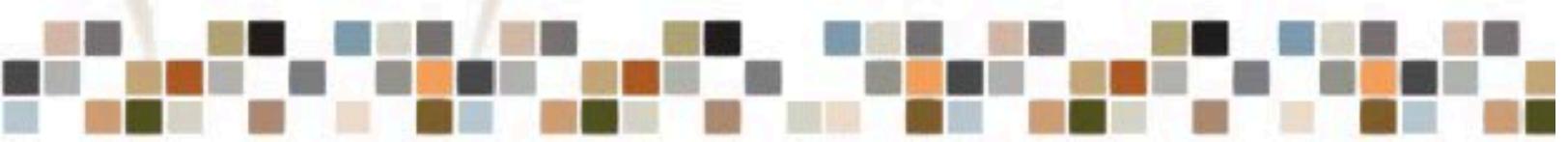


Global Roundtable for Sustainable Beef



Response to Comments





Global Roundtable for Sustainable Beef
Responses to Public Comments
15 September 2014

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I. Introduction and Document Intent

The Global Roundtable for Sustainable Beef received 49 comments on its Draft Principles & Criteria for Global Sustainable Beef. Producers and their associations submitted 24 comments, while non-governmental organizations provided 13 comments, and academics, processors and government agencies each submitted 2 comments. The rest came from diverse organizations or individuals. Nearly half (23) of the comments came from the United States, while Australian submissions accounted for another 13. Comments also came from Brazil, Canada, Germany, New Zealand, the UK, and international organizations. The Pew Charitable Trusts also submitted a petition signed by nearly 8,000 people who urged the GRSB to include criteria around the appropriate use of antibiotics. Hundreds of the petition signers also made short comments related to the petition and antibiotic use.

The GRSB carefully reviewed the nearly 200 pages of comments and petition received, and synthesized them according to core themes, with the help of the Consensus Building Institute¹. The GRSB's Definitions Committee then met to discuss the comments received, as well as potential adjustments to the Principles and Criteria in light of public feedback. We have since prepared specific responses to the public comments, as well as revisions to the draft Principles and Criteria document.

This document provides the GRSB's responses to the core themes that emerged in the public comments and petition. Individual comments are grouped and synthesized according to the main substantive themes that arose². Where appropriate, we indicate how the comments were incorporated into the Principles and Criteria. In other cases, we indicate why comments were not incorporated into the document.

The rest of this document is divided into three sections:

1. Summary of core themes and tensions
2. General comments on the GRSB initiative, intent and document overall

¹ The Consensus Building Institute (CBI) is a not-for-profit organization that helps diverse stakeholders resolve issues, reach better, more durable agreements and build stronger relationships. For more information, see: <http://www.cbuilding.org/>.

² Individual comments and suggestions regarding the language and format of the document are not included in this response document. They were, however, taken into account by the GRSB as revised the draft Principles and Criteria document.



3. Comments specific to individual Principles and Criteria.

The GRSB wishes to thank the individuals and organizations that submitted comments to the draft Principles and Criteria for their valuable feedback.

II. Summary of Core Themes and Tensions

The following core themes and tensions arose repeatedly throughout the public comments:

- **Flexible regional implementation vs. coherence and specificity:** Many commenters expressed support and appreciation for the GRSB's decision to develop global principles and criteria that can be adapted at a regional or local level. Some commenters suggested that the principles and criteria should be as broad and non-prescriptive as possible, to avoid including details that could create additional burdens or costs, especially for producers.

At the same time, many commenters expressed concern that the effectiveness of the principles and criteria is impossible to judge without developing specific indicators, benchmarks and other metrics. Equally concerning to some commenters was the possibility of widely different interpretations of the principles and criteria in different regions, leading to a diluted or meaningless global initiative. Most of these commenters suggested that the GRSB should be directly involved in developing regional and local indicators.

- ❖ **GRSB Response:** *GRSB recognizes the tension between these two comments, and as such is building guidance to regional and national roundtables that will better inform how they use our principles and criteria, while allowing them the freedom to tailor their indicators to their regional and national situation. Ultimately GRSB will have to determine that the regional roundtables have worked within the spirit of the Principles and Criteria and that indicators are at a comparable level between regions. Given that our membership includes these regional groupings and members from around the world we are confident that there are sufficient checks and balances to make this system feasible.*

- **Economic viability for producers:** Many commenters, particularly producers, highlighted that the document had insufficient emphasis on ensuring profitability. They expressed concern that the GRSB effort would likely result in additional costs and requirements for producers.
 - ❖ *GRSB Response: Producers made this point loud and clear in the public comments, and we take it seriously. We have emphasized the need for economic viability throughout the Principles and Criteria; there needs to be a return on investment in sustainability otherwise we recognize that it does not fulfil the requirement of all three sustainability pillars, Environmental, Social and Economic.*
- **Appropriateness of referencing external documents and standards:** Some commenters indicated that the GRSB document should not reference external documents and standards, such as the UN Guiding Principles on Business and Human Rights and the OIE standards. These commenters suggested that the Principles and Criteria should be a stand-alone document, adding that international standards do not necessarily reflect international consensus and may conflict with local legal frameworks.
 - ❖ *GRSB Response: While GRSB agrees that a self-contained document has its merits, we believe that broadly accepted international standards and documents that are embraced by the countries where our members come from are valuable shorthand for many aspects of sustainability that the GRSB supports. Moreover, given the work performed by many experts to elaborate these documents, we feel that they have a high degree of credibility and embody much of the research and experience that we would otherwise require. Accordingly, the GRSB has decided that these documents should be retained as references. That said, any reference made to an outside document refers to the specific version cited; any changes to these documents in the future would require review and a decision on whether to retain them as a reference. Where there is a direct conflict between national legislation and the international standards cited, national legislation applies.*
- **Feasibility of the principles and criteria:** Commenters highlighted that all of the Principles and Criteria should be feasible to implement. These commenters referenced specific criteria that they considered unrealistic (e.g. eliminating pain in animals; sourcing verifiable sustainable feed), and noted that factors outside of producers' control (e.g. climate

variation) should be more appropriately accounted for within the criteria. At the same time, other commenters emphasized that including more aspirational criteria is helpful for driving progress in these areas.

- ❖ *GRSB Response: Having examined the comments around feasibility, we have made changes to some of the language to reflect what is feasible, but have tried to keep the principles aspirational.*
- **Antibiotic use:** Many commenters encouraged the GRSB to incorporate explicit criteria around limiting antibiotic use to the treatment of sick cattle and administering antibiotics only under the oversight of a veterinarian.
 - ❖ *GRSB Response: This was debated extensively in our Technical Working Groups and in our Definitions Committee, and finally voted on by board members to reflect the broad consensus arrived at. GRSB recognizes the importance of this issue and the need for responsible use of antibiotics. At the same time, this is an issue that is likely to evolve over time and in different areas in relation to national policies – which are already stringent and would exceed our guidance in many areas. We therefore need to be able to update this guidance more regularly than the Principles and Criteria. Therefore it was decided to create a specific guidance to national and regional roundtables on this responsible use of antibiotics. The wording in that guidance is: “All antibiotics are used prudently, and antibiotics that are critically important to human health should be restricted to use for disease prevention, treatment, and control as prescribed by a veterinarian and not be used solely for the purpose of growth promotion in food-producing animals”.*
- **Climate change:** Commenters had differing views as to whether climate change should be within the document’s scope. Some indicated that climate change is not within the control of beef value chain participants and cannot form a basis for management decisions, and therefore should not be addressed in the principles and criteria. Others expressed deep concern about the threats posed by climate change and suggested addressing this issue more thoroughly in the principles and criteria.
 - ❖ *GRSB Response: There is scientific consensus that climate change is occurring and can be attributed to human activities. As an organization guided by science, it is*

more problematic if GRSB does not mention climate change. There are steps that can be taken to reduce GHG emissions that contribute to overall efficiency and which are therefore in the interests of all in the beef value chain.

- **Transparency and information sharing vs. traceability:** Commenters had differing views as to whether the GRSB should promote traceability within the beef value chain. While some suggested that traceability is an important part of safety and sustainability, others indicated that it is an inappropriate goal for this document. Many asked whether references to information sharing and transparency were meant to imply traceability, and suggested that the GRSB clarify its stance on this issue.
 - ❖ *GRSB Response: It is recognized that traceability is important to value chains that wish to make specific claims about individual products for sale. However, that it is not a precondition to sustainable practices. The specific references to information sharing and transparency are not a proxy for traceability – these are important in their own right, specifically in food safety.*

III. General comments on the GRSB initiative, intent and document overall

In addition to the core themes outlined in the previous section, the GRSB received the following general comments on its initiative, intent and the document overall:

- **Meaning of “sustainability”:** Commenters asked what the GRSB means by “sustainability.” In particular, commenters indicated that some production methods are inherently unsustainable, and that reducing beef consumption is an important part of sustainability.
 - ❖ *GRSB Response: The GRSB definition of sustainability is based on three pillars, i.e. “sustainable” means socially responsible, environmentally sound and economically viable. GRSB does not include consumption in this definition, just as other commodity roundtables do not, it is out of the scope of these principles and criteria.*
- **Whole value chain approach:** Commenters indicated that the document focuses too much on farm production, and suggested ensuring a focus on the entire beef value chain throughout the document.

- ❖ GRSB Response: *Wording has been adapted throughout to refer to the whole value chain.*
- **Positive contribution of beef production to ecosystems and economy:** Commenters stated that the GRSB should better recognize the positive role that livestock production can play in certain ecosystems when proper management practices are utilized. Others added that livestock producers are important land and animal stewards, and that beef production produces economic benefits for all other actors in the value chain.
 - ❖ GRSB Response: *GRSB recognizes the very important role that livestock production systems can and do play in maintaining ecosystems, and that beef producers play as stewards of very significant amounts of the earth's surface, often in places that are not capable of other forms of food production. Where demonstrated, these positive roles should be acknowledged by the whole value chain.*
- **Land:** Commenters indicated that the document fails to adequately address the land, which they considered the base of sustainability. These comments referred to impacts to land and soil quality, as well as impacts to other land uses by other sectors.
 - ❖ GRSB Response: *GRSB acknowledges that all production comes from the land and that land is the resource on which the whole beef value chain depends; the Natural Resources principle addresses land and soil management.*
- **Legal compliance:** Commenters suggested that the document should provide more emphasis on legal compliance, for example by including references to local laws. Others highlighted that many beef stakeholders already operate within complex regulatory environments, and that additional emphasis on legal compliance is not needed.
 - ❖ GRSB Response: *we make reference in a number of places to compliance with local laws, and to the fact that compliance with relevant laws is as basic assumption. While many stakeholders do operate within a complex regulatory framework, and may thus already be well within the GRSB principles and criteria, not all producers do. In a global market for beef, those who must and do comply with stringent local*

laws can see the benefit of having all producers be requested to meet basic requirements, because those who are not regulated as much compete for market share with those who are.

- **Harmonizing GRSB efforts with other initiatives:** Commenters emphasized that the GRSB should align its efforts with other relevant initiatives, although others suggested it would be challenging to fit the GRSB’s voluntary approach within existing regulatory frameworks in different countries. Many commenters emphasized that any efforts to align initiatives, examples of which were provided in the draft document, should be driven by regional roundtables to avoid a one-size-fits-all approach to beef production.

❖ *GRSB Response: We expect alignment with other initiatives to be one of the futures biggest tasks for GRSB. Work is already underway in some countries to examine how existing regulatory frameworks align. Regional roundtables will certainly be the major component in developing next steps and national and regional levels, and will always analyze the GRSB principles and criteria against local laws, and set indicators accordingly.*

- **Triple bottom line approach:** Although most commenters expressed support for the overall idea of an approach to beef production that balances environmental, social and economic considerations, others expressed that one pillar should be emphasized over others. In particular, many commenters highlighted that economic viability is the most important pillar, since without it beef value chain stakeholders will not be able to make investments in social and environmental considerations.

❖ *GRSB Response: All pillars have to be considered equal, as if one is considered a priority, it assumes that the others are not. A fundamental part of our approach to sustainability is that it is defined precisely as the balance between the three pillars.*

- **Inclusiveness of the initiative:** Commenters emphasized that the multi-stakeholder nature of the GRSB initiative is key for its credibility, adding that a full range of stakeholders should be represented. Some commenters expressed concern that global animal welfare organizations were not well represented in the initiative.

- ❖ *GRSB Response: GRSB welcomes new members and has engaged with a broad range of stakeholders, both members and specialists in the Technical Working Groups. Animal Welfare organizations have been consulted at all stages, and are welcome to apply for membership.*
- **Next steps for the initiative:** Commenters requested clarity around next steps for the GRSB initiative, including: how benchmarking and leveraging existing programs will work; what considerations the GRSB will make in establishing processes and pilot projects; how the GRSB will promote national, regional, or local alignment; and whether the Principles and Criteria document will be updated in the future.
 - ❖ *GRSB Response: There has been a strong focus on getting the GRSB principles and criteria complete, which reflects our limited resources and time constraints that all members face. As mentioned previously guidance is being prepared for regional roundtables, as will the form of benchmarking for other initiatives. Our website will provide updates on these various elements as they are developed.*

IV. Comments to the Principles and Criteria

PRINCIPLE 1 – NATURAL RESOURCES

General comments and intent

- **Measurement and verification of the criteria:** Commenters provided a range of suggestions around how to measure and verify the criteria associated with this principle, including:
 - A baseline should be established to monitor improvement within this urgent agenda.
 - ❖ *GRSB Response: Establishing baselines at the international level is impossible to do with relevance to each production area. This will therefore be left to the regional roundtables to decide upon as they see fit.*
 - Criteria that seek to result in “no impact” should be measured at an enterprise level, rather than a small area.
 - ❖ *GRSB Response: Measurement will be established by the regional roundtables at the indicator level.*

- Some criteria are too expensive to measure at farm gate level. It would be better to use general language around continuous improvement instead of benchmarking.
 - ❖ *GRSB Response: There are a number of ways to measure progress without expensive tools. Measurements can be done via proxies through the implementation of beneficial management practices. The correlations between the BMPs and impacts on natural resources such as water quality, greenhouse gas reductions, and soil health are described in scientific literature.*
- The word “maintain” (e.g. in criteria #7 and #9) should be replaced with language that promotes progress, to clarify that maintaining the status quo on farms with degraded soil and minimal habitat for wildlife is discouraged.
 - ❖ *GRSB Response: Any time the term “maintain” is used within the natural resource principle it is assumed that the health of the resource is already in appropriate condition.*
- **Intent of Principle 1:** Commenters offered the following suggestions around the intent of this principle:
 - The concepts of maintaining “functional ecosystem processes” and “continuous improvement” are good. The original ecosystems that existed prior to cattle farming should be used as a baseline, rather than what is present today.
 - ❖ *GRSB Response: GRSB recognizes that baselines are important for measuring continuous improvement, however it is difficult to determine “original” ecosystem condition and what it was. National initiatives with multi-stakeholder input will develop indicators and metrics to measure continuous improvement and to establish appropriate baselines.*
 - This principle should include biodiversity as an explicit objective.
 - ❖ *GRSB Response: We have taken this comment into consideration. Biodiversity is now a separate criterion (see criteria #8), and is also mentioned in the revised principle intent.*
 - The final sentence should include the phrase “and wildlife protection” at the end.

- ❖ *GRSB Response: Wildlife is an important consideration, however we have chosen to address the issue more broadly by pointing out the need to maintain plant and animal (including wildlife) biodiversity. This is addressed in the revised intent and criteria #8.*
- The first sentence of last paragraph, regarding continuous improvement, should be removed.
 - ❖ *GRSB Response: Although we agree that this is redundant, as continuous improvement is mentioned in the document a number of times, the GRSB also feels that it is extremely important and thus intends to leave this reference in.*

Comments on individual criteria

CRITERIA #1: “ENVIRONMENTAL AND CONSERVATION OBJECTIVES ARE ACHIEVED AND TRACKED THROUGH ADAPTIVE OUTCOME-BASED MANAGEMENT SYSTEMS, CONTRIBUTING TO CONTINUOUS IMPROVEMENT IN NATURAL RESOURCE MANAGEMENT.”

REVISION: “ENVIRONMENTAL STEWARDSHIP OBJECTIVES ARE ATTAINED THROUGH ADAPTIVE MANAGEMENT, WITH ACTIVITIES MONITORED TO ACHIEVE CONTINUOUS IMPROVEMENT OF MEASURABLE NATURAL RESOURCE MANAGEMENT OBJECTIVES.”

- **What is meant by “outcome-based management”?** Commenters viewed the term “outcome-based management systems” as problematic, suggesting that it should be altered, removed or clarified. Some added that regional roundtables should determine any monitoring and evaluation methods used to determine management decisions.
 - ❖ *GRSB Response: The GRSB recognizes that the original wording of this criterion was confusing. We have changed it to indicate the original intent of continuous improvement that is tracked in some way or form. In addition, a definition of adaptive management will be included in an intent document.*
- **What is “population status”?** Commenters expressed confusion about what is meant by “population status,” which was mentioned in a footnote to this criterion.

- ❖ *GRSB Response: The reference to “population status” has been removed. We now cover this topic under criteria #8 on biodiversity. Biodiversity refers to the variability among living organisms from all sources including terrestrial and aquatic ecosystems, and the ecological complexities of which they are part; this includes diversity within species, between species, and of ecosystems*

CRITERIA #2: “ENVIRONMENTAL STEWARDSHIP IS ENHANCED THROUGH EDUCATION AND PARTNERSHIPS WHERE APPROPRIATE OPPORTUNITIES EXIST.”

REVISION: MOVED TO THE INTENT SECTION UNDER PRINCIPLE 5.

- **Does this criterion belong under Principle 1?** Commenters suggested that education and partnerships are not pertinent to this Principle, and would fit better under Principle 5 on Efficiency and Innovation.
 - ❖ *GRSB Response: We have decided to move this to principle 5. We recognize that in some regions these types of partnerships may not be possible, which is why we have included the phrase “where appropriate opportunities exist”.*

CRITERIA #3: “PRACTICES ARE IMPLEMENTED THAT MINIMIZE NEGATIVE IMPACTS ON AIR QUALITY, INCLUDING DUST, ODOUR AND PARTICULATE MATTER, AND WHERE POSSIBLE, CONTRIBUTE TO IMPROVEMENT.”

REVISION: “PRACTICES ARE IMPLEMENTED TO IMPROVE AIR QUALITY.”

- **Should specific air quality impacts be identified?** Commenters suggested that individual impacts should be defined at the regional level, adding that identifying specific impacts within the criterion might exclude other important impacts. A few commenters suggested additional impacts that could be included.
 - ❖ *GRSB Response: We have removed reference to the various air quality impacts, as providing an exhaustive list within the criteria is not possible.*

CRITERIA #4: “GHG EMISSIONS FROM BEEF SYSTEMS, INCLUDING THOSE FROM LAND USE CONVERSION, ARE MINIMISED AND CARBON SEQUESTRATION IS OPTIMIZED.”

REVISION: “NET GREENHOUSE GAS EMISSIONS FROM THE BEEF VALUE CHAIN ARE MINIMIZED ON A PER UNIT OF PRODUCT BASIS.”

- **What is meant by “reducing GHG emissions”?** Commenters expressed concern that minimizing GHG emissions could be interpreted to mean getting rid of cattle or only feeding them grain. Others suggested different sources of GHG emissions that should be included in this criterion, while still others suggested that regional roundtables should identify any specific types of GHG emissions that pose natural resources concerns.
 - ❖ **GRSB Response:** *The GRSB has changed the wording of this criterion to include net greenhouse gas emissions on a per unit basis, to address the concern that it could be interpreted to mean feeding cattle entirely grain or making broad herd reductions as a means to reducing emissions. The concept of net emission reductions was also included in an effort to recognize carbon sequestration opportunities within the beef value chain. We have included a definition of net emissions in the intent statement for this criterion, which includes both direct and indirect emissions as well as carbon sequestration potential. We also removed “from land conversion,” as there are many opportunities for reducing GHG on a per unit basis. Examples will be included in the intent and explanatory document. In addition, it will be explained within the intent statement for this criterion that absolute net emission reductions will be strived for.*

CRITERIA #5: “DEFORESTATION FROM CATTLE EXPANSION IS MINIMISED AND EVENTUALLY ELIMINATED THROUGHOUT ALL PHASES OF THE PRODUCTION SYSTEM.”

REVISION: “NATIVE FORESTS ARE PROTECTED FROM DEFORESTATION. GRASSLANDS, OTHER NATIVE ECOSYSTEMS, AND HIGH CONSERVATION VALUE AREAS ARE PROTECTED FROM LAND CONVERSION AND DEGRADATION.”

- **What is meant by deforestation?** Commenters suggested that deforestation should be defined more clearly in this criterion, adding that deforestation and the threat it poses varies from region to region. Some commenters highlighted that deforestation can be used to promote the health of local ecosystems, for example in controlling forest encroachment. Others indicated that deforestation is a serious threat that should be emphasized more strongly in the document.
 - ❖ **GRSB Response:** *A definition of deforestation is now provided in our explanatory document that considers the need to control invasive species on grasslands. In*

addition, we have changed the criterion to include land conversion and have provided definitions of both land conversion and land degradation. We provide additional clarity in the intent of this criterion, so that it can be appropriately interpreted with targets set by the regional roundtables.

CRITERIA #6: “WATER RESOURCES ARE USED RESPONSIBLY AND EFFICIENTLY INCLUDING MANAGEMENT OF SURFACE WATER RUNOFF AND MAINTENANCE OF RIPARIAN AREAS TO PROMOTE PROPER ECOLOGICAL FUNCTION.”

REVISION: “WATER RESOURCES (INCLUDING QUALITY AND QUANTITY ATTRIBUTES), ARE RESPONSIBLY AND EFFICIENTLY MANAGED TO SUPPORT ECOLOGICAL FUNCTION AND AVAILABILITY.”

- **Should specific water-related concerns and practices be referenced?** Commenters suggested removing the specific examples of water management concerns and practices, to avoid excluding important considerations. Others offered ideas for additional practices that could be included.
 - ❖ *GRSB Response: Specific examples have been removed from the criterion. In addition, reference to groundwater and other examples have been included in the criteria intent statement.*
- **Shouldn't water both quality and quantity be mentioned?** Commenters suggested distinguishing between water quality and water quantity, to clarify that water resources management applies to both.
 - ❖ *GRSB Response: This comment is reflected in the revised language for this criterion. It has also been addressed within the intent statement for this criterion.*

CRITERIA #7: “LAND USE ACTIVITIES PROTECT AND ENHANCE ECOSYSTEM HEALTH AND HIGH VALUE CONSERVATION AREAS THROUGHOUT ALL PHASES OF THE BEEF PRODUCTION SYSTEM. SOIL QUALITY IS MAINTAINED OR IMPROVED THROUGH ADOPTION OF APPROPRIATE MANAGEMENT PRACTICES.”

REVISION: “LAND MANAGEMENT PRACTICES CONSERVE AND ENHANCE THE HEALTH OF ECOSYSTEMS AND HIGH CONSERVATION VALUE AREAS THROUGHOUT ALL SECTORS OF THE BEEF VALUE CHAIN.”

- ❖ *Note: This criterion has been both modified and moved, such that it is now criteria*



#5. It was moved because we think it aligns most closely with criteria #4.

- **What are “high value conservation areas”?** Commenters asked how such areas are defined, and by who. Some argued that high value conservation areas must be defined at the local level. Commenters had differing opinions as to the importance and appropriateness of including this term within the principles and criteria.
 - ❖ GRSB Response: *The GRSB uses the term High Conservation Value as it is widely understood in the international community. Specifically, High Conservation Values (HCVs) have been defined by the HCV resource network as: “biological, ecological, social or cultural values which are considered outstandingly significant or critically important, at the national, regional or global level.” This and other relevant information can be found on the HCV network webpage (<http://www.hcvnetwork.org/about-hcvf>).*
- **Shouldn’t soil quality (or soil health) be its own criterion?** Commenters suggested that soil quality is important enough to warrant its own criterion. Some added that the term “soil health” should be used instead of “soil quality.”
 - ❖ GRSB Response: *In response to these comments, the GRSB decided to split the soil health and conservation areas, such that soil health is now its own criterion (criteria #8, below). We have changed “soil quality” to “soil health” in that new criterion.*
- **Can the word “protect” be removed, to focus only on enhancing ecosystem health?**
 - ❖ GRSB Response: *We have taken this comment into consideration and have changed the wording to “conserve and enhance” instead of protect.*

CRITERIA #8 (NEW CRITERION) “SOIL HEALTH IS MAINTAINED OR IMPROVED THROUGH IMPLEMENTATION OF APPROPRIATE MANAGEMENT PRACTICES.”

- ❖ *This criterion was separated from criteria #7 and the term “soil health” was substituted for “soil quality,” in response to comments received to this effect.*

CRITERIA #9: “WHERE POSSIBLE, FEED IS SOURCED FROM VERIFIED SUSTAINABLE SOURCES.”

REVISION: “WHERE AVAILABLE, FEED SOURCES ARE SUSTAINABLY PRODUCED.”

- **Is this criterion feasible?** Commenters indicated that verified sustainable feed is not currently available on a widespread or economically viable scale, making it unfeasible to meet this criterion. By contrast, others stated that this criterion could help create demand for sustainable feed and promote synergies with other feed crop sustainability programs.
 - ❖ *GRSB Response: GRSB recognizes that continuous improvement of feed sustainability is important to the sustainability of the beef value chain. At the same time, we understand that verification programs for sustainable feed are not widely available at this time. We have therefore included “where possible” in this criterion, so that the programs that are available receive the market support necessary to be taken to scale. Furthermore, we include in the intent of this criterion that any future verification program would have to be aligned with the triple bottom line approach the GRSB promotes.*
- **What is sustainable feed?** Commenters expressed confusion about what is meant by “sustainable feed”, suggesting it be defined within the criterion.
 - ❖ *GRSB Response: A definition of “sustainable feed” has been added. Sustainable sources of feed are those that are produced under systems that can demonstrate alignment with the triple bottom line principles (i.e. environmental, financial and social responsibility) and principles of the GRSB, include a commitment to continuous improvement, and address priority impacts.*
- **Shouldn't non-GMO feed also be referenced?** It was suggested that language be included to indicate that an option for non-GMO feed should be provided by the value chain.
 - ❖ *GRSB Response: The GRSB has decided not to address GMOs at this time. Instead, we will look to national efforts to address this issue as they deem appropriate.*

CRITERIA #10: WILDLIFE AND PLANT COMMUNITY BIODIVERSITY IS MAINTAINED AND ENHANCED THROUGH APPROPRIATE GRAZING, PRODUCTION AND INTEGRATED PEST MANAGEMENT PRACTICES.

REVISED LANGUAGE: “THE BEEF VALUE CHAIN CONTRIBUTES TO THE MAINTENANCE OR ENHANCEMENT OF NATIVE PLANT AND ANIMAL BIOLOGICAL DIVERSITY.”

- **Should references be made to specific production practices?** Commenters stated that the references to “grazing, production and integrated pest management practices” are too limiting, since other tools could also be utilized.
 - ❖ *GRSB Response: We took out the listing of production practices, as we are not able to provide an exhaustive list within the criteria. Likewise, we recognized that by simply stating “biodiversity” we were more encompassing than we would be by specifying plant and animal biodiversity, since the biodiversity of insects, microorganisms, etc. is also important. Further definition and guidance will be provided in the intent statement for this criterion so that it is appropriately interpreted and applied.*
- **Shouldn’t native wildlife be referenced explicitly?** Commenters suggested that this criterion should include a focus on native wildlife, for example by referencing the need to protect native biodiversity and control invasive and exotic species.
 - ❖ *GRSB Response: The wording now used is intended to cover native wildlife.*
- **Can the word “enhance” be removed from this criterion?**
 - ❖ *GRSB Response: The terms “enhanced” and “maintained” are both included, in order to promote continuous improvement while recognizing that areas exist that are currently in excellent condition.*

CRITERIA #10: “GRAZING, FORAGING AND CROPPING MANAGEMENT PRACTICES ARE IMPLEMENTED TO PROMOTE RESILIENCE TO CLIMATE CHANGE.”

REVISION: THIS CRITERION HAS BEEN REMOVED FROM PRINCIPLE 1.

- **Is climate change within the scope of this Principle?** Commenters indicated that the reference to climate change is problematic, since it is out of producers’ control and because climate trends are just one factor in management decision-making. Others added that there is uncertainty and disagreement about whether climate change is occurring and if so to what extent it is impacting grazing, foraging and cropping management. By contrast, other commenters emphasized that climate change is an important natural resources concern that must be addressed within sustainability efforts.
 - ❖ *GRSB Response: We have attempted to address beef’s contribution to climate change in criteria #3&4. Accordingly, we moved this criterion to Principle 5, as*

resilience to climate change fits more appropriately with innovative practices. There is scientific consensus that climate change is occurring and can be attributed to human activities. As an organization guided by science, it is more problematic if GRSB does not mention climate change, and this is now contained in the intent statements in our explanatory document.

Suggestions for additional concepts and criteria to include under Principle #1

- **Broader trends** (e.g. grasslands conversion, desertification, and grazing systems) should be accounted for in order to address the main causes of environmental impacts worldwide.
 - ❖ GRSB Response: *We have taken this comment into consideration and now address this issue in criteria #5 on deforestation.*
- **Controversial technologies.** The GRSB should reference existing technologies that improve the efficiency of natural resources use and are permissible in certain parts of the world, but are not legal or palatable to some actors (e.g. genetic modification, growth promoters, and feed efficiency enhancers), indicating whether these methods are in line with its view of sustainable beef production.
 - ❖ GRSB Response: *The GRSB has decided that the addition of this issue is not within the scope of this iteration of the principles and criteria. It may be addressed at the national and regional levels.*
- **Land and biodiversity degradation and protection.** This principle should address the land degradation that has resulted from certain practices in raising livestock (e.g. disrupting soil biology through intensive tillage and artificial fertilizers). Land saving production methods such as silvopastoral systems should be referenced specifically.
 - ❖ GRSB Response: *Land degradation is included in criteria #5 and #7.*
- **Nutrient management.** A criterion should be included to address the management of nutrients generated by beef production, both in order to protect water resources and to promote appropriate utilization as a fertilizer source.
 - ❖ GRSB Response: *This is covered through the criteria on soil health and water.*
- **Fire management** should be included, to deal with existing destructive burning practices.

- ❖ *GRSB Response: Fire can be used positively as a tool to manage land as well as a destructive tool when misused. Instead of the tool used, we have focused on the outcome – conserving and enhancing the land.*

- **Native woodland, national parks, and preservation areas** should be referenced.
 - ❖ *GRSB Response: High Conservation Value Areas, which are referenced in criteria #4 and #5, include areas such as national parks and native woodlands. A definition of High Conservation Values is also included in the explanatory document.*

- **Grazing management** should be included in this principle. The GRSB could develop a brochure on this topic and circulate it to all beef producers.
 - ❖ *GRSB Response: Grazing management is required to fulfill a number of the criteria, and is included in the intent section of criteria 5,6, and 7 in the explanatory document. Developing a brochure on grazing management is currently outside of the scope of the GRSB initiative and is best addressed by individual roundtable efforts.*

- **Land use coordination** should be addressed, to promote synergies and reduce trade-offs among different activities at landscape scale.
 - ❖ *GRSB Response: We emphasize the importance of avoiding land conversion under criteria #4 and #5. This could be an issue that regional and national roundtables wish to address and set benchmarks for.*

- **Wildlife.** Language should be included around using non-lethal and non-toxic predator and other wildlife control practices, to protect targeted and non-targeted species and their ecosystems.
 - ❖ *GRSB Response: Wording to this affect has been added to the intent of criteria #8 on biodiversity. In addition, this could be an indicator under the biodiversity criterion within a regional or national roundtable effort.*

PRINCIPLE 2 – PEOPLE AND THE COMMUNITY

Comments on individual criteria

CRITERIA #1: “COMPANIES AND INDIVIDUALS THROUGHOUT THE BEEF VALUE CHAIN PROTECT HUMAN RIGHTS IN ACCORDANCE WITH UNITED NATIONS GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS THROUGH POLICIES, REGULATION AND DUE DILIGENCE.”

REVISION: “COMPANIES AND INDIVIDUALS THROUGHOUT THE BEEF VALUE CHAIN RESPECT HUMAN RIGHTS IN ACCORDANCE WITH THE UNITED NATIONS GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS³ THROUGH POLICIES, REGULATION AND DUE DILIGENCE.”

- **Is it appropriate to reference international principles, policies or regulations?** Commenters indicated that the GRSB’s Principles and Criteria should not be tied to UN principles or any other third-party international principles, policies or regulations. Some added that the GRSB Principles and Criteria should stand on their own merit, while others indicated that international principles could conflict with domestic legislation in some places.

❖ *GRSB Response: While the GRSB agrees that a self contained document has its merits, the fact that there is a broadly accepted UN document, embraced by the countries where our members come from – including the United States, Canada, Australia, Brazil, European member countries and many others - make this a valuable shorthand. The UN document, having been formulated by many experts, already embodies much of the research and experience that we would otherwise require. Any reference to an outside document is to a specific version; if UN Guiding principles were to change, GRSB would review them to decide whether we would still quote them. It is very clear that where there is a direct conflict between national legislation and the UN principles, national legislation applies.*

CRITERIA #2: “BUSINESS IS CONDUCTED WITH INTEGRITY, IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS THROUGHOUT THE VALUE CHAIN.”

REVISION: “BUSINESS IS CONDUCTED WITH INTEGRITY, IN COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS. BUSINESSES THROUGHOUT THE VALUE CHAIN POSITIVELY ENGAGE WITH AND SUPPORT THE LOCAL COMMUNITY.”

³ “Guiding Principles on Business and Human Rights: Implementing the United Nations ‘Protect, Respect and Remedy Framework” <http://business-humanrights.org/sites/default/files/media/documents/ruggie/ruggie-guiding-principles-21-mar-2011.pdf>: the rights included are understood at a minimum as those expressed in the International Bill of Human Rights and the principles concerning fundamental rights set out in the international Labour Organization’s Declaration on Fundamental Principles and Rights at Work.

- **Shouldn't relevant ILO conventions be referenced in this criterion?**
 - ❖ *GRSB Response:* The UN guiding principles on business and human rights (Ruggie principles), referenced in criteria #1, cover the ILO conventions.
- **What is meant by integrity?** It was suggested that conducting business with integrity involves more than just complying with the law; for example, it includes positive engagement and support for local communities.
 - ❖ *GRSB Response:* We have added wording on constructive engagement with the community to this criterion.

CRITERIA #3: "A SAFE WORK ENVIRONMENT IS PROVIDED, SUPPORTED BY TRAINING AND APPROPRIATE EQUIPMENT TO REDUCE RISKS."

REVISION: "A SAFE AND HEALTHY WORK CULTURE IS ADOPTED, SUPPORTED BY TRAINING AND APPROPRIATE EQUIPMENT TO REDUCE THE RISKS TO ALL IN THE BEEF VALUE CHAIN."

- **What is meant by "safe" in the context of beef production?** Commenters highlighted that beef production and process is inherently dangerous, making it difficult to provide a truly safe work environment. Others suggested clarifying that "safe" includes health and sanitation.
 - ❖ *GRSB Response:* The GRSB recognizes that risk is inherent in working with cattle, and in agriculture generally. While that risk cannot be removed entirely, the aspiration is to reduce it as much as possible. The new wording includes reference to health.

CRITERIA #4: "STABLE, SAFE EMPLOYMENT FOR AT LEAST THE LEGAL MINIMUM WAGE WHERE APPLICABLE, AND OPPORTUNITIES FOR CAREER DEVELOPMENT WHEN POSSIBLE ARE PROVIDED THROUGHOUT THE VALUE CHAIN."

REVISION: "PROVIDE THE LEGAL MINIMUM WAGE (WHERE APPLICABLE), AND OPPORTUNITIES FOR CAREER DEVELOPMENT, WHERE POSSIBLE, ARE MADE AVAILABLE THROUGHOUT THE VALUE CHAIN."

- **Shouldn't the legal working age also be referenced?**

- ❖ *GRSB Response: Working age is covered in the UN guiding principles on business and human rights.*

CRITERIA #5: “THE CULTURAL HERITAGE AND WAY OF LIFE OF ALL PARTIES ARE RECOGNIZED AND RESPECTED THROUGHOUT THE VALUE CHAIN.”

REVISION: NONE.

No comments were submitted regarding this criterion.

Criteria #6: “The land and property rights of landowners, tenants and communities are acknowledged and respected throughout the value chain.”

REVISION: “LAND AND PROPERTY RIGHTS ARE ACKNOWLEDGED AND RESPECTED THROUGHOUT THE VALUE CHAIN.”

- **Should specific rights holders be mentioned?** Commenters indicated that actors other than landowners, tenants and communities also have property rights (e.g. businesses, government, processes and transport agencies, and traditional and communal landholders). Some commenters suggested adding additional types of rights holders to this criterion, while others suggested removing references to specific actors altogether.
 - ❖ *GRSB Response: Taking account of the comments received on this criterion, we have removed references to specific actors such as landowners, since there are multiple groups that had not been mentioned who also have such rights. By leaving it open, we mean that the land use and property rights of all should be respected.*
- **What is meant by “acknowledged”?**
 - ❖ *GRSB Response: The word “acknowledge” here refers to rights established legally. In the case of a claim of rights, they should be legally established.*

Suggestions for additional concepts and criteria to include under Principle #2

- **Community health, safety and security** should be reflected under this principle.

- ❖ *GRSB Response: We have added wording around community engagement and healthy work culture to criteria #2 and #3, respectively.*

- **Antibiotics.** A criterion around ensuring that beef producers use antibiotics judiciously should be included under this principle, since antibiotic resistance is a public health issue.
 - ❖ *GRSB Response: In addition to the new criterion 3 in Principle 3, we have produced a specific guidance on antibiotic usage to national and regional roundtables as referred to on page 4 of this document.*

- **Chemical use.** Language should be added to ensure that chemical use does not adversely impact workers, consumers, wider society or the environment.
 - ❖ *GRSB Response: This issue is addressed by criteria #1, #2 and #3*

- **Community engagement** should be included within the criteria.
 - ❖ *GRSB Response: Wording has been added in criterion #2 to address this suggestion.*

- **Smallholders.** Language addressing the rights and concerns of smallholders should be included under this principle. In particular, this language should focus on protection of traditional grazing rights, control over productive resources, access to credit, extension, technology, quality and affordable inputs, fair pricing, and cold chain infrastructure, in order to achieve continuous improvement in production efficiency and improved livelihoods.
 - ❖ *GRSB Response: The suggested wording goes into more detail than the GRSB has adopted in general for our principles and criteria. We feel that the spirit of this suggestion is embodied in the wording we now have.*

- **Original communities, rural heritage and traditional knowledge** should be recognized and valued within the criteria.
 - ❖ *GRSB Response: This suggestion was discussed, but is a difficult criterion to translate into indicators in many countries. The question of how far into the past one should go to find the original communities is hard to resolve in some cases, whereas in others it is a concept covered by laws around traditional land ownership.*

PRINCIPLE 3 – ANIMAL HEALTH AND WELFARE

General comments and intent

- **Is it appropriate to reference the OIE standards?** Commenters questioned whether the OIE should be referenced within this Principle, reiterating that the GRSB principles and criteria should stand on their own merits. Some suggested that regional roundtables should decide the appropriateness of including these references.
 - ❖ *GRSB Response: The GRSB definitions committee felt that given the amount of work that has gone into the OIE guidance over many years, it is useful shorthand with a high degree of credibility and should be retained as a reference. To make it quite clear, we are referencing the current language in the version of the OIE documents as referenced in footnotes. Any changes to OIE documents in the future will require review and a decision on whether to retain them as a reference. Given the global nature of the Principles and Criteria, the OIE documents are useful to use a global reference. Regional and or national roundtables will have the freedom to reference relevant local laws or policies – and to demonstrate where those may vary from or exceed OIE guidance.*
- **Could a different image be used to illustrate this principle?** Commenters indicated that the image of a cow tied with rope is not appropriate.
 - ❖ *GRSB Response: The image has been removed in response to this comment.*

Comments on individual criteria

CRITERIA #1: “ADEQUATE FEED AND POTABLE WATER IS PROVIDED TO MEET THE PHYSIOLOGICAL NEEDS OF CATTLE. DIET COMPOSITION, INCLUDING ROUGHAGE, IS BALANCED TO PROMOTE GOOD HEALTH AND PROPER BODY CONDITION.”

REVISION: “ADEQUATE FEED AND WATER ARE PROVIDED TO MEET CATTLE’S PHYSIOLOGICAL NEEDS. DIET COMPOSITION IS BALANCED TO PROMOTE GOOD HEALTH AND PROPER BODY CONDITION. ANIMAL CARETAKERS RECOGNIZE SIGNS OF MALNUTRITION AND TAKE APPROPRIATE ACTION TO MAINTAIN CONDITION AND CORRECT DEFICIENCIES.”

- **Is the word “potable” necessary?** Many commenters indicated that cattle do not need “potable” water to meet their physiological needs, adding that this word usually refers to higher quality water for human consumption. Some mentioned that potable water is not available in all production areas.
 - ❖ *GRSB Response: The word “potable” has been removed.*
- **Is the phrase “including roughage” necessary?** Some commenters indicated that the term “including roughage” should be deleted, since appropriate roughage levels can be considered under the notion of balanced diet composition. By contrast, others emphasized the importance of roughage for cattle health.
 - ❖ *GRSB Response: Since physiological needs, good health and condition are mentioned in this criterion, the word roughage was deemed redundant. The reference to “roughage” has therefore been removed.*

CRITERIA #2: “ANIMAL CARETAKERS RECOGNIZE BODY CONDITION AND SIGNS OF MALNUTRITION AND TAKE APPROPRIATE ACTION TO MAINTAIN CONDITION AND CORRECT DEFICIENCIES.”

REVISION: “ANIMAL CARETAKERS PROVIDE CATTLE WITH HEALTH CARE, IN ADDITION TO IDENTIFYING HEALTH PROBLEMS AND TAKING APPROPRIATE ACTION TO CONTROL AND TREAT DISEASE.”

- **Isn’t the reference to body condition duplicative of criteria #1?**
 - ❖ *GRSB Response: Criteria #1 and #2 have been combined in response to this comment.*
- **What practices should be used for determining body condition and malnutrition?** Commenters indicated that there is no one set of practices that would adequately serve all beef value chain participants.
 - ❖ *GRSB Response: This criterion does not specify any given set of practices. Rather, this is left to the discretion of producers, with any additional guidance from regional roundtable indicators where relevant.*
- **Shouldn’t the word “nutritional” be added to describe “deficiencies”?** It was suggested that without the addition of this word, the objective of the criterion could be unclear.

- ❖ *GRSB Response: “Nutritional deficiencies” is taken as read, given that it is in reference to malnutrition.*

CRITERIA #3: “ANIMAL CARETAKERS PROVIDE CATTLE WITH PREVENTATIVE HEALTH CARE IN ADDITION TO IDENTIFYING HEALTH PROBLEMS AND TAKING APPROPRIATE ACTION TO CONTROL AND TREAT DISEASE.”

REVISION: “ALL VETERINARY PHARMACEUTICALS AND VACCINES ARE USED RESPONSIBLY AND IN ACCORDANCE WITH LABELLING.”

- **Is the reference to preventative healthcare appropriate?** Commenters indicated that preventative healthcare should not be referenced within this Principle, though others suggested including stronger language about ensuring preventative care.
 - ❖ *GRSB Response: The reference to preventative health care has been removed, though it should be noted that this was originally meant to refer to vaccinations, and as such is a relevant part of health care in general.*
- **Shouldn’t antibiotics be referenced in this criterion?** Commenters emphasized the importance of safeguarding public health and the environment by using antibiotics only to treat disease, and not for routine non-therapeutic uses such as disease prevention or growth promotion.
 - ❖ *GRSB Response: Language has been added to reference responsible use of pharmaceuticals, and separate specific guidance will be issued to regional and national roundtables around aspects of this issue, as referred to on page 4 of this document.*
- **Shouldn’t health care be provided by veterinarians rather than “animal caretakers”?** Commenters indicated that it is more appropriate for veterinarians to identify health problems and take action to control and treat them, although some recognized that veterinary access might be difficult in some places.
 - ❖ *GRSB Response: It is generally not feasible to have veterinary oversight on hand at all times in extensive systems predominating in several of the major producing countries. Therefore it is important that stockmen are sufficiently experienced and/or trained to handle these important tasks in the absence of veterinary assistance.*

CRITERIA #4: “APPROPRIATE ACTION IS TAKEN TO ENSURE THAT ALL CATTLE ARE FREE OF PAIN, INJURY AND DISEASE, AND TO ADDRESS ANY OF THESE PROBLEMS WHEN IDENTIFIED. A COMPETENT PERSON IS MADE AVAILABLE TO MAKE PROMPT DIAGNOSES TO DETERMINE WHETHER SICK OR INJURED CATTLE SHOULD RECEIVE ADDITIONAL CARE OR BE HUMANELY EUTHANIZED.”

REVISION: “APPROPRIATE ACTION IS TAKEN TO MINIMIZE UNDUE PAIN, INJURY AND DISEASE, AND TO ADDRESS ANY OF THESE PROBLEMS WHEN IDENTIFIED. A COMPETENT PERSON IS AVAILABLE TO MAKE PROMPT DIAGNOSES TO DETERMINE WHETHER SICK OR INJURED CATTLE SHOULD RECEIVE ADDITIONAL CARE OR BE EUTHANIZED. IN THE INTERESTS OF CONTINUOUS IMPROVEMENT, ALTERNATIVES AND INNOVATIONS ARE INVESTIGATED AND, WHERE PRACTICAL, ARE ADOPTED TO REPLACE OR MITIGATE PAINFUL HUSBANDRY PROCEDURES.”

- **Isn't it unfeasible for producers to ensure that cattle are entirely free of pain, injury and disease?** Commenters noted that cattle are often unattended for long periods of time while they graze, can inflict pain on each other, and can be affected by factors outside of producers' control. Moreover, sometimes pain must be inflicted when treating an animal with an injury or calving problem.
 - ❖ *GRSB Response: This criterion has been reworded to reflect that while it is not possible to “ensure” that cattle are free of pain, it is possible to minimize it once stockmen become aware of it.*
- **What is meant by a “competent person”?** Commenters indicated that in many beef production systems, producers themselves often diagnose and decide on appropriate action. Others suggested making reference to veterinarians specifically.
 - ❖ *GRSB Response: As referenced in the reply to a similar question on criterion 3, it is unrealistic to think that this could be a veterinarian. It is recognized that livestock producers make these decisions, and recommended that the person making such decisions be sufficiently experienced and / or trained to be able to do so quickly in the best interests of the animal.*
- **Isn't the reference to alternatives to routine surgery (originally in criteria #5) more pertinent in this criterion?**
 - ❖ *GRSB Response: Wording regarding alternatives to painful husbandry procedures has been moved to this criterion, with the qualifiers “where practical” and “to replace or mitigate painful husbandry procedures.”*

CRITERIA #5: “ANIMAL WELFARE IS ENSURED, INCLUDING THE FREEDOM FOR CATTLE TO EXPRESS NORMAL PATTERNS OF BEHAVIOUR; ANIMAL CARETAKERS MINIMIZE STRESS ON CATTLE, AND RECOGNIZE AND REACT APPROPRIATELY TO SIGNS OF STRESS. IMPROVEMENTS OR ALTERNATIVES TO ROUTINE SURGERY ARE SOUGHT WHERE POSSIBLE.”

REVISION: “GOOD ANIMAL WELFARE IS ENSURED, INCLUDING THE FREEDOM FOR CATTLE TO EXPRESS NORMAL PATTERNS OF BEHAVIOUR. ANIMAL CARETAKERS SHOULD MINIMISE CATTLE STRESS, AND RECOGNIZE AND REACT APPROPRIATELY TO SIGNS OF STRESS.”

- **Aren’t alternatives and improvements to routine surgery infeasible in many cases?** Commenters highlighted that such alternatives to routine surgery are not economically feasible or always available. Others added that routine surgery is not necessarily bad, indicating that this sentence could be interpreted too restrictively. By contrast, some commenters emphasized that replacing painful husbandry procedures is extremely important for animal welfare.
 - ❖ *GRSB Response: Wording regarding alternatives to painful husbandry procedures has been moved to criteria #4, with the qualifiers “where practical” and “to replace or mitigate painful husbandry procedures.”*
- **What is meant by “normal patterns of behaviour”?** Commenters suggested that this term is too vague. While some suggested removing this phrase altogether, others suggested potential clarifications that could be added (e.g. freedom to move and interact freely on natural substrate). It was also suggested that animal caretakers should have a good understanding of cattle behavior.
 - ❖ *GRSB Response: Normal patterns of behavior include the above mentioned, and certainly livestock handlers should be familiar with cattle behavior. Further clarification will be included in the explanatory document.*
- **What practices for minimizing stress on cattle should be utilized?** It was suggested that practices as defined on a regional basis should be acceptable under this criterion.
 - ❖ *GRSB Response: The principles and criteria document does not extend to specific practices, and it is expected that experienced stock handlers can both recognize and respond appropriately to signs of stress. Regional and national roundtables may*

develop specific indicators or guidance on this issue. In terms of handling, low stress cattle handling techniques are widely known and taught.

- **Shouldn't polled cattle be referenced in this criterion?** The use of polled cattle, which are naturally hornless and therefore do not require painful surgical removal of the horns, should be part of this criterion. There are no significant differences in productive and reproductive traits between horned and polled cattle.
 - ❖ *GRSB Response:* *The principles and criteria document does not extend to specific practices or to use of specific breeds or types of cattle, but does refer to selection of appropriate breeds and seeking alternatives to painful husbandry procedures.*

CRITERIA #6: "CATTLE ARE KEPT IN AN ENVIRONMENT (INCLUDING STOCKING DENSITY, AIR QUALITY AND SURFACES) THAT IS CONDUCIVE TO GOOD HEALTH AND NORMAL BEHAVIOUR AND MINIMIZES PHYSICAL AND THERMAL DISCOMFORT."

REVISION: "CATTLE ARE KEPT IN AN ENVIRONMENT (INCLUDING STOCKING DENSITY, AIR QUALITY AND SURFACES), WHICH IS CONDUCIVE TO GOOD HEALTH AND NORMAL BEHAVIOUR AND MINIMIZES PHYSICAL DISCOMFORT."

- **Isn't minimizing thermal discomfort infeasible for producers?** Commenters emphasized that the weather is beyond producers' control and that this measure could be cost prohibitive. Some expressed concern that this concept could be interpreted as requiring animals raised outdoors on pasture to be housed permanently.
 - ❖ *GRSB Response:* *The term "thermal" has been replaced with "physical." Clearly, there are many circumstances in which the comfort of livestock is not directly under the control of beef producers. However, where there is a situation over which the producer does have control and it is clear that cattle are experiencing undue discomfort, this should be minimized.*
- **Aren't environmental factors such as stocking density, air quality and surfaces subjective and variable according to production system differences?**
 - ❖ *GRSB Response:* *No specific measures of stocking rate, air quality and surfaces are given. While indicators may be developed by national or regional roundtables, beef producers themselves will be considering these aspects of welfare and determining what is appropriate in their system.*

- **Shouldn't other efforts to improve animal comfort and well being be mentioned?**
Commenters specifically referenced providing shade, shelter and windbreaks.
 - ❖ *GRSB Response: The GRSB has decided not to cover specific practices in the Principles and Criteria.*

CRITERIA #7: "TRANSPORT (BY LAND AND SEA) AND HANDLING PROCEDURES ARE CONSISTENT WITH OFFICE INTERNATIONAL DES ÉPIZOOTIES (OIE; THE WORLD ORGANISATION FOR ANIMAL HEALTH) GUIDELINES."

REVISION: "TRANSPORT (BY LAND, SEA OR AIR) AND HANDLING PROCEDURES ARE CONSISTENT WITH OFFICE INTERNATIONAL DES ÉPIZOOTIES (OIE; THE WORLD ORGANIZATION FOR ANIMAL HEALTH) GUIDELINES.

- **Why isn't preconditioning calves mentioned?** Commenters emphasized that "preconditioning" calves prior to transport can improve their tolerance of handling and transport stress, and suggested that preconditioning and measures to reduce weaning stress should be requirements under this criterion.
 - ❖ *GRSB Response: This issue is covered by the OIE guidelines.*
- **The OIE guidelines for land and sea transport are incorrectly referenced.**
 - ❖ *GRSB Response: This error has been corrected.*
- **Why isn't language around minimizing transport duration included?**
 - ❖ *GRSB Response: OIE guidance refers to planning around the duration of the journey.*
- **Why isn't more specific language around transport for slaughter included?** Specifically, commenters suggested emphasizing that animals destined for slaughter should be transported as close as possible to their point of production, and prohibiting the live export of cattle for slaughter.
 - ❖ *GRSB Response: This specific prescription is beyond the scope of our Principles and Criteria. In addition, the OIE Guidelines are quite extensive with regard to welfare during journeys by land and sea.*

CRITERIA #8: “SLAUGHTER PROCEDURES ARE IN LINE WITH THE OIE TERRESTRIAL ANIMAL HEALTH CODE.”

REVISION: “ANIMAL WELFARE PROCEDURES AT PROCESSING PLANTS, INCLUDING SLAUGHTER PROCEDURES, ARE IN LINE WITH THE OIE TERRESTRIAL ANIMAL HEALTH CODE.”

- **Shouldn't the OIE guidelines on the slaughter of animals be referenced specifically?**
Although some commenters reiterated concerns about reference to international documents, others suggested making specific reference to the OIE guidelines on slaughter. It was suggested that specific slaughter practices should be banned in this criterion, including slaughter without prior stunning and use of restraining devices that invert the animal or allow it to be rope cast, hobbled or leg tied in any way.
 - ❖ *GRSB Response: Reference is now made to the OIE guidelines for slaughter. With regard to the specific practices mentioned, this is beyond the scope of the Principles and Criteria, but could be covered under indicators developed by regional or national roundtables.*

Suggestions for additional concepts and criteria to include under Principle #3

- **Antibiotic use.** Language should be included around the need for veterinary oversight of antibiotic use on livestock, and around ensuring that antibiotics are not used in lieu of adequate diets and healthy conditions.
 - ❖ *GRSB Response: Specific guidance to national and regional roundtables on responsible use of antibiotics has been provided. Wording has been added in criterion #3 relating to responsible use of pharmaceuticals.*
- **Wildlife.** Language should be included around ensuring the health and welfare of wild animals as well as farm animals.
 - ❖ *GRSB Response: Wildlife is not generally considered a responsibility of beef producers, although there is relevance in terms of disease control, particularly trans boundary diseases.*

- **Humane handling techniques.** Language should be added around improper handling techniques (e.g. striking animals, excessive yelling, use of electric prods) that can cause fear and stress in cattle. Low stress methods should be emphasized.
 - ❖ *GRSB response: Criterion 5 covers this in terms of minimizing stress, which also includes improper handling.*
- **Beta-agonists:** A criterion prohibiting the use of beta-agonists should be added.
 - ❖ *GRSB Response: This is beyond the scope of these Principles and Criteria.*
- **Resting space.** Maintaining a dry, comfortable resting place should be included within the criteria.
 - ❖ *GRSB Response: Criterion 6 covers environment in which cattle are kept*
- **Breeding cautiously.** Language should be included indicating that sire selection should take into account the size and age of the dam to prevent the serious health problems.
 - ❖ *GRSB Response: Though this specific practice is desirable, it was felt that it is also part of selection covered by Principle 5 criterion 1, and part of good animal husbandry in line with the spirit of this principle, but at a more granular level of detail than we address in these principles and criteria.*
- **Tail docking.** A specific prohibition on tail docking should be included under this principle. Measures such as increasing space per animal and providing bedding are effective alternative management practices to prevent tail tip necrosis.
 - ❖ *GRSB Response: This practice is rare in beef production systems, and is covered by guidance on painful husbandry procedures.*
- **Biosecurity** should be mentioned, since it is a major issue for livestock farmers and can undermine the sustainability of beef production systems.
 - ❖ *GRSB Response: Biosecurity, in terms of control of trans boundary diseases, including zoonoses, is a very important area for livestock producers, and their first and foremost obligation in this regard is to comply with national legislation.*

PRINCIPLE 4 – FOOD

General comments and intent

- **What is meant by the reference to information-sharing systems in the explanation of this principle?** Commenters expressed concern that this reference could be interpreted to mean that traceability should be component of sustainability, which they saw as outside the scope of the document. Others added that disclosure of information in the absence of a food safety issue is inappropriate and may conflict with existing legal rights. Many suggested removing the reference to information sharing.
 - ❖ *GRSB Response: We have clarified the information criterion (criteria #3), such that it reads as follows: “Information should be shared both up and down the value chain to provide opportunities for participants to improve their businesses, while respecting confidentiality.” We believe that information sharing both up and downstream is critical to the long-term viability of the beef value chain. We have included the expectation that an appropriate level of confidentiality is maintained to ensure that legal and ethical considerations are maintained. We believe that removal of information sharing as a criterion would leave a significant gap for local, national and regional roundtables to build outcome-based indicators to measure, monitor and demonstrate sustainable beef. Specific information related to sustainability principles and criteria should be determined by the local, national and regional roundtables as they establish their work and related indicators associated with all criteria.*
- **Is it feasible to meet consumer expectations, as stated in the intent section?** Commenters indicated that consumer expectations are diverse, variable and fleeting, making it unrealistic to meet this requirement at all times. Others suggested that consumer needs should be referenced, in addition to their expectations.
 - ❖ *GRSB Response: The GRSB understands these concerns and has revised the wording in the intent to read: “Improvements and indicators should be scientifically-based, and focused on the practicable and impactful areas, while taking consumer expectations and behaviour into consideration.”*

- **Is it appropriate to mention documentation in this principle?** Commenters suggested that documentation itself does not have any direct impact on food safety or quality, but rather is needed for validation and information transfer.
 - ❖ *GRSB Response: The GRSB believes it is important to leave references to documentation in place to set a clear expectation for indicators to be set at the local, national and regional level.*

Comments on individual criteria

CRITERIA #1: “FOOD SAFETY IS ENSURED THROUGH THE DEVELOPMENT, ADOPTION, DOCUMENTATION, MAINTENANCE AND, WHERE APPLICABLE, THIRD-PARTY VALIDATION OF PRACTICES BY ALL MEMBERS OF THE VALUE CHAIN. THIS ALSO INCLUDES THE PROMPT RESOLUTION OF ALL CASES OF FOOD SAFETY CONTAMINATION.”

REVISION: “FOOD SAFETY IS ENSURED THROUGH THE DEVELOPMENT, ADOPTION, DOCUMENTATION, MAINTENANCE AND, WHERE APPLICABLE, THIRD-PARTY VALIDATION OF PRACTICES THROUGHOUT THE VALUE CHAIN. THIS INCLUDES THE PROMPT RESOLUTION OF ALL CASES OF FOOD SAFETY CONTAMINATION.”

- **Can “third party validation” be removed from this criterion?** Commenters suggested replacing this term with "quality assurance".
 - ❖ *GRSB Response: We believe that quality assurance is a far cry from third party validation, which we view as necessary to deliver sustainable beef.*

CRITERIA #2: “BEEF QUALITY IS ENSURED THROUGH THE ADOPTION, DOCUMENTATION, MAINTENANCE AND VALIDATION OF MANAGEMENT SYSTEMS THROUGHOUT THE VALUE CHAIN. ALL REASONABLE EFFORTS ARE TAKEN TO ENSURE THE QUALITY OF BEEF AND RELATED CO-PRODUCTS TO PARTICIPANTS FURTHER DOWN THE VALUE CHAIN.”

REVISION: “BEEF QUALITY IS ENSURED THROUGH THE ADOPTION, DOCUMENTATION, MAINTENANCE AND VALIDATION OF MANAGEMENT SYSTEMS THROUGHOUT THE VALUE CHAIN. ALL REASONABLE EFFORTS ARE TAKEN TO ENSURE THE QUALITY OF BEEF AND CO-PRODUCTS TO PARTICIPANTS FURTHER DOWN THE VALUE CHAIN.”

- **Isn't criteria #2 redundant with criteria #1?**
 - ❖ *GRSB Response: We disagree, as quality is significantly different than food safety.*

- **What is meant by “beef quality”?** Commenters suggested that this term is subjective and normally refers to characteristics such as marbling and tenderness.
 - ❖ *GRSB Response:* The term “beef quality” is intentionally left broad. It takes into consideration the wide variance of the aspects that influence quality, which go far beyond eating quality.

CRITERIA #3: “INFORMATION IS SHARED THROUGH SYSTEMS IMPLEMENTED THROUGHOUT THE VALUE CHAIN. THESE SYSTEMS ENSURE THAT CONSUMERS ARE REASSURED AS TO THE INTEGRITY OF THE BEEF VALUE CHAIN AND RISK IS MANAGED, WHILE RESPECTING CONFIDENTIALITY.”

REVISION: “INFORMATION SHOULD BE SHARED BOTH UP AND DOWN THE VALUE CHAIN TO PROVIDE OPPORTUNITIES FOR PARTICIPANTS TO IMPROVE THEIR BUSINESSES, WHILE RESPECTING CONFIDENTIALITY.”

- **What is meant by information sharing, and how will confidentiality be protected?** Commenters suggested that information sharing should focus on education and best management practices, and should not include data and intellectual property, given that confidentiality cannot be assured as data is used and re-used throughout the value chain. Some suggested that the GRSB should make explicit how confidentiality can be guaranteed, or should align this criterion with existing government regulations around data and labeling.
 - ❖ *GRSB Response:* We believe that cluttering the criteria with too many prescriptive qualifiers is inappropriate and would be too cumbersome for the local, national and regional roundtables to interpret.
- **How are costs taken into account in this criterion?** Commenters highlighted that implementing and maintaining integrated record keeping systems with the ability to track animals through all phases of supply chain is costly.
 - ❖ *GRSB Response:* We believe that the document’s preamble adequately covers the economic viability aspect of this comment.
- **Shouldn’t traceability be included in this criterion?**
 - ❖ *GRSB Response:* GRSB feels that traceability is not an absolute requirement as previously stated.

- **Shouldn't the value of information-sharing systems be specified?** In particular, commenters suggested reflecting that such systems can help progressive value chain participants improve their businesses.
 - ❖ *GRSB Response: We have simplified this criterion and have included language to reflect this comment.*

CRITERIA #4 (NEW CRITERION): "FOOD WASTE IS REDUCED THROUGHOUT THE VALUE CHAIN, REUSING AND RECYCLING WHEREVER PRACTICABLE."

- ❖ *This criterion was added in response to comments suggesting that food waste be addressed, both along the value chain and in terms of raising consciousness among consumers and retailers.*

Suggestions for additional concepts and criteria to include under Principle #4

- **Food sovereignty** should be included as a specific criterion.
 - ❖ *GRSB Response: We appreciate this comment, but feel that food sovereignty is inappropriate for GRSB to address at this point in time.*
- **Nutrition.** The contribution of beef to global nutrition should be recognized.
 - ❖ *GRSB Response: We understand and appreciate this perspective. It is consistent with views shared in the document's preamble, but it is not appropriate as a criterion because it would not be able to support indicators.*
- **Energy.** Language around optimizing energy use for food preparation should be included.
 - ❖ *GRSB Response: The GRSB believes that energy is more appropriately referenced in Principle 5 on Efficiency and Innovation.*
- **Cattle feed production** is a substantial sustainability issue that should be recognized more within this principle.
 - ❖ *GRSB Response: The GRSB believes that feed is more appropriately referenced in Principle 1 on Natural Resources and Principle 5 on Efficiency and Innovation.*
- **Food safety.** The role of consumers in ensuring food safety should be recognized.
 - ❖ *GRSB Response: The GRSB has determined that impacting consumer behaviour is outside of the scope of work for these principles and criteria.*

PRINCIPLE 5 – EFFICIENCY AND INNOVATION

General comments and intent

- **Couldn't this principle be folded into other principles?** Commenters added that if this principle is retained, it should only address efficiency and should include more language around economic viability.
 - ❖ *GRSB Response:* The GRSB feels strongly that efficiency and innovation are paramount to continued improvement of sustainability, and that this should remain a stand alone principle. The roundtable included additional language within the intent and criteria of this principle to provide additional clarity regarding economic viability.
- **This principle is too focused on producers.** Commenters highlighted that other actors in the value chain, such as food service providers, retailers and processors, have a key role to play (e.g. in reducing waste).
 - ❖ *GRSB Response:* Language has been modified throughout the document to clarify that all of the principles apply across the entire beef value chain.
- **What is meant by efficiency?** This concept should be defined somewhere in the document, both in terms of the positive impacts provided (e.g. nutrition, employment, income) and the adverse impacts caused (e.g. pollution).
 - ❖ *GRSB Response:* Efficiency refers to maintain productivity with a reduction in resource wastage.

Comments on individual criteria

CRITERIA #1: "CATTLE ARE SELECTED AND MANAGED TO OPTIMIZE AVAILABLE RESOURCES AND SUIT THEIR ENVIRONMENT, WHILE MEETING MARKET CONDITIONS AND CONSUMER PREFERENCES."

REVISION: "CATTLE ARE SELECTED AND MANAGED TO CONTINUALLY OPTIMIZE AVAILABLE RESOURCES AND SUIT THEIR ENVIRONMENT, WHILE MEETING MARKET DEMAND AND CONSUMER PREFERENCES."

- **Is the word “optimize” appropriate?** Commenters suggested removing this term, indicating that it suggests a static endpoint with one solution.
 - ❖ *GRSB Response:* We have inserted the word “continuously” before optimize to address this concern.
- **Shouldn’t consumer needs be addressed, in addition to their preferences?**
 - ❖ *GRSB Response:* A need and a preference are similar, and the GRSB prefers the term preference.

CRITERIA #2: “NON-RECYCLABLE WASTE IS REDUCED AND NON-RECYCLABLE CONTRIBUTIONS TO LANDFILLS AND THE ENVIRONMENT ARE MINIMIZED THROUGHOUT THE VALUE CHAIN.”

REVISION: “WASTE IS REDUCED AND OPPORTUNITIES TO REUSE AND RECYCLE ARE MAXIMIZED THROUGHOUT THE VALUE CHAIN.”

- **Shouldn’t all waste to landfills be minimized (not just non-recyclable waste)?**
 - ❖ *GRSB Response:* The language in this criterion was modified to be more inclusive of all waste and to explore opportunities for waste reuse and recycling.
- **Shouldn’t manure management be included in this criterion?** Specifically, commenters suggested included language around appropriate storage and use of manure.
 - ❖ *GRSB Response:* Improved manure management would impact multiple principles and criteria, and is a good example of an indicator that a regional roundtable may develop to address this principle.

CRITERIA #3: “PRODUCT VALUE AND CARCASE UTILIZATION ARE MAXIMIZED THROUGHOUT THE VALUE CHAIN.”

REVISION: NONE.

No comments to this criterion were provided.

CRITERIA #4: “WATER AND LAND USE ARE MANAGED THROUGHOUT THE VALUE CHAIN TO ENSURE RESPONSIBLE AND EFFICIENT RESOURCE USE.”

GRSB response to public comments

REVISION: WATER AND LAND RESOURCES ARE MANAGED THROUGHOUT THE VALUE CHAIN TO ENSURE RESPONSIBLE AND EFFICIENT USE.”

- **Should the word “resource” be removed from the end of the criterion?**

❖ *GRSB Response: This criterion was changed as suggested in this comment.*

CRITERIA #5: “ENERGY USE IS OPTIMIZED FOR EFFICIENCY AND PRODUCTIVITY AND RENEWABLE ENERGY IS PROMOTED WHERE APPLICABLE THROUGHOUT THE VALUE CHAIN.”

REVISION: “ENERGY USE IS OPTIMIZED FOR EFFICIENCY AND PRODUCTIVITY THROUGHOUT THE VALUE CHAIN.”

- **Is renewable energy really within the scope of this document?** Commenters highlighted that promoting renewable energy is outside of the scope of the beef value chain, and that renewable energy sources are not always available. Others added that in some cases renewable energy can have unintended consequences and negative impacts.

❖ *GRSB Response: This criterion was changed as suggested, by removing the specific reference to renewable energy.*

CRITERIA #6: “FEED INPUTS ARE OPTIMIZED FOR PRODUCTION AND WELFARE GOALS THROUGHOUT THE PRODUCTION CHAIN.”

REVISION: “FEED AND FORAGE USE IS OPTIMIZED FOR PRODUCTION AND WELFARE GOALS THROUGHOUT THE PRODUCTION CHAIN.”

- **Shouldn’t requirements around appropriate ruminant feed be included in this criterion?**

❖ *GRSB Response: This issue is addressed in Principle 3 on Animal Health and Welfare.*

CRITERIA #7: “PHARMACEUTICAL, NUTRIENT AND CHEMICAL USE IS EXECUTED RESPONSIBLY AND TRANSPARENTLY ENSURING EFFICIENT PRODUCTIVITY THROUGHOUT THE VALUE CHAIN.”

REVISION: “PHARMACEUTICAL, NUTRIENT AND CHEMICAL USE IS EXECUTED SAFELY AND RESPONSIBLY, OPTIMIZING EFFICIENCY AND PRODUCTIVITY THROUGHOUT THE VALUE CHAIN.”

- **What is meant by “transparently”?** Commenters indicated that this word should be clarified or removed, to avoid leaving it open to interpretation (e.g. to mean traceability).
 - ❖ *GRSB Response: The GRSB has removed the reference to transparency, as it is addressed in Principle 4 on Food. We have also added language to include the need for safety.*
- **Shouldn’t antibiotic use be emphasized in this criterion?** Commenters added that monitoring and reporting antibiotics use should be referenced within this criterion.
 - ❖ *GRSB Response: Antibiotics use is addressed in a specific guidance document as referenced on page 4 of this document.*
- **Shouldn’t standards on chemical use be referenced?** In particular, commenters suggested including language around ensuring that chemical use is consistent with OIE guidelines, and that residues are managed in a manner that ensures MRLs are met.
 - ❖ *GRSB Response: The GRSB felt that this comment was more prescriptive than is appropriate for this document, and opted to leave decisions around such measures to the regional roundtables and indicator development.*
- **Can emphasis be placed on non-preventative use?**
 - ❖ *GRSB Response: GRSB’s specific guidance to national and regional roundtables is referenced on page 4 of this document.*

CRITERIA #8: “BEEF VALUE CHAIN STAKEHOLDERS CONTINUALLY INNOVATE AND UTILIZE TECHNOLOGIES TO IMPROVE EFFICIENCIES AND ADAPT TO CHANGING CLIMATE AND RESOURCE CONDITIONS.”

REVISION: “BEEF VALUE CHAIN STAKEHOLDERS CONTINUALLY INNOVATE, AND RESPONSIBLE USE TECHNOLOGIES AND LEADING PRACTICES TO ADAPT TO CHANGES IN CLIMATE, RESOURCE AND MARKET CONDITIONS.”

- **Is it appropriate to reference climate change in this Principle?** Commenters suggested removing the reference to climate change, reiterating that most producers cannot make management decisions based on long-term climate trends.
 - ❖ *GRSB Response: This criterion has been reworded to provide additional clarity on this point.*

- **Isn't this criterion redundant with criteria #9?** Commenters suggested deleting this criterion to avoid redundancy.
 - ❖ GRSB Response: *We have deleted criteria #9 in response to this comment.*
- **Should the objective of minimizing risks to animal welfare, human health and the environment be specified?**
 - ❖ GRSB Response: *It is felt that these issues are dealt with adequately under other principles.*
- **Can language be added to reflect that beef production creates economic value for every participant in the value chain?**
 - ❖ GRSB Response: *We have added additional language in the intent of the principle.*
- **Couldn't the idea of "improving efficiencies" undermine other priorities (e.g. animal welfare and the environment)?**
 - ❖ GRSB Response: *As described in the preamble, sustainability is about balancing all of these important principles and criteria.*

CRITERIA #9: "NEW TOOLS, TECHNOLOGIES AND PRACTICES VALIDATED TO IMPROVE PRODUCER PROFITABILITY AND EFFICIENCY WITHOUT UNDUE NEGATIVE IMPACT ARE ADOPTED THROUGHOUT THE VALUE CHAIN."

REVISION: THIS CRITERION HAS BEEN REMOVED.

- **What is meant by "undue negative impact"?** Commenters suggested either clarifying this term or removing it.
 - ❖ GRSB Response: *Criteria #9 has been deleted.*
- **Shouldn't this criterion include a reference to extension and education?** It was suggested that this reference could help align this criterion with other principles in the document.
 - ❖ GRSB Response: *Criteria #9 has been deleted.*
- **Shouldn't actors other than producers be reflected in this criterion?** Commenters suggested deleting the word "producer."

- ❖ GRSB Response: Criteria #9 has been deleted.

Suggestions for additional concepts and criteria to include under Principle #5

- **Antibiotics.** Commenters suggested incorporating antibiotics into this principle, specifically in connection with collecting and reporting relevant information to their country's appropriate food and health regulators.
 - ❖ GRSB Response: *Responsible use of antibiotics is being addressed in the animal health and welfare principle. Any collection and reporting is an indicator and would be region-specific, and therefore will be left to regional roundtables to develop and implement as necessary.*
- **Certainty and consistency of returns and pricing** should be reflected, because without certainty producers will not invest in continuous improvements in efficiency (or other aspects of sustainability).
 - ❖ GRSB Response: *Additional language has been added throughout this principle, criteria, and intent to provide more clarity around economic viability.*
- **Herd management.** This principle should consider year-over-year herd management. If diversity of grasses and legumes is not maintained, stocking rates may be impacted and may cause the system to be less resilient in the future. The life-death-life cycle of a livestock system enables efficiency and recovery of resources.
 - ❖ GRSB Response: *Management practice suggestions are regionally specific and will be left to the regional roundtables to develop as indicators.*
- **The positive role of livestock in the ecosystem** should be recognized within this principle.
 - ❖ GRSB Response: *It is recognised, as referred to on page 6 of this document, that livestock systems can and do play an important role in maintaining ecosystems.*
- **Long-term viability** should be explicitly addressed, particularly economic viability.
 - ❖ GRSB Response: *Language around economic viability was added to this principle, and was also clarified in the document's preamble.*

- **Education, information and partnerships.** The criterion under Principle 1 (“Environmental stewardship is enhanced through education, information sharing, and partnerships where appropriate opportunities exist.”) should be moved to this principle.
 - ❖ *GRSB Response: Education and information sharing was added to the food criteria and the intent of this principle.*
- **Spatial data** should be referenced, for example with regard to utilizing it in planning processes and making operational maps publically available.
 - ❖ *GRSB Response: This data (and data availability) is region-specific and will be left to the regional roundtables to develop as indicators.*
- **Water efficiency** should be referred to more specifically, given that beef has one of the highest water footprints of any food and is widely criticised on this issue.
 - ❖ *GRSB Response: Water is referenced both in this principle and Principle 1 on Natural Resources.*
- **Improvement in genetics** should be mentioned, including the expansion of genomic tools and equipment to measure additional phenotypes (e.g. eating behaviour, feed intake, mobility, temperature, etc.).
 - ❖ *GRSB Response: This data (and data availability) is region-specific and will be left to the regional roundtables to develop as indicators.*