plows and providing repair services that animal traction really took hold in the ORD.

A. Power Source.

About 75-80% of farmers who prepare their land with animal power use donkeys. Donkeys are frequently used even to plow the heavy bas fond (natural drainage basins which accumulate water during the rainy season) soils, although the size of parcels in such areas is usually rather small. The preference for donkey power is based primarily on the lower cost of donkeys their more facile management and their roles as beasts of burden outside the cultivating season. They are easier to work with than oxen, which often require 3 persons under the current system, and which, in any case, cannot be handled by women. Oxen are more feared around the compound and also involve greater death loss. Farmers recognize that a pair of oxen can do more work than a donkey and that mature oxen are worth a lot more than four year olds. But few would think of selling a trained ox at the height of its working life when its market value is greatest. Most would hold on to them until they could no longer work and then sell them to a butcher for less than their acquisition cost.

The average price of a pair of 3-4 year-old oxen is 40,000 FCFA in the Eastern ORD versus 7-10,000 FCFA for a donkey. Prices for donkeys have risen sharply in recent years due to their growing popularity for donkey carts and a growing market for doneky meat in Ouagadougou. Beef prices, on the other hand, have probably peaked since meat sales to coastal countries are meeting increasing competition from imported meat. Although the big killings in the donkey trade have already been made there will probably continue to be upward pressure on prices for some time to come. This should narrow price differentials between donkey and oxen somewhat more but current price relationships are probably not too unrealistic for longer term cost comparisons.

It appears that too much is made of the potential gain to farmers from selling mature oxen to butchers. Cattle mortality appears to be considerably higher than donkey mortality, increasing the risks of ownership. In the Eastern ORD local meat markets are usually saturated with animals at or near death which have a very low salvage value. This acts to keep the price of well fed animals depressed. Although traders will pay much higher prices for well-fed animals it is not certain they will be there to buy them when a farmers wants to sell. One gets the impression that marketing high quality animals is a problem for many farmers in out-of-the-way places.

Just as the market possibilities for mature oxen under current conditions seem exaggerated, so also the market possibilities for old donkeys have been overlooked. In the Mossi part of the ORD, donkey meat is widely consumed and old animals can be salvaged for meat at 50% or more of the purchase price. In the Gourmantche part of the ORD less donkey meat is eaten but many areas have donkey butchers and old or dying animals are often sold at 25% of the cost of a younger animal or salvaged for family consumption. And any marketing program designed to draw off well-fed oxen could as well include older donkeys salvaged for the Ouagadougou meat market.

B. Importance of Animal Power to the Farming System.

In general, most farmers who use animal power use it to plow their cash crop land, apparently about 0.5-1 hectare for donkey owners and one hectare for oxen owners. About half also plow the maize field which traditionally surrounds the house and is manured. This field is seldom more than 1/2 hectare. Another half plow some food crop land, usually millet. In total the average farmer with a donkey plow appears to plow 0.5-1.5 hectares. The farmers with oxen seem to plow 1.5-2.5 hectares.

Although most farmers with draft animals reported sowing their cash crops--and in about half the cases, other crops as well--in lines, fewer than 10% appear to weed with animal power. This means that the better soil water retention capabilities introduced by plowing are gradually dissipated as the rainy season progresses. It also means that the weeding bottleneck remains unbroken. Until it is broken, there can be no significant acreage expansion from animal traction programs. Failure to weed with animal power is probably the most important constraint on the profitability of the credit package as it stands today.

Many farmers were receptive to the idea of weeding with animal power but apart from the Houe Fada, most of the equipment distributed on credit has consisted of plows alone rather than the more versatile multicultivators. Efforts are currently underway in the ORD to manufacture cultivating equipment which can be adapted to the plows already in place.

Two factors which appear to be important considerations in whether a farmer adopts or continues with animal traction are his age and the amount of available labor in his concession. A large proportion of discarded plows belong to farmers too old to use them. The normal labor compliment for using a donkey plow is at least two-one to lead and one to plow--and often three--another to hoe between the plants in the rows. For oxen an additional person is often added to drive the animals. Only one of the farmers questioned worked his donkey by himself. About half had seen this done at one time or another, and another half stared in disbelief or thought they were being put on by the question. Most farmers using donkeys indicated a willingness to try working alone with their animal, if shown how, but none of the farmers questioned would even consider working alone with a pair of oxen.

Other cultural practices on the cash crop parcels of farmers who use animal power are surprisingly advanced. About half of the farmers questioned used at least some fertilizer and most used selected seed. Some even used fertilizer on food crops. All of those who used fertilizer felt that it was quite profitable.

C. Yield and Output Effects.

The yield effect of plowing is immediate and dramatic. Most farmers reported increases in yields of 25-50% for food grains and 50-100% for peanuts. While these figures are considerably higher than a real average due to the depressing effect of one or two failures, the figures do demonstrate the major advantage of animal traction as viewed by farmers.

On the other hand, acreage expansion after the introduction of animal plowing appears to be essentially zero for the first several years. The only farmers I spoke with who had expanded their acreage were those who had their plow for 10 years or so and who had accompanying family size changes. Plowing alone does not appear to break any labor bottlenecks.

D. Profitability of the Technical Package.

The crucial question with respect to profitability is not so much what farmers could do with the package but what they actually do. This provides an indication of the minimum gain from the credit program and anything expected above that will have to include supporting measures which are not now being undertaken.

There are two sources which estimate average yields per hectare in three different parts of the ORD and one which gives average farm size in the two intensive zones. These are summarized in Tables 2 and 3.

Table 2. Average Yields Per Hectare in Three Areas of the Eastern ORD (Kilograms Per Hectare)

Crop	Community Development Villages	Sub-Sector	
		Diabo	Namounou
Millet	642	364	575
White Sorghum	923	428	550
Red Sorghum	825	465	450
Maize	830	N.A.	N.A.
Rice (Paddy)	1,772	N.A.	N.A.
Peanuts	631	740	1,030
Niebe	151*	N.A.	N.A.

*intercropped.

Sources: SAED, Conditions de Diffusion de Credit Agricole et de Mise en Oeuvre d'Activitiés Communautaries dans le Ressort de l'ORD d l'Est, Fada N'Gourma, Sous Secteurs de Namounou et de Diabo, Ouagadougou, 1975; and Average Yields in Four Community Development Villages, Preliminary results from a study by the Bureau of Planning and Statistical Analysis; extrapolations from weighed sample plots.

Table 3. Average Farm Size by Crop Area In Namounou and Diabo Sub-Sectors (Hectares)

Principal Crop	Diabo	Namounou
Millet	2.80	1.42
White Sorghum	.29	2.63
Red Sorghum	.93	.11
Peanuts	.16	.11
Total of Principal Crops	4.18	4.27

Source: SAED, op. cit., p. 13.

The yields presented for the Community Development Villages are extrapolations of measured yields from sampled plots. They should, therefore, be rather accurate. The yield figures for Namounou and Diabo, however, were derived from production reported by farmers (recall), divided by the area planted. The area planted was imputed from the amount of seed reported to have been used. Consequently those figures may contain substantial error and probably underestimate yields considerably. Diabo is not that far from the Community Development Villages, and, in fact, contains one. Yields there seem too low in relation to the villages. The generally higher yields at Namounou relative to Diabo, however, reflect what is common knowledge, namely that soils at Diabo are depleted and those at Namounou very fertile. All things considered, yield figures closer to those found for the Community Development Villages would seem to reflect ORD averages fairly well.

Recognizing the very crude nature of the data, Table 4 describes the increase in income that can be expected by shifting an acre of land from hand preparation to animal plowing for different crops important in the zone.

Table 4 can be compared to the annualized cost of a donkey and oxen plow package as itemized in Table 5.

From Tables 4 and 5 it is obvious that a farmer who introduces donkey plowing onto his present cash crop field (rice or peanuts) can expect to just cover his costs if he plows 1/2 hectare. A farmer who introduces oxen plowing

Table 4. Average Market Values of Increased Production and Total Production Per Hectare Arising from Animal Powered Plowing (FCFA Per Hectare)

Crop	Estimated Normal Yield	Estimated Increase in Yield	Average Market Price	Average Market Value	
				Increased Production	Total Production
Millet	600	.25	18	2,700	13,500
Sorghum	800	.25	18	3,600	18,000
Maize	800	.25	18	3,600	18,000
Rice	1,700	.20	35	11,900	71,400
Peanuts	700	.50	40	14,000	42,000

on his present cash crop field must plow one hectare to cover his costs. Furthermore, assuming that the practical plowing capacity of a donkey is two hectares, and a pair of oxen, 5 hectares,[1] it is clear that a farmer who plows only food crops has a difficult time covering costs from his increased production alone. The owner of a donkey and plow who plows 1/2 hectare of cash crop and, in addition, another 1/2 hectare of food crop, a very typical case, can earn a modest profit in a normal year but will be unable to do so in a bad year. The same is true for the owner of a pair of oxen who plows one hectare of cash crop and one hectare of food crops--again the typical case. Tables 4 and 5 go a long way toward explaining why it has been the wealthier, presumably more progressive farmers, who have adopted animal power to date and why they do not come rushing to the extension agent to pay their loans. They also suggest problems for any credit program that tries to reach poorer, less progressive farmers without substantially strengthening extension support.

I wish to point out once again that Tables 4 and 5 reflect what farmers are actually doing at present rather than what they might do. Certainly if

[1]Assuming 4-5 days per hectare for a pair of oxen and 11 days per hectare for a donkey. Theoretically, the plowing season is forty days but it is doubtful that many farmers even approach this unless they also cultivate with animal power. See Rochez, Andre: Temps et Capacites de Travaux en Culture Attelée, Essor Rural, No. 27, September, 1975.

Table 5. Expected Average Annualized Costs of Donkey and Oxen Plow Packages Obtained on Credit (FCFA)

Item	Donkey	Oxen
Value of Investment:		
Animals	9,000	40,000
Harness and Yoke	2,400	6,000
Plow	13,350	16,850
Total Investment	24,750	62,850
Annualized Costs:		
Depreciation:		
Animal[1]	860	(1,670)[2]
Harness and Yoke[3]	480	860
Plow[4]	935	1,180
Interest[5]	680	1,730
Repairs[6]	790	1,140
Mortality Risk[7]	350	2,900
Feed[8]	2,160	6,480
Total Annualized Costs	6,255	12,620

[1]The working life of a donkey is assumed to be 7 years and that of an ox, 6 years. The salvage value of a live donkey is taken as 3,000 FCFA and of a live pair of oxen, 50,000 FCFA.

[2]Average annual appreciation.

[3]The donkey harness has an assumed life of 5 years and the oxen yoke and chain, 7 years. Both have zero salvage value.

[4]Assumed life is 10 years with a salvage value of 30% of new price.

[5]Interest is computed at 5 1/2% of the average unpaid balance assuming no down payment and 5 equal payments.

[6]5% of the equipment purchase price per year.

[7]Mortality rates for donkeys and oxen are assumed to be 7% and 10% respectively. A dead donkey is assumed to have a salvage value of 1,000 FCFA and a dead ox, 8,000 FCFA. Mortality risk is computed as: mortality rate x (average undepreciated value - salvage value).

[8]Feed ration net of normal maintenance. Assumed to be 2 kgs/day corn equivalent for donkey and 3 kgs/day corn equivalent for each ox. Supplementary feeding assumed to be required for 90 days at an average cost of 12 cents per kilo.

all crops were sowed in lines and cultivated 3 or 4 times with animal power, were planted with selected seed and fertilized, results on the 1-2 hectares would be better than just plowing. This would also facilitate acreage expansion by breaking the weeding bottleneck. But if farmers are not doing this now it would be unwise to proceed on the assumption that they will unless specific and measured actions are taken in areas which have a reasonable chance of changing their cultural practices.

E. Conclusions on the Technical Package and Policy Implications.

The major constraint on the profitability of the credit package is farmers' reluctance to weed with animal power. Even many who sow in lines so as to facilitate application of fertilizer do not weed with their animals. The possibility of plowing out four or five rows of one's cash crop is no doubt a sufficiently frightening propsect to discourage experimentation. Farmers also often wait so long for their first weeding that it's not always easy to distinguish crop from weed at the speed with which a donkey moves down a row. Also when they get ready to weed it may not have rained for a while so if they want to cultivate with their donkey they must wait for a rain or cultivate by hand--in which case the time spent on planting in rows is lost. The biggest reason, however, is that most of the equipment distributed by the ORD does not have a weeding attachment.

Clearly farmers must be made to understand the importance of weeding with animal power--perhaps more important than plowing from the point of view of increased yield per unit area. They must understand that part of the time they save in speed, they will lose through the need for more frequent weeding; but this will improve soil water retention and yields as well.

The major bottleneck to an extension emphasis on weeding with animal power is that most extension agents don't know how to weed with animals themselves. And they are not likely to learn in a three-day training program for 50 of them. I would strongly urge the ORD to require each extension agent to plow, plant in lines, fertilize, weed with donkey power, and harvest in time the amount of land that can be plowed in one day, every season. A complete set of HV2A equipment should be made available to each agent for demonstration purposes. A donkey can be hired locally for 350 FCFA per day or less. If the agent planted peanuts he could harvest them with his plow (if he harvests on time) and have a plot of loose soil next to his dwelling on which interested farmers could practice weeding during the dry season. The total cost of the program would come to about 5,000 FCFA plus one set of equipment for each extension agent. Let the agent keep the peanuts as an incentive to maximize production. The ORD will then have, at one and the same time, a demonstration plot in each area and a readily visible and, in fact, indisputable indication of an extension agent's ability to support the credit package.

A second conclusion of the way farmers use the credit package is that, in practice, if all equipment is purchased on credit, there is no economic advantage to oxen versus donkey traction (see Table 5). A family can accomplish just as much in terms of land area and net income from two donkies and two sets of equipment as from one pair of oxen and one set of oxen equipment. Against the slightly higher labor requirement for plowing with two separate pieces of donkey equipment is the lower amount of labor required to maintain two donkeys relative to a pair of oxen. It is also much easier to get a donkey to work alone than to get a pair of oxen to work alone.

The implication of this fact is that <u>a credit program that takes an evolutionary approach to animal power would be less risky and more within the means of farmers to pay</u>. It can begin with a donkey package which includes a set of equipment that can eventually be adapted to oxen (HV2A). The capital investment in equipment and animals is much lower and many more farmers already have donkeys (50-60%) than cattle (20-30%). And of those with cattle not all will have two steers available for animal traction. The management, water, and feeding problems with donkies are less and their versatility outside the cultivating season greater--they do not need a cart to be used as beasts of burden. Oxen, of course, can be finished and sold at a higher price but this is really another enterprise requiring further institutional and organizational support to be viable. It is not a widespread practice at present.

There will be areas and soils where farmers will be forced to go directly to oxen power. In the Eastern ORD such soils are not as prevalent as some like to argue. Eventually, of course, the need to provide pasture and forage crops in the crop rotation will push many donkey farmers toward oxen. But by that time they will have developed sufficient management skills to be able to realize the greater potential of oxen--a situation which does not exist at present.

The HV2A equipment package alone provides for this kind of flexibility and evolution at virtually no cost to the farmer or the ORD. The HV1A package requires that a greater number of parts be changed and is less suitable. A farmer can acquire the HV2A package in pieces--first the frame, scarifying and cultivating equipment, then a donkey plow, then an oxen plow--at no additional cost over buying the entire package at once. As his skills increase, he changes his donkey for cattle and thereby keeps his total credit load at a manageable level while not retarding his advance.

I myself would not suggest splitting up the basic donkey package. Farmers should be given the entire multicultivator. No more single plows should be given out unless they are part of the HV2A system and the extension agent really believes the situation of the peasant warrants it. In this way, as soon as the extension agent himself learns how to weed with animals, he can show farmers without them having to wait for another loan.

IV. SUPPORTING SERVICES

A. Veterinary Services.

The ORD itself has two extension agents who work full-time on livestock production and veterinary care. In addition the *Service d'Elevage* has 12 people, including an African veterinarian, who cover the ORD but who are not integrated under the ORD structure. There has been good cooperation between the ORD and the *Service d'Elevage*, however, and this is expected to continue.

Because the livestock service is understaffed, under-financed and under-equipped, the ORD has mounted its own 6 month vaccination program for treating working animals. The ORD program, however, is very inadequate, attested by the death of 10 of the 48 oxen distributed on credit last April, a mortality rate of 25% on an annualized basis. Three of the deaths were supposedly by snake bite, an unusually high percentage, four from trypanosomiasis, two from streptotrizose, a skin disease, and one from unknown causes. At least 6 of the deaths could probably have been prevented by an animal care program which involves a more realistic appraisal of conditions in the ORD.

In areas where trypanosomiasis is widespread, as it is in most of the Eastern ORD, prophylactic treatment should be given every three months rather than every 6 months as the ORD now does. In the case of the four deaths due to trypanosomiasis at Bilanga, the vaccinator had no prophylactic until September, five months after the previous treatment, and did not go out to treat the animals until November, after he received reports of cattle deaths. By that time a period of seven months had elapsed between treatments. Somewhat the same situation exists with streptotrizose, a progressively debilitating skin disease which can be successfully treated if caught in time. Other diseases which are normally treated only if an outbreak occurs, should be included in the vaccination program on a regular annual basis.

I would suggest that the ORD revise its program of veterinary care to include visits once every three months to every loanee who has credit for animals. Donkeys should be included as well as oxen and the program should be available to nonloanees as well. The cost of the service would come to about 1,000 FCFA per animal per year. It should consist of the following:

Table 6. Estimated Cost and Suggested Scheduling of ORD Veterinary Care Program for Animal Loanees

	Estimated Cost
Upon Arrival at Training Center:	
1. Treatment for Trypanosomiasis (Berenil)	100
2. Stool test for parasites	---
3. Vaccination for Anthrax and _Charbon Symptomatique_ (oxen only)	20
After Two Weeks:	
1. Vaccination for _Peste Bovine_ and Bovine Pleurapheumonia (Oxen only)	20
2. Prophalaxis for Trypanosomiasis	65
3. Treatment for Parasites	100
Every Three Months Thereafter:	
1. Prophalaxis for Trypanosomiasis	65
2. Treatment for Parasites	100
Every Twelve Months Thereafter:	
1. Vaccinations for _Peste Bovine_, Bovine Pleurapneumonia, Anthrax and _Charbon Symptomatique_ (oxen only)	40
Thus the cost per year for prophalaxis is:	
Trypanosomiasis (65 x 4)	260
Parasites (100 x 4)	400
Vaccinations: Pleurapneumonia, Anthrax, _Peste Bovine_ and _Charbon Symptomatique_ (Oxen only) (4 x 10)	40
Total for Oxen	700
Total for Donkeys	660

Allowing for the initial precautionary treatment for trypanosomiasis, the rapidly rising prices for its prophylactic treatment, and the large variability in the cost of treating parasites, depending on the diagnosis, 1000 FCFA per animal would seem to be a reasonable estimate for the annual cost of the program.

The problem of oxen mortality is not just a veterinary problem. For example, eighty four oxen belonging to individual farmers were trained at the same time as the 48 given on credit. Of these, none has died in the last 10 months--not even from snake bites. The problem is as old as the custom of turning one's cattle over to a cattle herder for care. How does an owner differentiate between legitimate deaths and those which occur for the profit of the caretaker. Traditionally, the cattle owner has had little recourse unless he can prove fraud--virtually impossible. I expect the ORD will have to make an example of one or two farmers in each area by holding them responsible for dead animals before the problem will be resolved.

B. Animal Insurance Program

Given the very high mortality rate among oxen distributed on credit, it will be absolutely necessary to insure such animals against death loss. Although last years 25% death rate certainly is not indicative of the risks of animal ownership in the Eastern ORD, neither is the zero death loss among the oxen belonging to individuals at Diabo. Elsewhere in Africa adult mortality in traditional cattle herds ranges between 8-15% . On well managed extensive ranching operations with full time veterinary staff, a rate of 3-5% is considered normal. All things considered, it seems reasonable to expect a 15% mortality rate during the first year and a 10% mortality rate during the next four years among animals sold on credit. In the long run, an effective program of veterinary care could reduce this to 5% per year. But during the initial years of the program this is highly unlikely.

It seems reasonable that the cost of insurance to the farmer be based on the long run expected 5% death rate for draft animals rather than current death rates. This would amount to about 1000 FCFA for each ox and 500 FCFA for each donkey covered by the program. The difference between these rates and the actual cost of the insurance during the initial years of the credit program would have to be covered by an ORD subsidy. Allowing for a 70% chance of recovering an average of 5000 FCFA from meat sold from dead oxen, the actual cost of and the subsidies required for an insurance program of this type would be as follows:

Table 7. Cost of Proposed Animal Insurance Program and Required Subsidies (FCFA)

	Ox	Donkey
Average cost of the animal	20,000	10,000
Expected first year death loss at 15% mortality (.15 x Average Cost)	3,000	1,350
Expected loss in years 2-5 at 10% mortality (4 x .10 x Average Cost)	8,000	3,600
Total expected loss over 5 years	11,000	4,950
Less:		
Insurance payments made by farmers assuming charged at 5% mortality rate (5 x .05 x Average Cost)	5,000	2,250
Meat payments assuming 70% recovery 5000 FCFA		
(1 x .15 x .70 x 5000)	525	---
(4 x .10 x .70 x 5000)	1,400	---
Required subsidy per animal over 5 year period	4,075	2,700

The figures of Table 7 indicate that a subsidy of 8,200 FCFA per pair of oxen and 2,700 FCFA per donkey will be required if farmers are charged only 2,000 FCFA per year for a pair of oxen and 500 FCFA for a donkey, the amount implied by a 5% mortality rate. The subsidy should be paid and deposited in a special fund at the time an animal loan is given. In the long run it should be possible to eliminate the subsidies and operate the insurance program entirely from farmer payments. The combined annual insurance and veterinary care payment would come to 4000 FCFA for a pair of oxen and 1500 for a donkey.

The ORD will have to establish rigid criteria for determining which cattle deaths are insured. Those arising from real snake bites, breakdowns in the veterinary support program, or other reasons beyond a farmer's control obviously require insurance protection. But those arising from farmer negligence--animals getting lost, hit by a vehicle, poorly fed or watered, overworked or slaughtered--should not be insured and the farmer should be so informed. A maximum age limit for coverage, say 4-5 years after the date of purchase, will also have to be set.

C. Equipment Repair Facilities.

Repair facilities for plows and animal drawn equipment exist at Piéla, Fada and Diabo, although the latter is not well set up. Throughout the ORD one finds old plows discarded because spares are not available or because one or both of a farmer's oxen have died. Elsewhere even new plows are not used because of the lack of availability of such a basic part as a plow point. A small investment in repair facilities can go a long way toward keeping equipment operating efficiently and keeping up the owners ability to repay his credit out of income earned from the credit package rather than elsewhere.

According to Mr. Roman Imboden, the FAO expert on animal traction in Upper Volta, any area where there are 50 plows within a 20 kilometer radius can support a blacksmithing operation while guaranteeing to farmers facilities which they now lack. According to Mr. Colas, the success of the animal traction program at Diabo is due in no small part to the fact that his fabrication shop was located there for several years. The forge and blacksmithing operation at Piéla also seems to provide important support to that area's equipment credit program, keeping equipment in productive condition and providing a repair and renovating facility for all repossessed plows. It is only a small additional step to turn these village blacksmith operations into recycling centers for unused, old or discarded equipment and donkey equipment traded in for oxen equipment. Capital investment requirements for an operation similar to the one at Piéla would be about 200,000 FCFA, covering an anvil, vise, a hand forge, hand tools, metal stocks and spare parts for equipment found in the area. An expanded Maurice Colas facility at Fada could serve as a primary supply depot with centralized stocks of all parts and supplies needed by the village blacksmith centers.

D. Marketing Activities.

It is only fair that farmers being asked to adopt output increasing innovations which benefit the rest of the country should be assured markets for their products at the time they want to sell them. Until national grain pricing and marketing policies are straightened out, this will mean that the ORD must be prepared to act as a buyer of last resort--at officially established floor prices--for at least enough of a farmer's cash crop to enable him to make his credit payments. Prior to each planting season the ORD should inform all farmers having outstanding credit, which crops it stands ready to buy. The credit program should include a fund for financing this activity. The ORD should be prepared to subsidize such marketing activities in support of the credit program if necessary. By supporting only cash crops, however, the need for subsidies should not arise as their market prices in the ORD have generally been above floor prices.

There are indications that some of the repayment problems experienced by the existing ORD equipment credit program have been caused by marketing bottlenecks. Some farmers say they are waiting for the ORD buying campaign to begin so they can sell their corp and repay their credit. Although under the current program, which includes no marketing guarantees, this is not grounds for failure to make payments due, consideration should be given to whether it might be under the new program.

An improved road system will also be necessary to safeguard the credit program over the longer term. Farmers at Logobou, for example, were receiving 30% less for their cereals in February than farmers at Namounou, less than 20 miles away as the crow flies. Given the costs and returns indicated in Tables 4 and 5 they would not be able to repay their credit out of increased production. The road construction program should be coordinated with the credit program so as to maximize the linkages between the two.

V. THE PROPOSED CREDIT PROGRAM

A. General Considerations.

ORD officials have emphasized the need to design a credit program which can reach the less wealthy farmers in the ORD as quickly as possible. However, the need at this point is not to allocate credit but to build a solid base for such a credit program. This involves an honest recognition of what exits as well as an appreciation of what the ORD can and cannot do in a relatively short period of time.

The primary need at this point is to assert control over existing credit programs in the ORD and to standardize their reporting and control procedures. Management of credit programs is difficult enough without having three or four separate ones with different terms, conditions and systems of control. Since the Permanent Secretary's office is about to impose on the ORDs a standardized, nationwide medium-term credit program to serve the Community Development Villages--sometime before the end of February--I would strongly urge the ORD to adopt the same framework both for existing programs and for the new USAID financed independent program. I also urge that both Maurice Colas' credit program and the Piela credit program be incorporated into this framework as soon as possible, and that the system of reporting and control outlined in Section E below apply to all programs regardless of source of finance.

The crucial question for a credit, as opposed to a grant, program is the ability of the borrower to repay. This is directly related to the soundness of the technical package being offered on credit, the farmers' ability to implement it properly and the availability of supporting services essential for proper implementation. It is indirectly related to the system of reporting and control adopted for the credit program. The terms of the credit program are just a matter of how the pie is to be shared and when. Some general observations on these and other points follow.

1. Group Versus Individual Credit. This question stirs considerably more debate in the Eastern ORD than elsewhere since it is commonly argued that the Gourmanche are too individualistic to easily accept collective responsibility. Yet the fact remains that the ORD will never be able to finance a sufficient number of extension agents to deal with more than a handful of farmers as individuals. Only by working through groups can the agents' exposure per visit be increased.

The aspect of group credit which gets the most attention in Fada is collective liability. Everyone with whom I spoke thought that to require it as a condition of credit would mean no credit would be extended. On the other hand, if all a farmer has to do to get credit is to join a group and then go about his individual business, the extension agent is reduced to working with individuals in fact, but with groups in name only. Clearly farmers have to be brought together for purposes of extension support.

I think there is a way out of the dilemma. I suggest that credit be restricted to farmers who belong to a group which collectively cultivated, in the year prior to an individual member's application for credit, at least one hectare of cash crop. The funds from their collective field should then be deposited in a common fund which would serve as a fund against loan default and which would entitle the group members to a total of individual credits up to a maximum of ten times the amount of the common fund. Arrears would be an individual's, not the group's responsibility, except that no member of the group could get new credit as long as their arrears as a group were above 10%. The group could, if it choses, use its common fund to loan money to its members so they could make their payments due. But when the fund falls below 10% of outstanding credit they would again be ineligible for new credit.

The real purpose of the common fund would be to serve as a primary reserve against loan losses and defaults by its members. The groups maximum liability would be the size of the common fund and beyond that the ORD would have to recoup from the individual or absorb the loss itself. Any losses suffered by the ORD on foreclosures would be covered by the common fund subject to this maximum liability.

2. Repayment Capacity. In order to ensure that farmers at least have the ability to repay their loans, the extension agent should insure that the size of his concession and the labor available to it are sufficient to make the

particular credit package chosen by the farmer viable to him. The extension agent should also inquire into the reputation of the man seeking credit to determine whether or not he is a poor credit risk. The age of the borrower is another important consideration as plowing is hard work.

3. Down Payment. A money down payment is a credit allocation criterion that discriminates against the poor. At the same time there are many people who are poor in spirit and who will never be able to make the credit package pay. A down payment in kind involving animal husbandry and cultural practice conditions is a way of making credit available to poor farmers while, at the same time, insuring to a maximum their ability to repay from income generated by the credit package.

4. Minimum Acreage, Cash Crop and Utilization Conditions. Table 5 indicated that a farmer with a donkey plow needed at least 1/2 hectare and a farmer with oxen, at least one hectare of cash crops to generate sufficient cash to cover his costs, including loan repayment. These should be imposed as conditions to which a farmer must agree in order to get credit. Similarly a variety of cultural practices should be required--clearing land, planting in lines, weeding with animal power--so as to ensure the proper utilization of the equipment, and consequently, increase a farmer's chances of success.

5. Supporting Services. These have already been discussed and should be an integral part of the credit program. They include extension training, animal insurance, equipment repair and marketing support. The decision to extend credit should involve a corollary decision to provide the necessary support. For this reason, I would suggest that these supporting operations be funded from the revolving credit fund as credit for equipment and animals is extended. The funds could then be used only for the purposes indicated.

6. Reporting and Control. On this point one cannot say too much. Recording procedures, maximum permissable arrears rates, procedures for moving against farmers in arrears, sanctions against extension agents who have an excessively high proportion of farmers in arrears, and acceptable reasons for missing due payments must be set. The institutional framework for implementing them must be fairly automatic.

B. FDR-ORD Credit Terms

The broad outlines of the National Medium-Term credit program to be imposed by the Permanent Secretary's office and implemented by the ORDs appear to be as follows:

1. 5.5% interest, 5 year term with one year of grace. The ORDs can determine their own down payments but must adopt one of the following four repayment schedules:

Table 8. Repayment Formulas for FDR-ORD National Medium Term Credit Program

Schedule	Proportion of Principle and Interest Paid in Year				
	1	2	3	4	5
1	-	25%	25%	25%	25%
2	-	--	33.3%	33.3%	33.3%
3	-	Interest	Interest + 20% Capital	Interest + 35% Capital	Interest + 45% Capital
4	-	-	Interest + 10% Capital	Interest + 30% Capital	Interest + 60% Capital

2. Extension agents to be provided with tables enabling them to determine a farmer's repayment schedule without computation.
3. Individual credit contracts with copies held by the farmer, extension agent, sector chief and the ORD.
4. ORD reporting forms showing the amount of credit by individual and by Community Development Village.
5. Interest allocation plan: 2% BND, 2% ORD, 1% extension service incentive, and .5% for ORD administration expense.

6. Down payment in kind to be fixed after consultation with the ORD.
7. Credit only to Community Development Villages and possibly certain other extension districts (unité d'encadrement) meeting specific criteria.
8. No credit for animals outside Community Development Villages.
9. Automatic sanctions against an extension agent if the arrears in his extension district (unité d'encadrement) exceed a specified amount, probably 15%.
10. Cessation of credit to the ORD if ORD arrears to the BND exceed a specified amount, probably 10%.

C. Credit Conditions for the independent ORD Medium Term Credit Program.

I would propose the following additional conditions for the ORD medium term credit program financed by USAID:

1. Recipients of Credit
   a. Only farmers who belong to constitutionally established groupements villageois which have collectively cultivated in the year preceeding their application for credit at least one hectare of cash crops (to be specified by ORD) and have placed the receipts therefrom in a common fund should be considered for credit.
   b. Only farmers in the community development villages and in the intensive zones where supervision is guaranteed should receive credit for animals.
   c. Farmers in up to a maximum of five additional unités d' encadrement (extension districts) to be picked by the ORD and the USAID project manager could be added to the program each year but should not be eligible for credit for animals. This will control the rate of expansion of the credit program to only the better unités d'encadrement, providing time to strengthen the others.
2. Down Payment. While there is nothing wrong with requiring a cash down payment from farmers with adequate means, there should be no cash down payment required from the poorer farmers. Their fulfillment of the following down payment in kind conditions should be considered adequate guarantee. These same down payment conditions should be required of farmers who make a cash down payment as well.
   a. The following down payment in kind should be required of all

loanees whether they get animals or equipment only on credit:

1) the applicant must construct a shelter for his animal which includes a bedding pit (fosse fumiére)
2) the applicant must have on hand sufficient good quality roughage to insure the animal will be well-fed until the next rains provide fresh pasture.
3) the applicant must have on hand at least a one-month supply of supplementary feedstuffs such as peanut cake, millet, rice hulls, etc. for his animal.
4) the applicant must have on hand at least one block of mineral salt.
5) the applicant must have an acceptable plan for providing his animal with water.
6) the applicant must agree to keep his draft animal (whether or not acquired on credit) sufficiently well-nourished to ensure its ability to effectively draw the equipment provided on credit.
7) the applicant must agree to provide adequate bedding for his draft animal so as to guard its health and build up a reserve of organic matter for his fields.
8) the applicant must have in his concession sufficient land and labor to be able to use the equipment effectively.
9) the applicant must establish and agree to follow a crop rotation system for his farm.
10) the applicant must clear at least 2 hectares of land sufficiently well to be able to plow it with animal powered equipment.
11) The applicant must agree that he will plant in lines and weed with his animal at least two hectares of crops in the first year. This will require at least minimum tillage land preparation with the animal-drawn equipment.
12) the applicant must agree to cultivate at least 1/2 hectare of cash crop if he uses donkey traction, and one hectare if he uses oxen traction, each year he has credit outstanding.

13) where the equipment package includes a plow, the applicant must agree to plow at least 1/2 hectare of cash crop in the case of donkey traction and one hectare of cash crop if he has oxen equipment, in the first and any subsequent year he has credit outstanding.

b. Additional criteria where the loan includes draft animals.

1) the applicant must provide the yoke, cord, traction chain and harness himself. These items should not be available on credit.

2) the applicant must agree to insure his animal and to permit all types of veterinary care deemed necessary by the ORD as long as he has credit outstanding on them.

3) the applicant must agree to pay in advance the cost of animal insurance and veterinary care every year.

4) should an ox purchased on credit die, the farmer agrees to pay at least 5,000 FCFA or the amount for which the meat was sold--whichever is greater--for a replacement unless the cause of death renders the meat unfit for human consumption. Only the remainder should be covered by insurance.

5) <u>no farmer who has not cultivated with donkey power for at least two years should get credit for oxen unless he is located in a zone where the soils require oxen power</u>.

c. All these conditions should be met before the extension agent accepts an application for credit. The credit application form should include check points for all of the above conditions. The agent should note any extenuating or other unusual circumstances with respect to the applicant, the loan package or other material which to him seems relevant. The application should be sent to the sector credit officer for review and integration into the sector's demand for equipment for the year. The application should then be reviewed at the annual ORD credit review meeting before allocating credit to the applicant.

d. It will be the extension agent's responsibility to ensure that these conditions continue to be met throughout the life of the loan.

3. Group Responsibility:

   a. The groupement villageois of which a farmer is a member should be made to agree to use its common fund as a primary reserve against loan losses arising from defaults or foreclosures on any of its members who have credit. The amount of money in the common fund should constitute the group's maximum liability as a group. Beyond that, it will be up to the ORD to recover the individuals concerned or absorb the loss itself.

   b. In the case of arrears the individual farmer who is in arrears should be liable for his respective arrears.

   c. The farmer should agree that in the event that he falls behind in his payments he shall pay interest on any amount due at the rate of 5 1/2% per year until it is paid.

   d. The farmer should agree that in the event he falls behind in his payments or fails to meet any conditions specified in section V.C.2 of this report, the ORD has the right to repossess any and all equipment on which he has outstanding credit at that time. He should be reimbursed for any excess over depreciation which he might have paid. The ORD should be the sole determiner of chargeable depreciation.

   e. No new credit should be given to any member of a group in which their arrears as a group exceed 10% of their credit outstanding, or in which their common fund is, or would be, less than 10% of the total value of credit outstanding for the group.

D. ORD Support Programs.

1. Veterinary Care - Animal Insurance Fund

   a. The ORD should establish a 3-month rotating prophylaxis program for all animals covered by the credit program. The cost of vaccinations and treatments should be borne by the farmer whose animals are treated. The suggested charge per animal per year is 1,000 FCFA and should be deposited into the veterinary care-animal insurance fund.

   b. The ORD should establish and subsidize an animal insurance program. Farmers should be charged an amount equal to 5% of the purchase price of the animal per year. The insurance premiums should be deposited into the veterinary care-animal insurance fund. The ORD should also make contributions into the fund at the rate of 8,200 FCFA per pair of oxen and 2,700 FCFA for each donkey given on credit. This contribution should be made from available credit funds and will reduce available credit accordingly.

c. All money received from the sale of the meat of dead animals on credit should be placed in this fund.

2. Equipment Recycling and Repair Fund

a. This fund should be used to purchase HV2A plows exchanged for HV2B plows and absorb any loss on the transaction. It should also cover any cost difference between the HV2A and the HV2B drawbar so farmers can exchange them without charge. This will facilitate the evolution to oxen traction while not saddling farmers with an excessive debt load in the early years of the project.

b. This fund should also, at a profit, finance the purchase, repair and resale of old or unused equipment or donkey plows, multicultivators and other equipment which does not permit evolution to oxen traction. The latter should be done at zero profit so equipment already in the ORD can continue to be used up rather than cast aside. The fund provides an element of flexibility which does not exist at present by greatly reducing the divergence between acquisition and salvage values at the farm level for second-hand agricultural equipment.

c. The ORD should, as a matter of general policy, in conjunction with the Centre National de Perfectionnement d' Artisans Rureaux, train and finance a blacksmith for each sub-sector in which there are 50 or more plows or multicultivators.

d. The ORD should establish at Fada a primary supply depot to provide support and materials to the rural blacksmith operations.

e. Contributions to this fund should also be made from available credit sources. This fund should be funded at the rate of 15% of all cash and credit sales of new equipment.

3. Crop Purchase Fund. The ORD should set up a revolving fund for the purchase of specified cash crops from farmers who have credit for animals or equipment. The ORD must stand ready to buy an amount equal to the value of all payments due, including arrears, at the official floor prices set by the government. Farmers should be guaranteed the right to pay this amount in kind using specific cash crops on a day specified by the ORD. The ORD should be prepared to subsidize this operation although this should be necessary only in unusual circumstances and for certain crops. Farmers should be entitled to repay only in those cash crops which they themselves have produced. The fund should be built up at the rate of 10% of the net annual increase in credit outstanding.

4. Loan Loss Reserve Fund. The ORD should establish a fund against loan defaults at the rate of 3% of the total new credit allocated from USAID funds. Losses incurred when equipment or animals are repossessed and liquidated at a loss or written off entirely would be charged against this fund. The 3% rate assumes that it will be necessary to foreclose on 10% of the loanees and that the ORD will suffer an average loss of 30% in liquidating the repossessed equipment. The 2% interest received by the ORD and the 1% which is not allocated to the extension agents because of excessive payment arrears should be deposited into this fund to handle defaults arising from recycling the original USAID grant.

5. Encadreur Demonstration-Training Program. The ORD should provide each extension agent in those areas selected to participate in the credit program with a table and chair for making out credit reports and an HV2A multicultivator for demonstration purposes. The extension agent should be required to cultivate a cash row crop, preferably peanuts, each year. The size of the field should be the amount of land which can be plowed by a donkey in one day (.1 hectare). The ORD should provide seed, fertilizer and money for the rental of a donkey for the plot. All cultural practices recommended by the extension service should be required on the plots. The agents should be allowed to keep the crop produced. 30,000 FCFA should be set aside for each extension agent included in the credit program for this purpose.

E. <u>Reporting and Control Procedures</u>

1. <u>Definition of Arrears</u>. All payments due for the crop season which are not paid by February 1 should be considered in arrears.
2. <u>Control Officers</u>. The ORD should appoint a credit administration and control officer for each sector.
3. <u>Reporting Procedures</u>.
   a. During the month of February annual credit summaries should be prepared by all extension agents, sector credit officers, and the ORD credit management officer. The summaries should be prepared independently and swiftly so that they are ready for an annual credit review meeting on March 1.
   b. On February 1 all extension agents should deliver any payments and receipts they have to the sector credit officer. The next day the sector credit officer should deliver his payments received and the accompanying receipts to the ORD credit management officer. Immediately upon receipt of the receipts, the extension agents, the sector credit officers and the ORD credit management officer should fill in the amount paid on their copy of the individual credit contracts. Each then should prepare separately a credit summary from the individual credit contracts in his possession.
   c. The extension agent should prepare a summary for each <u>groupement</u> in his <u>unité d'encadrement</u>, itemizing individual credit contracts. He should also prepare a summary for his <u>unité d'encadrement</u>, itemizing by <u>groupement</u>. The credit summary form should contain the name, number of credit contract, the date received the loan, the total value of material received, the amount the loanee should have paid to date, the amount he has actually paid to date, the amount of arrears, and the receipt numbers of all payments received during the last year. The same information should be provided for each <u>groupement</u> on the summary sheet for the <u>unité d'encadrement</u>. In addition, the extension agent should note the size of the collective field cultivated by the <u>groupement</u> in the crop year just ended and the amount of money in their common fund as of January 31 of the same crop year. This should be done on both the individual <u>groupement</u> and the <u>unité d'encadrement</u> summaries.

The summaries should be prepared in quadruplicate. One copy should remain with the reporting extension agent, one should go to the sector credit officer, one to the sector chief, and one to the ORD credit management officer. The extension agent credit summaries should be submitted to the sector credit officer by the 15th of February.

d. The extension agent should also prepare a brief statement on each loanee stating whether he has met all the conditions of husbandry and cultural practices to which he agreed. If the loanee is in arrears he should note any extenuating circumstances.

e. The sector credit officer should prepare a credit summary for each unité d'encadrement in his sector, itemizing by groupement, indicating the total value of material received, the amount which should have been paid to date based on the individual credit contracts, the amounts actually paid to date, receipt numbers for all amounts received from the respective extension agents in the last year, and the amount of arrears, if any. He should prepare a summary sheet for the sector, itemizing by unité d'encadrement and including the receipt numbers of all payments made by him to the ORD. As soon as he receives the reports from the encadreurs he should reconcile any errors with them. His credit summary should be prepared in triplicate with one copy going to the sector chief and another to the ORD credit management officer. His report is due in Fada by February 21.

f. Beginning on the second day of February the ORD credit management officer will also prepare a credit summary. His summaries will be worked up from the same individual contracts used by the extension agent and the sector chiefs on which all payments made and due should have been noted when the receipts were first received. But his summaries will be for each sector, itemized by unité d'encadrement, with a summary for the entire ORD, itemized by sector. He should then reconcile his results with those of the sector credit officers prior to February 28.

g. This system of three independent audits of the credit contracts and repayments should virtually eliminate errors and will provide a facile format for exercising the process of review and control.

4. Review and Control.

a. Every year on March 1 the ORD director, AID project director, the FAO project director, the ORD credit management officer, the ORD credit/cooperative specialist, the ORD community development officer and the director of the FDR should meet in Fada to review the repayment records of individuals and groups and to exercise control. The director of the FDR will offer the perspective of experiences in the other ORDs.

b. The first level of control should be the screening of all new loan applicants according to the following criteria;

1) The following applications should be rejected outright:

a) those from individuals not in a groupement;

b) those from individuals (in groupements) who have any arrears on previous loans from any source;

c) those from individuals in groupements which had a repayment rate of less than 90% on February 1.

d) those from individuals in groupements in which outstanding credit exceeds 1000% of the group's common fund (caisse sociale) or who did not collectively cultivate at least one hectare of cash crop in the previous year;

e) those from individuals whom an extension agent indicates have not fulfilled the husbandry and cultural practice conditions of outstanding credit contracts;

f) those from individuals in groupements outside Community Development Villages, intensive zones or the five unités d'encadrement selected by the ORD;

g) those from individuals who have not fulfilled the down payment requirements.

2) All other applications should be accepted subject to questions of reasonableness and the condition that new loans to any one unité d' encadrement cannot exceed ten per year.

c. The second level of control should be a review of all arrears according to the following criteria:

1) Any loanee in arrears at the end of the crop season under review who was also in arrears at the end of the previous crop season should be assigned to the sector credit officer concerned for <u>immediate foreclosure</u>.
2) Any loanee in arrears who the extension agent indicates is not taking proper care of an animal obtained on credit should be assigned to the credit officer concerned for <u>immediate foreclosure</u>.
3) Any loanee in arrears who made less than a 500 FCFA payment in the crop year under review should be assigned to the sector credit officer concerned for <u>immediate foreclosure</u>.
4) All other arrears should be reviewed for extenuating circumstances sufficient to justify an acceptance of the arrears position. Farmers so excused should be notified thereof in writing by the sector credit officer concerned and reminded that unless they make up all arrears and payments due by January 31 of the next crop year they will be foreclosed. <u>No more than 10% of all outstanding loans with payments due should be so excused in any one year</u>. Exceptions to this would be made in cases of regional agricultural disasters.
5) All other arrears should be referred to the sector credit officers concerned for disciplinary action.
6) In all <u>unités d'encadrement</u> where repayment is below 85%, the extension agent should be given his first letter of warning stating the reasons therefore. He should be given 60 days to bring up the repayment rate to 85% or better. After 60 days the sector credit officer should submit a report on the progress of the offending extension agent, stating the current repayment rate in his <u>unité d'encadrement</u>. If it is still below 85% he should receive his second letter. No further action should be taken until the next annual ORD credit review meeting. If the repayment rate in his <u>unité d'</u>

encadrement is still below 85% at that time he should be given his third letter and his services terminated.

d. The third level of control should involve disciplinary action against farmers in arrears not excused by the ORD.

   1) The sector credit officer should prepare the first of three letters of warning for each offending farmer. The first letter should state the amount of payment due and demand payment within 60 days or further action will be taken. The letter should be delivered to the offending farmers in person by the sector credit officer so as to insure that the farmer has indeed failed to make his payment to the extension agent. The letters should be delivered before April 1. Should the credit officer find that a farmer's credit contract indicates that he did make his payments, he should refer the matter to the sector chief for immediate disciplinary action against the extension agent.

   2) After the 60 day period, if the farmer has still failed to make his entire payment due, a second letter should be prepared warning of foreclosure if all arrears and payments due are not paid in full by the next January 31. The letter should be delivered to the farmer personally by the sector credit officer, after passing through the extension agent so as to ensure that the payment has not yet been received. The second letter should reach the farmer no later than October 31.

   3) Farmers who have still not made all payments due by January 31 will be referred to the sector credit officer for immediate foreclosure at the next annual credit review meeting. By that time they will have been in arrears in both of the two previous crop seasons.

5. Foreclosure

   a. The sector credit officer should prepare a letter of intent to foreclose for each account referred to it for foreclosure. The letter should state the reason for foreclosure and inform the farmer that if he does not pay the total amount due within 30 days, the equipment and animals covered under the credit contract will be seized. This letter should be delivered personally to the farmer by the sector credit officer by April 1.

b. If the farmer has not paid his account in full by May 1, the sector credit officer should go to the farm, accompanied by a gendarme from the office of the préfect, and seize the equipment in question. The animals and equipment should be moved out of the area entirely and taken to sector headquarters for further action or sale. The farmer should have the right to pay in full anytime up to the actual seizure of his equipment and animals.

c. Under no circumstances should the extension agent become involved in the process of foreclosure.

VI. SUMMARY AND CONCLUSIONS

The study reviews existing medium term credit programs in the Eastern ORD and finds them severely lacking in control. Arrears appear to be in excess of 50% of all loans given and are on the rise. Prompt, specific and decisive action is required to correct this situation so that the new credit program is not compromised.

An examination of the technical package indicates that the advantage of oxen power is overplayed in relation to what farmers actually do under current levels of extension support. Farmers with the donkey credit package who do not grow at least one-half hectare of cash crops and those with the oxen package who do not grow at least one hectare of cash crop are not able to make their loan payments out of increased production. The report urges an evolutionary approach to the question of animal traction.

In looking at supporting services the study notes the inadequacy of the current veterinary care program. It suggests a three month prophylaxis program supplemented by an animal insurance program subsidized up to a mortality rate of 5%. It notes the lack of equipment repair facilities in rural areas and proposes establishment of a fund from credit monies to guarantee their finance. There is also a need to guarantee markets to farmers with credit, at least for specific cash crops up to the amount of payments due.

Turning to the proposed credit program, the study notes the central importance of the ability of the borrower to repay his loan and proposes a down payment in kind rather than money to assure this. The necessity of channeling credit through groups in order to economize on extension staff time and to provide a partial guarantee against loan losses is discussed in some detail. So are the importance of supporting services and effective reporting and control procedures.

The study urges that the ORD credit program be integrated into the soon-to-be-defined national medium-term credit program proposed for the Community Development Villages by the Secrétariat Permanent. Credit programs with different terms will be extremely difficult to administer and control and will, in any case, cause resentment among farmers.

Cultural and husbandry down payment conditions are detailed for the credit program with the understanding that those actually adopted be reconciled with the national program when its details are known. The study argues for the establishment of a veterinary care-insurance fund, an equipment recycling and repair fund, a crop purchase fund, a loan loss reserve fund, and an encadreur demonstration-training program, all in support of the credit package. It details reporting and control procedures which, if adopted, will give the credit program a good chance of achieving a 90-95% repayment rate.

In conclusion, the success of the USAID credit program in the Eastern ORD will be greatly enhanced if the following actions are taken:

1. Immediate and decisive action to clean up and eliminate arrears on existing credit programs.
2. Standardization of equipment packages given on credit eventually to include only the HV2A and the HV2B systems.
3. Adoption of an evolutionary strategy with respect to animal traction.
4. Allocating credit only to individuals in groups with common funds to guarantee loan losses.
5. Down payments specified in kind, rather than money, which include husbandry and cultural practices crucial to the success of the technological package being offered.
6. Establishment of veterinary care and animal insurance programs.
7. Provision of equipment repair facilities at the sub-sector level.
8. Marketing support for cash crops produced by loanees with the equipment package.

9. Training program for encadreurs emphasizing practical experience in animal traction and weeding with animal power.
10. Developing a system of reporting which follows loanees as individuals rather than monetary aggregates.
11. Establishment of a system of review and control which is automatic, sufficiently flexible to allow for special circumstances, yet sufficiently rigid to guarantee the future of the credit program.

AFRICAN RURAL EMPLOYMENT WORKING PAPERS

WP No. 1	"African Rural Employment Study: Progress Report and Plan of Work, 1972-76," May 1974.
*WP No. 2	Dean Linsenmeyer, "An Economic Analysis of Maize Production in the Kasai Oriental Region of Zaire: A Research Proposal, May 1974.
WP No. 3	Hartwig de Haen, Derek Byerlee and Dunstan S. C. Spencer, "Preliminary Formulations of Policy Models of the Sierra Leone Economy Emphasizing the Rural Sector," November 1974.
WP No. 4	Enyinna Chuta and Carl Liedholm, "A Progress Report on Research on Rural Small Scale Industry in Sierra Leone," November 1974.
*WP No. 5	"Plan of Work for the IDR/MSU Research Program in the Ada District of Ethiopia," November 1974.
WP No. 6	William A. Ward, "Incorporating Employment into Agricultural Project Appraisal: A Preliminary Report," February 1975.
WP No. 7	Eric F. Tollens, "Problems of Micro-Economic Data Collection on Farms in Northern Zaire," June 1975.
*WP No. 8	"Annual Report for Period July 1, 1974 - June 30, 1975--Rural Employment in Tropical Africa: A Network Approach," 1975.

---

*Out of print.

Single copies of the papers may be obtained free from the African Rural Employment Research Network, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan 48824, U.S.A.

AFRICAN RURAL ECONOMY WORKING PAPERS

WP No. 9 Carl K. Eicher, Merritt W. Sargent, Edouard K. Tapsoba, David C. Wilcock, "An Analysis of the Eastern ORD Rural Development Project in Upper Volta: Report of the M.S.U. Mission," 1976 (also available in French, "Une Analyse du Projet de Developpement Rural dans L'ORD de L'Est en Haute-Volta: Rapport de la Mission M.S.U.).

WP No. 10 Tom Zalla, "A Proposed Structure for the Medium-Term Credit Program in the Eastern ORD of Upper Volta," 1976 (also available in French, "Projet de Structure du Programme de Credit à Moyen Terme dans l'ORD de l'Est en Haute Volta).

Single copies of the papers may be obtained free from the African Rural Economy Program, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan 48824, U.S.A.

AFRICAN RURAL EMPLOYMENT PAPERS

AREP No. 1	Derek Byerlee and Carl K. Eicher, "Rural Employment, Migration and Economic Development: Theoretical Issues and Empirical Evidence from Africa," 1972.
AREP No. 2	Derek Byerlee, "Research on Migration in Africa: Past, Present and Future," 1972.
*AREP No. 3	Dunstan S. C. Spencer, "Micro-Level Farm Management and Production Economics Research Among Traditional African Farmers: Lessons from Sierra Leone," 1972.
AREP No. 4	D. W. Norman, "Economic Analysis of Agricultural Production and Labour Utilization Among the Hausa in the North of Nigeria," 1973.
AREP No. 5	Carl Liedholm, "Research on Employment in the Rural Nonfarm Sector in Africa," 1973.
AREP No. 6	Gordon Gemmill and Carl K. Eicher, "A Framework for Research on the Economics of Farm Mechanization in Developing Countries," 1973.
AREP No. 7	Francis Sulemanu Idachaba, "The Effects of Taxes and Subsidies on Land and Labour Utilization in Nigerian Agriculture," 1973.
AREP No. 8	D. W. Norman, "Methodology and Problems of Farm Management Investigations: Experiences from Northern Nigeria," 1973.
AREP No. 9	Derek Byerlee, "Indirect Employment and Income Distribution Effects of Agricultural Development Strategies: A Simulation Approach Applied to Nigeria," 1973.
AREP No. 10	Sunday M. Essang and Adewale F. Mabawonku, "Determinants and Impact of Rural-Urban Migration: A Case Study of Selected Communities in Western Nigeria," 1974.
AREP No. 11	Enyinna Chuta and Carl Liedholm, "The Role of Small Scale Industry in Employment Generation and Rural Development: Initial Research Results from Sierra Leone," 1975.
AREP No. 12	Tesfai Tecle, "The Evolution of Alternative Rural Development Strategies in Ethiopia: Implications for Employment and Income Distribution," 1975.

*Out of print.

Single copies of the papers may be obtained free from the African Rural Employment Research Network, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan 48824, U.S.A.