

## **INTENTIONS REGARDING FENCING OF COMMUNAL GRAZING AREAS FOR FACILITATING BETTER MANAGEMENT**

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### **ABSTRACT**

*There is a belief in Botswana that fencing of the current communal grazing areas as advocated by the national policy on agricultural development (1991) can be a step towards addressing the environmental and economic problems associated with the degradation of natural rangelands. Findings from the survey conducted amongst a random sample of 132 stock farmers on different types of ranches in the Southern Region of Botswana indicate that various perceptions and needs represent significant constraints in the fencing of the current communal grazing areas. The incompatibility of fencing and the resulting ranch types and associated management possibilities with respondent's culturally conditioned needs, is probably the major obstacle.*

### **1. INTRODUCTION**

A large proportion of beef production in Botswana is raised from the communal farming systems which account for 85% of the national herd (Makobo Kahiya, Macala, Tlhalerwa, & Tacheba, 1996). The uncontrolled management of these communal grazing lands is, according to Makobo *et al.* (1996), not only unproductive, but has led to unprecedented range degradation and poor livestock performance. The authors also indicated that productivity indicators such as births, off-take etc. show that performance in the unfenced areas is below that of fenced situations.

The poor performance of the livestock sector has necessitated fencing of the current communal grazing areas as advocated by the National Policy on Agricultural Development (1991). It was regarded as a step towards addressing the environmental and economic problems associated with, or emanating from, poor management of communal grazing areas. Keijsper (1992), White (1993), Monu (1995) and Southern District Fencing Team Presentation (1996) agree that, while fencing may not be the entire solution of poor management of communal grazing, it is a contributing factor, and perhaps the major one.

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The idea of better management of the most priceless resource, namely the land, can be traced to the early years of launching the Grazing Land policy (Sir Seretse Khama, 1975). In those years concerns were raised that, to get the best results, the improved management system must start with fenced areas of land.

The successful promotion of fencing as a means to facilitate better management will depend largely on farmers' needs and perceptions and on a thorough understanding of all the influencing socio-economic factors. This paper investigates the acceptability of fencing in the context of different ranching systems as perceived by farmers in some parts of Botswana.

## **2. RESEARCH PROCEDURE**

The scope of the problem and the scarce research resources necessitated the choice of a pilot or case study as the most appropriate approach. The study was conducted in the Ngwaketse District located in the South East of Botswana, which has an area of 26,876 square kilometres. The hardveld covers approximately one-third of the district and the sandveld covers the remaining two-thirds of the district. The population was estimated to be 160,000 people while the estimated number of livestock was approximately 99,000 cattle.

The Southern Region/Ngwaketse District was selected because it is a relatively confined area, having all types of grazing systems and their management variations, which may influence the farmers' perceptions of fencing of communal grazing areas. The grazing systems referred to are; individual ranches (i.e. owned by individual farmers), group/syndicate ranches (i.e. owned by not more than twenty people), community ranches (i.e. which refers to a perimeter fenced ranch, community operated, and owned through membership fee) and communal ranches which refers to an open grazing for all.

The respondents who participated in the study comprised the following:

all 27 syndicate/group ranch members,  
all 21 community ranch members,  
16 (50 percent random sample) individual ranchers and  
68 (60 percent random sample) of the communal farmers adjoining the group and individual ranches. The reasoning behind this is that communal ranchers' opinions regarding other types of ranchers are only meaningful if they have some knowledge about them.

The four enumerators assisting in the survey were well briefed on the nature and purpose of the study, and accompanied by the supervisor (first author) during the first interviews to ensure correct interpretation of questions and responses. The questionnaire, a structural interview schedule, was translated into Setswana and the interviews were conducted during November and December in 1996.

### 3. RESULTS

#### 3.1 Preference regarding different management

In Botswana, fencing has been seen as the key to increasing range productivity (Sandford, 1993:138-139). Farmers are aware of the need to adopt better methods of livestock management. They appreciate the usefulness of fencing accompanied by management and provision of water as this also facilitates the selection of good breeding animals (Tsimako, 1991:28-29).

In order to determine the usefulness of fencing, farmers were asked to choose out of a series of alternatives, the ranch system they preferred most.

**Table 1: Frequency distribution of respondents (percentage) on different grazing systems according to their most preferred ranching systems, 1996 (N=131)**

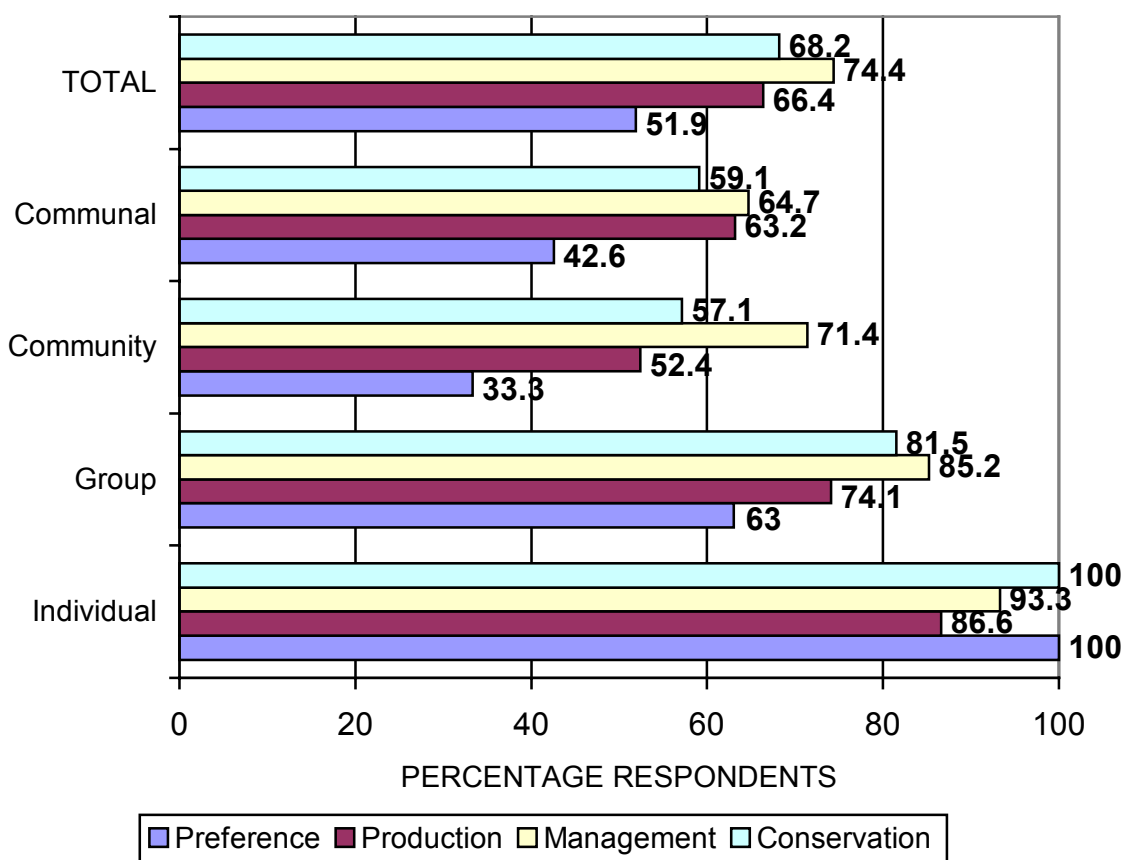
Grazing systems	% Respondents per ranch type				
	Individual (n=15)	Group (n=27)	Community (n=21)	Communal (n=68)	Total (N*=131)
Individual ranch	100.0	63.0	33.3	42.6	51.91
One small cell camp used alone as and when wanted	-	3.7	4.7	13.2	8.5
Small grazing syndicate with four camps rotated	-	7.4	14.3	5.9	6.9
Part of communal with four camps rotated (group)	-	3.7	4.8	7.4	5.3
Communal divided into four camps rotated	-	11.1	4.8	8.8	7.6
Total communal divided into four camps unrotated	-	2.4	4.8	4.4	4.6
Communal rotated through controlled water access	-	3.7	14.3	13.2	9.9
Present communal grazing	-	-	19.0	4.4	5.3

\* Missing = 1

According to Table 1, the majority of respondents (51.91 percent) rate the individual ranch, as the most preferred grazing system. This applies to respondents on all ranching systems, although those on group or syndicate and especially on individual ranches are more outspoken.

From a conservation point of view, it is encouraging that the percentage respondents preferring systems that imply no form of rotation is only 17.4 percent. On the other hand it cannot be ruled out that the attraction of the individual ranch may lie in the individual management. In this context it is also noteworthy that 8.5% of the respondents preferred a one-camp cell, that allowed no rotation but in which the individual could otherwise do as he/she pleases.

The rating of the individual ranch varies considerably when it is assessed from a preference, production, management or conservation point of view. This is illustrated in Figure 1 for the various respondent categories.



**Figure 1:** The percentage respondents on different ranches, nominating the individual ranch as their first choice from a preference, production, management and conservation point of view

Although the majority of respondents on individual and group ranches prefer the individual ranch to other types of ranches, the perceived attractiveness of the individual ranch lies especially in the advantages that it has from a management point of view. On the other hand more than half of the respondents from communal and two thirds from ranches choose other ranches than individual ranch as their first choice from a preference point of view and this resulted in having a relatively low preference when compared to production, management and conservation concentrations.

Table 2 represents a further analysis of community and communal ranch respondents regarding their first choice of different types of ranches using criteria of preference, production, management and conservation

**Table 2: The distribution of respondents (percentages) on community and communal ranches according to their choice of ranches (classified into rotation categories) in terms of preference, production, management and conservation considerations**

<b>Ranch Type</b>	<b>Grazing System</b>	<b>Preference</b>	<b>Production</b>	<b>Management</b>	<b>Conservation</b>
Community	Indiv. ranch (rotated)	33.3	52.4	71.4	57.1
	Other ranch (rotated)	38.2	28.5	14.2	42.9
	No rotation	28.5	19.1	14.3	-
Communal	Indiv. ranch (rotated)	42.6	63.2	64.7	59.1
	Other ranch (rotated)	35.3	23.6	19	25.7
	No rotation	22.1	13.2	16.3	15.2

Although only 33.3 and 42.6 percent respectively of the community and communal ranchers mention the individual ranch as their first choice from a preference point of view, it features much more prominently in the light of production, management and conservation considerations. The big discrepancy between these and the preference rating seem to indicate that for a fair number of respondents on community and communal ranches there must be more important considerations than production, management and conservation. This may also be the reason why 28.5 and 22.1 percent of the community and communal ranchers preferred grazing systems making no provision for rotation whatsoever.

### 3.2 Future intentions concerning the ranching systems

Intentions can be regarded as means through which the individual satisfies his/her needs and, as such, can be expected to have an important bearing on behaviour regarding fencing of grazing areas (Düvel, 1991:78). The acceptability of the ranch situation was tested by a closed-ended question in which respondents were asked to indicate what their future intentions were, with regard to fencing of communal grazing areas (Table 3).

The intentions regarding future ranching systems vary very significantly between the different ranch categories. The individual ranch respondents all, with a single exception, want to stay what they are. About half of the group a syndicate ranchers intend becoming ranchers on an individual ranch while the remainder want to remain group ranchers.

**Table 3: Future intentions of farmers regarding the different ranching systems, 1996 (N = 124)**

Future Intentions	% Respondents per type of ranch				
	Individual (n=10)	Group (n=27)	Community (n=20)	Communal (n=67)	Total (N=124)
To become group/syndicate ranch member	-	48.1	10.0	52.2	40.3
To become syndicate and communal ranch member	-	3.8	15.0	10.4	8.9
To become community ranch member	-	-	30.0	6.0	8.1
To become community and communal ranch member	10.0	-	5.0	4.5	4.0
To become communal ranch member adjoining other ranch systems	-	-	15.0	3.0	4.0
To become individual ranch member	90.0	48.1	25.0	17.9	31.5
To become individual and communal ranch member	-	-	-	6.0	3.2

Amongst the community and communal ranchers the intentions are more varied. 25% of community ranchers want to become individual ranch members and a further 25% group or syndicate ranchers. The biggest group (30%) intend remaining what they are, whilst a significant number (20%)

appear to have limited or other unknown aspirations, in the sense that they want to revert back to communal ranching.

The communal ranchers have either more aspirations or are more discontent with their situation than the community ranchers. More than 60 percent of them want to participate in a group/syndicate ranch and 23.9 percent even want to own an individual ranch.

In general it appears as if the group and individual ranches with the associated fencing component appeal to the community and communal ranchers and is largely compatible with their needs. There is, on the other hand, an unmistakable indication that the communal and community systems still have an appeal. However there is no reason why the group or syndicate concept cannot be accommodated without displacing communal grazing rights.

### 3.3 Grazing fees and costs

Lease rentals payable to local authorities in return for the exclusive grazing rights have been set at a sub-economic level of four thebe per hectare per year or P256.00 per year for a 6,400 hectare ranch (Tsimako, 1991:29). This is not realistic in financial terms and consequently not sustainable.

It is assumed that what respondents are prepared to pay as lease rental could give some indication of the value they attach to the grazing. The respondents were asked how much they are prepared to contribute as grazing fee i.e. per grazing animal per year. These results are summarised in Table 4.

**Table 4: Frequency distribution of respondents on different ranch types according to the grazing fee they can pay, 1996 (N=98)**

Grazing fee (per head of cattle/ Year)	% Respondents per type of ranch				
	Individual (n=13)	Group (n=23)	Community (n=21)	Communal (n=41)	Total (N*=98)
< P1.00	76.9	8.7	61.9	17.1	32.6
P1.00 - P10.00	-	30.4	33.3	34.1	28.6
P11.00 - P20.00	-	17.4	4.8	48.8	25.5
P21.00 - P40.00	-	17.4	-		4.1
> P40.00	23.1	2.61	-		9.2

\* Missing = 34

According to the results (Table 4), most of the respondents (32.6%) are prepared to contribute less than one phula per head of cattle per year. 86.7 percent of all respondents are not willing to pay more than P20 per year, which emphasises the long path towards sustainable stock production. Only 23.1 and 26.1 percent of the respondents on, respectively, the individual and group ranches are prepared to pay more than P40. It is striking that there is no direct relationship between the degree of infrastructure (fencing) on the ranches and the grazing fee that individuals are prepared to pay. For example, communal ranchers (who have no fencing) are prepared to pay more than community ranchers who have at least a boundary fence. Similarly, group ranchers tend to be prepared to pay more than individual ranchers.

It is possible that the responses were somewhat distorted in the sense that the respondents could have thought that their responses could be held against them and ultimately determine the grazing fee. A somewhat more reliable and valid response could be expected in reaction to a question about the maximum fee that the respondent would be prepared to pay. These findings are shown in Table 5.

**Table 5: Frequency distribution of respondents (on different types of ranches) according to the maximum grazing fee they are prepared to pay for grazing in the current situation (N=97)**

Maximum grazing fee	% Respondents per type of ranch				
	Individual (n=10)	Group (n=23)	Community (n=43)	Communal (n=43)	Total (N*=97)
P1.00 – P10.00	20.0	39.1	52.4	90.7	62.9
P11.00 – P40.00	-	17.4	23.8	9.3	13.4
P41.00 – P99.00	20.0	34.8	14.3		13.4
P100.00 and above	60.0	8.7	9.5		10.3

\* Missing = 35

In this case it is noteworthy that the better the infrastructure (fencing, etc.) of the ranch type, the higher the maximum fee that respondents are prepared to pay. 60 percent of the individual ranchers are prepared to pay a maximum fee of more than P100.0. Somewhat disturbing from a sustainability point of view is that 20 percent of the individual ranchers and 39.1 percent of the group or syndicate ranchers are still not prepared to pay a maximum fee of more than P10 per head of cattle per year.



### 3.4 Perceptions of some aspects of communal, community, group/syndicate and individual ranches

In this section some of the beliefs or perceptions that farmers have about the communal, community, group/syndicate and individual ranch concept are elicited by means of questions regarding their advantages and disadvantages. These advantages and disadvantages can be associated with positive and negative forces, the balance of which is decisive in determining the attractiveness and ultimately the decision making and adoption concerning the grazing systems (Düvel & Afful, 1994:144).

#### 3.4.1 Advantages and disadvantages of communal ranching

As indicated above, advantages are associated with positive forces and, in order to be perceived as attractive or positive, they have to be need related in one way or the other (Düvel & Afful, 1994:146). As for disadvantages, Düvel & Afful (1994:149) referred to them as associated to the goal object or as constraints encountered *en route* to its achievement or implementation.

Respondents were asked to identify or name the most important advantages and disadvantages of every ranch type. Those relating to the communal grazing system are summarised in Table 6.

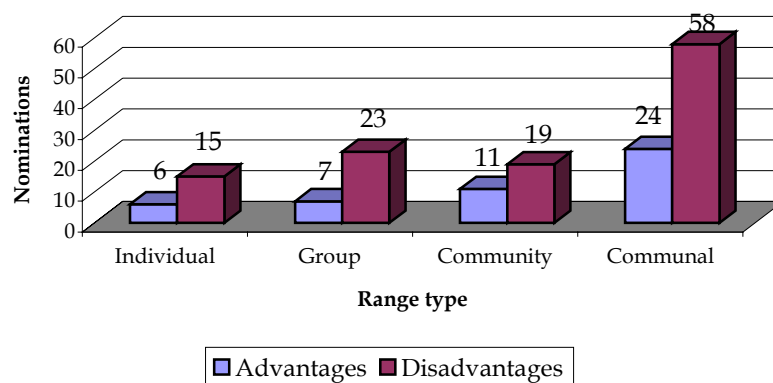
**Table 6: The advantages and disadvantages of communal grazing system as expressed by respondents on different types of ranches, 1996**

	% Respondents according to grazing systems				
	Individual (n=16)	Group (n=27)	Community (n=21)	Communal (n=68)	Total (N=132)
<b>Advantages (N = 48)</b>					
Free use of bulls by everybody	31.3	22.2	38.1	30.9	30.3
Large number of herds can be reared	6.3	-	4.8	1.5	23
Less labour required	-	3.7	-	1.5	1.5
Drift fence can be constructed	-	-	-	1.5	0.8
Farmers share ideas	-	-	9.5	-	1.5
<b>Disadvantages (N = 115)</b>					
Uncontrolled breeding	43.8	55.6	19.1	16.2	28.0
Poor grazing management	50.0	18.5	61.9	47.1	43.9
Livestock theft high	-	11.1	9.5	20.6	14.4
Cattle travel long distance for grazing and water	-	-	-	1.5	0.8

The free use of bulls by everybody is perceived by respondents on all ranch types to be the outstanding advantage. On the negative side is the

uncontrolled breeding (mentioned by 28.0%) and poor grazing management (43.9%). Respondents on all ranch types share the latter disadvantage more or less equally, while uncontrolled breeding is a disadvantage that the individual and group ranchers are more aware of.

Respondents on all ranch types are aware of more disadvantages than advantages regarding the communal grazing system. As Figure 2 illustrates, the imbalance of disadvantages (negative forces) over advantages (positive forces) is smallest in the case of community ranchers, which confirms why such a large percentage (30%) of this group has intentions of not moving out of community ranching (see Table 3). However, in general it seems as if the communal ranch does not appear very attractive to respondents, since the disadvantages far outnumber the advantages.



**Figure 2:** Number of advantages and disadvantages of communal grazing system as expressed by respondents on different types of ranches

### 3.4.2 Advantages and disadvantages of the community ranch

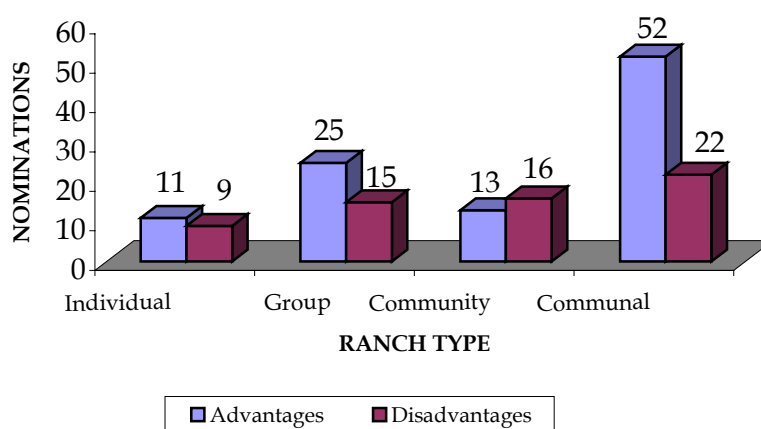
Community ranches were intended for small cattle owners in the communal areas and were to be communally operated. Respondents were asked to give the advantages and disadvantages of a community-grazing ranch (Table 7).

As shown in Table 7 the outstanding advantage of the community grazing ranch is that it allows for good veld and stock management; a view that is shared by 73.5 percent of the respondents. The two main constraints are no co-operation between members (mentioned by 3.8%) and high livestock theft (3.0%). This former disadvantage is a bigger concern for the group ranchers (14.8%) than for the individual ranchers (6.3%). As far as the constraints of high livestock theft are concerned the reverse tendency seems to occur.

**Table 7: The advantages and disadvantages of community grazing system as expressed by respondents on different types of ranches**

	% Respondents per type of ranch				
	Individual (n=16)	Group (n=27)	Community (n=21)	Communal (n=68)	Total (N=132)
<b>Advantages (N = 101)</b>					
Good veld and stock management	68.8	85.2	57.1	75.0	73.5
Co-operation maintained by members	-	3.7	4.8	1.5	2.3
Less cattle theft	-	3.7	-	-	0.8
<b>Disadvantages (N = 62)</b>					
Poor veld and stock management	50.0	40.7	66.7	29.4	40.2
No co-operation between members	6.3	14.8	-	-	3.8
Livestock theft high	-	-	9.5	2.9	3.0

Judging by the number of advantages and disadvantages, it is obvious that the community ranch is perceived to be more acceptable or attractive than the communal ranch (Figure 3). Only the community ranchers were aware of more disadvantages than advantages. The possible reason for this is that the community ranchers were disillusioned by their experience, namely that the subdivision into camps on the community ranch did not materialise.



**Figure 3: Number of advantages and disadvantages of community grazing system as expressed by respondents on different types of ranches**

Respondents on other ranches were probably less aware of this and consequently had a better perception of what they understood to be a community ranch.

### 3.4.3 Advantages and disadvantages of the group/syndicate grazing ranch

Group formation has been encouraged among small farmers with the hope they can gain through the sharing of facilities and resources and consequently can achieve what individuals cannot do on their own (Tsimako, 1991:20).

Table 8 gives a brief overview of the advantages and disadvantages of group/syndicate ranch.

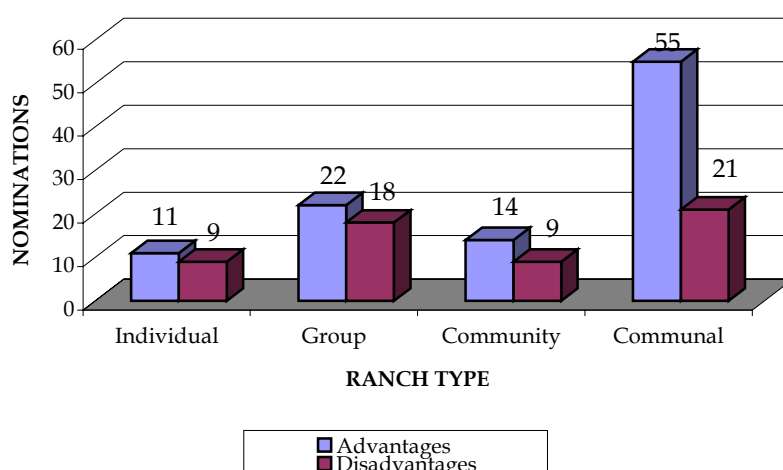
**Table 8: The advantages and disadvantages of the group/syndicate grazing ranch as expressed by respondents on different types of ranches, 1996**

Advantages and Disadvantages	% Respondents per type of ranch				
	Individual (n=16)	Group % (n=27)	Community (n=21)	Communal (n=68)	Total (N=132)
<b>Advantages (N = 102)</b>					
Good veld and stock management	68.8	77.8	57.1	75.0	72.0
Co-operation maintained among members	-	-	-	4.4	2.3
Less stock theft	-	3.7	-	1.5	1.5
Less contribution (money) for members	-	-	9.5	-	1.5
<b>Disadvantages (N=52)</b>					
Poor veld and stock management	31.3	48.2	38.1	26.5	33.3
Co-operation not maintained between members	18.8	18.5	4.8	4.4	9.1
Expensive to start and maintain	6.3	-	-	-	0.8

The outstanding advantage of group/syndicate ranches is that they allow for good veld and stock management. 72.0 percent of the respondents shared this view. Somewhat contradictory is the fact that the majority (33.3%) mentioned this advantage also as a disadvantage. This even applies to the group ranchers (48.2%), who tend to be more outspoken than the others about this

aspect. The reason for the phenomenon that what is supposed to be perceived as the main advantage, namely good veld and stock management, is perceived by a significant percentage of respondents to be the major disadvantage (especially by the group ranchers) is a disappointment or disillusionment regarding the actual outcome of the group/syndicate ranch. The improvement of veld and stock did not materialise because of poor management (absentee management, overstocking, non-maintenance of fencing). Another problem or disadvantage mentioned by 9.1 percent of the respondents, but particularly by the individual ranchers (18.8%) and group/syndicate rancher (18.5%), is the problem of co-operation between members.

According to Figure 4, which presents a comparison of the number of advantages and disadvantages as perceived by respondents on the different types of ranches, the advantages still outweigh the disadvantages, but the poor performance has probably made this ranch type less attractive for outsiders.



**Figure 4:** Number of advantages and disadvantages of the group/syndicate grazing ranch as expressed by respondents on different types of ranches

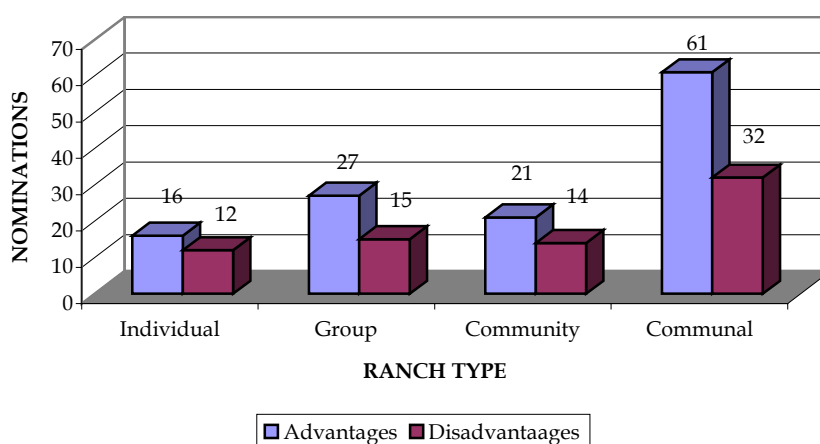
#### 3.4.4 *Advantages and disadvantages of an individual grazing ranch*

In order to get the best results from improved management, the fencing of individual ranches should, according to Khama (1975), be encouraged, with the hope that correct stocking rates and paddocking will permit some rotational grazing and halt deterioration, allow the grass to improve, and provide standing hay for the season.

As shown in Table 9 the outstanding advantage of the individual ranch is that it allows for good veld and stock management; a view that is shared by 93.2 percent of the respondents. The two main constraints are the required knowledge and management skills (mentioned by 26.5%) and the costs to start

**Table 9: The advantages and disadvantages of an individual grazing ranch (on different types of ranches) as expressed by respondents, 1996**

	% Respondents per type of ranch				
	Individual (n=16)	Group (n=27)	Community (n=21)	Communal (n=68)	Total (N=132)
<b>Advantages (N = 125)</b>					
Good veld and stock management	100.0	100.0	95.2	88.2	93.2
Less cattle theft	-	-	4.8	-	0.8
Good for rich farmers	-	-	-	1.5	0.8
<b>Disadvantage (N = 73)</b>					
Lack of knowledge and management skills	50.0	33.3	28.6	17.7	26.5
Expensive to start and maintain	25.0	18.5	38.1	23.5	25.0
Land not enough for everybody to own a ranch	-	3.7	-	-	0.8
Difficult to get loans	-	-	-	5.9	3.0



**Figure 5: Number of advantages and disadvantages of an individual grazing ranch as expressed by respondents on different types of ranches**

and maintain it (25.0%). This latter disadvantage is a bigger concern for the community (38.1%) individual (25.0%) and communal ranchers (23.5%) than

for group ranchers (18.5%). As far as the constraints of knowledge and management skills are concerned the individual ranchers are most aware of them. Awareness of this problem does appear to occur with implementation, but does not seem to be a serious deterrent for outsiders. Compared to the costs, this attribute is less of a constraint and thus not such a strong negative force as far as adoption is concerned. Seen in this light, the relative small imbalance of advantages (positive forces) over disadvantages (negative forces) as summarised in Figure 5, is misleading and can the conclusion be made that only the costs stand in the way of implementation.

#### **4. SUMMARY AND CONCLUSION**

The fencing of communal grazing areas and the establishment of ranches can potentially, given the correct management, curb the degradation of natural rangelands. This implies the adoption of fencing and good management practices.

As far as the acceptability of various ranch systems are concerned, there is a clear preference gradient from the individual ranch, followed by the group/syndicate ranch and then the community and communal ranches.

The preference sequence was supported by preference ratings, the ratio of perceived advantages to disadvantages, and expressed future intentions. In all cases the individual ranch was the most acceptable, but the lack of land and high costs rule it out as a solution. The group or syndicate ranch offers possibilities but its attractiveness has been negatively affected by disappointment and disillusionment regarding the poor results due to bad management. Other constraints, that will have to be overcome is lacking co-operation, and a tendency to perceive the ranch system as only a means to basic stock management rather than improved veld management. The erection of fences to enable the implementing of a ranching system is obviously no solution without improved management of both stock and techniques.

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