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## Higher insertion in marketing and vulnerability of cattle farms in North Cameroon

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**Abstract:** Does higher commercial insertion constitutes for livestock keepers an opportunity in fostering the transformation of their farms, or a risk likely to further weaken their farms? This issue is arising in Northern Cameroon where traditional livestock farming systems are hampered by high pressure on land while high population growth and rapid urbanization stimulate the development of dairy products and beef markets.

A research was carried out to identify the effects of commercial insertion on the sustainability of farms. The methodological approach adopted criss-crosses the study of breeding practices and the analysis of cattle marketing channels. Investigations and an annual follow-up were carried out at the level of the herds, farms, cattle markets, slaughter-house and consumers.

The engagement of livestock keepers in trading is effective, but it operates in a careful way, farmers preferring risk minimization to income optimization. The adjustments related to commercial insertion range from a slight modification of breeding and especially of commercial practices and diversification of products to the change of farm structure. Income generated by engagement in the marketing channels are used to preserve livestock thus conserving capital, to increase livestock size, to modernize the breeding activity by purchasing more inputs, or to invest in extra-farm activities.

The deficiency of support services, inadequate information, the organisation and functioning of the cattle marketing channel, the low decision-making capacity of farmers make commercial insertion a source of vulnerability. Principal concerns of farmers relate to the reduction of livestock size, poor economic results, hindering of breeding activities and disturbing of farm structure.

The supply of technical and management advice will help farmers to better deal with internal factors of this vulnerability. The control of external factors requires collective actions, regulations and suitable policies to make the environment and the functioning of cattle industry fairer and more inciting for farmers. This study, which shows that paradigms used for the analysis of extensive farming dynamics should integrate the role of the market, needs to be validated on the same issue as in other contexts, and to be tested on other products.

**Keywords:** cattle breeding, markets, sustainability, North Cameroon

### Introduction

The assumption that livestock keepers in the African savannas are reluctant to innovations but prefer social prestige and that their will to transform their production system comes up only at the event of serious crisis or because of the lack of technical alternatives remains deep-rooted (Faye, 2006).

This image is due mainly to the fact that traditionally, their farming systems are not very connected to the market. The annual rate of commercial herd exploitation is often lower than 10% (Planchenault, 1992). Supply is not always connected to demand. Sales are more stimulated by farmers' specific needs of funds than by the characteristics of the demand or the state of the market (Djamen *et al.*, 2007).

Regarding breeding as mainly based on subsistence, with extensive production techniques and little dynamics, research and livestock support services often focus their actions on technical aspects such as feeding, health and reproduction. The issue of farm dynamics and sustainability is not often taken into account and it is often examined only with regard to problems of availability and access to natural resources (Thompson, 1997; Vavra, 1996). This option reveals its shortcomings because it is now proven that when conditions are favourable, livestock keepers, like other agricultural producers, tend to modify their practices to respond to opportunities generated by good market trends (Cour, 2004).

Current transformations of the physical and socio-economic environment of cattle farming in Northern Cameroon illustrate the need to integrate commercial insertion in the study of farm dynamics. Here, traditional breeding systems are hindered by various factors particularly the issue of high pressure on land, access to resources, but also changes in the socio-economic environment (high population growth) in a context of strong uncertainties. These factors force livestock keepers to change their production systems and to elaborate new strategies: security, diversification or intensification of production; increase of farm or herd size, increase of extra-farm income, abandonment of the agricultural sector (Dufumier, 2004), and finally, the integration of more market rules (marketing, intensification, quality, competition) into these strategies. The rise in meat prices encourages an increase in the rate of herd commercialisation. This enhances the intensification of farming practices. The demand for dairy products raises possibilities for diversification of farm activities traditionally oriented towards meat production.

This paper is based on the incidence of commercial insertion on breeding practices. The main questions addressed are: How is the engagement of livestock keepers in trading being carried out? What are its effects on farm activities? Does high commercial insertion constitute an opportunity for livestock keepers to foster the transformation of their farms, or a risk likely to further weaken their farms, making them more vulnerable?

## The commercial vulnerability of cattle farms

For two decades now, the concept of vulnerability, which is a very important aspect in the study of the dynamics of systems in relation to modifications of their environment, is highly used by researchers, policy makers and professionals working on the issue of global environmental change (Fussel, 2007).

Cutter (1993) defines vulnerability as the probability for an individual or group of individuals to be exposed to or to endure a given hazard. It is the interaction between threats coming from the environment and the social profile of communities. Other authors (Finan *et al*, 2002) suggest that vulnerability must go beyond the indication of exposure to risks of harmful effects related to change, to also integrate the level of sensitivity and the capacities of adaptation of the system considered to negative effects generated by the occurrence of these risks. The concept of vulnerability is closely linked to that of resilience, which is defined as a kind of equilibrium for a system and the ability of the system to face up to disturbance, i.e. to recover initial characteristics after disruption, or the amount of disturbance needed to flip this system to another point of equilibrium (Milestad, 2003).

Unlike resilience which stresses the ability of the system to recover its initial equilibrium after a disturbance, vulnerability emphasizes the ability of adaptation to harmful effects generated by the transformation of the environment. Here adaptation does not mean the return to initial equilibrium, but rather elaboration of new strategies which make it possible to reabsorb the negative effects generated by change (Polsky *et al.*, 2007). In this light, vulnerability has three components: i) the exposure to the threat; that is, effects related to the variation of the environment (physical or socio-economic); ii) the sensitivity to this threat, i.e. the degree to which the system is affected by the source of vulnerability, be it favourable or unfavourable and; iii) capacities of adaptation to this threat, which translates the aptitude for the system to modify or change its characteristics to better face or to anticipate a constraint (Brooks, 2003).

The causes of vulnerability are internal or external in relation to the system considered. In the field of biophysical sciences (exp. climatic change) the external causes are paramount while in the social sciences, it is above all the internal properties of the system which determine its vulnerability (Brooks, 2003). In all the cases, Fussel (2007) points out that the concept must be contextualized, with precise details on the causes of vulnerability, the nature of the concern, the system considered and the hazard.

This short recapitulation of the concept of vulnerability shows its utility for the control of works on the transformation and the sustainability of agriculture (Brugere and Lingard, 2003). It appears operative for us to treat the question of the commercial insertion of livestock farming systems. To begin with, we regard livestock keepers' practices as a compromise between their projects (internal factors) and the characteristics of their milieu (external factors). The milieu is understood here as including the natural resources and the human and cultural factors. The localization of determining elements of the cattle industry (markets, tools such as slaughter-houses, support services...) is also considered. Livestock keepers' practices evolve according to their objectives and on the transformations of the milieu.

We posit that the increased commercial insertion of livestock keepers can be a means to make the transformation of their exploitations a success, although this connection to the market can also make their exploitations more vulnerable. We define this vulnerability as the probability for a cattle farm engaged in a dynamics of strong connection to the market to undergo, and not to be in the position to control or to adapt to the harmful consequences of this commercial insertion. This vulnerability can be related to the socio-economic environment of the farm (the trend of demand and the prices on the market; the availability of and accessibility to inputs; the organization and the functioning of the cattle marketing channel, particularly relations with stakeholders at the downstream of the channel) or with the farm itself (structure; farmers' practices and strategies).

This research aims, through the analysis of this vulnerability, to understand the influence of the development of marketing on breeding, and to identify the diversity of the representations and the reactions which livestock keepers adopt to meet this influence. The hypothesis formulated is that the commercial insertion of cattle farms can play a pivotal role in the evolution of breeding and, indirectly of strategic booster to food security if only farmers develop suitable operational capabilities to manage the effects related to the dynamics involved.

## Methodology

### Zone of study

The zone of study covers the North province of Cameroon (Figure 1), which with a cattle population estimated at a million heads constitutes one of the principal breeding zones of Cameroon. North Cameroon is a zone open to exchanges with neighbouring countries (Chad, Central African Republic and Nigeria). The cattle industry is a key area of these exchanges (Boutrais *et al*, 1992; Herrera and Engola-Oyep, 1996). In addition to the transit of Chadian cattle bound for Nigeria, cattle markets of Cameroon are used as supply zones by Nigerian cattle traders. This opening to external markets has a dual effect: on the one hand it makes it possible to make up the deficit of local production through the importations of Chadian cattle; on the other hand the existence of the Nigerian market, where the purchasing power is higher, is an additional incentive for livestock farmers to be engaged in commercial circuits. It also serves a source of competition for Cameroonian butchers and tradesmen.

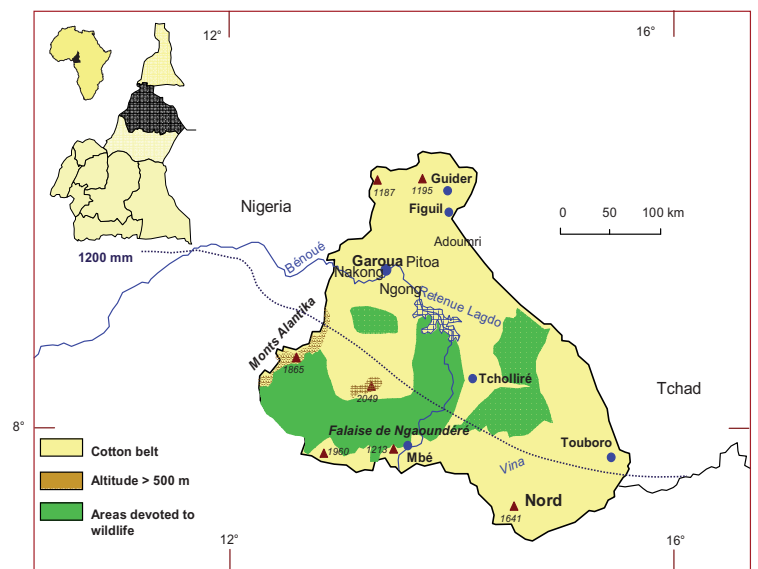


Figure 1. Situation of the zone of study

Pastoralism, the dominant cattle farming system in North Cameroon has for a long time showed certain resilience despite the hostile and disapproving attitude of environmental and livestock support services. Today, the bases of this system of breeding, often confused with a way of life, are hampered by the absence of arbitration between the three great vocations of the North province of Cameroon (reserve of fauna, cattle-breeding area and, immigration ground for agricultural producers). The extension of farmlands and areas devoted to wild fauna leads to the reduction of pasture land.

Livestock keepers are obliged to reconsider their production system (Blanc-Pamard et Boutrais, 1994). Settlement viewed as an inductor of the intensification and modernization of breeding systems, promoted for a long time without success by livestock support services is fully being concretized (Dongmo *et al.*, 2007). Parallel to the transformation of pastoralism, new farming systems are emerging: i) mixed farming system (livestock alongside crop activities); ii) sub-urban systems characterized by a strong use of inputs and a greater connection to the market. This connection to the market is supported by a high demographic growth (+ 3% per annum, doubling of the urban population in 15 years).

## Material and methods

The methodological approach adopted to characterize the vulnerability of the cattle farms criss-crosses the study of breeding practices and the analysis of the cattle marketing channel (Figure 2). On the one hand, it regards cattle rearing as a technical activity constrained by the farmer's projects and the physical and socio-economic characteristics of the environment. On the other hand, the market channel approach is viewed as a means of understanding the interactions between markets and farming systems. This market channel approach is applied on Garoua which is the main town of the North province of Cameroon.

The characterization of the context makes it possible to highlight the assets and constraints likely to influence breeding practices and the development of cattle industry. Farms are described to highlight breeding practices. An annual follow-up of the herds of some farms considered to be representative of diversity of the area under study is carried out to refine knowledge on the determinants and types of breeding practices. Stress is laid on the effects of the market on the structure and functioning of farms; farmers' practices and strategies. Further analysis of the consequences of these effects and the capacities of adaptation of farmers makes it possible to characterize their vulnerability

In the market channel approach, service supply (advice, inputs, credit etc.) occupy an important place, farmers needing suitable support to ensure the transformation of their activities. The structure (various stakeholders and their specific function) and the functioning (stakeholders' strategies and relationships) were studied. Characteristics and prospects for the final demand were highlighted.

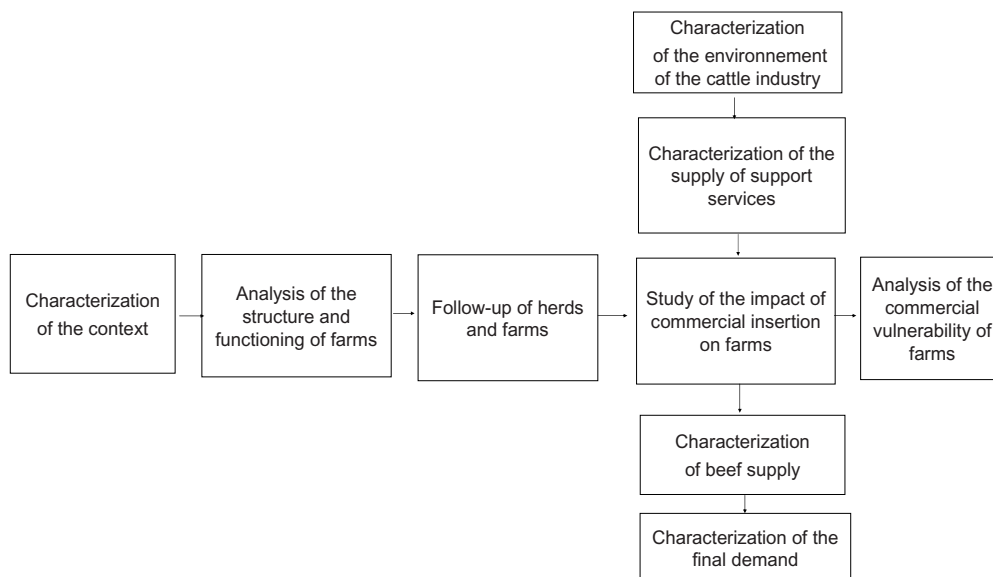


Figure 2. Methodological approach

Surveys and follow-ups were carried out on a sample of the various classes of stakeholders of the cattle marketing channel: 60 livestock keepers (25 pastors, 20 mixed-farming farmers, 15 cattle fatteners), 10 intermediaries, 20 tradesmen, 15 wholesale butchers, 36 retail butchers and 300 consumers. Due to the lack of an updated data basis on the cattle industry, a preliminary study was carried out to identify the structure of the chain, and mainly the different categories of stakeholders. Then sampling was realized using the "snowball technique", addresses of the following farmers were given by the previous one, starting from one "seed farmer".

Observations were made at the level of herds (composition and functioning), farms (farmers' breeding and sales practices), cattle markets (weekly observations of flows of animals in the markets of Adoumri, Nakong, Ngong and Pitoa), slaughter-houses (origin and types of slaughtered animals in Garoua) and consumers (place of beef in eating habits in Garoua).

## Results

### Various reactions of livestock keepers *vis-a-vis* the development of markets

#### Specific consequences of motivations

The sale of cattle is traditionally an opportunistic practice, very often with the aim of meeting farmers' specific needs for funds. The rate of commercial exploitation of livestock, that is 12% per annum on average, varies according to the level of diversification of income sources of the farm (dairy production, crop activities). Male cattle account for 65% of the sales. This "sexism" is related to the fact that these farming systems are mainly birth-oriented. Females are sold only for reasons of reform or reproduction.

In the pastoral systems, sales of cattle are related to four main reasons which act individually or collectively (Table 1): consumption needs (food in particular and clothing), management of the career and the reproduction (selection) of the animals, investments (increase livestock, acquisition of goods), and speculation (ex: sale during period of shortage on the market). This behaviour, also observed with the pastoral herdsmen of Ferlo in Senegal (Wane, 2005), shows that livestock keepers are often more interested in the attainment of a threshold of satisfaction based on the anticipated gains than by the maximization of income levels. Diversity in the categories of animals bred (calves, heifers, cows, bulls, bullock) makes possible for cattle farmers to have a certain commercial flexibility (Ingrand *et al.*, 2006). The choice of the animal to be sold is a compromise between the motivation of the sale and the monetary value of the animal.

Table 1. Determinants and types of animals sold by pastors

Motivations	Types of animal sold
Consumption (55%)	Young bulls
Investments (22%)	Bulls, bullock, old cows
Management of "career" and reproduction (15%)	Old cows, bulls
Speculation (8%)	Bulls, bullock

( ) Estimate of the proportion compared to the total number of annual sales, N = 23

These marketing practices of pastors contrast with those of agro-livestock keepers and cattle-fatteners, for whom sales are dictated respectively by the reform of the draft animals and; the level of price on the market or the physical state of the animals. The contribution of pastors, mixed-farming farmers and "cattle fatteners" to the local beef supply in Garoua is estimated respectively at 60, 10 and 30%.

#### Varying sensitivity of livestock keepers to market opportunities

Livestock keepers perceive and react differently to the increase in demand on the markets. 35% of them, in particular pastors, did not modify their practices in spite of the evolution of demand. These farmers do not adequately perceive the advantage of an increased commercial insertion. Furthermore, they are currently more preoccupied by the sustainability of their farms.

With farms sensitive to the development of markets, signs of commercial insertion vary according to livestock keepers and follow a gradation (Table 2). Several effects (levels) could be found on the same farm. It has appeared that these effects can be simultaneous or progressive over the years depending on farmer's objectives. From levels 1 to 4, the economic function of cattle predominates progressively over its social role. Signs of this tendency are as follows: i) a light adjustment of renewal practices of animals in the settled pastoral farmers ii) the improvement of the technico-economic performances in mixed-farms which seek to improve the body status of the animals presented on the market, iii) the development of organisational dynamics and of bargaining skills with traders and service providers.

This trajectory, observed in very few pastoral farms with offensive strategies (15%), is neither linear nor valid for all farms. It rather shows that to obtain full benefit from opportunities raised by market trends, a minimum transformation of the farm and farming practices is necessary.

Commercial insertion is made in a careful way. Livestock keepers prefer a minimization of risks to an optimization of incomes. Modifications of levels 3 and 4, which appear more "heavy" and more "risky" are observed mainly in emerging systems (cattle fattening) which have a net economic orientation.

Tableau 2. Evolution of farmer's objectives and practices under market influence

	Effects of the market	Characteristics	Farmers' objectives
Influence of market	<u>Level 4.</u> Management and contractual arrangements (15%, n=9)	Creation of farmers' organisation, contracts with other stakeholders	Realize economies of scale, Better bargain with stakeholders
	<u>Level 3.</u> Transformation of the farm structure (30%, n=18)	Development of cattle fattening and milk production activities Splitting up of herds	Have returns from the exploitation of the economic function of livestock
	<u>Level 2.</u> Improvement of breeding practices (47%, n=28)	Improvement of feeding health follow-up of livestock Good body status of livestock	Improve conformation and technical performance of cattle to gain higher margin at sales
	<u>Level 1.</u> Modification of renewal and exploitation practices of herds (65%, n=40)	Increase and planification of the sales of cattle Increase of the renewal rate of the herd	Earn a higher profit from cattle sales without additional investments/changes

( ) percentage and number of farms found at this level, on a total of 60 farms.

### The structure and functioning of market channel influence the behaviour of farmer vis-à-vis market opportunities

A total of 66,880 cattle were sold from December 2004 to November 2005 on the four cattle markets (Adoumri, Nakong, Ngong and Pitoa) considered in this research. From production to consumption, the cattle marketing channel counts from three to six classes of actors according to circuits considered (Figure 3). Four stakeholders play a determining role:

- i. Intermediaries or middlemen: Well-known to all stakeholders of the marketing channel, they have a very broad social network which enables them to serve as guarantors and witnesses of the transaction between farmers and purchasers. They strongly intervene in the price determination by taking the place of the livestock keepers at the time of negotiations with purchasers;
- ii. Cattle tradesmen: They possess huge financial resources which they use to buy animals in the wholesale markets. These animals are then resold to wholesale butchers, farmers and other tradesmen. Often carrying out wholesale purchases, they play a major part in the regulation of market supply and they animate flows of imports coming from Chad and exports towards Nigeria. They work in a close manner with intermediaries and collectors with whom they constitute the principal "price makers".
- iii. Wholesale butchers: They buy cattle, for slaughter and wholesale and semi-wholesale of beef (full, half or quarter carcasses) to retail butchers. Because of their very weak capital, very few retail butchers are able to buy live cattle on the market;
- iv. "Cattle fatteners": They buy animals of poor quality (weak weight or poor body status) to farmers and cattle tradesmen. They improve the quality of these animals by appropriate feeding and health care and sell them to cattle tradesmen and wholesale butcher, thus contributing to the regulation of supply on the market during the dry season.

The animals sold in the markets follow three great destinations: the slaughter-house of Garoua (39%), Nigeria (36%) and farms (25%). Each destination has a different demand that the commercial flexibility of the livestock keepers more or less makes it possible to satisfy: the Nigerian market drains especially the bulls which are more vigorous to withstand the journey on foot; the cows whose selling price is 20 to 40% weaker than that of the bulls go mainly to the slaughter-house of Garoua where they represent nearly 50% of cattle slaughtered; the farmers buy especially the heifers and to a lesser extent the bull calves to constitute or increase their livestock.

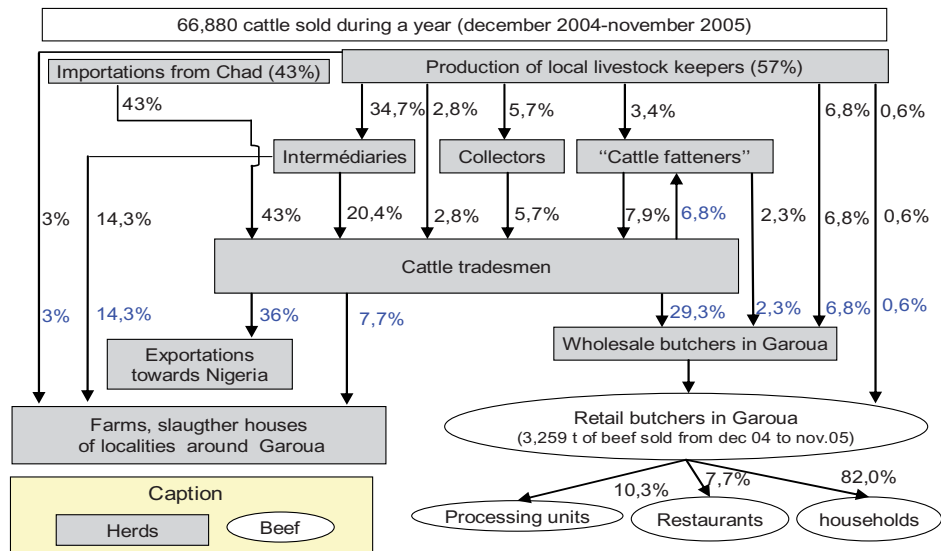


Figure 3. Marketing channel of cattle

The fixing of the prices is often carried out at the detriment of farmers. Their bargaining ability is very limited because of the asymmetry of the information and the role of the intermediaries. In addition, the live weight of the animal which actually constitutes the principal determinant of its commercial value is measured by visual estimate, which is prone to inaccuracies. The traders and wholesale butchers whose experience enables them to estimate the live weight of the animal at 5 or 10 kg close to reality benefit greatly from this situation to the detriment of the farmers whose "reserve price" is more often determined by financial need than by the real commercial value of the animal.

## Is commercial insertion a factor of vulnerability to cattle farms?

### Concerns of the livestock keepers

Commercial insertion presents a number of advantages, but it also exposes farmers to the risks of suffering harmful consequences on the structure, functioning to even the future of the farm, making it vulnerable. Preliminary observations of the annual follow-up carried out, and the discussions with the 40 exploiters (13 pastoral breeders, 12 agro-livestock keepers, 15 cattle fatteners) considered as sensitive to the effects of commercial insertion make it possible to identify some of sources of concern.

A multiannual follow-up would make it possible to adequately understand these concerns which vary according to the breeding system. Figures in Table 3 indicate the frequency of different concerns mentioned by farmers, one farmer can have several concerns.

The income generated by commercial insertion is used to preserve the breeding by limiting stock reduction, increasing the livestock, modernizing the activity by buying more inputs or investing in extra-farm activities. Some livestock keepers, in particular the pastoral ones, are lured by the idea of diversifying to other sectors, in order to limit the sales of animals in the medium term and to secure the herd. They fear however that bad returns on such an investment could lead to a capital reduction of their livestock, which would be for them a real disaster.

Table 3. Principal concerns of farmers in relation to commercial insertion (N = 40)

Farmers' concerns	Pastors (n=13)	Mixed-farming farmers (n=12)	"Cattle-fatteners" (n=15)
Reduction of livestock size (%)	54,0	-	20,0
Poor economic results (%)	23,7	41,6	46,6
Stop of breeding activities (%)	38,5	25,0	73,3
Disturbance of farm structure (%)	15,4	58,3	66,6

The possible sale of animals at prices lower than the reserve prices, and especially lower than levels not covering the production costs, is perceived by the livestock keepers, in particular those users of inputs (cattle fatteners), as a source of vulnerability. For those who invested in the breeding to diversify their incomes, poor economic results could result in a stop in the breeding activity. The disturbance of the structure of the farm is especially dreaded by the livestock keepers who have a diversified system of activity. Here, the breeding is used at the same time as means of raising capital and source of financing of other activities. This is for example the case of cotton farmers or traders who set up fattening units and reap the benefits drawn from their principal activity. Very poor economic results of fattening activities would have negative effects on the other activities of the farm.

### **Insufficient supply and misfit in inputs and support services**

The availability and accessibility to input becomes problematic, thus compromising the dynamics of intensification of production techniques. The case of cotton oil cake and cotton shell is emblematic. The supply of these two products which constitute the principal ingredients used in the manufacture of animal feed is very insufficient. The local production of cotton granulates fell by approximately 40% during the last four years (2004 - 2007). The prospects are not very optimistic because of the worldwide crisis in the cotton sector (Orsenna, 2006).

At the level of support services, supply is insufficient and ill adapted. The services of breeding are focused on problems such as access to resources and veterinary health care which appear more visible and more urgent for the moment, but not necessarily in the long run. Concerns such as marketing, professionalization and support of the commercial insertion of cattle farmers, which will become more worrying in the years ahead, are not very much taken into account and are even ignored. In addition, with little availability of credit facilities or the existence of loans with very high interest rates, the livestock keepers have great difficulty in acceding the required financing to intensify their techniques and to draw greater profit from the development of markets.

The insufficiency of the support services and inputs are constraints to commercial insertion insofar as it limits the projects and ambitions of the livestock keepers. This is also a factor of vulnerability because the stockbreeder does not benefit from all the support necessary to make the transformation of his farm a success. The lifting of all these constraints and moreover, the success of commercial insertion are related to the projects and the decision-making ability of the stockbreeder.

### **The vulnerability is also related to the decision making skills of farmer**

Connection to the market is translated in the livestock keepers by the development of sales for reasons of speculation, and an effort of adaptation of supply to demand. The livestock keepers develop two great strategies to move from their usual position of "price taker" to that of "price maker": i) improvement of the practices of breeding control to present on the market animals of better quality and; ii) the development of negotiation and decision-making capacities (e.g. judicious choice of the period of sale) aim at maximising income. According to the objectives and economic results, one distinguishes three great types of behaviours: optimization (to deploy all the means necessary to expect the best possible results), pragmatism (to aim at good results, but by taking reasonable risks) and; opportunism (to seize all good opportunities, by taking less possible risks).

We are to use the cases of the cattle fatteners for better illustrating this diversity of behaviour which at the same time translates the levels of sensitivity to the markets, the degree of risk taking and thus of vulnerability. Fattening is a practice which aims at increasing the weight and the body status of animals, especially in the dry season. They are then sold during this period when the supply on the market is insufficient because of the departure of the livestock keepers in transhumance. Animals are of bad quality (thin) because of the poor nutritive value of pastures. The cattle fatteners buy animals which weigh on average  $240 \pm 54$  kg; They hope for a gain of weight of 50kg and to obtain a margin being able to reach up to 67 400 Fcfa (102,7€) per animal. The duration of fattening is  $76 \pm 29$  days, and the putting on sale of the animals depends on the price level on the market, or on the quality of the animals (body status, live weight). The follow-up of fifteen fattening units (540 animals) during one year showed that according to the level of the "benefit" and the strategies which they deploy to achieve it, the cattle fatteners can develop behaviour of optimisation, pragmatism or opportunism (Table 4).

Table 4. Classification of cattle fatteners' marketing strategies

	Optimisation (47%, n=7)	Pragmatism (33%, n=5)	Opportunism (20%, n=3)
Characteristics	Sales planned To put on the market animals of the best quality when prices are at their highest level Contracts with the purchasers	Planned + unplanned sales To sell as much as possible animals of the best quality while remaining "sensitive" to the price	Opportunist sales To sell each time the level of price allows a "satisfactory" margin High turnover
Production techniques	Intensive	Semi - intensive	Extensive
Gross margin/SP (%)	25,5	30,5	33,6

() percentage and number of farms using this strategy on a total of 15 farms observed; SP =selling price

**Optimization:** These livestock keepers seek to earn the best margins by putting on the market the heaviest possible animals when the prices are highest (March - April). They have intensive practices (best quality feed) and good technical performances (higher weight gain, 1 100g/day on average). But their economic results are often poor even negative because of high production cost, and especially their poor mastery of the functioning of cattle marketing channels. This often results in a discrepancy between the period of the optimal quality of the animals and that of the peak of the prices on the market.

**Pragmatism:** While remaining convinced that the best margins are obtained while putting quality (heavy) animals on the market, they can decide when they find the prices "favourable" to sell some animals before they reach their optimum weight. They have semi-intensive practices (feed combining concentrates and crop waste products). They aim more at controlling the production costs than optimising technical performances.

**Opportunism:** These livestock keepers, who are also tradesmen or intermediaries, have a better mastery of quality standards of the animals and are well informed of the prices on the market. They obtain good gross margins thanks to the extensive control of the animals (main feed is pasture, very little use of concentrates which makes it possible to minimize the cost prices) and on a good level of information flow which enables them to put to sell each time they find prices on the market "interesting". Their strategy rests more on quick turnover than on a maximization of income.

This analysis of the practices shows that commercial insertion requires good technical skills to put animals of quality on the market making it possible to satisfy demand and to draw from it better profits. A good knowledge of the functioning of the market channel and more particularly of the prices and their evolution on the markets is also necessary.

## Conclusion

This study shows that commercial insertion of cattle farms related to the increased attractiveness of markets is strongly dependent on the context. The livestock keepers react variously. The diversity of the strategies developed to move from the usual position of "price taker" to that of "price maker" translates at the same time the level of sensitivity to the market, risk taking and thus of vulnerability.

Commercial insertion proceeds in a careful way confirming the adaptive management of the farmers who often prefer the minimization of risks to the optimization of income (Darnhofer, 2006). It seems a source of vulnerability for farms. The commercial vulnerability of cattle farms is related to the insufficiency of the supply of support services needed to accompany the transformation, organization and operation of the cattle industry which is unfavourable to livestock keepers, and with the low capacities of negotiation and technico-economic management of the latter. It is also strongly related to the relevance and the effectiveness of the adjustments which farmers carry out on the level of their breeding and marketing practices. Principal concerns of livestock keepers relate to the reduction of livestock, poor economic results, a stop of the breeding activity and the disturbance of the farm structure. Because of these fears, farmers do not fully take advantage of the opportunities which the market offers.

The current state of the evolution of the cattle industry poses to livestock keepers the challenges a new learning process. Commercial insertion will be able to play its potential role of strategic booster of food security of the country only if this learning process is smooth without great damages on farms. It is necessary to develop the livestock support services, in particular advice, supply of inputs and credit

facilities. The control of the external factors of vulnerability requires collective action, regulations and suitable policies to make the environment and the functioning of cattle marketing channels fairer and more inciting for farmers (Pokhrel and Thapa, 2007).

The added value of criss-crossing the study of breeding practices and the analysis of the cattle industry shows the importance of better integrating the role of the market in the paradigms used for the analysis of farm dynamics and sustainability.

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