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TAD SCIENTIFIC

Towards alignment of disease management in FMD endemic areas & livestock trade promotion: Pragmatic approaches to doing better

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Towards implementation of commodity-based trade in KAZA

Victoria Falls; 4 November 2016

Introduction

- Document available to conference packs

- Perhaps a need to define more clearly what CBT is & is not
  - a generic <u>concept</u> for managing risk associated with trade in commodities or products that have the potential to transmit an infection (not necessarily FMD)
  - there are a number of ways (mechanisms) whereby CBT can be applied; the mechanisms can also be used in combination

- CBT is <u>not</u> a way of controlling diseases, including FMD
  - therefore, managing the overall FMD problem requires a combination of conventional disease control measures <u>as well as</u> CBT to manage residual trade risk
  - as pointed out yesterday, SAT serotype FMD in some respects behaves differently from Eurasian serotype FMD; consequently control of two types of FMD also needs to differ

- Therefore what is needed is a <u>combination</u> of non-geographic measures to manage FMD <u>in addition</u> to CBT to manage the trade risk
  - In association with FAO we are producing a guideline on the management of SAT serotypes FMD in southern Africa (awaiting approval by FAO); hopefully available soon
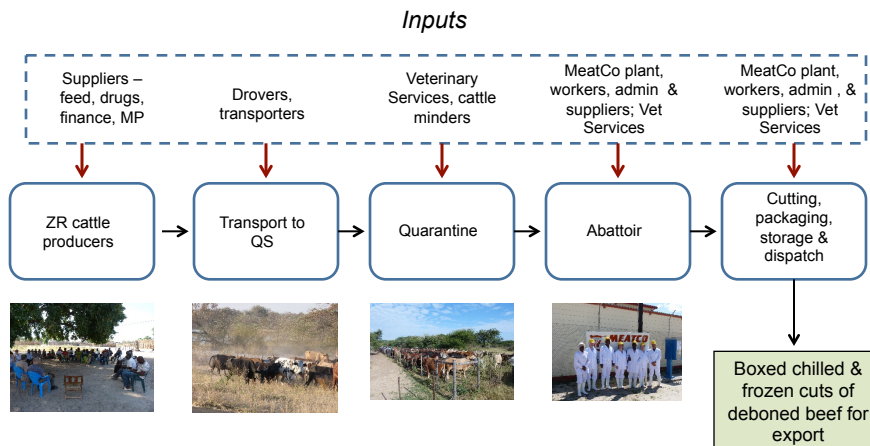
Methodologies for application of CBT

✓ Inherent safety (IS) of commodities
✓ Pathogen inactivation
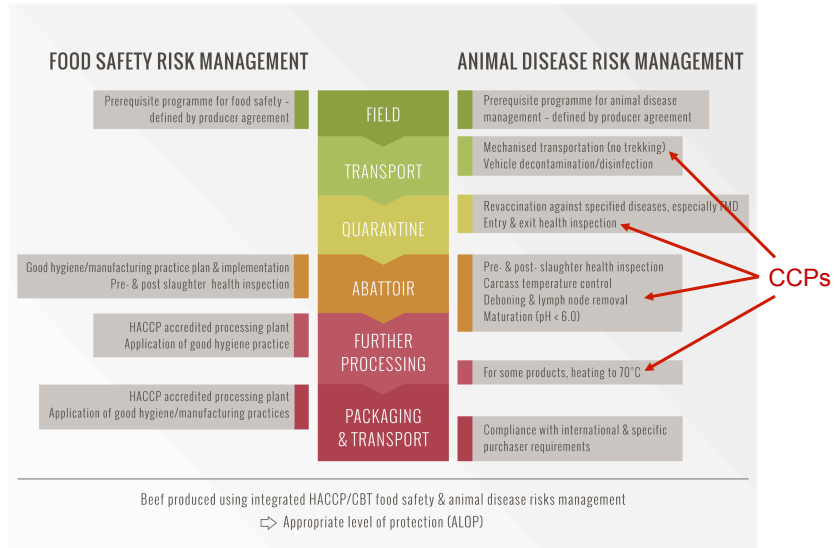✓ Hazard analysis critical control points (HACCP – mainly applied for FS assurance)

Compartmentalisation (NOT strictly a CBT mechanism – a disease management option) – ideal for intensive production systems (poultry & pigs), especially for vertically integrated enterprises

• For beef value chains situated in extensive rangeland areas HACCP provides an ideal mechanism

• The primary FMD risk mitigator is *post-mortem* pH change that inactivates FMD viruses (Henderson & Brooksby, 1948)

    – essentially matured (pH <6), deboned beef from which lymph nodes have been removed is a 'very safe product' (Paton et al., 2010)!
    – however, the risk deemed not to be <u>negligible</u>; therefore additional risk needs to be applied to achieve negligible risk (safe to trade)
    – basis for the pilot project in the ZR


The Zambezi Region beef value chain

Inputs

Integrated FMD & FS risk management in the ZR pilot project

FOOD SAFETY RISK MANAGEMENT | ANIMAL DISEASE RISK MANAGEMENT

Prerequisite programme for food safety – defined by producer agreement

FIELD

Prerequisite programme for animal disease management – defined by producer agreement

TRANSPORT

Mechanised transportation (no trekking) Vehicle decontamination/disinfection

QUARANTINE

Revaccination against specified diseases, especially FMD Entry & exit health inspection

Good hygiene/manufacturing practice plan & implementation Pre- & post slaughter health inspection

ABATTOIR

Pre- & post- slaughter health inspection Carcass temperature control Deboning & lymph node removal Maturation (pH < 6.0)

HACCP accredited processing plant Application of good hygiene practice

FURTHER PROCESSING

For some products, heating to 70°C

HACCP accredited processing plant Application of good hygiene/manufacturing practices

PACKAGING & TRANSPORT

Compliance with international & specific purchaser requirements

CCPs

Beef produced using integrated HACCP/CBT food safety & animal disease risks management
⇨ Appropriate level of protection (ALOP)

Proof of efficacy

- A quantitative stochastic risk assessment that calculated the number of potential FMD outbreaks in a country importing such deboned beef that would occur when simulated over a million year period (Fosgate et al., in preparation)

- Average risk varied between beef 'cuts' (depending primarily on likelihood of lymph node contamination): <1:10^6 for 7/19 cuts assessed

- Sensitivity analysis conducted on 37 factors that potentially affect the risk of beef produced by this value chain

Therefore we now have a essential data for relative efficacy of a range of potential risk mitigation measures that are applicable to such value chains
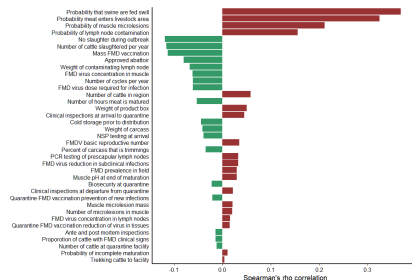
Sensitivity analysis to determine correlation between the predicted risk of FMD outbreaks into an importing country with stochastic elements of the model

Conclusion

- We now have a selection of approaches, compatible with wildlife conservation, whereby beef can be produced & safely exported from FMD endemic areas of southern Africa

- The issue now is their practical application in the variety of situations where they are needed

- Perhaps the biggest challenge is making them sustainable because the systems to which they need to be applied are 'low input'; therefor the costs of risk mitigation are a critical factor