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Cattle sales in KwaZulu: Wealth
vs. Income. Implications for an
improved marketing strategy

by
Paul Colvin

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AUTHOR : P.M. COLVIN
INSTITUTE OF NATURAL RESOURCES
UNIVERSITY OF NATAL
PIETERMARITZBURG ,

TITLE: CATTLE SALES IN KWAZULU: WEALTH VS. INCOME.
IMPLICATIONS FOR AN IMPROVED MARKETING STRATEGY.

INTRODUCTION AND HYPOTHESIS:

A recognition of the central role of cattle in African pastoral society, and the means by which benefits derived from cattle ownership can be accommodated under changing social and economic circumstances, should be built into appropriate livestock development strategies.

There is widespread supportive evidence to indicate that, within the constraints and opportunities of their traditional society, subsistence pastoralists behave in an economically rational manner, and are maximisers of utility in relating their relatively scarce cattle resources to their multiple requirements. Sociological studies have shown that most pastoral economies are open to rational analysis and interpretation if one is prepared to accept old variables in new forms. Differences in actual and perceived values should be recognised, instead of unconditionally accepting the western capitalist viewpoint that cash income is the only standard of reference.

The contention put forward in this paper is that it is only through the adoption of a process-orientated, systems-based

approach to the evaluation of subsistence pastoralism, in which causes rather than effects become the key issues, that it is possible to direct administrators and planners in the formulation of appropriate livestock development and marketing policies. Officials are rightly concerned about the serious environmental degradation in the South African "homeland" areas, and their ability to sustain pastoral output for present and future generations. It is however no longer possible in this country to separate society and economy, and to pretend that science and technology is value-free. With declining subsistence production and the absolute levels of poverty existing in the rural areas, it is imperative that technical solutions are found that are compatible with social norms and custom.

Although the escalating processes of political, ecological and demographic change demand that societies and systems must adapt to new realities, traditional pastoralism has proved intractable and conservative in the face of these changes. This paper argues that it is not economic development that is resisted so much as the ability of rural communities to adapt to economic change. Technologies that allow for the keeping of additional cattle (e.g. watering points, veterinary measures etc.) have generally been readily received, whereas those technologies that have aimed at improved production through fewer cattle (e.g. grazing management, selective culling etc.) have generally been resisted (Schneider, 1974). It is these aspects that have caused otherwise well-intentioned officials to attribute the response of pastoralists to production and marketing initiatives as being perverse and irrational rather than to deficiencies in their own

interpretation.

CATTLE OWNERSHIP IN THE CONTEXT OF PASTORAL SOCIETIES:

It is necessary to define at the outset of this paper what is meant by pastoralism, as it is used in the context of commercial graziers of cattle and as it applies to subsistence based herders. Although in broad ethnographic terms, a pastoral society can be classified as one in which the man:livestock ratio is greater than a factor of one, and characteristic of remote, arid to sub-arid regions where a large degree of dependency is placed on the keeping of livestock, there is a fundamental divergence of interest between the two groups, which is related to differences in socio-economic perspective, objectives and cultural values.

Essentially, a commercial pastoralist values cattle as a means towards the attainment of (individual) economic objectives, through the realisation of cash income benefits derived through the sale of animals (or their produce) which are fed on live herbage. Subsistence pastoralists, on the other hand, are generally inclined to view cattle ownership as an end in itself, with their cattle herds serving a variety of multipurpose roles. A large premium is placed on their use in the attainment of subsistence needs, while their commercial sales value is of relatively minor significance.

Although fundamental to applied management systems, it is possible to only allude to certain of the more important features

of subsistence pastoralism. These are based on systems research studies carried out in other Southern African countries, such as those conducted recently in Botswana (e.g. Behnke, 1982; Gulbrandsen, 1980), Zimbabwe (e.g. Dankwerts, 1974; Sandford, 1982) and Swaziland (e.g. Low and Fowler, 1980).

From an applied marketing perspective, I hope to demonstrate in this section that the opportunities and prospects for a subsistence herder to engage in commercial livestock trading are severely constrained and defined by local circumstances. In other words, in terms of his socio-economic situation and objectives, it is not considered profitable to engage in a higher rate of selling activity than is absolutely necessary to meet immediate cash needs.

I wish to examine certain of the characteristics of the system in turn, and to estimate their interdependent effect on the herder's ability and willingness to engage in cattle marketing.

Firstly, the system of communal land tenure mitigates strongly against the herder's ability to adopt improved measures of animal husbandry which would increase production levels and allow for the occasional sale of "surplus" animals (i.e. above immediate subsistence needs).

In most communal land areas in Southern Africa (particularly the overpopulated "homelands" of the Republic), grazing resources are in a critical state as a result of gross overstocking above the sustainable ecological carrying capacity of the veld. It has been argued (Crotty, 1981) that this has arisen as a logical and

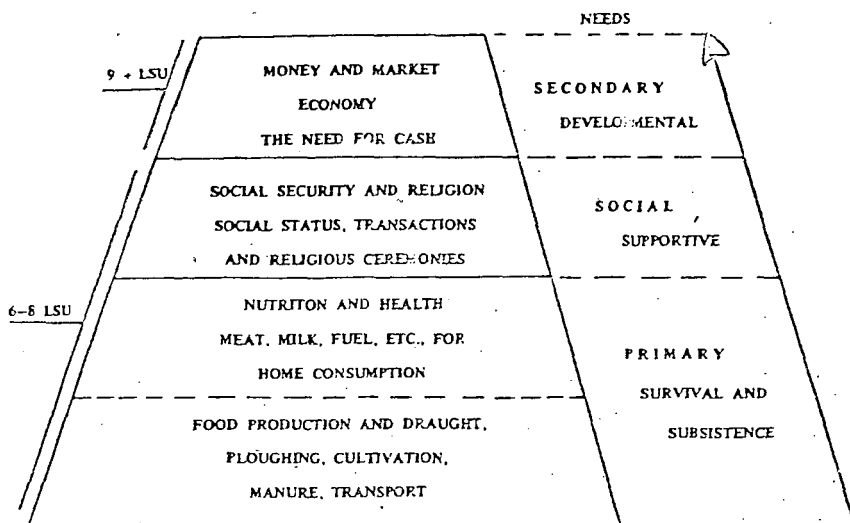
natural consequence of a system that has traditionally allowed free and unrestricted access to tribally owned pastures, and in which no limits have been placed on the number of grazing livestock held by each household. The economic rationale of the individual herder is therefore to continue to accumulate cattle, even to the point where their productive output is close to zero, since his own (marginal) costs are minimal and his decisions are based entirely on personal considerations. The eventual consequences of the collective actions of an increasing number of profit-maximising herders, each seeking to increase their share of a finite cake (grazing area), is that the negative (social) aspects from overgrazing will exceed the combined (individual) gains. In the long run, declining returns from a degraded resource base will ensure that both total and average livestock product will diminish.

The abilities of herders to respond to the constraints imposed by the communal grazing system through improved husbandry measures are limited. This can arise from a number of different reasons, but in relation to introduced technologies, can often be attributed to the incompatibility of these "improvements" to prevailing agro-pastoral practices and systems, and the fact that they have not been proven either technically or economically under their own operating conditions. A further consideration is the absolute level of poverty and the inability of owners to afford even the most basic of purchased inputs (such as calf inoculations) even where they might have a significant effect on overall herd production.

An additional important constraint on cattle marketing prospects arises from the high degree of dependency placed on the keeping of cattle. Subsistence and socio-cultural needs effectively limit and determine the frequency, timing and choice of "surplus" cattle that might be available for sale. Comparative studies from ecologically diverse regions have indicated that in a "hierarchy of subsistence needs" prime importance is attached by peasants to the use of cattle as a provider of agricultural draught power. In most households access to a team of oxen is indispensable to the planting of field crops and to making use of the frequently short duration spring rains.

Arable production of subsistence food crops is particularly important where off-farm income (e.g. from migrant remittances) is absent or unreliable. Even though economic returns to time and labour involved in subsistence cropping is low in real terms, and bears no comparison to what can be earned in wage employment (estimated by Gulbrandsen that one month's wages to a Batswana is equivalent to the gross return from the ploughing of 8-10 hectares in a good year) it is a tragic fact that for more and more families in the rural areas the avenues and alternatives open for wage employment are being closed, and mere subsistence survival in the "reserves" is all that remains. In these cases, access to cattle for ploughing and for other subsistence needs is absolutely vital, and it would be economically foolhardy to expect herders to sell their pastoral capital other than for extreme emergencies.

Fig. 1. Hierarchical Priorities of Cattle Usage



Source : Bembridge (1979)

Table 1. Pastoral Output and Production Efficiency by Herd Size Group

	Herd Sizes						Average
	1 - 20	21 - 40	41 - 60	61 - 100	101 - 150	151 +	
<u>Output</u>							
Cash as % of output	30	25	28	39	46	73	35
In-kind value as % of output	48	44	30	25	20	15	31
Death and home slaughter as % of herd size	10	9	8	7	6	5	8
<u>Efficiency</u> (as Gross Margin)							
GM/head	26	22	24	22	23	23	22
GM/cow	73	63	70	61	64	68	62

Source : Behnke (1980)

The use of cattle for produce realised from milk and manure (as a fertilizer and fuel) clearly rates highly in the scale of pastoral priorities. In the Southern African context, various attempts have been made to express these in terms of local rates of exchange and as a proportion of total pastoral output. These studies suggest that the percentage contribution of this type of "in-kind" benefit is directly related to the size of the household herd. Behnke (1982), for example, in assessing the economic efficiency of different herd sizes in Botswana was able to show that small herds of less than 20 head were managed at least as efficiently as larger herds, but that the relative mix between cash and "in-kind" benefits varied considerably according to herd size, ranging between 15 and 48% of total output.

Although in "pure" pastoralism, animal production per head has characteristically been low, the relatively large size of household herds and their capacity to range over wide geographic areas has enabled herders to obtain most of their subsistence needs from their cattle holdings and has buffered them to some extent against excessive dependence on the market economy.

This is manifestly not the case in the African "reserve" areas of Southern Africa, such as KwaZulu, where the accumulated effects of overstocking, small average herds of unbalanced composition and restrictions on herd mobility have resulted in low and declining levels of pastoral production. Although statistics to substantiate low production and consumption levels in KwaZulu are sparse, and independent research needs to be conducted in this respect, a number of recent socio-economic

surveys carried out in the rural areas by Bromberger (Vulindlela district), Ardington (Nkandla) and Louw (Ingwavuma) - all of whom are reporting to this conference - would seem to suggest that home consumption of cattle produce may be declining in importance. In the case of milk yields, for example, although highly valued as a dietary supplement, home produced supplies are likely to be of only minor importance in terms of overall household consumption, and generally available only on a seasonal basis.

At the next highest level in the "subsistence hierarchy" is the dependence on cattle in a social supportive capacity. Here the numbers and types of cattle, rather than their productive output, are of importance in determining the social security, wealth and status of a household. In this capacity, cattle represent a mobile and highly transferable means of capital accumulation, readily convertible into cash in times of emergency or for particular acquisitions. As a form of investment and insurance, cattle ownership can prove more profitable than depositing equivalent funds in institutional savings. Dankwerts (1974) in Zimbabwe estimated that the return from capital invested in cattle could be as high as 25-30% per annum when the value of "in-kind" and "in-cash" benefits are added to the increase in the investment value of the herd through reproduction and increased beef prices.

Socio-cultural tradition requires that a household should maintain a certain stock of cattle. Although declining in importance, cattle in KwaZulu still represent the most acceptable

form of bride-price (lobolo), while Zulu tradition still demands that a cow is slaughtered following a family death, or to commemorate other festive or religious occasions. Additionally, the development cycle of the extended family unit, its growth, maturation and fission into separate sub-units, requires that a balance of mutual support systems is maintained in which cattle figure prominently as the principal medium of exchange. In the extended household, cattle are often pledged to individual members such as unmarried sons and daughters, well in advance of their formal inheritance. In nominal terms, therefore, although all of the cattle in the kraal "belong" to the household head as far as husbandry and management decisions are concerned, powers of allocation and disposal are effectively limited.

Finally, and only at a tertiary level, does the pastoral household consider the use of cattle in the sense of providing a monetary income through commercial sales. Building on what has already been stated, the level and frequency of a herder's participation in the market economy will depend on a number of inter-related factors. In a systems-based approach to livestock marketing, it is these features and constraints that should be the concern of Government officials in their attempts to increase marketed offtake. It is necessary first to examine the characteristics of formal and informal cattle sales in KwaZulu before expressing any opinion as to an appropriate form of development strategy.

CHARACTERISTICS OF CATTLE MARKETING IN KWAZULU:

The formal system of commercial livestock sales in KwaZulu has recently been assessed by myself, in the course of a wide ranging survey in which 480 Zulu sellers of cattle were interviewed at 20 different auction venues, located for the most part in northern Zululand.

It was found as a general conclusion that almost without exception cattle sales arose as a result of compelling economic circumstances that "forced" owners (in spite of the long term disadvantages) to sell one or more head in order to obtain sufficient funds to purchase pressing subsistence needs. Although the survey took place in the aftermath of the 1980/81 drought in this region, and may be biased on this account, it was evident that the prime motivation for selling in the case of 76% of all respondents was the need to purchase basic foodstuffs where no alternative income source was available. Such sales at critical periods of time for owners were obviously reflected in their relatively poor bargaining position at sales.

Nearly half of all sellers expressed dissatisfaction at offered auction prices, while a high percentage of withdrawals were a notable feature of smaller sales in more "affluent" regions. In the majority of cases, though, sellers were in no position to reject any reasonable offer to purchase, although, in all fairness, a frequent cause of the failure to secure a sales contract was the irreconcilable difference between the perceived value of the animal, as seen by the seller, and its actual commercial value as

slaughter stock. It was also not uncommon for the few buyers attending these sales to exploit the situation and to hold prices at unrealistically low levels. The dominant buying group at auctions consisted of short term speculator-traders operating on substantial short term profit margins. Livestock trading occurred between cattle surplus regions, such as Zululand, and cattle deficit regions, such as the Natal South Coast and Transkei.

The general motives and attitudes of herders to the commercial sale of their cattle as noted in the Zululand survey is largely borne out by the findings of Low and Fowler (1980), who carried out a regional cattle marketing survey of the communal areas of Swaziland. Although differences in methodological procedure have prevented any direct comparison between the two surveys, with the Swaziland study being a more representative investigation into all Swazi cattle owners, whereas the Zululand study confined itself to a quota cross-section of actual sellers at auction sales, some broad areas of agreement and comparison are apparent. I shall attempt to summarise the main findings in terms of the rates and patterns of selling activities between owners occurring in different ecological regions, and holding herds of different sizes. The effects of wage employment and cash cropping as well as those of other market-related factors such as price expectations and sales procedure are also examined.

In assessing regional variations in cattle sales patterns, it is useful to classify herders according to four main groupings,

each of which are broadly representative of a particular agro-pastoral system. In the first place are the lowveld pastoralists which inhabit remote semi-arid regions of low cropping potential and population pressure, and where a high degree of dependency is placed on the keeping of cattle. In the second place are those cattle owners settled in higher rainfall upland areas where both subsistence and cash cropping is practised and where the intensity of land usage and occupation is greatest. Within each of these ecological groupings a further main sub-division can be made between those owners who possess few cattle relative to household requirements (rather arbitrarily defined as less than 15 head), and those owners of larger herds who are in a position to market cattle on a regular basis.

I wish first to describe certain of the findings that came out of the two surveys, before going on to make a number of deductive premises.

(A) On the Volume of Cattle Sales by Herd Size and Ecological Region

Finding: (1) Sales rates both in terms of overall volume as well as per owner were significantly higher for lowveld regions than they were for the highveld. Within regions, small herds had a higher proportional rate of selling than did large herds.

Inference: (1) Lowveld herders rely more on sales of cattle to meet basic living expenses than do highveld owners, where crop and earnings potential are considerably greater.

Higher selling rates for small herds reflect the greater proportional effect resulting from the absolute necessity to sell one or two head a year to meet basic expenses.

(B) On the Effects of Cash Cropping on Cattle Sales

Finding: (2) Households growing industrial crops (such as cotton or sugar cane) had smaller herds on average and a generally higher sales rate than did non-cash cropping households in the same region.

Inference: (2) Cash cropping represents an investment in the land. The use of material inputs (such as seed and fertilizer) gives land an economic value which limits its use for other purposes. Cash cropping is seen to give better economic returns than does the ownership of cattle; this commercial attitude to farming is also seen in their higher levels of market sales.

(C) On the Effects of Wage Employment on Cattle Sales

Finding: (3) Households selling cattle had a significantly smaller proportion of their members in wage employment than those households in the same region not selling cattle.

Inference: (3) Households with alternative forms of cash income are less likely to sell cattle since the opportunity costs of holding cattle are greater than the cash returns gained from selling.

(D) On the Type of Cattle Sold

Finding: (4) The dominant class of stock offered at the highveld sales consisted of aged oxen. Their relative importance in sale ^{turnover} declined significantly in the lowveld. Younger stock and a higher proportion of cull cows were a feature of livestock sales in this region.

Inference: (4) Older age group oxen are the preferred type of sale stock since they are considered more dispensible to the family herd. Cattle owners are less keen to sell cows and are especially reluctant to dispose of immatures, particularly heifers. However, where there is a greater need to sell, as in the lowveld, owners are obliged to part with this class of animal. This is partially compensated for, in KwaZulu at least, by the higher prices received as trade stock.

(E) On Marketing Factors Limiting Commercial Sales

Finding: (5) In all regions, herd size and relative prices received (e.g. between the formal and informal markets) were given as the most important reasons determining sales frequency. Regionally, however, at highveld locations the number of cattle owned was listed as the principal factor, while in the lowveld the relative price comparison was the major factor affecting sales response.

Other market-related factors such as the frequency and location of sales, the method in which sales were conducted and the number of buyers attending were found to be of much more importance in the lowveld than they were in the highveld.

Inference: (5) Lowveld herds are larger on average than highveld herds and thus size per se was less of a constraint than relative price. Since there is a greater need for cash from cattle sales in the lowveld, it follows that there is a correspondingly greater concern over marketing aspects.

CATTLE MARKETING STRATEGIES AND PROSPECTS:

Given the socio-economic constraints of agro-pastoral systems that have been discussed so far, what are the prospects for facilitating and upgrading cattle marketing activities in the South African "homelands" such as KwaZulu? What role should Government adopt, to what extent should it intervene in the marketing process and what are the likely consequences of its interventionist policies?

Marketing efficiency as it is largely conceived by Government authorities and those with a vested interest in cattle sales, is considered to be the attainment of the highest possible rate of offtake relative to the size of the national herd. On these grounds, the levels of recorded sales from KwaZulu and other national states such as Transkei is considered to be extremely low at a percentage offtake rate that seldom exceeds 1% per annum. Against these national statistics must be considered the

fact that regional variations are marked; 85% of recorded sales in KwaZulu emanate from just three of its 26 magisterial districts, namely those of the remoter northern Zululand districts of Ingwavuma, Ubombo and Nongoma. Sales here are held at frequent intervals and auctions are generally well attended by both buyers and sellers.

Elsewhere in KwaZulu, sales transactions are mostly of an informal nature between individuals within communities. The magnitude and extent of these informal transactions are undocumented, and the extent to which they meet the requirements of commercially motivated sellers is likewise unclear. Certainly, it would appear from regional case studies such as those reported at this conference by Ardington, Gandar and Bromberger, and Louw that informal sales for primarily cash income purposes are not an important feature of rural economies, and such sales are unlikely to account for a large proportion of national offtake.

One needs to be cautious in ascribing westernized values of "efficiency" to a system where the marketing of live animals is more often than not seen as a last resort for owners constrained by economic circumstances, and one which can only be resolved by the conversion of some of their investment capital into a monetary form. For what other reason, except irrational perversity, should the market be characterised by large sales (at low prices) when the risk of holding cattle is high (e.g. at the peak of the drought), and in what other circumstances would the majority of cattle offered at such sales consist of the old, the

weak and the immature? Can such a feature be ascribed to market ignorance or more reasonably to a desire to retain those animals most valued for production and exchange within the traditional system?

Given the inescapable conclusion that in no way can the cattle population of KwaZulu be considered that of a national beef herd, then in what ways can Government develop strategies and marketing programmes that are in the best interests of the environment as well as those of local cattle herders? Such a commitment will require a dual approach both to the ecological potential of the pastoral regions to sustain and support existing cattle stocks, by maximising gains and minimising losses, and by implementing a national marketing strategy that offers the best available alternative to potential sellers.

When cattle marketing is assessed in accordance with the "systems approach" that has been advocated in this paper, then the future role of Government can best be expressed in terms of the perspectives, priorities and standards of subsistence pastoralists. From my preliminary assessment the kinds of factors that might conceivably be expected to influence cattle sales decisions, and the response that could be taken by Government, would include:

(1) Relative Price Expectations

Premise: The central issue of concern here is not the price that the animal could have commanded in the regional beef market

(e.g. for weaners, stores, slaughter stock etc.) and about which sellers are poorly informed in any event, but rather the price that the owner could expect to receive by private sale within the neighbourhood. In this market massed weight, grade and condition are of little consequence. The price at which an owner is prepared to sell is dependent on his own subjective assessment of what he considers the animal is worth to him; relative prices for different categories of cattle vary according to local rates of exchange and their value to the subsistence economy. Premium prices are therefore paid for breeding females and for young stock with a long period of repayment.

Response: Government administrators concerned with the low levels of marketed offtake, particularly for older, unproductive cows and oxen, could take positive action to redressing certain of the inequalities paid at official auctions. This could be done by standardising and stabilising a set of administered floor prices for mature cattle. Speculator traders operating at Government auctions have capitalised on the value differences between subsistence and commercial exchange rates for cattle by being prepared to offer prices in excess of local rates for young trade stock, but offsetting this difference by paying unrealistically low prices for commercial slaughter stock.

If, on the other hand, commercial prices for mature stock were set by marketing authorities and these were seen by sellers to be fairly determined on an objective basis (e.g. cents/kg live mass) and, further, if prices were held stable for a fixed duration buying season and were in excess of local exchange rates (so that

expectations could be reasonably estimated) then it could be realistically expected that sellers would be encouraged to market their cattle through official channels.

(2) Herd Size and Family Income

Premise: Small herds in remote pastoral areas tend to be associated with low relative status and a greater degree of poverty, whereas large herds in such areas are generally a measure of wealth. Cattle selling rates, particularly during periods of stress, are generally higher amongst small herders as a result of their relative inability to maintain subsistence needs without recourse to the sale of one or two livestock units. Small herders are locked into a cycle of poverty and are unable to build up their herds.

In more densely populated regions, such as those of higher arable potential or within close proximity to urban areas, small herds may be more a function of alternative forms of land use and may be unrelated to relative conditions of wealth or status.

Response: There can be no firm prediction on the part of Government to cattle selling rates based on average herd sizes. Sales are generally a response to the need for immediate cash and are a function of poverty rather than one of wealth. Marketing strategies should accordingly be focused primarily on those communities most at risk, more specifically at small to medium sized herders in remoter pastoral areas where a high degree of dependency is placed on the keeping of cattle.

(3) Livestock Risk Factor

Premise: When the risk attached to the keeping of cattle is increased (such as during times of drought) owners will be more willing to sell, both to reduce their own risk and so as to compensate them to some extent for the failure of food crops.

Response: Past experience has indicated that owners will tend to hold onto their cattle for as long as they can before attempting to market them "en masse" and in such a poor state that they are virtually unmarketable. This results in a loss of potential income and compounds the amount of hardship suffered. Where possible Government should take pre-emptive action through contingency planning, drought relief measures and an adaptable marketing strategy that takes account of such natural disasters. Monitoring procedures and identification of target groups should be built into such strategies.

(4) Location and Frequency of Market Sales

Premise: Since most disposals are "forced sales" to meet basic living expenses, it follows that herders are generally unable to adopt an effective livestock marketing strategy (such as deferred sales or use of alternative outlets). Potential sellers will make use of the most convenient sales point even if prices are lower than at other markets requiring a greater trekking distance, or those which are scheduled for some time in the

future.

Response: A greater level of commercial offtake could be achieved if sales opportunities could be increased to all prospective sellers. This emphasises the need for a flexible and decentralised approach to livestock marketing. In the case of KwaZulu, the system that presently concentrates on a few major saleyards, with auctions being held on a relatively infrequent basis according to a fixed calendar program, should be phased out in favour of more direct buying operations using local traders and cooperatives. Sales transactions should be possible at any time and at points (such as dipping tanks) which are convenient to cattle owners.

(5) Pastoral Production and Consumption

Premise: The net value of the family herd is perceived to be greatly in excess of its realisable commercial value when sold for cash. The local rates of exchange for "in-kind" benefits (milk, manure and draught power) when added to the valuation increase occurring through natural reproduction and increased beef prices has meant that cattle are able to give a better rate of return than any other available forms of investment.

Response: The Government can alter the terms of trade and the consequent "investment" value of the household herd in various ways. This can be done either by substantially increasing the costs of holding livestock (through such measures as taxation, grazing levies or the withdrawal of veterinary subsidies), or

more profitably by increasing the intensification of land use and conferring an economic value on land rights. This should be addressed through a policy of land tenure reform of which various options (beyond the scope of this paper) can be considered.

To some extent, in KwaZulu at least, this is being achieved (albeit in a negative fashion) as a result of the decline in production and consumption of pastoral output, and the increased risk factor associated with the keeping of cattle. In severely degraded areas, such as Msinga, a voluntary destocking in cattle holdings and a switch towards better adapted small stock, such as goats and sheep, is already apparent.

(6) Household Developmental Stage

Premise: Although the extended family can be seen to operate and to make agricultural management decisions as a single economic unit, effective control over the allocation of certain household assets (such as cattle) is limited, and dictated by socially accepted procedures. Cattle are seen as a real form of wealth and as a "property asset" in social and cultural exchange.

Response: Increasing involvement with the market economy and a decline in traditional values and customs amongst young people has meant that these practices will become less relevant in time. Cash rather than cattle has already become the principal means of social arbitration. Education, and the provision of more secure forms of investment (e.g. property rights) will hopefully

accentuate this trend in the future.

THE NEED FOR A DYNAMIC APPROACH TO LIVESTOCK MARKETING:

I should like to conclude by re-emphasising the need to evaluate cattle marketing as a holistic entity, both in terms of its spatial context as well as its temporal consequences.

I have attempted above to place traditional cattle marketing within the context of its subsistence economy, but of no less importance to the development of a national marketing strategy is the need to examine its future potential and prospects in a dynamic fashion. Of crucial importance to the overall success of a marketing program is the need to obtain long term investment and commitment from both the public and private sector. This will only come about through proper long range planning, allowing for a scientific measure of forecasting and for the prediction of the likely consequences of possible management strategies.

The development and implementation of a livestock marketing strategy appropriate to KwaZulu's needs will require that both the effects of ecological factors as well as socio-economic perspectives are taken into account. It would be of great assistance to planners if the reactions, responses and cumulative effects of particular strategies could be tested in advance in a predictive model before their actual implementation.

As a starting point, in order to establish and quantify the important biological and economic parameters, it will be

necessary to carry out applied systems research on typical agro-pastoral regions of KwaZulu. Initially, this should be focused on a region of high livestock dependency and market potential, such as that of northern Zululand, through a socio-economic systems survey and by way of ongoing monitoring.

Once the importance of certain key variables has been ascertained from the systems research studies, it should prove possible to develop a computerised model that will integrate cattle production and offtake in a dynamic sense. Within the constraints and limits set by the natural ecosystem, the model would be designed to analyse and interpret the response and potential of the system to external intervention. The effects of various marketing strategies can be simulated, and the sensitivity of key variables (such as calving and mortality levels) to manipulation and change can be investigated. Even allowing for the fact that marketing projections cannot be determined with any accuracy (since social factors and random probability events may prove impossible to forecast) then at least a more informed and responsive basis for Government planning and intervention will be provided than exists at present.

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