SOUTHERN AFRICA GLOBAL COMPETITIVENESS HUB

JOINT WORKING GROUP
RSA EXPORT PARITY PRICE
TASK FORCE RECOMMENDATIONS

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1. Point of Departure

The cattle/beef industry constitutes the most important agricultural sub-sector in Botswana. It could (and should) contribute significantly to the Gross Domestic Product (GDP) of Botswana, it provides a livelihood to a significant portion of the population (>60%), it has strong forward and backward linkages with the rest of the economy and is an earner of foreign exchange. It is hence vitally important that this sub-sector vibrant and healthy from a sustainability and profitability point of view. The fact is however that the contrary is currently true for the industry. One of the main reasons for this state of affairs is the current pricing system employed in the sub-sector that acts a disincentive for stakeholders to partake in the cattle/beef value chain. The current debate in the industry therefore focuses on finding a pricing system that would incentivise stakeholders to increase production of the right quality animals in a sustainable and profitable manner to the benefit of all stakeholders concerned. Obvious benefits include sustainable use of natural resources, increased profitability of producers and BMC, increased export earnings, maintenance and expansion of market share, sustaining and improving livelihoods of households involved in cattle farming, increase in economic growth and reduction in poverty.

Since Botswana is a net exporter of beef the logical point of departure to establish a pricing mechanism is export parity. The principle of export parity prices have been deliberated extensively throughout the industry. Seemingly contradicted views on the merits and workability of export parity prices were effectively addressed and subsequently an initiative from the Office of the Vice-President of the country instigated the terms of reference of this task team. External experts were sourced and in conjunction with expertise from within the country the task team managed to get consensus on the principles underlying export parity prices.

The rest of this document is structured as follows. Section 2 briefly provides insight into the potential benefits of implementing an export parity based pricing system. Section 3 provides a brief outline of issues that will be vital to address to ensure that the new pricing system results in the benefits discussed in Section 2. Section 4 highlights the agreed principles to establish export parity prices. In Section 5 these principles are employed to calculate export parity. In section 6 a summary is given of the interim pricing mechanism that was unanimously agreed.

2. Potential benefits of instituting an export parity pricing system

- Incentives to increase supply of the right quality animals and products.

  Two serious challenges facing any abattoir is the number of animals slaughtered (throughput) relative to the capacity of the abattoir and the quality of the animals slaughtered.

  Low throughput equates to higher cost per kilogram, i.e. the cost per kilogram is less when an abattoir slaughters at full capacity as apposed to slaughtering below capacity.

In terms of quality issues such as the weight of the animal and the condition of the animal is important. For example, the cost of processing a lean carcass is more than the cost of processing a uniform carcass. In addition, the right quality animal also translates into more saleable meat per carcass, thus higher returns per carcass.

A further benefit of incentives is that it acts as catalyst to stimulate change. In this regard higher supply of the right quality animals will lower the pressure on natural resources and stimulate change in production systems (i.e. increased weaner production).

In other words, it is imperative to provide incentives to producers so that they increase supply of the right quality animals. This will bring about economies of scale and increase efficiency – the net result is higher profits and increased sustainability of the industry.

- Fulfilling quota requirements.

  This is imperative since every kilogram not sold to fulfill the quota represents a considerable loss in returns.

- Increased returns throughout the supply chain given current and expected market changes.

  These returns would be captured by:
  - Producer who would receive returns on their investments that could be used to improve their livelihoods and to reinvest in the industry. It will also improve their purchasing power – given the fact that more than 60% derive a livelihood from this industry increased purchasing power could have significant positive effects on the economy of the country.
  - As mentioned, at processing level economies of scale will be reached, i.e. lower costs per kg processed, more saleable meat of the right quality and meeting quota requirements. The aforementioned equates to higher returns at processing level.

- Multiplier effects – backwards and forward

  In South Africa, for example, the GDP multiplier for agriculture is 1.51. This implies that an increase if one rand in the production by the agriculture sector, will result in an R 1.51 increase in the GDP of the country. The GDP multiplier for the livestock sector is 1.53, i.e. an increase if one rand in the production by the agriculture sector, will result in an R 1.53 increase in the GDP of the country. The direct effects[1] for the livestock industry are 0.60, the indirect effects[2]

[1] *Direct effect*: refers to effect occurring in the agriculture sector.
[2] *Indirect effect:* refers to those effects occurring in the different economic sectors (that link backward to agriculture due to the supply of intermediate inputs such as fertilizer and diesel).

accounts for 0.26 and the induced effects[3] are 0.67 – together the effects equates to 1.53. Cognizance should be taken that the above multipliers are very high relative to most other sectors in the South African economy.[4]

The aforementioned serves as example of the multiplier effects if the cattle/beef sub-sector in Botswana is positioned correctly.

- Macro: Employment, economy, fiscal contribution

Revitalization of the cattle/beef sub-sector will have obvious benefits in providing job security and increasing the number of jobs. It will also translate into economic benefits as mentioned in the previous bullet. An added positive effect is it potential to increase its fiscal contribution.

- Increased intra-industry cooperation

Vital for value chains in the globalized economic environment is the relationships within an industry. Without such relationships based on trust the industry would continuously find it difficult to make inroads in markets since the time and opportunity cost to solve problems will result in inefficiencies and hence reduce competitiveness.

3. Issues to be addressed in converting to weaner production

- The issue of sustainability.

Any new system or change introduced into the cattle/beef sub-sector will have to account for sustainability over the long run. Sustainability is the measure of the extent to which a certain level of activity or output may be sustained over time without the depletion of resources. The notion of the "Triple Bottom Line" has gained favor over the last few years. It rests on the philosophy that profits are not the only measure of the success of an organization, but that this measure should rather include three elements, namely:

- Economic
  - The ongoing financial viability of the organization
  - Risk Management to alleviate potential adverse effects of economic factors

- Ecological
  - Ensuring that inputs and outcomes which put the environment at risk are minimized or removed

- Social

[3] *Induced effect:* refers to the chain reaction triggered by the salaries and profits (less retained earnings) that are ploughed back into the economy in the form of private consumption expenditure.

Mullins, D. (2004). Economic Multipliers – Chapter 13. In Groenewald, J.A. (Ed). *South African agricultural sector review – Evaluation of changes since 1994*. National Department of Agriculture, Pretoria.

- Ensuring that production processes and management practices are socially and morally acceptable
- Ensuring that the quality of life and human habitat are acceptable

Hence, sustainability represents an integrated outcome that can be measured and monitored over time. Therefore, by adding a sustainability goal will increase the need for improved management skills to operate effectively in an attempt to maintain and/or increase profitability.

- Impartiality of base price monitoring and transparency

To foster relationships in the industry it would be vitally important that transparency in price formation is obtained and that such mechanisms are impartially monitored. It is imperative that mechanisms in this regard are put in place urgently with a impartial service provider.

- Information dissemination and communication

The successful implementation of a new pricing system will largely depend on how information pertaining to prices and the system change itself is disseminated and communicated to stakeholders. In this regard a strategy should be formulated and should include road shows/information days comprising representatives of all stakeholders and an impartial representative, news releases, public relation activities, etc. The campaign should highlight issues such a what the changes entail, what the effects will be and the goals.

- Address all inefficiencies (institutional, market, production, legislation)

Stock needs to be taken of all inefficiencies existing at the institutional, market, production and legislative levels. Strategies should be formulated for each inefficiency which include, but are not limited to, the following issues:

- Realignment of processes and activities;
- Impact assessment of realignment;
- Assigning responsibilities and accountability with specific deadlines;
- Mobilize the necessary resources to be used to affect change;
- Put in place the necessary communication strategy to ensure transparency and eliminate uncertainties that usually comes with change; and
- Put in place a monitoring system.

- Promotion

Promoting the goals and envisaged outcome of the changes to be implemented will be vitally important. In addition, product promotion should be considered seriously in order to stimulate demand.

- Product development

New sophisticated value chain internationally requires continuous innovations as far as product development is concerned. For example, in the US 500 new beef products were developed in 2003 and 2004 to align the beef industry in the US with changing consumer behavior (domestically and internationally). Innovation will be vital to remain relevant and increase competitiveness. In addition communication to suppliers of the primary product will be important to align production with innovations. In Brazil, for example, gradual change in the composition of the herd in many areas was induced to better serve the needs of Brazil's markets.

4. Agreed principles for export parity price mechanism

Table 1 show a summary of agreed principles which were duly incorporated into the research and deliberations. These principles were agreed upon unanimously.

Table 1: RSA EPP principles

Reference Point of Export	Lobatse
Reference Product	Carcasses
Reference Export Market	Gauteng
Reference Export Market Value	Red Meat Abattoir Association (RMAA) in South Africa
Reference Export Freight	Least-cost solution for refrigerated transport of Reference Product from Reference Point of Export to Reference Export Market
Reference Insurance	Goods-in-transit insurance for Reference Product from Reference Point of Export to Reference Export Market
Reference Taxes & Levies	All applicable export and import taxes and levies

The reason for using carcass as the reference product is summarized below:

- It is international good practice to compare "apples" with "apples", and this principle is underpinned by Organization for Economic Cooperation and Development (OECD)
- Basically there are two options available if consideration is given basing prices on live weight.

  Firstly a discount for weight loss of the animal can be applied. The problem with this methodology is that (i) animals are fed to increase live weight, hence problems in fixing weight loss percentage, (ii) the distance traveled is not certain, i.e. logically animals moved to nearest abattoir and (iii) animals lose water and stomach contents that reduce live weight that also brings into question the weight loss percentage to be used. In addition, if one accounts for weight loss one should also take into account stress related factors. This brings about risks. These risks are difficult to quantify and someone must be liable for the risk.

  The second option to address the problems stated above is that price formation takes place at abattoir and is based on the actual carcass (CDM).

The option is preferred in South Africa and basically comes back to basing prices on carcasses rather than live weight.

- Transport cost is higher per kg of meat when calculated on the basis of transporting live animals, i.e. over recovery of transport cost.
- Due to the problems mentioned abattoir development in RSA close as possible to production areas

5. Modeling Export Parity Prices

The model subscribes to the agreed principles and constitutes the following dynamics:

5.1. A weighted average price across the different South African beef grades in terms of prices, numbers slaughtered and reported by RMAA in South Africa on a weekly base were used. Table 2 summarized same for a week.

Table 2: Weighted average prices from RMAA

Week 1	Units (number sold)	RMAA selling price (R/kg)	Value of production (Rand)	Total value of prod (Class 2 and 3) (Rand)	Total no. of animals slaughtered	Average price (R/kg)	Average price A/AB (R/kg)
A2	10242	16.00	163904				16.00
A3	2803	16.06	45004	208908	13045	16.01	
AB2	250	15.64	3911				
AB3	72	15.49	1115	5026	322	15.61	
B2	267	14.77	3942				
B3	49	15.04	737	4679	316	14.81	
C2	335	14.31	4795				
C3	100	14.19	1419	6214	435	14.29	

The average price of R16.00 is weighted on the basket of A/AB grades slaughtered in a specific week, meaning weekly price changes will be reflected. The same apply to the R14.81 and R14.29 as a weighted average price for the B and C grades, respectively.

These prices pertain to South Africa and need to be adjusted in order to provide an export parity base for Botswana. Cost such as transport, insurance and levies must be deducted from the prices calculated in Table 2. These adjustments are:

- Transport costs per kg dressed weight – R0.29/kg
- Insurance – R0.03/kg
- RSA import levy – R0.03/kg
- The rand/Pula exchange rate
- The Botswana export levy – Pula.025/kg as been calculated from the per animal levy to an amount per kg based on the averaged carcass weight.

Table 3 summarizes these adjustments.

Table 3: Basis realized export parity price

Class		**A2/A3(AB2/AB3)**	**B2/B3**	**C2/C3**
Price	R/kg	16.00	14.81	14.29
Minus: Transport cost	R/kg	0.29	0.29	0.29
Insurance	R/kg	0.03	0.03	0.03
RSA import levy	R/kg	0.03	0.03	0.03
Realized price	R/kg	**15.65**	**14.45**	**13.93**
Exchange rate	R/Pula	1.15	1.15	1.15
Realized price	Pula/kg	**13.60**	**12.56**	**12.11**
Minus: Bot. export levy	Pula/kg	0.025	0.025	0.025
Basis realized price	Pula/kg	**13.58**	**12.54**	**12.08**

In order to account for class differences within specific grades price differentials are used. In other words, prices of carcasses that do not conform to the market requirements are discounted. Table 4 shows the discounts between lean (class 0) and uniform (classes 1-4) carcasses, as well as between over fat (classes 5-6) and uniform (classes 1-4) carcasses. For example, in the case of Grade A lean carcasses will be discounted by 19% on the average weighted price calculated as in Table 3. The same principle applies to over fat carcasses, i.e. they will be discounted by 2%.

Table 4: Price differentials between different classes

Price differential (%)	**Grade A**	**Grade B**	**Grade C**
Between 0 and 1 - 4	0.19	0.18	0.17
Between 1 - 4 and 5 - 6	0.02	0.04	0.04

Cognizance should be taken of the fact that there are differences in the grading system of the RMAA and the Botswana beef industry. In order to address this a new grading system for Botswana is proposed (See Table 5). This entails that a new grade be introduced for Botswana, namely Prime. This grade conforms to the A/AB grades in South Africa. The current SS and S1 grades in Botswana are put equal to the B grade in South Africa, while the S2, S3 and S4 grades conform with the C grade in South Africa. The implication of this proposal is that regulations pertaining to the current grading system in Botswana will have to be changed and hence an interim arrangement will henceforth be introduced.

Table 5: Proposed new grading system

Classes	Botswana Grades	Permanent incisors	South Africa
Lean	Prime (FPT, N)	0-2	A0 (AB0)
Uniform	Prime (G, U)		A1 to A4 (AB1 to AB4)
Over fat	Prime (G, E.P)		A5 to A6 (AB5 to AB6)
Lean	SS/S1 (FPT, N)	3-6	B0
Uniform	SS/S1 (G, U)		B1 to B4
Over fat	SS/S1 (G, E.P)		B5 to B6
Lean	S4 (FPT, N)	6+	C0
Uniform	S2 (G, U)		C1 to C4
Over fat	S3 (G, E.P)		C5 to C6

Table 6 shows the application of the principles illustrated in Table 4 and 5.

Table 6: Basis prices for different grades and classes

Classes	Botswana Grades	Permanent incisors	South Africa	SA EPP (Pula/kg)
Lean	Prime (FPT, N)	0-2	A0 (AB0)	11.00
Uniform	Prime (G, U)		A1 to A4 (AB1 to AB4)	13.58
Over fat	Prime (G, E.P)		A5 to A6 (AB5 to AB6)	13.28
Lean	SS/S1 (FPT, N)	3-6	B0	10.28
Uniform	SS/S1 (G, U)		B1 to B4	12.54
Over fat	SS/S1 (G, E.P)		B5 to B6	12.00
Lean	S4 (FPT, N)	6+	C0	10.03
Uniform	S2 (G, U)		C1 to C4	12.08
Over fat	S3 (G, E.P)		C5 to C6	11.55

In order to further differentiate between the desired carcasses an additional component to the pricing system is introduced and corresponds to the pricing system used in Namibia. Too light carcasses have negative cost implications for abattoirs and are hence penalized. On the other hand heavier carcasses are rewarded. Table 7 shows these discounts and premiums.

Lets assume that the ideal carcass weight is between 175 and 200 kg, then there is no discount nor a premium for carcasses falling in this weight bracket (See circle in Table 7). There is however a premium per kg for increasing the weight of the carcass to the upper bound of the weight bracket; in this case it is 0.0101t/kg. If a carcass falls into the greater and equal to 100kg and less that 175kg weight bracket it will be discounted with Pula 2.61/kg, but an incentive is provided to increase the weight

within this specific weight bracket to the upper bound. The base weight category can be changed from the one used if deemed necessary.

Table 7: Premiums and discounts for different weight categories

Weight category	<100	>=100 <150	>=150 <175	>=175 <200	>=200 <205	>=205 <210	>=210 <215	>=215 <220	>=220 <225	>=225 <230	>=230 <999
Premium/ Discount (Pula/kg)	-2.61	-2.61	-0.92	0.00	0.32	0.43	0.55	0.66	0.66	0.66	0.66
Premium/ kg (Pula)	0.0000	0.0337	0.0268	0.0101	0.0226	0.0226	0.0226	0.0000	0.0000	0.0000	0.0000

Table 8 provides an example on how the final price is calculated if one uses a base price of Pula 13.58.

Table 8: Price including premiums

Grade	Carcass weight	Basis price	Premium/discount per weight bracket	Premium within weight bracket	Price including premiums	Total value of carcass
Prime 0	174	13.58	-0.92	0.67	13.33	2319.37
Prime 0	175	13.58	0	0.0101	13.59	2378.29

* 24kg $\times$ 0.0268t/kg

Table 9 shows a matrix of prices calculated by incorporating the principles discussed above.

Table 9: Example of the price matrix (prices based on upper limit of weight bracket)

Classes	Botswana Grades	Permanent incisors	South Africa	SA EPP (Pula/kg)	SA EPP Premiums incl (Pula/kg)										
					<100	>=100 <150	>=150 <175	>=175 <200	>=200 <205	>=205 <210	>=210 <215	>=215 <220	>=220 <225	>=225 <230	>=230 <999
Lean	Prime (FPT, N)	0-2	A0 (AB0)	11.00	8.39	10.08	10.75	11.25	11.43	11.55	11.66	11.66	11.66	11.66	11.66
Uniform	Prime (G, U)		A1 to A4 (AB1 to AB4)	13.58	10.97	12.66	13.33	13.83	14.01	14.13	14.24	14.24	14.24	14 24	14 24
Over fat	Prime (G, E.P)		A5 to A6 (AB5 to AB6)	13.28	10.67	12.36	13.03	13.53	13.72	13.83	13.94	13.94	13.94	13 94	13 94
Lean	SS/S1 (FPT, N)	3-6	B0	10.28	7.67	9.36	10.03	10.53	10.72	10.83	10.94	10.94	10.94	10.94	10.94
Uniform	SS/S1 (G, U)		B1 to B4	12.54	9.93	11.62	12.29	12.79	12.97	13.09	13.20	13.20	13.20	13 20	13 20
Over fat	SS/S1 (G, E.P)		B5 to B6	12.00	9.39	11.08	11.75	12.25	12.44	12.55	12.66	12.66	12.66	12.66	12.66
Lean	S4 (FPT, N)	6+	C0	10.03	7.42	9.11	9.78	10.28	10.47	10.58	10.69	10.69	10.69	10.69	10.69
Uniform	S2 (G, U)		C1 to C4	12.08	9.48	11.16	11.83	12.34	12.52	12.63	12.75	12.75	12.75	12.75	12.75
Over fat	S3 (G, E.P)		C5 to C6	11.55	8.94	10.63	11.30	11.81	11.99	12.10	12.21	12.21	12.21	12 21	12 21

The envisaged outcome of the above pricing system provided due cognizance is given to the issues discussed in Section 3 includes, but are not limited to the following:

- Incentives to increase supply of the right quality of animals and products;
- Direct producers to supply higher quality animals with higher dressed weights;
- Re-direct current slaughter of too light animals towards feedlot finishing with sustainable prices for both feedlot owners and producers of these animals;
- Encourage production systems such as ox production and feedlot provision (weaners and long weaners) to optimize off take from extensive production systems;
- Enhance supply sustainability to fulfill quota requirements;
- Increased throughput of slaughter stock of the desired composition to optimize the utilization of committed resources;
- Differentiate amongst different weight categories to encourage the supply of heavier carcasses and discourage light animals – carcass composition rewards/penalties;
- Reward/penalize for fat content and cover.

6. Interim pricing mechanism

The interim RSA EPP structure which conforms to the current grading regulations uses the same principles to establish the base price as discussed in the previous section and is based on the current grading system. Refer to Table 10.

Table 10: Interim base prices

Classes	Botswana	Permanent incisors	SA EPP (Pula/kg)	Average across grades (Pula/kg)
Lean	SS (FPT, N)	0-4	11.00	
Uniform	SS (G, U)		13.58	12.62
Over fat	SS (G, E.P)		13.28	
Lean	S1 (FPT, N)	5-6	10.28	
Uniform	S1 (G, U)		12.54	11.61
Over fat	S1 (G, E.P)		12.00	
Lean	S4 (FPT, N)	7+	10.03	9.31
Uniform	S2 (G, U)		12.08	11.22
Over fat	S3 (G, E.P)		11.55	10.73

It was furthermore accepted that the interim prices will take into account the weights of animals to incentivise heavier carcasses. In this regards the same principle as applied with the new pricing system is used. Table 11 shows the pricing structure and Table 12 the premium/discount matrix.

Table 11: Interim pricing structure (prices based on upper limit of weight bracket)

Classes	Botswana Grades	Permanent incisors	SA EPP (Pula/kg)	Average across grades (Pula/kg)	SA EPP Premiums incl (Pula/kg)										
					<100	>=100 <150	>=150 <175	>=175 <200	>=200 <205	>=205 <210	>=210 <215	>=215 <220	>=220 <225	>=225 <230	>=230 <999
Lean	SS (FPT, N)	0-4	11.00												
Uniform	SS (G, U)		13.58	12.62	9.62	10.12	11.29	12.25	12.64	13.17	13.28	13.28	13.28	13.28	13.28
Over fat	SS (G, E.P)		13.28												
Lean	S1 (FPT, N)	5-6	10.28												
Uniform	S1 (G, U)		12.54	11.61	8.61	9.11	10.28	11.23	11.72	12.16	12.27	12.27	12.27	12.27	12.27
Over fat	S1 (G, E.P)		12.00												
Lean	S4 (FPT, N)	7+	10.03	9.31	6.31	6.81	7.98	8.94	9.43	9.86	9.98	9.98	9.98	9.98	9.98
Uniform	S2 (G, U)		12.08	11.22	8.22	8.72	9.89	10.85	11.34	11.77	11.88	11.88	11.88	11.88	11.88
Over fat	S3 (G, E.P)		11.55	10.73	7.73	8.23	9.40	10.35	10.84	11.28	11.39	11.39	11.39	11.39	11.39

Table 12: Premiums and discounts applicable to interim pricing mechanism

Weight category	<100	>=100 <150	>=150 <175	>=175 <200	>=200 <205	>=205 <210	>=210 <215	>=215 <220	>=220 <225	>=225 <230	>=230 <999
Premium/Discount (Pula/kg)	-3.00	-3.00	-2.00	-1.00	0.00	0.43	0.55	0.66	0.66	0.66	0.66
Premium/kg (Pula)	0.0000	0.0100	0.0268	0.0250	0.0226	0.0226	0.0226	0.0000	0.0000	0.0000	0.0000