




HOW TO FRAME A SUSTAINABILITY ASSESSMENT QUESTION: COMPARING THE APPROACHES OF TWO ONLINE TOOLS

As we work on developing a simple online tool that evaluates farm management practices and their effects on biodiversity, we have been considering how best to craft questions for a sustainability assessment questionnaire. The Cool Farm Tool (CFT) Biodiversity module¹ is an online questionnaire that incorporates evidence from the scientific literature to provide farmers with a self-assessment of the expected benefits of their practices for biodiversity enhancement. We plan to adapt the CFT for use in New Zealand, and find that its format as well as its content could provide useful lessons for developing a sustainability assessment questionnaire. A questionnaire primarily needs to use language the reader understands – scientific or technical jargon and abstract concepts should be avoided. Trialling the questionnaire with end-users is thus important before releasing it, and the CFT and the template on which it was based (the Gaia Biodiversity Yardstick²) were both road tested to ensure accessibility to their target audience.³ However, other important techniques to consider when framing a sustainability assessment question became evident as we compared the CFT to questions in the Sustainability Assessment of Food and Agriculture (SAFA) Smallholders App developed by the Food and Agriculture Organisation of the United Nations.⁴ We discuss three of these techniques:

-  Framing questions positively
-  Formatting questions consistently
-  Using questions to group answers

Positive framing

How a question is asked can be as important as the content of that question, both in terms of communicating with the reader and collecting data the questioner can interpret and use. For example, neutral wording of surveys is important for testing hypotheses in the social sciences or in politically-motivated polls. In a sustainability assessment, however, using best practices is a clear, objective goal, and these best practices can be emphasised through positive framing of questions in the assessment. During the CFT development process, the framing of questions in the CFT evolved from being relatively neutral to being positive (i.e. emphasising that the goal of the questionnaire is to evaluate best practices). For example:

Which general crop protection measures do you apply?



What good practices do you use when applying crop protection products?

The revised question presents a checklist of best practices in agrichemical use, such as “I aim to reduce my use of pesticides to protect wildlife” and “I use specific technologies to reduce pesticide drift”. A farmer filling out the questionnaire can thus determine straight away what the best practices are, which ones they are implementing, and what additional ones they could implement. The questionnaire then serves a dual role as a sustainability assessment and a learning tool for the farmer. Additional examples of positive framing of questions are in Table 1.

¹ <https://coolfarmtool.org/coolfarmtool/biodiversity/>

² <https://gaia-biodiversity-yardstick.eu/>

³ Dr Lynn Dicks (Cool Farm Biodiversity Tool researcher, University of East Anglia), pers. comm., 27 Mar 2017

⁴ <http://www.fao.org/nr/sustainability/sustainability-assessments-safa/safa-app/en/>



Table 1. Questions in the Cool Farm Tool Biodiversity module that use neutral framing or technical jargon modified to use positive, accessible language to emphasise best practices.



Neutral and/or Jargon	Positive, without jargon
<i>How many varieties of each crop do you grow?</i>	<i>Do you grow more than one variety of any of your crops?</i>
<i>Do you use green manure crops? / Which measures do you apply at your parcels (>1 acre) to stimulate soil biodiversity or natural enemies?</i>	<i>What good practices do you use to improve soil health in crop fields?</i>
<i>Which measures do you take in favour of the fauna or flora?</i>	<i>What wildlife-friendly measures do you carry out in all or part of your cereal fields?</i>
<i>Do you apply organic materials, fertilisers or additives to stimulate the soil life?</i>	<i>Do you add organic matter to your fields?</i>
<i>Are there smaller wet elements (areas <0.5 ha and ditches) present on your farm? (followed up by questions about measures carried out in ditches or pools)</i>	<i>What wildlife-friendly management do you carry out in pools and ponds on your land (including in your farmyard)? (incorporates presence of pools/ponds as one of the answers)</i>
<i>Are smaller herbaceous elements present on your farm?</i>	<i>Do you have areas of grass or flowering plants that are not for production?</i>

Consistent formatting

Consistently formatting questions can be helpful to both the questioner and the reader of the questionnaire. First, questions formatted to give the same type of output (e.g. all questions are “yes/no”) are easier to summarise together (i.e. aggregate the data). The checklist format of questions in the CFT, where a ticked box is equivalent to answering “yes”, works this way. Second, consistently formatted questions are much easier for the reader of the questionnaire (i.e. the farmer) to interpret and answer. This may sound trivial, but we want to minimise the time and effort required to conduct any sustainability assessment and avoid any confusion that could lead to ticking the wrong box while hastily skimming an online questionnaire. An analogy for this scenario is the colour-coding of the “Yes/No” answers to security questions when you check-in for a flight at a self-service kiosk, where the ‘correct’ answer is coded green; that is “Yes” to the “Did you pack your own bags?” question, but “No” to the “Are you carrying any hazardous materials?” question – because the best practice in this scenario is not always the positive response. This colour coding also provides the benefit of clarifying which answers correspond to best practices (similar to a ‘Positive framing’ approach).

The CFT is generally quite consistent in its formatting of questions. However, there are some inconsistencies in the formatting of the SAFA Smallholders App questionnaire. We note these to highlight how they require a reader of the questionnaire to think more carefully about the questions and answers (increasing effort) and how the questions fail to identify what the best practices are. The latter issue may be lessened if the app itself gives colour codes to emphasise best practices (coded ‘green’ in the SAFA questionnaire) vs. unsustainable practices (coded ‘red’).

In the first example, the “yes” answer represents the best practice in one question, but the unsustainable practice in the consecutive question:

- | | | |
|---|---|-------------------------|
| 39. Do you use a smokeless fuel or chimney to vent smoke while cooking? |  | Yes (green)
No (red) |
| 40. Do you ever burn your fields? |  | Yes (red)
No (green) |





In the second example, each question gives three answers to choose from, but the order of those answers is not consistently from worst to best practice or vice versa. Across a span of four questions in this format, three different orderings of answers are used and one question is lacking an unsustainable practice option as an answer (see Question #34/35).

Question #	33	34/35	36	38
Answer 1	Green	Green	Red	Red
Answer 2	Yellow	Yellow	Yellow	Green
Answer 3	Red	Green	Green	Yellow





Grouping of practices

The construction of the CFT, and of the Yardstick on which it was based, is a series of checklists that allow specific actions to be grouped together to minimise the space and number of words needed in the questionnaire. There are 42 questions in the CFT, with more than 100 answers for the reader to consider. This format allows the designer of the questionnaire to clarify the specific goals of each set of management actions, and also may make it easier for a software developer to set up a coding rule to remove questions that are irrelevant to a particular farmer (e.g. the CFT questions regarding grazing are greyed out if the farmer answers “no” to the question “Do you have livestock?”). For example:

-  *What good practices do you use to improve soil health in crop fields? – answers include cover crop rotations and tillage practices*
-  *What wildlife habitats do you provide in and around your farm buildings? – answers include bird nest boxes, piles of dead wood or stones.*

When to employ these techniques?

This research summary highlights a few considerations that might be best addressed by employing the techniques of positive framing, consistent formatting, and grouping of practices. These considerations include:

-  emphasising best practices, which allows the questionnaire to serve a dual role as a sustainability assessment and as a learning tool
-  minimising reader’s effort required to understand questions and complete the questionnaire, which can contribute to greater accuracy in their responses
-  straightforward aggregation of answers to produce the assessment result
-  simplified coding of questions and scoring of the assessment within the software package.

The three techniques we have discussed, and the considerations that they address, should be applicable across the different pillars of sustainability and to both broad and specific questions about management practices. Employing these techniques would likely benefit both the NZ Sustainability Dashboard and its stakeholder partners by adding value to the tools already under development. We therefore recommend that the NZSD research teams consider revising sustainability assessment tools, where appropriate, using these techniques.

Contacts

- *Programme Leader: Jon Manhire, The AgriBusiness Group (jon@agribusinessgroup.com)*
- *Science Leader: Prof. Henrik Moller, CSAFE (henrik.moller@otago.ac.nz)*