

**Comments received on Methodology for the Reduction of Enteric Methane Emissions from Ruminants through the Use of 100% Natural Feed Supplement**

This comment was received via email by the VCS.

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<b>Methodology Section</b>	<b>Paragraph</b>	<b>Page</b>	<b>Topic</b>	<b>Question / Comment</b>
Summary		5	"...applying empirically-derived regional emission reduction factor provided by the supplement manufacturer..."	What scientific evidence is required for accuracy / applicability of the emission factors provided by the manufacturer? Are other sources also applicable (e.g. scientific research results not provided by the supplement manufacturer?)
4. Applicability Conditions	2a	7	"...100% natural plant-based and non-GMO."	What is the reason for this requirement? There does not appear to be a content-based rationale behind this in the methodology. Consequently, more detailed specification and rationale is needed for "100% natural planted-based". E.g. does this include chemically extracted components of plants? What about nature identical substances?
4. Applicability Conditions	2b	7	.."must have no negative health impacts on the animal to which it is fed."	What proof is required that the supplement does not lead to any negative health impact to animals? What about to impact on humans when using the animal products (e.g. milk, meat)?
4. Applicability Conditions	2c	7	"...pre product specification..."	typo? "per" instead of "pre"
4. Applicability Conditions	2c	7	"...such as the feeding routine and dose of supplement per kg of DMI to the animal."	Are these just examples? Some substances will vary in effect depending on feed composition (e.g. NDF) and thus require tracking of more information on feed composition.

4. Applicability Conditions	2d	7	"...factor of 17%..."	What is the rationale for this threshold? No background (scientific or other) is provided for this very specific number. Also, maintaining this requirement would prevent project activities with lower reduction factors - which for example could be low-cost options which could be applied when funds are limited.
4. Applicability Conditions	5a	8	"...for a minimum of one year."	Animal feeding practices are known to vary significantly between years (e.g. changes in feed availability due to weather events or market changes). What are the conditions / reasoning for limiting the baseline to one year? What safeguards are in place to ensure that baseline does consider variations, respectively does not represent a biased event?
4. Applicability Conditions	4	8	"..project proponent must be able to trace the feed supplement from on-farm consumption"	More specific information may be needed here. E.g. how would one ensure that each animal receives the necessary amount of supplement in less controlled (non-TMR/PMR) dairy systems such as are common in developing countries? Are there options for management systems where animals roam and graze over a large area and do not receive dietary supplements? Consumption of feed supplement per animal should be listed in the monitoring plan.
5. Project Boudary	first paragraph	8	"...there is no change in such activities due to the project."	How is this ensured (e.g. no change in feed composition and sources to increase impact of feed supplement)?
5. Project Boudary	first paragraph	8	"...emissions in feed supplement manufacture and transport, which are considered negligible in this methodology."	What evidence is required to prove negligibility? In some cases, growing and harvesting, processing and transport of the natural components for the supplement production could be considerable. Transparency on emissions from production and transport should be provided.
5. Project Boudary	Table 3	8 and 9	N2O emissions	Certain supplements may have an impact on manure composition and thus N2O emissions. Methodology developer needs to provide an approach to account for N2O emissions which could be omitted if it can be proven that there is no effect for a specific supplement.

7. Additionality	Step 2	9	Positive list / activity penetration	<p>1) According to VCS Standard, new products which have not yet been available on the commercial market in the project region cannot directly apply positive list approach A but must instead perform a barrier analysis.</p> <p>Also applying the positive list to the entire world without further restrictions seems unjustified.</p> <p>2) MAP is likely less than 3.6bn ruminants as no product will be available for all cattle owners worldwide. Some key factors likely reducing MAP are a) animal access for supplement provision (e.g. range fed animals will not be accessible to feed supplements in a controlled fashion), b) maximum production, storage and transport capacity, c) distribution to rural environments will likely be limited.</p>
8. Quantification...	Figure 1	10	Decision tree	Options should be described for easier comprehension of the decision tree.
8. Quantification...	Figure 1	10	Decision tree	If different options are used for baseline and project assessment, it must be ensured that emission reduction are calculated conservatively (due to the high uncertainty for Option 2/3 values). This is especially true if default values (Option 2/3) are applied in the project scenario while referencing a measured baseline. How is conservativeness ensured in the methodology?
8.1 Baseline Emissions	Eq. 2ff	11	Number of animals	Number of days for each animal in group j is unclear, as this would have to be either an average, if formula 2 is applied, or a total of days (sum over days per cow) in a formula without $N_{i,j}$ number of animals.
8.1 Baseline Emissions	Eq.3	11f	Option 2: Conversion factor ( $Y_m$ )	<p>Default IPCC conversion factors are applied per animal category. These factors have been shown to be imprecise and not suitable for project-level application due to dependencies on various factors (e.g. feed composition, climate,...) and errors up to 30% (IPCC 2006 Vol 4 Ch 10, Table 10.12 and 10.13).</p> <p>Methodology indicates dependency on "quality of feed" ("high digestibility and energy value") but does not further specify classification.</p>

8.1 Baseline Emissions	Eq.4	12f	Default emission factors	High-level default IPCC conversion factors are applied per animal category. These are per-head EFs not suitable for conservative project-level application due to high errors (+- 30-50%, according to IPCC 2006 Vol 4 Ch 10, Table 10.10).
8.2 Project Emissions	Eq. 5	13	Number of animals	The proposed equation does not take into account differences in animal count between Baseline and Project (or at least does not explicitly state that "BEEnerici" would have to be calculated with project herd structure and animal counts). If unchanged number of animals is presumed, a respective applicability condition should be added. However, as such herd fluctuations are very common, an approach to account for change in animal numbers should be added.
8.1 Baseline Emissions	Table 5	13	Horse, mule/ass, swine, poultry	Horse, donkey (mule, ass), swine, and poultry are not ruminants: remove from table as the methodology is limited to ruminants only.
8.2 Project emissions	Eq.6	14	emission factors (defaults)	Defaults per group (EF <sub>Enterici,j</sub> ) need to be calculated with correct number of animals (project scenario) in each group. This is not specified explicitly (just that the baseline equations should be used).
8.2 Project emissions		15	Supplement production and transport	Emissions from production and transportation of the supplement are missing. The project level assessment of transportation of feed supplement, where applicable, shall be included in project boundary. Also, depending on the ingredients used for the supplement, significant emissions might arise from growth and harvest. Instead of general exclusion of these emission sources, they should be generally included (unless otherwise shown).
8.3 Leakage		15	Activity shift due to potential change in milk production	No consideration of decreasing emissions due to decreasing production (i.e. leakage), as supplements may have impacts on (milk) production, thus making it necessary to consider leakage from activity shift.
9.1 Data and Parameters Available at Validation	First Table	15	Parameter GE <sub>j</sub>	Equation error: Should be GE <sub>j</sub> = DMI <sub>j</sub> *Energy Density

General				<p>Current loose approaches (e.g. no proof of effects of feed supplement through in-vivo trials) require very deep knowledge of VVB / auditor to assess applicability and conservativeness of parameters applied. This could become a liability for VCS as VVBs may not have specialists with animal nutrition and calculations and experience.</p>
General			GHG scope	<p>No emission accounting from manure is provided. Inclusion of manure in feed-related methodologies is common practice, e.g. in the Alberta protocol, or the Gold Standard feed additive methodology "Reducing Methane Emissions from Enteric Fermentation in Dairy Cows through Application of Feed Supplements". Manure emissions are tracked in these methodologies to assess potential changes due to the project activity (increase or decrease), i.e. as a consequence of feeding a supplement or changing feed. How can the methodology developer be sure that any supplement feed by anyone does not have an effect on manure?</p>
General				<p>Default IPCC values cited refer to IPCC 2006 specifically. It is known that many IPCC 2006 default values have high errors (see comments above) and should thus not be applied. New IPCC values are expected this spring. It should thus be recommended to apply the newest IPCC values available (but only if errors of default values are in an acceptable range as required by the VCS standard).</p>