Low ILUC-risk certification: Pilot report and recommendations

Brazil, Soy yield increase, January 2023

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1. Pilot introduction

This pilot was conducted to test the low ILUC-risk certification methodology for soybean yield increase measures, as defined in Implementing Regulation (EU) 2022/996 on rules to verify sustainability and greenhouse gas emissions saving criteria and low indirect land-use change-risk criteria. This is a new pilot for phase 2 of the project. There was no pilot in phase 1 that focused on soybean yield increase.

1.1 Feedstock and Geography

This pilot tested the low ILUC-risk certification methodology on two medium to large sized, privately owned soy farms located in the Bahia State region of Brazil.

Canto do Rio farm:

- Total farm area: 2946 ha
- Introduction of wheat as a second crop and use of rock dust fertilizer
- Farm is certified to 2BSvs (previously certified to ISCC until 2013)

Ana Terra farm:

- Total farm area: 2300 ha
- Crop-livestock integration with soy and Brachiaria[1]
- Certified to ISCC

The initial contact for this pilot was with a large international commodity company and biofuel producer, who helped to select the farms and facilitated contact with the farmers.

Figure 1 Bahia region in which both farms are located (Source: Google Maps)

[1] Also called signalgrass – a type of tropical or subtropical grass

1.2 Audit

The process to work with the pilot farms, to understand the low ILUC-risk methodology, to identify potential additionality measures and to gather the necessary data took a total of seven months. Control Union provided support to the farmers to explain the requirements and to support them with gathering data and filling in the management plan. This was part of the learning process for the pilot, but in a real certification situation that role would need to be fulfilled by a company with an interest in the farmers becoming low ILUC-risk certified, such as the first gathering point, or by an external advisor or consultant.

Control Union visited the farmers on two occasions. The first on-site visit took place between 8-10 August 2022. During the visits the auditor gathered the initial data, checked the management plan, and tried to identify additionality measures. The methodology was new to the farmers and in the preparation for the audit, critical data was missing. Therefore, a second remote audit was conducted between 17-19 January 2023, during which the audit checklist was completed. Some information presented by the farmers in the two audits was contradictory. The information received in the second visit is considered to be most accurate and represents the information included in the audit checklist.

Both visits were conducted by Davi Bittar do Carmo, an ISCC-trained auditor from Control Union in Brazil. A local representative from the commodity company also accompanied Control Union for the first visit.

1.3 Key issues tested

The key issues that the pilot aims to test are:

- **Data availability.** To test to what extent farmers have access to accurate historical yield data, cost data and an ability to estimate additional biomass.
- **Methodology to determine yield baseline and additional biomass.** To test the process to set a yield baseline for an annual crop (soy) in a crop rotation system and calculate the additional biomass obtained from the additionality measure.
- **Additionality test.** To test whether the yield increase measure can be demonstrated to be additional through a financial attractiveness assessment or a non-financial barrier analysis.
- **Sustainability of additionality measure.** To test that the additionality measure is conducted in a “sustainable manner”, as required by the Delegated Regulation (EU) 2019/807.

1.4 Relevant documents

During the audit, the following documents were collected:

- Management plan (filled in by the farmer for each farm)
- NPV calculation (prepared by the farmer with the help of Control Union, Brazil, for each farm)
- Audit checklist (prepared by Control Union Brazil for each farm)
- Audit report (one joint report prepared by Control Union, Germany)

2. Yield increase measures

Both farms applied several yield increase measures that could potentially count as additionality measures. The measures have been taken in various combinations over several years. As indicated in section 1.2, there was a contradiction in the information received between the different farm visits. There was a learning process for both the auditor and the farmers, resulting in the second visit to be considered most accurate. Both the measures which are and aren't eligible for low ILUC-risk certification are listed below, to be used as reference material for stakeholders and the certification guidance.

2.1 Canto do Rio

The Canto do Rio farm has already implemented new techniques to increase soy production and is eager to further increase yield. The application of new techniques resulted in some plots with high production (average of 90 bags[2] per hectare). Other plots have lower production (average of 50 bags per hectare), mainly caused by water deficiency. To further increase yield, the farmer focusses on the lower production areas with the aim of transforming them into high production areas.

Figure 2 Map Canto do Rio

The farmer and auditors spent a lot of time working together to try to identify additionality measures. Whilst the farmer applied several measures that can be seen as best practices, the auditor judges these measures not to qualify as additionality measures for low ILUC-risk certification because they do not go beyond business as usual. Other investments and measures would not count for low ILUC-risk certification because they are not specifically

[2] 1 bag equals 60kg

targeting increased biomass yield. Some examples of the best practices that the farmer applied are:

- Terracing in sloping areas to prevent soil erosion and leaching
- Monitoring of harvest loss in machinery (improvement in production efficiency)
- Hydrometer in the irrigation management system (monitoring the amount of water used in irrigation)
- Corporate governance management (improve practices in general)
- Loader (fast supply of machinery inputs in the field)
- Knife roller (to incorporate green mass into the soil)
- Renewal of the transport fleet in the field (safety and cost reduction)

The farmer reported in the first visit that they participate in a programme which introduces them to several additionality measures like planting of Brachiaria, application of rock dust fertilizer and introducing wheat as a second crop. Only the last two measures, the rock dust fertilizer and introduction of wheat as a second crop, were considered by the auditor to be beyond business as usual, and those are therefore further explained in sections 2.1.1 and 2.1.2.

The planting of Brachiaria reduces the areas of crop-livestock integration as the grass is grown when land would be fallow. The deep roots of the Brachiaria improve the soil quality by de-compacting the soil, without tillage, and add organic matter to the soil. The measure was introduced via neighbouring farmers and applied on this farm in 2021. The Brachiaria is sown before the soybean, using the same machinery, and used as grazing land for cattle.

Figure 3 Canto do Rio farm

2.1.1 Application of rock dust

As the name suggests, rock dust is made from natural rock that has been crushed into a powder. It is a source of phosphorus and potassium. The use of rock dust is good for soil carbon accumulation and can be seen as a natural soil improver as it improves soil humidity and aeration. The application of rock dust on farms is new in Brazil and only used in the last 5 years. In the Bahia area, a few producers are now experimenting with the measure and apply it to their fields.

Rock dust is sold in shops resulting in easy access for the farmers. It is cheaper than commonly used farm chemicals, but requires more volume and therefore also more truck movements. Rock dust is not expensive thus would not result in a negative NPV.

2.1.2 Introduction of wheat as a second crop

The farm originally grew soybean and papaya and kept cattle. This changed after the nematodes from the neighbouring farm entered the farmers' land and harmed the papaya to a point that it was no longer feasible to continue the production. The area was left fallow in between harvests until the introduction of wheat as a second crop in 2022. The planting of wheat as a second crop has two main benefits: control of soybean parasitic nematodes, such as Meloidogyne spp. and Pratylenchus spp., and increasing the soil quality by increasing the soil organic content. The farmer projected that the planting of wheat would result in a soybean production increase of 20% compared to the fallow land.

The farmer applied the additionality measure (growing wheat in between the soy harvests) on 165 ha of the total 2946 ha of soy. The 165 ha was chosen as cultivation of wheat needs sufficient water and therefore can only be applied on the irrigated areas of the farm. Growing wheat in fallow periods is not a common practice in Brazil and the farmer wants to limit the risk while experimenting with the measure. Besides irrigation, the farmer also needed to increase the soil quality to grow wheat. The specific plot was treated with liming and gypsum to correct pH levels and reduce the amount of aluminium.

The auditor defined the measure as eligible for low ILUC-risk certification as planting wheat in between the main crop for nematode protection is a new measure in Brazil. In contrast to other regions in Brazil, the Bahia region does not have a large rainy season and therefore it is common for farmers to only cultivate one crop per year. However, due to the problems with the nematodes, the measure has been taken already without the prospect of a price premium for low ILUC-risk certified soybean.

2.2 Ana Terra

From 2012 onwards, Ana Terra has been investing in improving their agricultural practices. They have invested in soil management by introducing cover plants and using digital solutions (e.g. use of precision and digital agriculture to optimise inputs) for the planting, fertilization, and harvest. The main aim of these measures is to reduce operational costs and improve the monitoring of the farm. The main challenge of the Ana Terra farm is water availability as Bahia is a dry area and the farm is very large, resulting in differences in local weather and water conditions across the farm.

The additionality measure discussed with the auditor is the implementation of crop-livestock integration. The crop-livestock integration increases the efficiency of the land, protects the soybean from nematodes and increases the soil organic matter. The combination of nematode protection and increased soil organic matter would result in an increased soybean production on the farm.

The crop-livestock integration (CLI) started in 2017 using the following crop rotation scheme: In summer period (October-March), the farm uses 70% of the area for soybean, 15% for pasture and 15% for corn. In winter (March-October), the farmer plants grasses on 80% of the area and leaves 20% fallow. The grass used is a combination of sorghum and Brachiaria, where the sorghum is harvested and the grass is used as ground cover, resulting in an increase in soil biomass, organic matter, maintenance of soil microbiota and decompaction.

An additionality measure that has been considered but not implemented is the Pivot irrigation system. The Pivot irrigation system would improve the water availability on the farm throughout the year and thereby increase the soy yield. The farmer reports that the system has not been implemented because the local electricity grid cannot support the electricity demand from the irrigation system.

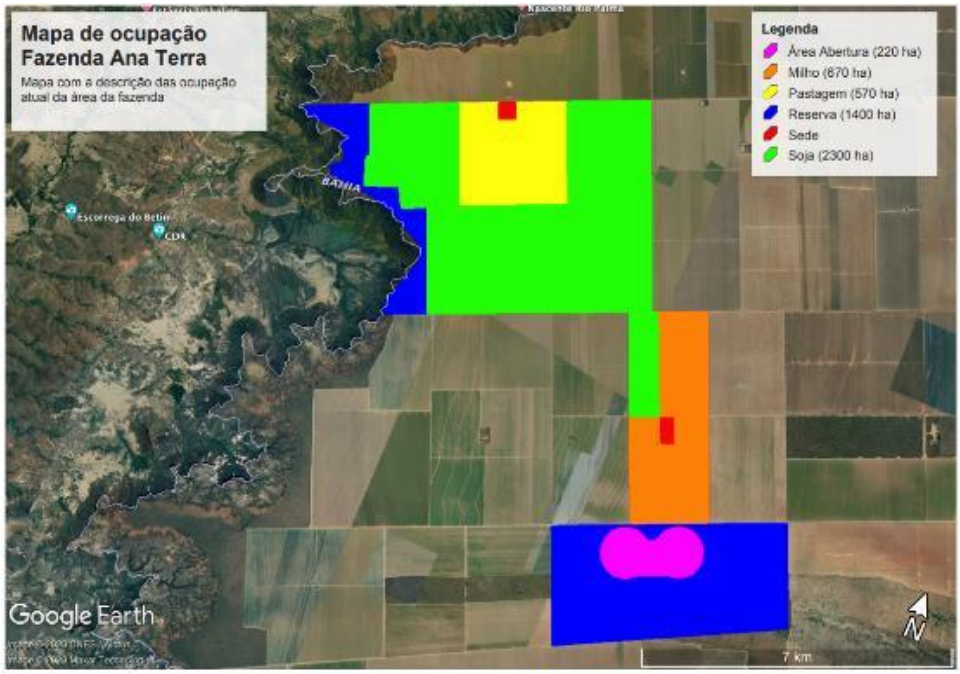

Figure 4 Map Ana Terra

3. Findings

3.1 Availability of data and evidence

For this pilot, it was very difficult to access and receive the data and evidence needed for low ILUC-risk certification from the farmers. The local auditors from Control Union had to put in a lot of effort to explain the process and data needed for the audit on several occasions. The farmers were able to share with us the yield data from 2018 onwards for specific plots but did not share yield data for the whole farm.

The farmers did not have external support to do the NPV calculation themselves, thus the Control Union auditor had to support them to do the calculations. Data for the financial attractiveness test was available but not transparent for others besides the auditor. This made it difficult to understand which types of costs are included in the final CAPEX and OPEX numbers. This highlighted the complexity of the approach and that farmers do not always have or are not always willing to share data.

Farmers found it hard to understand the relevance of the low ILUC-risk certification to them. The farmers and auditors together found it hard to judge which measures would qualify as low ILUC additionality measures. The farmers lacked the context to know what is additional in their region and the auditors missed the oversight of measures that would be eligible for low ILUC-risk certification.

The pilot shows that even for larger farms, more effort will be required to understand the approach. It would help to make the approach a success if there is a first gathering point or trader interested in EU biofuels and able to invest time and effort to support the farmers through the process, to systematically collect the data, to do the calculations and get the right data and systems in place. Such a party would be better positioned than an individual farmer to judge which farming practices are common and which are more novel in the region and therefore more likely to be eligible for low ILUC-risk certification.

3.2 Financial attractiveness assessment

The farmers struggled with the financial attractiveness assessment and were not able to do the NPV calculation themselves. Control Union guided both farms in the financial attractiveness test and combined the verification of evidence with the data collection for the NPV calculation.

3.2.1 Canto do Rio

The NPV calculation is conducted on a plot (pivot) level with the support of Control Union. In the calculation, the cost of introducing wheat was compared with the revenue from the additional soy yield. Thus, the farmer's calculation did not also consider the revenue from the wheat sales, which should have been included in the calculation.

The losses in the calculation consist of the CAPEX and OPEX. Within the CAPEX are the costs for seeds, fertilizers, herbicide, fungicide, insecticide, macro and micro fertilizers and growth reduction hormones. The OPEX includes the costs for labour, fuel and machinery.

The farmers did not have the full revenue data for plot 1 and could therefore not calculate the NPV. For plots 2 and 3 the farmer had all data available and could do the whole NPV calculation using the Excel tool provided. In the calculations conducted by the farmer, plots 2 and 3 were both considered to pass the financial attractiveness test as both their NPV values were lower than zero, demonstrating that the additionality measure would not

financially attractive without low ILUC-risk certification. **However, the NPV calculations only considered the additional soybean revenues and did not include the wheat revenues. Including wheat revenues would result in a positive NPV, not passing the financial attractiveness test.**

Table 1 NPV calculation for the introduction of wheat at different plots of Canto do Rio, as calculated by the pilot farm (calculation done per plot)

	Plot 1	Plot 2	Plot 3
Income			
Revenue from sales	No value	$17,234	$47,760
Costs			
CAPEX	$26,675	$74,689	$74,689
OPEX	$20,350	$56,981	$56,981
Net Present Value (NPV)	**No value**	**$-114,435**	**$-83,909**

For the learning process of the pilot, the auditor and farmer also conducted the financial attractiveness test for the application of rock dust. The CAPEX of rock dust is $208 t/ha, as the farmer needs to apply 3 t/ha. The OPEX is $150/ha. The application of rock dust results in a yield increase of 6 bags per hectare, and 25.1 t/year for the plantation as a whole. Considering the current soy prices and discount rates, the application of rock dust has a positive NPV of $1.955 USD and therefore would not pass the financial attractiveness assessment. **This confirms the application of rock dust would not pass the financial attractiveness test in this case.**

3.2.2 Ana Terra

The financial attractiveness test for the Ana Terra farm was conducted with the support of Control Union. There is little information available from the farmers and the auditors about which costs are included in the CAPEX and OPEX. **The calculation results in a positive NPV and therefore would not pass the financial attractiveness test.**

Table 2 NPV calculation Ana Terra

	Value
Income	
Revenue from sales	$691,117
NPV Sales	$691,117
Costs	
CAPEX	$186,901
OPEX	$127,795
Net Present Value (NPV)	**$920,693**

3.3 Non-financial barrier analysis

The pilot farms focused on conducting the financial attractiveness test for each of the additionality measures as financial data was available. During the audit, no non-financial barriers were identified by the auditor, although this can also be logical as the measures identified have been taken already.

The Canto do Rio farmer did report during the audit that they learned about the introduction of wheat from a neighbouring farm who participates in a regional programme. However, further information about the programme or transfer of knowledge was not available to determine whether this could be considered either a knowledge barrier or a first-of-a-kind measure. Planting wheat as an intermediate crop is not innovative from the perspective of the crop or intermediate cropping practices in Brazil, but it is reported that intermediate cropping in the Bahia region is not common.

In addition to the measures already taken, the Ana Terra farm wants to invest in a Pivot irrigation system (as described in section 2.2) but has not done so. The barrier for implementing this additionality measure is the **limited electricity grid capacity available in the region**. The local grid operator would have to upgrade the electricity grid for the irrigation system to work. Furthermore, it is reasonable to assume that the cost of upgrading the electricity grid would be beyond what an individual farmer can afford or directly influence, **so this irrigation measure would seem to be an example of an additionality measure that would meet the financial attractiveness test and/or the non-financial barrier analysis (insufficient access to electricity).**

3.4 Determining the yield baseline

The yield baseline (hereafter referred to as baseline) is calculated for both farms.

Note that when calculating the baseline, the global trendline in soybean yields was not applied as this was the last pilot and the previous pilots had found that applying this coefficient complicates the baseline calculation for the farmer, whilst having only a relatively small impact on the magnitude of the baseline. The soybean coefficient (as included in the draft certification guidance published for public consultation in summer 2021) was 0.028, thus over the duration of low ILUC-risk certification (10 years) there would be a maximum impact on the baseline (and therefore the additional biomass claimed) of 0.28 t/ha.

For Ana Terra, only two years of yield data prior to the additionality measure were reported by the farmer. For low ILUC-risk certification the baseline should be calculated based on the three years of yield data prior to the additionality measure, but for the purpose of this pilot, the baseline is calculated based on the two years prior.

3.4.1 Canto do Rio

The management plan showed that the soy yield was suffering from parasitic nematodes before the additionality measures were taken. Table 3 shows the yield data from each of plots 1-3 two years prior to the additionality measure. The yield data shows the soybean yield (t/ha) for the plots where wheat crop was added. Unfortunately, no yield data from other plots or from the farm as a whole was shared to allow a more detailed assessment. The weighted average of the three plots was 3.95 t/ha.

Table 3 Canto do Rio soy yield (t/ha)

Plot	19/20	20/21	21/22	Baseline Y0
1	2.3	2	2.4	2.2
2	3.1	3.7	2.8	3.2
3	3.6	2.8	3.7	3.4

3.4.2 Ana Terra

Table 4 shows the farms' soy yield data (t/ha) for the two years that are used to establish the baseline Y0 of the yield baseline.

Table 4 Ana Terra soy yield (t/ha)

Plot	2015	2016	Baseline Y0
Farm area	3.3	2.7	3

3.5 Calculation of additional biomass

3.5.1 Canto do Rio

With the current guidance, if a plantation is low ILUC-risk certified, it could claim additional biomass for any above-baseline yield for the 10 years following the implementation of the additionality measure. The wheat was first sown in 2022, thus only one year of data for additional biomass is available. The wheat yield was not reported, only the soy yield. For the example of this pilot, we will calculate the additional biomass of the main crop, soy. However, in cases of introducing a second crop, the yield of the "sequential" crop is considered additional, not its impact on the main crop. It is expected that in a few years' time the soil quality improvement and herbicide protection will pay off and more additional biomass will be produced.

All delineated plots produced additional biomass, varying over the different plots between 0.4 t/ha to 2.0 t/ha. There was already a difference in the yield of the different plots before the additionality measure was applied. When calculated on a plot level, the baseline calculated varied from 2.2 t/ha to 3.4 t/ha. It was expected that the yield increase would be similar for all plots. However, the yield data shows that the plot with the lowest baseline reference value showed the largest yield increase of 88%. Due to this large increase of 88% in the implementing year of the additionality measure, it is not clear if the wheat yield has been (partially) included when reporting the soy yield.

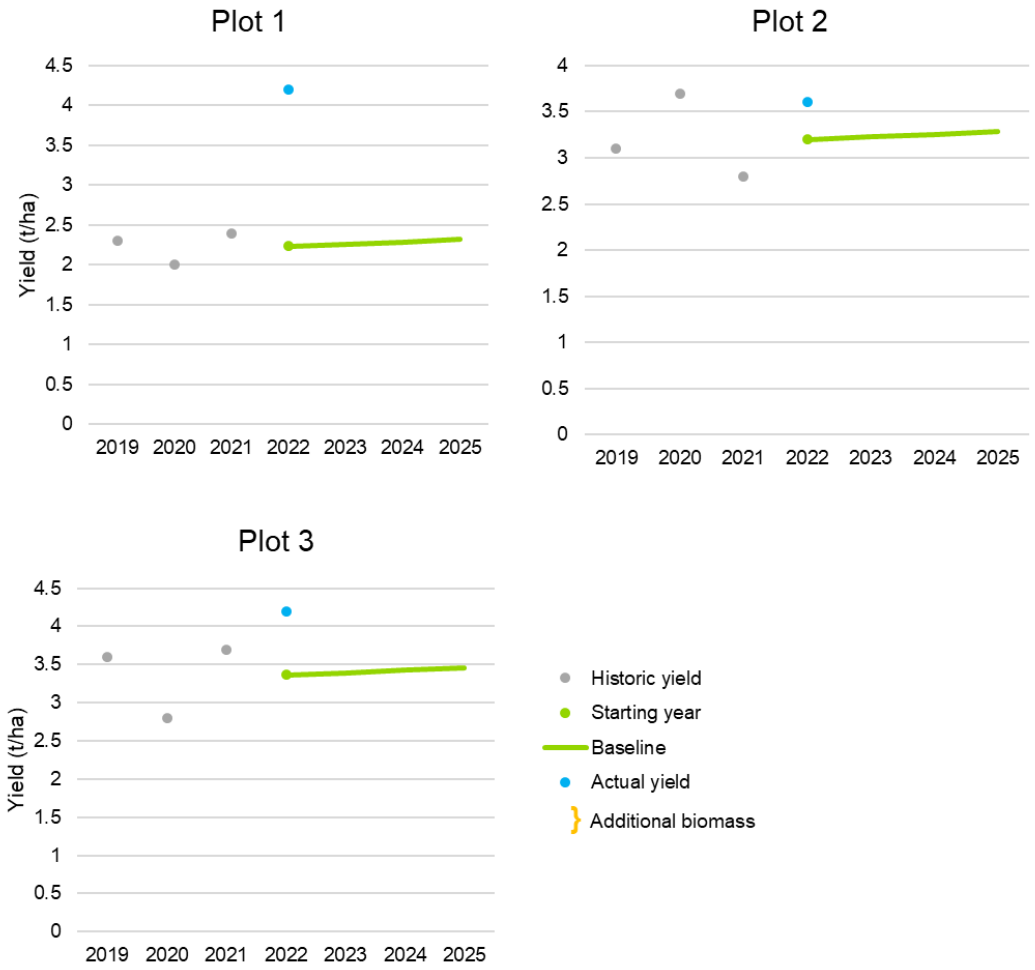

Figure 5 Yield baseline Canto do Rio per plot (t/ha)

Table 5 Canto do Rio additional biomass (soy) per plot (t/ha)

Plot	Plot yield after additionality measure (t/ha)	Reference value yield baseline	Additional biomass (t/ha)	Yield increase (%)
1	4.2	2.2	2.0	88%
2	3.6	3.2	0.4	13%
3	4.2	3.4	0.8	25%

3.5.2 Ana Terra

The Ana Terra Farm consistently reported yield above the baseline since the application of the additionality measure in 2017. In 2018 the yield was 41% above the baseline, in 2019 it was 22% above, in 2020 it was 34% above, in 2021 it was 50% above and in 2022 it was 34% above the baseline. The fluctuations in the additional biomass may be caused by the natural fluctuations in the yield. The additional biomass was the highest in 2021 with 1.57 t/ha and the lowest in 2017 with 0.3 t/ha, see Table 6 below.

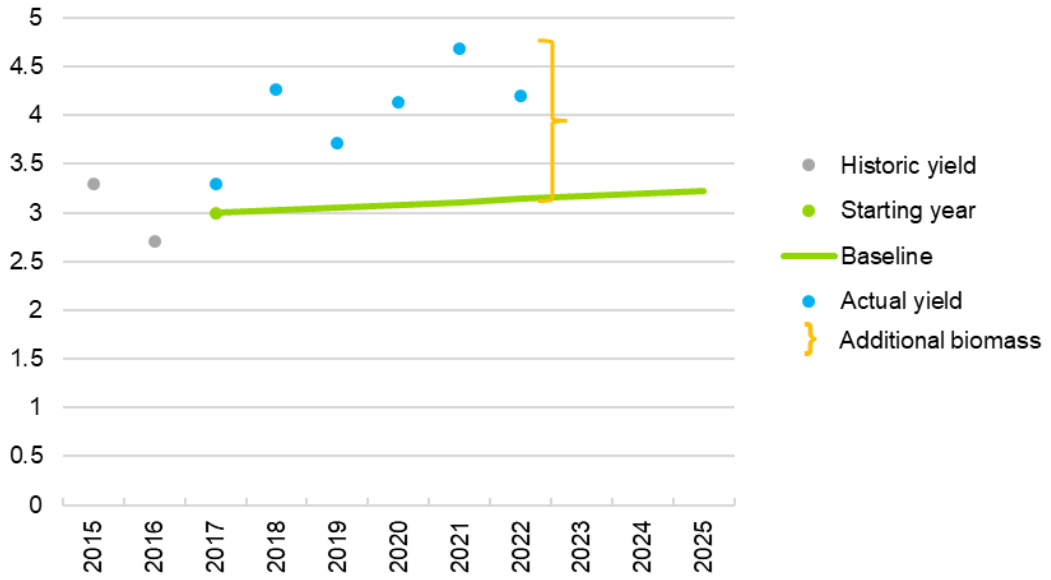

Figure 6 Yield baseline Ana Terra (t/ha)

Table 6 Ana Terra additional biomass (soy) (t/ha)

Year	Farm yield (t/ha)	Reference value yield baseline	Additional biomass (t/ha)	Yield increase (%)
2022	4.2	3.14	1.06	34%
2021	4.68	3.112	1.568	50%
2020	4.14	3.084	1.056	34%
2019	3.72	3.056	0.664	22%
2018	4.26	3.028	1.232	41%
2017	3.3	3	0.3	10%

3.6 Sustainability of the additionality measure

Both farms are currently certified to either 2BSvs or ISCC. No issues have been flagged in the current certification relating to the sustainability of the additionality measures already taken, although in this respect these current certifications would mainly check whether the farm complies with the relevant local laws and rules on the safety of use and application of fertilisers etc.

The two additionality measures described for the Canto do Rio farm can both be considered sustainable. The planting of wheat aims to reduce nematodes and improve soil quality. Therefore, the additionality measure increases the sustainability of the soybean production and fertility of the land. However the use of additional fertilizer can be considered a less sustainable practice for the cultivation of an intermediate crop whose aim is to improve soil quality. The second measure, rock dust, is made of crushed rocks and is a natural product. To our knowledge there are no sustainability concerns for using rock dust as natural soil improver.

For the Ana Terra farm, the Brachiaria planted is mostly eaten by cattle. The Brachiaria that is left at the end of the growing season will be sprayed with herbicide to ensure it does not compete with the soybean. The Brachiaria is then ploughed into the soil. This should increase the soil organic matter.

3.7 Other

As highlighted in the data availability chapter, it was very difficult for the farmers to understand and fill in the management plan. One of the key barriers was the language of the management plan and certification guidance. The farmers do not speak English, so the management plan, low ILUC background information and methodology were translated to Portuguese to ensure the farmers would be able to understand the documents.

This pilot did not aim to be representative for the soy industry in Brazil, but rather highlights two case studies to explore if the low ILUC-risk certification methodology can be applied in practice. The climate and local circumstances are different depending on the specific state or region. Examples of differences between regions are the water availability, temperature, altitude, relief and availability of infrastructure. This could result in a different judgement of the auditors whether an additionality measure passes the additionality test. The Bahia state, for example, is known for only having one harvest a year during the rainy season. The introduction of a second crop could therefore be argued as being new to the region. However, in the state of Mato Grosso it is possible to have a second harvest off-season thus this would not pass the additionality test.

4. Conclusions and recommendations for low ILUC-risk methodology

4.1 Key conclusions from this pilot

The overarching conclusions that can be drawn from this pilot are:

- **Without external support farmers find it difficult to collect the relevant data and evidence to fill in the management plan.** Farmer and auditor worked together to gather data and do the calculations but struggled to follow the methodology. Both farms found it difficult to collect the necessary data and evidence for the management plan. Most data and evidence were available but had to be gathered during the audit, which was time consuming for the auditor. The farmer was not willing to share the financial data in a transparent way in the management plan and audit checklist, as they deemed this to be business sensitive information. The credibility of low ILUC-risk certification will need transparency on data and underlying evidence. We expect that if there is no support from a first gathering point, commodity trader or other relevant company, it will be very hard for farmers to fill in the management plan and pass the audit. Low ILUC-risk certification will likely not come from a farmer's own initiative. We expect that without support from a first gathering point, commodity trader or similar company, it will be very hard for farmers to fill in the management plan and successfully complete the audit process.

- **Difficult for farmers and auditors to identify additionality measures that are likely to be eligible for low ILUC-risk certification and pass the additionality test.** To identify additionality measures that are likely to be eligible, it helps for economic operators to have a broad perspective on the regional farming practices and on what the low ILUC-risk legislation is aiming to achieve. First gathering points, mills, commodity traders or other parties will likely have to take the lead in identifying farms that have the potential to take or have taken eligible additionality measures that would qualify for low ILUC-risk certification as this is difficult for the farmer to do from their own perspective.

- **The additionality measures apparently resulted in a substantial yield increase**. The yield increase of the Canto do Rio farm is the largest of all low ILUC pilots executed for this project. It should be considered that more than one additionality measure has been applied. Thus, it is difficult to isolate the yield increase effect to any of the individual measures.

- **Combinations of additionality measures taken in the past can make it hard to set a clear baseline.** Several different yield increase measures have been tried and taken in various combinations over several previous years. This makes it hard to disentangle which measure(s) have a direct impact on the yield and which are eligible for low ILUC-risk certification. The auditor found it difficult to identify one clear start year when it could be considered that low ILUC additionality measure(s) are introduced and the baseline should start.

- **More guidance and worked examples are needed for the NPV calculations to ensure the farmers provide sufficient transparency.** A substantial yield increase would result in a positive NPV**.** For the Canto do Rio farm the yield increase projection was around 20%. If this projection is correct, the revenue from the additional yield will most likely cover the costs of taking the additionality measure. Therefore, not passing the financial attractiveness test. However, Canto do Rio reported a negative NPV, suggesting they would pass the financial attractiveness test. They missed key benefits

when doing the calculation, as to them it was unclear that they also had to include the wheat revenue. The robustness of the additionality test is crucial to the credibility of the low ILUC-risk mechanism. Therefore, further guidance should be provided to ensure that farmers provide sufficient transparency on which costs and benefits are included in the NPV test to ensure that this information is sufficiently available to auditors and voluntary schemes to be able to check that calculations are done on a consistent basis across economic operators.

- **It is unclear whether farmers should be allowed to claim an increase in yield of the main crop when introducing a second crop.** The aim of this pilot was to find yield increase measures to increase soy yield (the main crop). Both farmers already applied best management practices as can be expected with large farms producing established commodity crops. In the broader context of this project, the introduction of a second crop as an additionality measure has been considered as a yield increase measure due to the fact the farmer produces new yield *from the second crop*. Whist the introduction of a second crop can support soil fertility, which in turn could benefit the yield from the main crop, the introduction of a second crop has not been considered as a measure to increase the yield of the main crop.

  However, in this case, the farmer claims they also produce additional soy yield (main crop) because of the improved soil quality. We cannot be definitive about the direct correlation between the introduction of wheat and the increase in soy yield as we do not have sufficient data to isolate the yield impact of one additionality measure. It appears that, alongside the introduction of the second crop, the farmer also applied other measures to improve soil quality, such the introduction of a knife roller (to incorporate green mass into the soil), irrigation optimalisation and the application of rock dust fertilizer.

  The question was raised whether the farmer should be allowed to claim an increase in main crop yield if that is observed after the introduction of a second crop. **Due to the high natural variation in yield seen across all low ILUC-risk pilots (meaning that sometimes the yield of a main crop is above the baseline because of natural variation) and the aim to simplify the methodology to determine additional biomass, we recommend that operators introducing intermediate cropping can only claim the intermediate crop (second crop) as additional low ILUC-risk biomass and cannot claim any upside in the main crop yield.**

  Farmers who introduce a second crop as an additionality measure need more guidance to determine the yield baseline and additional biomass. Farmers and auditors found it difficult to distinguish how the additional yield of the main crop should be allocated and how the additional yield of the second crop is taken into account. This should be further explained in the certification guidance and audit checklist.

- **There were no sustainability issues found for the different additionality measures.** The auditor did not raise concerns regarding the sustainability of the additionality measures taken.

4.2 Improvements to the certification guidance

The following aspects will be further detailed in the Low ILUC-risk certification guidance:

- Further guidance could be provided to help farmers and auditors identify when a measure is and is not eligible for low ILUC-risk certification as the farmer and auditor

struggled to identify which measures in this example could be considered to be beyond business as usual. Some options to consider are the introduction of several examples, organising registries of measures at the voluntary scheme level or publishing a list with measures that would be eligible. However, which measures are standard practice already will vary by region and by feedstock.

- Further guidance should be provided to ensure that farmers provide sufficient transparency on which costs and benefits are included in the NPV calculation to ensure that this information is sufficiently available to auditors and voluntary schemes to be able to check that calculations are done on a consistent basis across economic operators. Quantifications of costs and benefits should be itemised and have an explanation of the source of the data, to increase transparency.

- Guidance should be provided in cases where there is an eligible yield increase measure in addition to an introduction of a second crop. In the case of the introduction of a second crop (when the land would have been fallow) the additional biomass that can be claimed is the yield of the second crop, not the increase in yield of the main crop. The approach to calculate the additional biomass from the second crop should follow the methodology in the guidance for “sequential cropping”. If the economic operator can demonstrate that they have also been implementing an eligible yield increase measure, then the approach to calculate the additional biomass from the main crop should follow the methodology in the guidance for calculating additional biomass for either annual crops or perennial crops.

It is also recommended for voluntary schemes to make templates, guidance and low ILUC-risk training materials available in the local language of the farmers and auditor if requested.

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