Support for the implementation of the provisions on ILUC set out in the Renewable Energy Directive

ENER/C2/2018-462 – Lot 2

Prepared for DG ENER – European Commission

– Draft Guidance Handbook for low ILUC-risk Certification V0.8 –

– Version for Stakeholder feedback May 2022 –

Delivered by ISCC System GmbH (subcontractor under the lead of Guidehouse Netherlands B.V.) as part of Task 2.2 – Application of the methodology in low ILUC-risk biofuels and bioliquids and more specifically Task 2.2.2: Create guidance for auditors

Document Title: LOW ILUC-RISK CERTIFICATION – Draft Guidance Handbook
Version 0.8

Content

GUIDANCE DOCUMENT

1 Introduction

In March 2019, the European Commission published the Delegated Regulation (EU) 2019/807 supplementing Directive (EU) 2018/2001 (RED II) of the European Parliament and of the Council as regards the determination of high indirect land-use change-risk (high ILUC) feedstock for which a significant expansion of the production is into land with high carbon stock is observed, and the certification of low indirect land-use change-risk (low ILUC-risk) biofuels, bioliquids and biomass fuels.

Indirect land-use change (ILUC) can occur when land that was previously used to produce food or feed is used to produce feedstock for biofuels, bioliquids or biomass fuels. While the demand for food and feed still needs to be met, agricultural land might be extended into areas with high carbon stock, such as forests, wetlands and peat lands. That in turn causes additional greenhouse gas emissions. The criteria set out for sustainability and greenhouse gas emissions in Directive 2009/28/EC and Directive (EU) 2018/2001 do not account for such ILUC emissions. However, the REDII places an upper limit on fuels produced from food and feed crops (defined as cereals and other starch-rich crops, sugars and oil crops) of 7% of the energy share in road and rail transport. Specific limits are set at national level, determined by the 2020 national share of food and feed crop-based biofuels plus 1%, up to a maximum 7%.

Furthermore, in Delegated Regulation 2019/807, the European Commission sets out a definition of high ILUC-risk feedstocks, which takes into account the absolute and relative magnitude of land expansion for that crop since a specific reference year compared to the total production area of that crop, and the share of that expansion into high-carbon stock land. These factors are used to determine high ILUC-risk feedstocks, that must be phased out for biofuels in the EU to 2030. High ILUC-risk is defined for a feedstock as a whole, regardless of where it is cultivated.

The Delegated Regulation also sets out criteria to certify "low ILUC-risk" biomass, namely specific farms or plantations that can demonstrate they are producing "additional biomass" and therefore avoid ILUC impacts. The additional biomass produced on those farms can hence be certified as low ILUC-risk and used to produce biofuels, bioliquids or biomass fuels that are exempt from the high ILUC-risk phase out. Low ILUC-risk biomass is biomass grown in addition to already existing stocks, for example through **increased yield** on an existing farm or plantation, or **new cultivation** on unused, abandoned or severely degraded land, as defined in the Delegated Regulation.

This guidance document translates the low ILUC-risk criteria into a certification document that can be used alongside an existing EC-recognised voluntary scheme[1] to certify low ILUC-risk biomass. It is developed in the context of the low ILUC pilot project, conducted by Guidehouse and partners, to support the European Commission in the implementation of the provisions on ILUC set out in Directive (EU) 2018/2011, Delegated Regulation 2019/807 and the additional information on low ILUC-risk certification set out in the [forthcoming] Implementing Regulation.

[1] https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en

2 Scope and Fields of Application

This document lays down the general principles for the certification of low ILUC-risk biomass and the biofuels, bioliquids and biomass fuels derived from them. Furthermore, it describes the preparation and implementation of pilot audits, the scope and field of application of the set requirements as well as the system boundaries. Further, it will include a description of the use of relevant measures, such as GIS technology and the respective applications to be used by auditors to assess and verify additionality measures applied on the different types of land. Specifications for group auditing and small holders are provided, as well as requirements for auditors and auditees. For an accurate planning of the audit(s), this guidance document will include information on audit preparation for both auditees and auditors and clear guidance for audit planning, execution and documentation.

3 Low ILUC-Risk Certification

The main principles of the low ILUC-risk certification are described in Articles 4, 5 and 6 of the Delegated Regulation. The purpose of this chapter is to translate the requirements laid out in these Articles into criteria to be verified at the farm/ plantation and/ or the first gathering point / central office.

3.1 Certification Process

3.1.1 Registration and auditing process

Prior to any certification or audit activities, the certification body (CB) must have concluded a certification agreement with the economic operator interested in a low ILUC-risk certification. After the CB has concluded a certification agreement with the economic operator and prior to any certification or audit activities, the economic operator must register with a voluntary scheme (VS) recognized by the European Commission (EC). A copy of the registration will be sent to the respective CB. Based on the registration with the voluntary scheme, the CB can identify the activities undertaken by the economic operator that are relevant for a low ILUC-risk certification, and which represent the relevant requirements to be verified during the audit. Parties (economic operators) who can apply for low ILUC certification are farms or plantations and groups of small holders, farms and/ or first gathering points (FGPs) acting on behalf of the small holders and farms.

The application form should include:

- Information on an existing Commission-recognised voluntary scheme certification (fulfilling mandatory sustainability requirements in the framework of the EU RED): name of the voluntary scheme, certificate number, status and validity period

- Name and contact details of the applicant, including where relevant the members of a group for the purposes of group certification;[2]
- A description of the ILUC-risk additionality measure to be applied, including:
    - Details on the delineated plot where the additionality measure will be implemented including current land use, management practices (e.g. use of a crop rotation system), access to current plot yield data, and a statement on whether the land is unused, abandoned or severely degraded if applicable;
    - An estimate of the additional biomass that will be produced following the additionality measure (either through yield increase or production on unused, abandoned or severely degraded land).

Optionally, a calculation of the expected additional biomass and a self-assessment on whether the measure is additional can be handed in already with the application.

The certification application is ideally made before implementation of the additionality measure, but low ILUC-risk certification can be applied for up to 10 years after implementation of an additionality measure if appropriate data and evidence are available to allow for certification. This would include, that the mandatory information for registration as well as data on the delineated plot since the implementation of the additionality measure is documented and can be verified.

Once the contract between CB and economic operator is signed, the economic operator should set up a management plan including a calculation of the dynamic yield baseline (definition of delineated plot of land including GIS data, description of additionality measures), yield increase measures (historic crop yields), information needed in case of cultivation on abandoned or severely degraded land (proof of land status). Further, the management plan shall include the demonstration of compliance with sustainability of the additionality measure, demonstration of the additionality (where relevant: financial attractiveness or barrier analysis) and an estimation of the additional biomass yield per year, based on the dynamic yield baseline for the delineated plot.

The management plan must allow the comparison between the use of the delineated plot before and after the implementation of the additionality measure.

The CB appoints an auditor to conduct an onsite baseline audit. The aim of the baseline audit is to verify the management plan and establish and document the dynamic yield baseline against the management plan. Once the baseline audit has been conducted, an audit report and a certificate have to be issued by the CB and

[2] If applying for group certification, the application should include the name and contact details of the group lead and the name, contact details and locations of the farms/plantations that are part of the group.

sent to the voluntary scheme. If all requirements are met by the economic operator, the certificate will be published. Verification audits for low ILUC-risk certification take place annually (annual additionality audits), analogously to the audits conducted for complying with RED II requirements.

Note that whilst it is a precondition that low ILUC-risk certification is used as an add-on to an existing certificate by a voluntary scheme recognized by the EC under the RED II, it is not a requirement that the economic operator was already certified to the voluntary scheme before. The baseline audit for low ILUC-risk certification could, in principle, be conducted at the same time as an initial certification audit to a voluntary scheme.

Furthermore, some of the aspects required for low ILUC-risk certification may already be checked in the context of the existing voluntary scheme certification, such as economic operator identification, land tenure etc. Where this is the case, this data should still be documented in the management plan but does not need to be verified again. Similarly, general administrative elements can be adopted from the main certification to the voluntary scheme used for the RED II sustainability certification.

3.1.2 Management Plan

After the voluntary scheme accepts the low ILUC-risk certification registration, the economic operator must prepare a management plan required for the baseline audit. The following information must be included in the management plan for low ILUC-risk certification.

1) Definition of the delineated plot of land

The characteristics of the delineated plot of land shall allow the plot to be identified over the years to ensure that a comparison is possible between the business-as-usual crop system and the crop system with the additionality measure applied.

The delineated plot must be described using the following parameters:

1. Ownership/ Status of Lease;
    a. Description of recent history at minimum 3 years before the implementation of the additionality measure in the case of plots of land for which the additionality measure has been implemented within the last ten years
    b. Acquisition dates as per contract of a newly acquired plot of land (in the case of a purchase or a lease).
    c. Description of current use of land and recent (3-5 year) history, to supplement the historic yield data provided, in the case of a newly acquired plot of land;
    d. Status of the farm, where delineated plot is identified: individually certified, part of a first gathering point, member of a group of farms/ plantations

2. Description of delineated plot (including for example the plot number where relevant);
    a. Plot location (geographic coordinates with a precision of 0.1 metres for each measuring point);
3. Surface area (in ha, 0.1 ha resolution); in the case of small holders, on whose behalf an exemption from the financial additionality test is sought, the area should be smaller than 2 ha;[3]

The delineated plot needs to be described for each plot of land upon which an additionality measure is applied.

If the delineated plot is part of a crop rotation system, the crop rotation system needs to be described further. This includes the number of land plots that are part of the crop rotation system, the plot locations (geographic coordinates with a precision of 20 metres for each measuring point), surface areas (in ha) and crops grown on each plot over the last three to five years (in line with the historical yield data provided).

The demonstration of a clear title to land in accordance with national practice and law is a precondition, which is normally verified as part of the main voluntary scheme certification. In the case of unused, abandoned or severely degraded land, the economic operator might not technically own the land at the time they initially apply for certification, but to become certified they will need to provide satisfactory evidence that they will have the right to cultivate crops on the land.

2) Description of additionality measure(s)

Additional feedstock can only be claimed and calculated after the implementation of an additionality measure[4]. The additionality measure must be clearly described. An economic operator seeking certification must include information on:

- The situation of the farm/plantation/plot before the additionality measure was implemented. This should be a qualitative description of current practices, specifically relevant to the envisaged additionality measure.
- A description of the additionality measure, the timeline over which it was or will be applied and whether it will be combined with other additionality measures.
- An explanation of the expected future yield growth.

A non-exhaustive list of examples of actions that could be certified as additionality measures can be found in section 3.4 of this document. In the case of a new measure

[3] Delegated Regulation 2019/807, Article 2(9): 'small holders' means farmers who conduct independently an agricultural activity on a holding with an agricultural area of less than 2 hectares for which they hold ownership, tenure rights or any equivalent title granting them control over land, and who are not employed by a company, except for a cooperative of which they are members with other small holders, provided that such a cooperative is not controlled by a third party

[4] Delegated Regulation 2019/807, Article 2(5):'Additionality measure' means any improvement of agricultural practices leading, in a sustainable manner, to an increase in yields of food and feed crops on land that is already used for the cultivation of food and feed crops; and any action that enables the cultivation of food and feed crops on unused land, including abandoned land, for the production of biofuels, bioliquids and biomass fuels

being applied and not yet included in this list, the economic operator will contact the VS for the measure to be evaluated and be added to the list in case it is found to be valid.

3) Demonstration of sustainability of additionality measure

The low ILUC-risk certification must comply with all sustainability and GHG emissions saving requirements laid out in the RED II. In this regard, additionality measures must also comply with the RED II criteria. Therefore, a low ILUC-risk certificate can only be issued to farmers that are certified under one of the EC-recognized voluntary schemes for land area and an operational unit including all delineated plots (NB. The economic operator can already be certified to a recognized voluntary scheme, or they could become verified as part of the low ILUC-rick certification process). The certification status of the economic operator will be checked as part of the baseline audit and on an on-going basis as part of the annual audits, which should be conducted in line with the existing voluntary scheme audits.

In addition, the local auditor should flag any potential sustainability risks from the implementation of the additionality measure that they come across during the baseline audit. These risks would then be checked as part of the additionality audit. For example, if the additionality measure is an irrigation programme, auditors might flag water use as a potential water risk. Economic operators should show that they have measures to identify and mitigate any risks in the management plan and implementation of this should be checked as part of the additionality audit.

4) Demonstration of additionality

An additionality measure can only be considered low ILUC-risk if it increases productivity beyond any increase which would already be expected in a business-as-usual scenario. This is specified as measures that "become financially attractive or face no barrier preventing their implementation only" because the resulting biofuels can be counted towards REDII targets (see Delegated Regulation Article 5.1.(a)). Therefore, economic operators have two options to prove additionality. The chosen option and the respective data and calculation must be included in the management plan and verified during the baseline audit.

Additionality does not have to be demonstrated in this way by small holders (see also chapter 7) or for new cultivation on abandoned or severely degraded land, but it is a requirement for new cultivation on unused land (that is not abandoned or severely degraded). For more information on the methodology to demonstrate additionality, please see section 3.4.2.1 for the financial attractiveness test and chapter 3.4.2.2 for the non-financial barrier test.

5) Determine dynamic yield baseline

The economic operator must calculate the "dynamic yield baseline"[5] and document this as part of the management plan. The dynamic yield baseline is the yield that would be expected from the plot of land in the absence of the additionality measure. The "additional biomass"[6] that can be claimed as low ILUC-risk is the difference between the actual observed yield after the additionality measure has been implemented and the dynamic yield baseline. The dynamic yield baseline must be crop-specific and determined for each delineated plot.

For yield increase measures, plot-specific historic crop yield data is used to calculate the starting point of the dynamic yield baseline. This is combined with a global crop-specific trendline to consider expected yield trends, based on how yields developed for that crop in the past. For perennial crops, the dynamic yield baseline also considers the shape of the yield curve over the lifetime of the crop. For both options, detailed information on the calculation methodology can be found in chapter 3.5.1.

For new cultivation on unused, abandoned or severely degraded land, the dynamic yield baseline is set to zero (meaning that the starting point is zero). Any yield on these types of land is considered additional biomass.

- **For yield increase: establish historic crop yield**

  Historic crop yields are needed to determine the business-as-usual crop yield - the "dynamic yield baseline" – in the absence of the additionality measure. The historic yield data must be crop-specific and derived from the given delineated plot of land, combined with a crop-specific global trendline. The data set must include historical crop yields from at least the three years before the implementation of the additionality measure (also in the case that the additionality measure was implemented in the past).

- **For unused, abandoned or severely degraded land: Demonstrate land status**

  The economic operator needs to describe and provide evidence for the land status as part of the management plan. Land status will be checked as part of the baseline audit by the certification body at the beginning of the certification process.

  If farmers are cultivating on previously abandoned or severely degraded land this qualifies as an additionality measure without a financial or barrier analysis. For cultivation on unused land that is not abandoned, this must pass the financial or barrier analysis to qualify as additional. More information on land status determination can be found in chapter 3.4.3.

[5] Delegated Regulation 2019/807, Article 2(7): 'dynamic yield baseline' means the average yield from the delineated area where an additionality measure has been taken, calculated over the 3-year period immediately preceding the year of the application of such measure, taking into account the average yield increase observed for that feedstock over the previous decade and the yield curves over the life time in case of permanent crops, excluding yield fluctuations

[6] Delegated Regulation 2019/807, Article 2(6): 'Additional feedstock' means the additional amount of a food and feed crop produced in a clearly delineated area compared to the dynamic yield baseline and that is the direct result of applying an additionality measure

6) Estimate the additional biomass yield

The economic operator shall estimate the effectiveness of the additionality measure. This is useful to estimate how much additional biomass is expected to be produced as the result of the introduction of the additionality measure. In addition, the estimate of additional biomass is needed as input for the financial attractiveness analysis for the proof of additionality.

By comparing the dynamic yield baseline to the expected yield after the additionality measure, the additional biomass yield can be estimated and documented in the management plan. However, note that the actual volume of certified low ILUC-risk biomass that can be claimed is the actual biomass yield achieved after implementation of the additionality measure, which may vary each year.

The management plan must set reasonable expectations on the additional biomass yield to be achieved with respect to the additionality measure. Therefore, the management plan should refer to, for example, scientific literature, experience from field trials, information from agronomy companies, experts, seed or fertilizer producers, etc. As part of the annual audits, the auditor should check that the achieved volume of additional biomass is in line with expectations and seek justification if it is not.

If certification is sought for an additionality measure already taken in the past (up to 10 years previously), the additional biomass yield can be calculated based on the documented yields achieved after the implementation of the measure. Note that whilst this allows the actual volume of low ILUC-risk biomass to be calculated, low ILUC-risk biomass can only be claimed in the market for biomass supplied after low ILUC-risk certification has been awarded (retrospective claims cannot be made for biomass supplied previously).

3.2 Audit-relevant Data

Verification of compliance must be provided by independent third-party certification bodies and auditors. Some basic operating and audit specific data must be in place for an audit. **Basic and audit specific data** include:

- Name of the certification body (CB)
- Name of the lead auditor (and members of the audit team)
- Place, date and duration of the audit
- Company representatives present
- Relevant service providers or sub-contractors
- Name of ILUC expert within the audit team
- Applied overall risk level during the audit (risk level regarding documentation and sampling)
- Major risk indicators and the tools and information sources used to indicate it
- Risk level applied regarding a flawed documentation of the operational unit (i.e. for traceability)

- Chosen option to report GHG emissions on farm level (i.e. actual, disaggregated default values, default values, NUTS2)

Data to be provided on the respective operational unit (farm/ plantation or first gathering point) include:

- Company name and address (certificate number if applicable)
- Contact details of the company (name, phone, email)
- Geocoordinates (latitudes and longitudes in decimal degrees)
- Contact person (name, phone, email)
- Type of operation to be audited
- For farms/ plantations: statement if audited as part of a sample or individually
- Signature and confirmation of the producer, that the farm complies with all requirements relevant for the certification of low ILUC-risk materials

For the farm/ plantation specific information must be provided in addition for the certification of low ILUC-risk raw materials, such as:

- Status of the farm/ plantation (individually certified, part of first gathering point, member of group of farms/ plantations)
- Prior certification of the farm/ plantation
- Type of agricultural operation (smallholder, (individual certified) farm, plantation)
- Depicted as traverse in geographic coordinates:
    - Total area of the agricultural operation (total area of the agricultural unit, total size of the land area cultivated)
    - Total area of agricultural operation where additionality measure(s) were applied (delineated area) in ha
- Low ILUC-risk additionality measure applied and date of initial (or planned) application
- Date of sowing and harvesting
- Name and type of crops (annual/ perennial) relevant for low ILUC-risk certification including date of sowing and harvesting
- Total amount harvested (metric tons, short: mt) for the relevant crop
    - Baseline audit: use of historical data
    - Annual additionality audits: use of actual data
- GHG emissions in kg CO2eq/mt
- Average yields of the past three to five years (mt/ha) for the relevant crops

- Calculation of dynamic yield baseline
- Total amount of additional feedstock produced
    - Baseline audit: use of estimates
    - Annual additionality audits: use of actual data
- Demonstration of land status (if measures include planting on abandoned or severely degraded land)
- Demonstration of sustainability requirements in accordance with RED II (proven by valid sustainability certification under a voluntary scheme)
- Records of the actual crop yield achieved each year on the delineated plot, based on the dynamic yield baseline as a reference

In addition, every producer has to fill out the management plan as described.

The first gathering point must have additional information in place as well, mainly focusing on:

- Number of farms/ plantations participating in the certification of low ILUC-risk biomass
- Total number of smallholders/ individual farms/ plantations applying low ILUC-risk measures
- Overall risk level applied
- Sample sizes for smallholders/ individual farms/ plantations
- Total agricultural area of all low ILUC-risk compliant smallholders/ individual farms/ plantations and total area of the agricultural operation where additionality measure(s) were applied (delineated area)
- Biomass received as low ILUC-risk from farms/ plantations during previous certification period
- Data for each farmer on starting date of low ILUC-risk measures, total biomass supplied per crop, total size of farm, total size per crop, yield per crop (mt/ ha), average yield for the past three years, reference value "additional yield", total amount of additional yield

Every economic operator to be certified under low ILUC-risk certification must have a management plan in place including detailed information on the contents described in chapter 3.1.2.

The above-named data need to be present at the beginning of each audit to ensure a smooth verification of all relevant documentation. Only farms/ plantations that have completed and signed the management plan and passed a successful baseline audit are allowed to deliver low ILUC-risk material.

3.3 Sustainability Requirements

Farms and plantations looking for a certification of low ILUC-risk biomass have to comply with the sustainability requirements laid out in Article 29 of Directive (EU) 2018/2011, specifically the relevant criteria for the protection of land with high biodiversity value, high carbon stock and peatland, the criteria for the protection of soil quality and soil organic carbon, and the greenhouse gas emission savings from the use of biofuels, bioliquids and biomass fuels. All emissions must be documented and passed on to the recipient of the low ILUC-risk material (i.e. the first gathering point).

The reference for any land status determination is January 2008. If land had already been cropland in January 2008, the use of raw material from that land is in line with low ILUC-risk certification. Cropland includes fallow land, i.e. land set to rest for one or several years before being cultivated again.[7]

The certification of these "core" sustainability criteria from Directive (EU) 2018/2011 shall be verified as part of the main certification to an EC-recognised voluntary scheme.

3.4 Requirements for Additionality Measures

3.4.1 Additionality measures

Low ILUC-risk biomass needs to be produced as the result of an "additionality measure".[8] Additionality measures are measures that would be expected to go beyond common agricultural practices. Table 1 contains a non-exhaustive list of the types of yield increase measures that economic operators can apply as additionality measures. Measures, or combinations of measures, shall boost output without compromising sustainability. The additionality measure shall not compromise future growing potential by creating a trade-off between short-term output gains and mid/long-term deterioration of soil, water or air quality or pollinator populations. The additionality measures shall not result in homogenisation of the agricultural landscape through removal of landscape elements and habitats such as solitary trees, hedgerows, shrubs, field edges or flower strips.

[7] According to Commission Regulation (EC) No 1200/2009 fallow land is land included in the crop rotation system, whether worked or not but with no intention to produce a harvest (e.g. bare land bearing no crops at all, land with spontaneous natural growth, which may be used as feed or ploughed in land sown exclusively for the production of green manure (green fallow))

[8] Delegated Regulation 2019/807, Article 2(5): 'additionality measure' means any improvement of agricultural practices leading, in a sustainable manner, to an increase in yields of food and feed crops on land that is already used for the cultivation of food and feed crops; and any action that enables the cultivation of food and feed crops on unused land, including abandoned land, for the production of biofuels, bioliquids and biomass fuels

Table 1: Example list of additionality measures to be applied by farmers

Additionality measure category	Additionality measure	Description
Mechanisation	Machinery	Adoption of machinery that reduces/complements existing workforce input to boost output or reduce losses. This could include sowing, precision farming, harvesting machinery or machinery to reduce post-harvest losses.
Multi-cropping	Sequential cropping	Introduction of second crop on same land in the same year
Management	Soil management	Mulching instead of ploughing, low tillage
	Fertilisation	Optimisation of fertilisation regime, use of precision agriculture
	Crop protection	Change in weed, pest and disease control
	Pollination	Improved pollination practices
	Other	Leaves room for innovation, combination of measures and unforeseen developments
Replanting (for perennial crops)[9]	Choice of crop varieties	Higher yielding variety, better adaptation to eco-physiological or climatic conditions

A verifiable additionality measure needs to be applied to be able to claim that additional biomass has been produced on a delineated plot of land. Furthermore, the additionality measures must meet **at least one** of the following conditions:

- They become **financially attractive OR face no barrier** preventing their implementation only because their feedstocks can be counted towards the targets for renewable energy under Directive 2009/28/EC or Directive (EU) 2018/2001 (see 3.4.2);
- They allow for cultivation of food and feed crops **on abandoned land or severely degraded land** (see 3.4.3);
- They are **applied by small holders** (see 3.4.4).

Depending on the preference of the economic operator, either a financial attractiveness analysis and/or a barrier analysis can be prepared and included in the management plan. Note that this additionality test **does** apply to unused land and so the provisions of this chapter are relevant to that category of land (but not to the sub-

[9] Replanting at the end of the crop lifetime is always necessary for a perennial crop. For replanting to count as an additionality measure, the economic operator must prove that their replanting goes beyond 'business as usual'

categories of abandoned or severely degraded land, which are exempt from the additionality test).

Only additional yield above the dynamic yield baseline may be claimed as low ILUC-risk. If two or more additionality measures are applied together in the same year on the same delineated plot of land, the additional biomass produced as a result is evaluated against the same dynamic yield baseline set according to the methodology outlined in 3.5. The additional biomass can be certified as low ILUC-risk under the same certificate. All additionality measures need to be included and documented in the management plan.

If an additionality measure has been taken and low ILUC-risk certification is awarded and later the economic operator wishes to apply a new additionality measure on the same delineated plot of land, the economic operator can choose between two options:

1. The dynamic yield baseline and the additionality test are updated. This would in practice mean a new low ILUC-risk certification is awarded with a new certification validity of 10 years, or
2. The dynamic yield baseline and additionality test are not updated and remain valid for the original 10 years following the initial low ILUC-risk certification year.

Additionality measures need to be taken no longer than ten years before the low ILUC-risk certification.

The economic operator will have to demonstrate that the management plan sets reasonable expectations on the yield increase by referring, for example, to scientific literature, experience from field trials, information from agronomy companies, seed/fertiliser developers etc or simple calculations. Satisfactory evidence supporting the expected yield increase of the additionality measure applied is needed for the project to be certified.

The agricultural practices applied, machinery and means before and after the application of the additionality measure need to be documented in detail as part of the management plan to allow for comparison, so as (1) to determine whether an additionality measure has been implemented and (2) to evaluate if that additionality measure is additional and can be additional compared to a business-as-usual development. A similar level of proof is needed for additionality measures which enable unused land to be brought back into use, although these may take many forms, e.g. infrastructure provision.

During the audit, it must be provable that the applied additionality measure(s) led to an additional yield. This can be done e.g. by comparing the calculated dynamic yield baseline with the feedstock yield average of the last three years and the estimated additional biomass. Further, the auditor checks the claims included in the financial and/or barrier analysis as part of the baseline audit (see 3.4.2).

The applied measures should be made public for reasons of transparency. Proof that measures have indeed led to a yield increase must be available. Further, it must be shown that the financial attractiveness for farms is given to implement the respective

additionality measures to produce feedstock that can be counted towards the RED II targets.

Please keep in mind, that the difference between best practices and additionality measures needs to be acknowledged. Best management practices will differ between small holders and agribusinesses and so will additionality measures. When comparing small holder plantations against optimised agri-business owned plantations, where best practices are already used, one needs to consider the difference between the type of additionality measures that can be applied. For example, increased mechanisation will not necessarily be seen as an additionality measure that can be implemented by an agribusiness, but this could be the case for a small holder plantation.

3.4.2 Financial and non-financial additionality requirements

The economic operator must prove that the yield increase measures (the additionality measure) is "additional" either through a financial attractiveness test (section 3.4.2.1 or through a barrier analysis (section 3.4.2.2). **The two tests have equal weight. For a project to be eligible for low ILUC-risk certification, an economic operator only needs to pass one of the two types of additionality test.**

3.4.2.1 Financial attractiveness test

The financial attractiveness test needs to demonstrate that the investment required for the additionality measure becomes financially attractive only if the resulting additional yield is certified as low ILUC-risk. The analysis shall consist of a simple financial analysis of the envisaged low ILUC-risk additionality measure investment.

The test shall include only those costs and yields that are directly related to the additionality measure investment. Normal operating costs of the entire farm shall therefore not be included in the analysis. The costs and revenues included in the test shall be related to the preparation, implementation, maintenance and decommissioning of the additionality measure that would not have been otherwise incurred.

Financial attractiveness arises from a business case in which the net present value (NPV)[10] of the investment is positive, which means that the investment may be conducted by the economic operator itself. **As a result, only measures for which the business case analysis is negative (without the inclusion of a low ILUC related premium for the certified biomass) shall pass the financial additionality test** and become eligible to be certified as low ILUC-risk. Outcomes above zero (a positive NPV) may still be eligible only if they pass the non-financial barrier analysis.

[10] NPV is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyse the profitability of a future investment or project. Source: https://www.investopedia.com/terms/n/npv.asp

The formula that must be used to calculate the NPV of an investment is:

$$NPV = \sum \frac{P - L}{(1+i)^t}$$

Where:

P = expected income from additional biomass (estimate of additional biomass x feedstock sales price without low ILUC premium)

L = cost of additionality measure (CAPEX and OPEX)

i = discount rate

t = time period

Wherever possible, the parameters used in the financial attractiveness calculation should be in line with the data included in the management plan. The following parameters shall be included in the NPV calculation:

- Estimate of additional biomass volume
- Feedstock sales price [currency/tonne]
    - The feedstock sales price may be a single number extrapolated over the lifetime of the additional yield investment;
    - This single number may be based on an average of actual historical feedstock sales values achieved by the economic operator. The average value shall be based on data for the same three years that the historical yield data used to set the dynamic yield baseline;
    - In the event of introducing a new crop, for which the economic operator does not have actual price data, it could be appropriate to base this value on FAOSTAT price data[11].
- Discount rate to be used:
    - 3.5 % for high income countries[12] and
    - 5.5 % for all other countries
- Lifetime of the investment
    - A lifetime of up to 10 years[13] shall be used, in line with the lifetime of the low ILUC-risk certification (baseline validity);
    - in some cases, the maximum lifetime of the investment may be set at 25 years based on the typical lifetime of perennial

[11] We recommend to use FAOSTAT Producer Prices, source: http://www.fao.org/faostat/en/#data/PP
[12] OECD countries
[13] Some measures may have a shorter lifetime, e.g. fertiliser cost would have a lifetime of 1 year if applied every year

crops (that is to say, oil palm tree, in the case of oil palm replanting);

- Investment Cost related to the additionality measure [CAPEX + OPEX]

3.4.2.2 Non-financial barrier analysis

The Implementing Act on Voluntary schemes includes a clear distinction between the non-financial barrier analysis and the financial attractiveness test. The non-financial barrier analysis shall cover non-financial project barriers that prevent the implementation of the additionality measures in case of no low ILUC-risk certification. Any barrier whose cost can be estimated shall be included in the financial attractiveness analysis rather than in the non-financial barrier analysis. The validity of the operator's claim shall be assessed and validated by the baseline audit before issuing a low ILUC-risk certificate.

The barrier analysis is a written analysis of non-financial project barriers inhibiting the production of the additional feedstock.

The economic operator who is planning the additionality measure is responsible for justifying the existence of non-financial barriers. The justification shall consist of a clear, verifiable description of the situation that prevents the uptake of the additionality measure. The economic operator shall provide the necessary verifiable evidence to support the claim and demonstrate how low ILUC-risk certification would ensure that the non-financial barrier is overcome.

It is up to the economic operator to argue what is inhibiting the uptake of the additionality measure and how the low ILUC-risk certification is going to overcome the barrier experienced. Given the large variety of issues that could inhibit the uptake, it is recommended to focus on barriers involving government policies, technologies, trade infrastructure and training. Where possible, publicly available documents (national or global) should be used as sources to support the argument(s) made. These sources can consist of academic publications, news outlets, policy briefs, position papers and other verifiable documents and should be available in a language appropriate to be verified by the auditor.

The structure of the barrier analysis should include a description of each of the following:

1. **What the envisaged additionality measure is**: investment horizon, its required inputs/ resources and the future effects of applying the additionality measure.
2. **What the barrier is and how it relates directly to inhibiting the uptake of the additionality measure**: the main aim is to explain which non-financial project barrier(s) inhibit the uptake of the additionality measure. This section should not describe the additionality measure, but describe, as detailed as possible, the circumstances which prevent the implementation of the

additionality measure on that plot or the way in which the barrier influences the decision making.

3. **How low ILUC-risk certification overcomes the barrier**. The applicant describes how the barrier is overcome with the help of the low ILUC-risk certification mechanism.

A non-exhaustive list of example barriers includes:

- **Access to input(s):** An economic operator could argue that an input or measure is not accessible in their region, meaning for example not within a realistic distance from the farm. To prove the existence of this barrier, the analysis should distinguish the inputs needed to improve yield in this specific situation. These inputs and practices should have a clear benefit in terms of productivity of the land.
- **Access to knowledge:** An economic operator could argue that knowledge is unavailable, for example within their sector or a specific region, meaning that it could not be bought or has not been offered to their region or sector before. It could also be possible that knowledge is available in the region, but kept within boundaries of, for example, big companies (patents), or programs with restrictions to registry. To prove the existence of this barrier, the analysis should distinguish the knowledge needed to improve yield in this specific situation. Access to specialist agronomic expertise, proven technology, skills or tools are differentiated from common practices based on the recommendations of local, and sector specific, knowledge institutes in the host country or region.
- **Access to finance:** An economic operator may be able to demonstrate that they face a barrier to gain access to finance to invest in the additionality measure. To prove the existence of this barrier, the analysis should demonstrate that low ILUC certification convinced financial institutions to provide the farmer(s) a loan to increase their yield.
- **Legal restrictions:** An example would be if there are legal restrictions on the land which prevent certain forms of management that could increase their yield. The barriers faced by farmers are accessibility of land or local legislation preventing them from being able to increase the yield on their land.
- **First-of-a-kind measure**: if it can be shown that the additionality measure is a first-of-a-kind measure in the region or country, that could be considered additional as it is implicit that the knowledge or infrastructure to implement the measure was not present in the region or country already. The "loophole" to avoid

here is that economic operators are able to claim very small incremental improvements compared to what is already standard practice in their country or region and be able to claim that this is a "first" of a kind project. The deviation from common practices can be constructed based on local knowledge, trials, and tests.

- **Participating in an investment/development program:** if it can be shown that an economic operator is participating in an investment program linked to yield increase for EU biofuels, they can demonstrate that they have overcome the access to finance barrier.

3.4.3 Unused, abandoned or severely degraded land

New crop production on unused land, abandoned agricultural land or severely degraded land can qualify as an additionality measure. Figure 3-1 gives an overview on the different sub-categories of land.

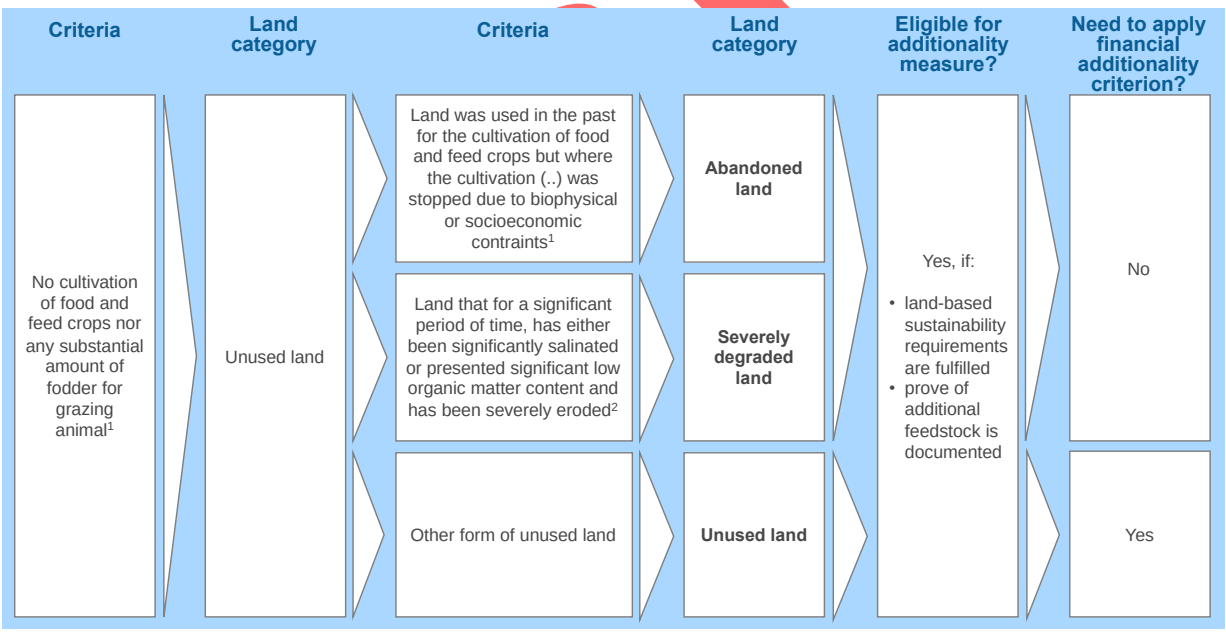

Figure 3-1: Overview on unused land subcategories

In the case of "abandoned" or "severely degraded" land, there is no need to pass the financial attractiveness or barrier analysis "additionality" tests. Production on land which is unused, but not abandoned or severely degraded, needs to pass the financial attractiveness or barrier analysis test to be eligible for low ILUC certification. There is no need for any of the sub-categories of land to demonstrate that an additionality measure has been implemented to increase the crop yield, as the baseline is considered to be zero, so any biomass grown on the land is considered to be additional biomass.

3.4.3.1 Abandoned land

To demonstrate that land is abandoned, an economic operator must follow the decision tree in Figure 3-2. Abandoned land must meet the criteria for "unused" land and the specific definition of "abandoned" land. The steps required to demonstrate this are set out in the decision tree below. Table 2 contains, for each of the five steps, a non-exclusive list of the types of evidence which might be used to demonstrate that they are met.

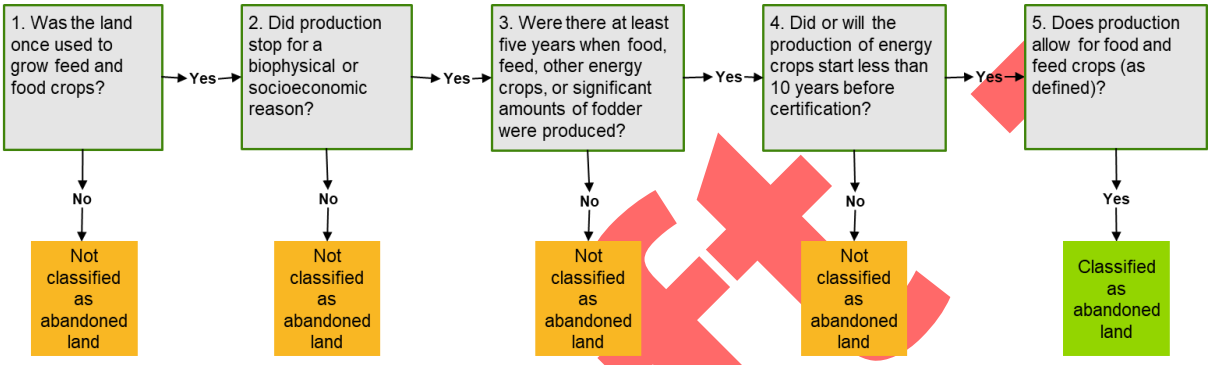

Figure 3-2: Decision tree for abandoned land

Table 2: Evidence to be supplied to demonstrate land is abandoned.

Step	What needs to be demonstrated	Evidence which could be used
1	Food and feed crops were once grown	Photographs in which crops of the types meeting the definition can be identified and where the photograph can be dated to at least five years before the end of the period required to meet step 3; Sales documents; Evidence from soils tests carried out by an independent expert; Eyewitness evidence from local people without economic links to the economic operator.
2a	The land was abandoned – production of food or feed crop ceased	Evidence from farm records of a sustained fall in production; Satellite imagery showing a period of at least a year during which no signature characteristic of agricultural production was evident; Photographic evidence of abandonment such as dilapidated buildings, unused machinery or stores. Evidence from local people without economic links to the EO that production ceased. If grazing is undertaken, documents and (if applicable) photographic evidence proving that this is done to prevent a site from becoming overgrown, rather than production for sale.
2b	Biophysical reasons for abandonment of land	Evidence from a published source of significant changes lasting more than two years in, e.g.:

		- Frequency of extreme weather events such as storms, droughts or flooding; - Timing of precipitation; - Average temperature during the growing season; - Other factors such as pests and diseases which are reported by a qualified, independent agronomist to have had a significant adverse impact on farm performance. - Evidence from the previous farmer or local people without economic links to the EO.
2b	Socioeconomic reasons for abandonment of land	Evidence from either farm accounts or published statistical sources that prices obtainable for total output reduced, or prices of total inputs increased by at least X% over the three-year period preceding the 5-year period when food etc crops were not grown; Records of agricultural wages Evidence of reduced availability of labour, such as documentation of labour market opportunities arising elsewhere and evidence that these affected the availability of agricultural workers at the site Evidence that a key element of the supply chain, such as a road, riverboat service, market or downstream processor, failed or was otherwise unable to continue to serve the farm; Evidence that land was appropriated by the State or other public body.
3	That land was not used for food, feed, other energy crops or significant amounts of fodder for at least five years[14]	Satellite imagery showing a signature characteristic of no agricultural management for at least five consecutive years; Evidence that the land was in non-agricultural management for at least five years; Evidence that the land was used for other agricultural crops for at least five years Evidence that any agricultural production was by persons without economic links to the EO and amounted to foraging or low intensity grazing only Evidence that the annual calorific value of biomass grazed by animals kept by the EO did not exceed 10% of the calorific value of annual planned production of energy feedstock, or evidence that a higher intensity of grazing was necessary to maintain the site.

[14] Step 3 can be used on its own to prove that land is unused without being abandoned. All production on unused land may be certified. The "additionality measure" which enables it to be brought back into use may take any form. This is in contrast to other land (i.e. that which has been used more recently for food production) where only additional production which results from agricultural improvements may be certified.

4	The production of energy feedstock started no later than 10 years before certification	Evidence from step 3
5	The crops being produced for certification allow for food and feed crops	Evidence such as seed packets, purchase or sales invoices, or agronomic reports which demonstrates that they are starch-rich crops, sugar crops or oil crops, or that the introduction of a biomass crop has supported the associated cultivation of starch-rich crops, sugar crops or oil crop for supply to food and feed markets.

3.4.3.2 Severely degraded land

Severely degraded land is land which for a significant period of time has been either severely salinated **or** has been **both** significantly low in organic matter and severely eroded. All of these characteristics are matters of physical fact and must be readily established from a site inspection. The steps required to demonstrate that land is severely degraded are set out in the decision tree in Figure 3-3 below.

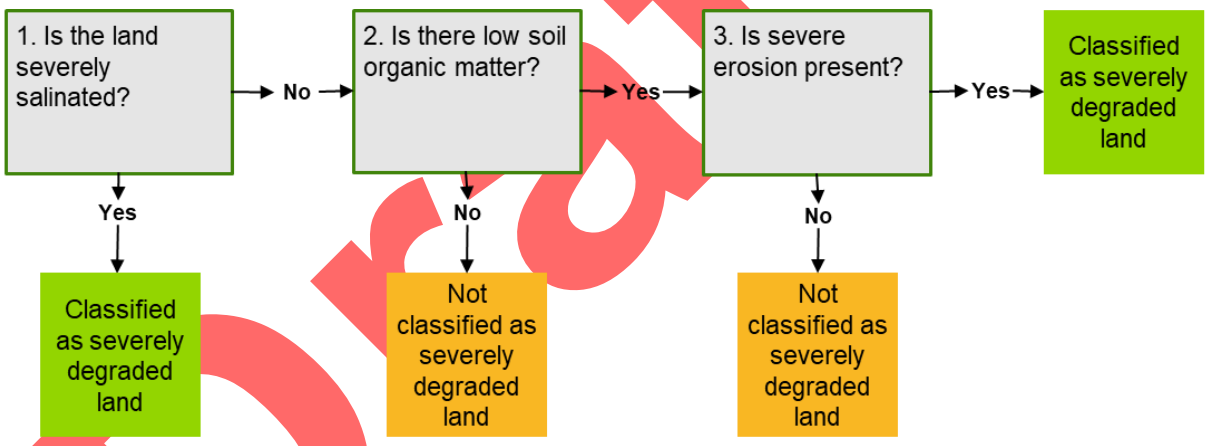

Figure 3-3: Decision tree for severely degraded land

Severely salinated land

Severely salinated soils are defined as those having an electroconductivity (as measured by the saturated paste method) of more than 8 deci siemens per metre (dS/m). The yield achievable from most crops is reduced at this level of salinisation. Electroconductivity at or above this threshold must be present on average within the rooting zone of 0-30cm depth across at least 80% of the area of the delineated site. Although some food crops will grow in more severely salinated soils than this, above 8 dS/m the growth of woody species is severely restricted (Scianna et al., 2007).

Since salinisation is not a phenomenon which arises rapidly, a contemporary test showing high salinisation can be taken as evidence that soil has been salinated for a significant period of time.

Land which is severely degraded due to low organic matter and erosion

For soil to be considered severely degraded within the meaning of the Delegated Regulation it must be both low in organic matter and severely eroded. Low soil organic matter damages the soil structure, frequently making it more vulnerable to erosion by wind or water. It should be noted, however, that a soil which has adequate or high organic matter does not qualify as "severely degraded" even when it has been severely eroded. Similarly, soils with very low organic matter cannot be considered to be severely degraded unless they have also suffered from severe erosion. In the case of severe erosion, at least 25% of the delineated plot shall have been eroded.

Soil should be considered to be low in soil organic matter, if organic matter of less than 1% is measured from representative soil samples taken from the delineated plot and tested by the dry combustion method, correcting as necessary for bulk density. The number and location of samples which are needed will vary according to the characteristics (topography, hydrology etc) of the site. A qualified agronomist should certify the adequacy of the sampling and testing plan.

Severe erosion due to water is assessed to be present when:

- In deep soils (those with a rooting depth of 50cm or more) all of the topsoil and some subsoil has been removed, and/or there are moderately deep gullies less than 20m apart;
- In shallow soils all topsoil has been removed, leaving hardpan or bedrock.

Severe erosion due to wind is assessed to be present when:

- In deep soils, all topsoil and part of the subsoil has been removed and/or there are many (>70% of area) shallow (<5cm) or frequent (40-70% of area) moderately deep (5-15cm) or few (10-40%) deep (>15cm) hollows or blowouts;
- In shallow soils all topsoil has been removed, leaving hardpan or bedrock.

Evidence to demonstrate "severely degraded land"

An application for the certification of feedstock based on the land qualifying as "severely degraded" must be accompanied by the results of appropriate soil tests as follows:

- In the case of salinisation, the results of testing by a qualified agronomist of the electroconductivity of the soil using the saturated paste method;
- In the case of low soil organic matter, results from an appropriate number of samples of soil from the delineated plot – as determined by a qualified agronomist – using the dry combustion method;
- In the case of severe erosion, photographs to support the opinion of a qualified agronomist that such erosion is present on at least 25% of the delineated plot.

3.4.3.3 Other unused land

Steps 3 and 4 in the decision tree for abandoned land (Figure 3-2) may be followed to demonstrate that other land is unused. All production on such land may be certified (with the dynamic yield baseline set to zero) but evidence must first be supplied that the financial attractiveness and/or barrier analysis "additionality" tests described in section 3.4.2 are met. Unlike production on land which is not unused, however, it is not necessary for the economic operator to demonstrate that additional production results from an agricultural yield improvement measure.

3.4.4 Small holders

Small holders are exempt from proving additionality (financial attractiveness or barrier analysis tests). Small holders are defined as farmers that independently cultivate and manage an agricultural activity on a holding with an agricultural area of less than 2 hectares for which they hold the ownership, tenure rights or any equivalent title granting them control over the land area and who are not employed by a company, except for a cooperative of which they are members with other small holders, provided that such a cooperative is not controlled by a third party.

Detailed information on the certification of small holders under a low ILUC-risk certification add-on can be found in chapter 7.

3.5 Calculation of additional biomass

The additional biomass being produced on the respective delineated plot of land must be calculated in a multiple-step approach. In a first step, the dynamic yield baseline (see 3.5.1.) must be determined. The methodology depends on whether an annual or perennial crop is cultivated, or whether sequential cropping is introduced. The second step is to calculate the additional biomass volume (see 3.5.2), based on the difference between the dynamic yield baseline and the actual observed yield of biomass after implementation of the additionality measure.

3.5.1 Calculating the dynamic yield baseline

The dynamic yield baseline shall be set individually for each delineated plot based on the crop and the type or combination of additionality measures applied. Plot-specific historical crop yield data from at least the 3 years preceding the application of an additionality measure shall be used to calculate the starting point of the dynamic yield baseline. This shall be combined with a global crop-specific trend line for expected yields based on historical data of actual yields over the past decade, or longer if data is available. For perennial crops, the dynamic yield baseline also takes into account the yield curve over the lifetime of the crop.

3.5.1.1 Methodology to determine the dynamic yield baseline for annual crops

The dynamic yield baseline consists of two elements: (1) a starting point and (2) a slope, see Figure 3-4. The observed yield for a delineated plot after implementation of the additionality measure will be compared against this baseline. The difference between the observed yield and the dynamic yield baseline is the additional biomass.

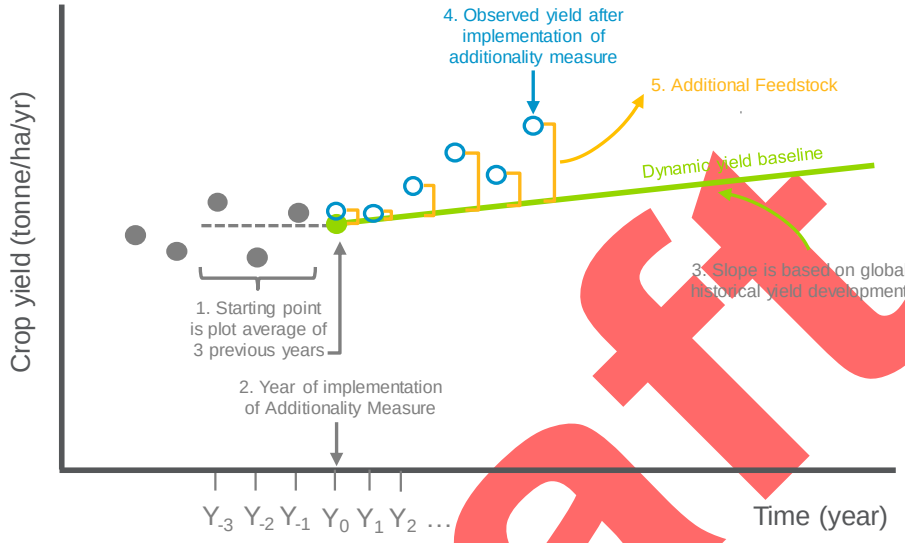

Figure 3-4: Dynamic yield baseline for annual crops: main principles and determination of the additional feedstock

(1) Starting point

The dynamic yield baseline starts in year zero, 'Y0', the year in which the additionality measure is implemented. The starting point of the dynamic yield baseline in Y0 is the average of the historical annual crop yields of the target crop, on the same delineated plot over the three most recent years preceding the implementation of the additionality measure.

Where a farm rotates crops between fields, and the target crop has been planted on different fields on the same farm over previous years, two options are foreseen for the historic yield data.

1. Economic operator calculates an average of the yields for the three most recent years that the target crop was grown on the specific delineated plot prior to the additionality measure. As crops are grown in rotation, this may necessitate using data that is more than five years old (see Figure 3-4).
2. Economic operator calculates a *weighted* average of the yields of the three most recent years that the target crop was grown on the farm prior to the additionality measure, even if those yields were obtained from different plots (of different sizes) on the same farm.

If historical data for the 3 most recent years of crop yields is not available, whether inaccessible or not representative as per the auditor's judgement, or if crop yield data is of insufficient quality, additional data may be obtained for earlier years or data from a neighbouring field growing the same crop under the same management plan. If 1 of the 3 years of historical data represents an exceptionally good or bad harvest (for example, discrepancy of 30% or more compared to the other reference years), the outlier crop yield shall not be included in the calculation to avoid skewing the three-year average (see example in Appendix I). The auditor is responsible for determining a yield outlier, based on their expert judgement, experience on the ground and knowledge of the economic operator's practices over the long term. The auditor is also obliged to evaluate whether the crop yield data is of insufficient quality to be included as part of the baseline and annual audits, and to then decide whether a crop yield needs to be excluded or not.

Note that in principle it should be possible to certify a plot if it has changed ownership over the period, as long as reliable data and documentary evidence are available from the previous owners to demonstrate historical crop yields.

(2) Slope

The slope of the dynamic yield baseline shall be taken as the slope of a straight trend line fitted for yield developments of the target crop over the previous 10 years, or longer if data is available. It is based on global data and shall be derived from the FAOSTAT World+ data for the relevant crop. This shall be done at the start of the certification period, and the slope shall be valid for the 10-year baseline validity period of the low ILUC certification.

For the most common biofuel feedstock crops, the slope of the dynamic yield baseline is given in Table 3. These values have been obtained by fitting a trendline over 20 years of global crop data obtained from FAOSTAT.

Table 3: Slope of the trendline for the most relevant crops based on FAOSTAT+ data

Crop	Barley	Maize	Oil palm fruit	Rapeseed	Soybean	Sugar beat	Sugar cane	Sunflower seed	Wheat
Slope-20	0.035	0.074	0.200	0.036	0.028	1.276	0.379	0.035	0.04

Slope-20 is based on 2008-2017.

For any crop in the table, the dynamic yield baseline is determined by taking the starting point (three-year average of historical yields prior to application of the additionality measure) and adding the global trendline (slope) from Table 3. The following formula shall be used, starting at Y_0.

$$DYBx = (starting\ point\ DYB) + (slope_{20})x$$

Where:

DYB_x = dynamic yield baseline in year x after implementation of the additionality measure

x = year(s) after implementation of additionality measure

If the additionality measure is to replace the existing crop with a different (higher yielding) crop on a delineated plot, the counterfactual situation is the cultivation of the existing crop. The dynamic yield baseline shall be determined based on historical yield and trend line data for the existing crop.

The starting point of the baseline shall be the 3-year average of the crop yield obtained for the lower performing existing crop. The trend line is based on the global FAOSTAT trend line data for the existing crop (see Table 3). This approach shall only be used if it can be demonstrated that the better performing crop could be introduced due to changes in the biofuel market, as demonstrated in the additionality assessment.

3.5.1.2 Methodology to determine the dynamic yield baseline for perennial crops

In contrast to annual crops, perennial crops are not replanted every year. Crop yields obtained for perennial crops follow a curve over their lifetime. This curve is characterised both by its shape and by absolute yields. The absolute yield depends on the crop cultivars and external factors such as soil and seed quality together with the environment. The shape of the expected yield curve over the lifetime of a perennial crop needs to be taken into account when setting the dynamic yield baseline. This will allow to estimate appropriate business-as-usual yield baseline over the lifetime of the crop.

Depending on the yield variation observed over the lifetime of different types of perennial crop, different methodological approaches shall be possible.

Oil palm

For oil palm trees, the following data may be used by plantation operators when determining their dynamic yield baseline:

1) the historical crop yields obtained prior to implementation of an additionality measure
2) the planting year of palm trees on the delineated plot of land and/or their age profile;
3) the cultivars of palm trees on the delineated plot, if applicable;
4) the area of land replanted each year on a plantation, if applicable

This data is combined with a growth curve to determine the dynamic yield baseline. The key characteristic from the growth curve shall be the shape, not the magnitude of the yield – thus enabling an appropriate baseline to be set, depending on the starting yield of a specific plantation.

The growth curve gives the shape and it needs to be combined with the historical yield data and age of the trees, as set out in points (1) and (2), to adjust the magnitude of the dynamic yield baseline curve to the specific plot.

The following three options are available for determining the dynamic yield baseline for palm trees. For each option, the data required to set the dynamic yield baselines must include:

- **Option 1a: Standard growth curve**:
  - Three most recent years of historical crop yields for palm grown on the delineated plot;
  - Age of trees on the delineated plot / planting year.
- **Option 1b: Economic operator provides growth curve**[15]:
  - Three most recent years of historical crop yield for palm grown on the delineated plot;
  - Age of trees on the delineated plot / planting year;
  - The cultivars of palm trees on the delineated plot;
  - Economic operator's own reference growth curve.
- **Option 2: Group certification approach**
  - For the three most recent years, the total hectares and total yield in fresh fruit bunches (FFB) for palm trees grown on the delineated plot/plantation(s), producing palm as part of the group.

Options 1a and 1b apply where an additionality measure is taken on a stand of trees that are the same age, or if the age profile of the trees on the delineated plot(s) is known and does not remain constant year after year.

Option 2 may be applied when the age profile of the trees on the delineated plots is mixed and remains relatively constant year after year, that is to say in a group certification approach or if a consistent percentage of a plantation area is replanted each year, resulting in a constant age profile for the trees.

Option 2 shall not be used if more than 20% of the volume in the group comes from the same plantation, or if more than 5% of the total area in the group is being replanted in the same year. In that case, option 1a or b shall be used to determine the baseline.

[15] To use this option, economic operators have to show that the correlation between the standard growth curve and their baseline growth curve is less than 0.8.

Option 1a: Standard growth curve

The first option uses the shape of a pre-established "standard" growth curve (based on existing scientific evidence) to determine the dynamic yield baseline for a delineated plot.

The dynamic yield baseline is determined by using the 3 most recent years of historical crop yield data for the specific plot and the age of the palm trees when that yield was observed, and using the annual percentage yield change from the standard curve to form a "business-as-usual" yield curve relevant to the specific plot.

The process of determining the dynamic yield baseline for oil palm using this option is illustrated in Figure 3-5.

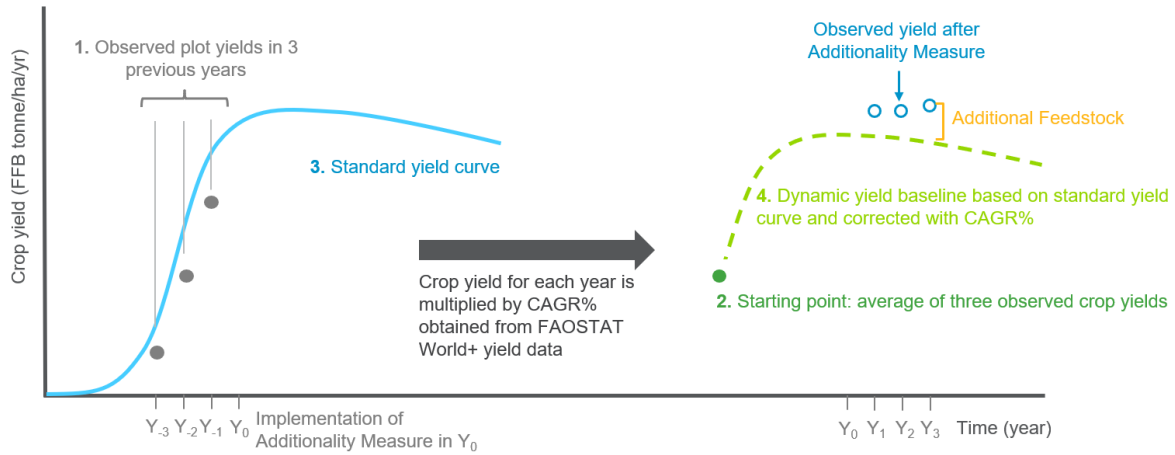

Figure 3-5. How to determine dynamic yield baseline for oil palm using option 1a

Option 1a involves the following methodological steps:

1. To determine the average historical crop yield, collect the three most recent historical crop yields observed on the delineated plot prior to implementation of the additionality measure, as well as the corresponding age of the trees when those yields were observed;
2. Calculate an average (mean) of the three historical crop yields;
3. Based on the age of the trees when the historical yield data is from, determine where this average historical crop yield shall be on the standard growth curve (e.g. if the yield data is from trees aged 7, 8 and 9 years, the average historical yield should be considered to be year 8);
4. To determine the next point of the dynamic yield baseline, multiply the average historical crop yield from step 2 by the corresponding calculated annual percentage change, derived from the standard growth curve (Table 5). Repeat this for each subsequent point to plot the dynamic yield baseline;

5. To incorporate the global yield trend in the dynamic yield baseline, apply the compound annual growth rate (CAGR) calculated from FAOSTAT World+ yield data, to each point of the dynamic yield baseline to obtain the CAGR corrected dynamic yield baseline.
6. The compound annual growth rate for palm (20-year, business as usual) is 1.37%.[16]

The **standard growth curve** for oil palm has been normalised and is shown in Figure 3-6 and Table 4 below. Table 5 converts the normalised standard yield curve into an **annual percentage yield change** which can be used in the calculation of the dynamic yield baseline.

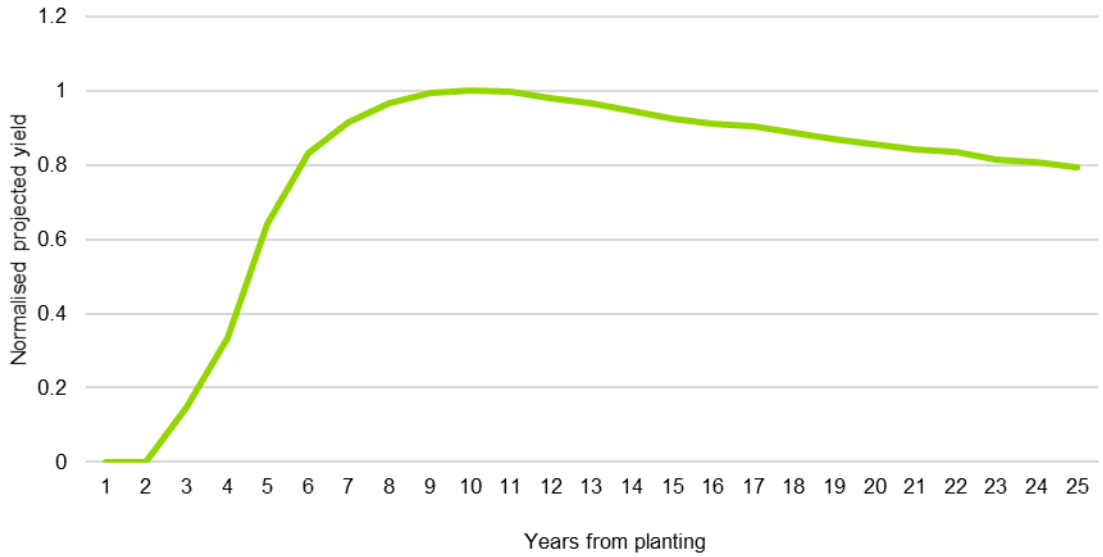

Figure 3-6: Normalised standard growth curve palm yield data

Table 4: Normalised standard growth curve for oil palm yield

Years after planting	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Normalised yield	0	0	0.147	0.336	0.641	0.833	0.916	0.968	0.996	1	0.999	0.980	0.965
Years after planting	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**≥ 26***
Normalised yield	0.945	0.926	0.910	0.906	0.888	0.870	0.858	0.842	0.836	0.815	0.806	0.793	0.793

[16] Based on FAOSTAT World+ 2008-2017

Table 5: Annual percentage change in yield derived from standard growth curve

Years after planting	1 to 3	4	5	6	7	8	9	10	11	12	13	14
Annual percentage change	-	128.0%	90.6%	30.0%	10.0%	5.6%	2.9%	0.4%	-0.1%	-1.9%	-1.6%	-2.0%
Years after planting	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**≥ 26***
Annual percentage change	-2.1%	-1.7%	-0.5%	-1.9%	-2.0%	-1.4%	-1.8%	-0.8%	-2.5%	-1.1%	-1.6%	0%

* After 25 years, the yield would be expected to continue to decline. However, as the typical lifetime of an oil palm tree is around 25 years, there is a lack of data to support the magnitude of the decline after 25 years. Therefore, a conservative approach is taken to assume that the yield curve would remain at the 25-year level.

Option 1b: Economic operator provides the growth curve

This option may be used in exceptional cases, if the economic operator can demonstrate that option 1a is not appropriate for their specific case. In such a case, if the economic operator has an expected growth curve determined based on the available data of palm seedlings (that relates to their 'business-as-usual' scenario), that curve may be used as the basis for the dynamic yield baseline instead of using the standard growth curve. All steps described in Option 1a shall be followed, replacing the standard growth curve with the economic operator's own curve. The economic operator shall therefore calculate the annual percentage change.

The plot-specific growth curve shall still be corrected for global yield development using the CAGR calculated FAOSTAT World+ yield data (see option 1a, (6)).

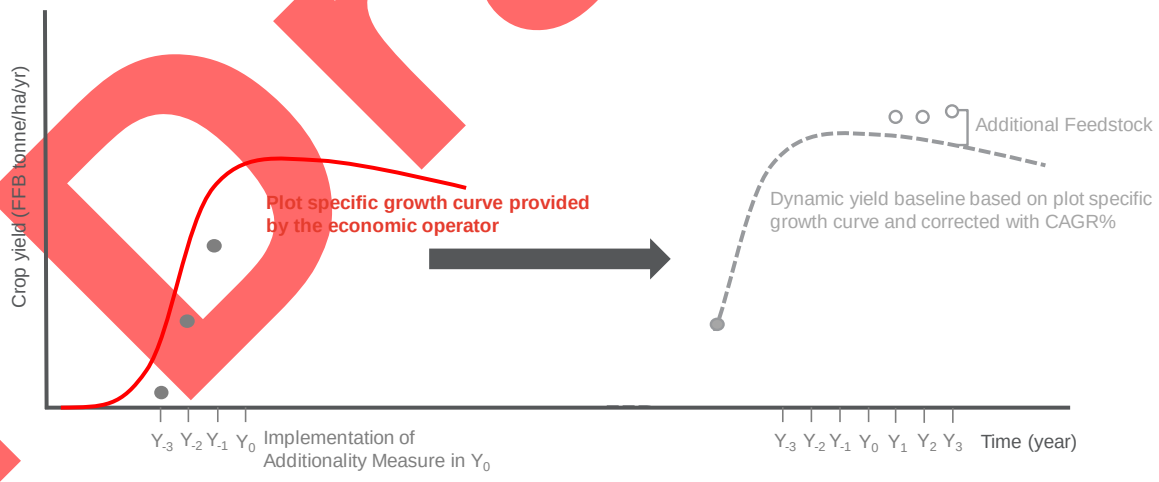

Figure 3-7: Set-up of the dynamic yield baseline for perennials using option 1b.

Option 2: Group certification approach

In the case of group certification, or when a first gathering point or mill acts as the unit of certification, the dynamic yield baseline may be set using a similar "straight line" dynamic yield baseline approach as used for annual crops. This approach may be used if a group manager, first gathering point or mill is seeking to certify a group that is taking the same additionality measure, and when the plantation or area supplying

the mill contains a mix of ages of trees meaning that the annual yield supplying the mill has remained relatively constant.

To determine the dynamic yield baseline, the group manager needs to record the total plantation area (ha) supplying the mill and the total yield (fresh fruit bunches) that corresponds to that area in each of the last 3 years. This is used to determine the yearly yield per hectare for each of the last 3 years (in tonnes/ha). These data points are then averaged and used as the starting point for the dynamic yield baseline. The starting point is combined with the global trendline slope for oil palm from FAOSTAT World+ data (Table 3) to determine the dynamic yield baseline.

Sugarcane

It has been established that the crop yield of sugarcane averages over the harvesting season between replanted and ratoon crops on one plantation. The crop yield from a plantation should therefore remain relatively constant year-on-year.

Sugarcane shall be treated as an annual crop when setting the dynamic yield baseline (see section 3.5.1.1).

The economic operator should be able to document a constant year-on-year yield obtained over the delineated plot of land. Similarly to Option 2 for palm, a threshold could be set to ensure that yields do not vary by more than ~10% over three to five years, due to the age of the crop.

3.5.1.3 Sequential cropping

Sequential cropping describes the practice of growing a second crop on the same land in the same year, when the land would otherwise have been left fallow. Multi-cropping practices such as sequential cropping can be used to optimise land use, often with additional benefits for soil carbon, decreased erosion and increasing biodiversity.

Sequential cropping can, however, lead to a situation where the new (target) crop impacts the yield of the main (primary) crop. Whilst overall farm yields are increased with sequential cropping, there can be an impact on the primary crop yield, for example if the harvest of the primary crop is brought forward to allow time for seeding the second crop.

If multi-cropping practices such as sequential cropping are used, the economic operator has three options to calculate the additional biomass:

1. Demonstrate that the second crop does not lower the yield of the main crop.
2. If the second crop lowers the yield of the main crop:
    a. Determine a dynamic yield baseline for a system in which the main crop is the same each year;
    b. Determine a compensation factor for a system in which the main crop is different each year.

Option 1: Demonstrate that the second crop does not lower the yield of the main crop

If an economic operator can demonstrate that the introduction of the second crop does not lower the yield of the main crop, the whole yield of the second crop can be claimed as additional biomass.

This may be demonstrated, for example, by comparison of the observed yield of the main crop before (3-year historical average) and after introduction of the second crop.

Option 2a: Determine a dynamic yield baseline for a system in which the main crop is the same each year

The dynamic yield baseline shall be based on the 'business as usual' situation for the delineated plot of land. When the main crop is the same each year, the baseline shall be determined based on at least the 3-year average historical yield of the main crop on that plot, combined with the global trend line for the main crop, as is done for annual crops (section 3.5.1.1).

This approach may also be used when the crop rotation follows a clearly defined rotation pattern that can be observed from historical data, which enables the business-as-usual situation to be clearly determined. In this case, it may be necessary to use data older than 3 years to determine the average historical yield of the main crop.

After implementation of sequential cropping, the net additional biomass shall be calculated as the difference between the total annual yield from the delineated plot of land (that is to say, the yield of the main crop plus the yield of the second crop) and the main crop dynamic yield baseline.

If the main and second crops are different feedstocks that produce a different combination of crop components (for example, oil, protein meal, starch, fibre), when the main crop and second crop yields are added together, the calculation shall be based on appropriate units of measurement to allow for the calculation of a single representative figure for the net additional biomass produced. Respectively, the methodology shall allow for an effective compensation of the biomass loss of the main crop. For example, the calculation can be done on a simple weight (tonnes) basis or an energy content basis (e.g. if the full second crop is used for energy, such as for biogas). The choice of methodology shall be justified by the economic operator and validated by the auditor.

Option 2b: Determine a compensation factor for a system in which the main crop is different each year

When the main crop differs each year in the crop rotation and does not follow a regular pattern, the economic operator needs to assess any loss in yield of the main crop due to the second crop and to take it into account in the volume of additional biomass claimed.

The economic operator needs to compare the observed yield of the main crop after introduction of the second crop with the historical yield of the same (main) crop. That comparison may be done based on observed yields in neighbouring fields (e.g. if the same farm grows the same crops on rotation but in different fields), or on the basis of justified scientific literature that describes the impact of sequential cropping on those crops in that region.

The impact on yield of the main crop shall be translated into a compensation factor that shall be deducted from the volume of the second crop to calculate the additional biomass. As for Option 2a, the factor can be based on weight or energy content and shall allow for an effective compensation of the biomass loss of the main crop. The choice of methodology shall be justified by the economic operator and validated by the auditor.

3.5.2 Additional Biomass determination

After implementation of the additionality measure, the economic operator shall determine the volume of low ILUC-risk biomass that can be claimed by comparing the actual crop yield achieved on the delineated plot with the dynamic yield baseline. The auditor must verify in the annual audit that the volume of additional biomass achieved is in line with the projections in the management plan, and seek justification if there are discrepancies of more than 20% compared to the estimates in the management plan.

If certification is sought for an additionality measure applied in the past, the additional biomass yield may be calculated and recorded in the management plan. While this allows the actual volume of low ILUC-risk biomass to be precisely calculated, low ILUC-risk biomass may only be claimed after low ILUC-risk certification has been awarded. Retrospective claims cannot be made for biomass supplied in the past.

To calculate the additional volume, the economic operator must record the full crop yield from the delineated plot for each year, from the start of the implementation of the additionality measure. The economic operator needs to prove the link between the specific delineated plot and the crop yield achieved (tonne/ha).

If the harvested volume is only measured (weighed) at a first gathering point, where products from multiple farms or plots arrive, then the documentation from the first gathering point can be used as proof of the harvested volume (yield) for the farms and plots involved.

The record of the business transaction between the economic operator and the first gathering point can be used as evidence, as long as the link back to the specific delineated plot can be proven. In this case, the first gathering point is responsible for collecting and recording the crop yield data. It shall record yields of biomass collected per farm (and if necessary, for a specific delineated plot on a farm) based on a template to be issued by the voluntary scheme.

In the case of group auditing, it could be that the first gathering point acts as the group lead and is responsible for recording yield data for all delineated plots (see section 6).

In order to calculate the additional biomass that can be claimed as low ILUC-risk, the crop yield data observed in a given year shall be compared to the dynamic yield baseline, as illustrated in Figure 3-8.

The additional biomass volume is equal to the difference between the crop yield observed and the yield projected by the dynamic yield baseline for the same year, multiplied by the surface area A (ha) of the delineated plot in question. The following formula shall be used:

$$\text{Additional biomass } \Delta x = (Yx - DYBx) \times A$$

Where:

Yx = Observed yield in year x (in tonne/ha/yr)

DYBx = Dynamic yield baseline in year x (in tonne/ha/yr)

A = Surface area of delineated plot (ha)

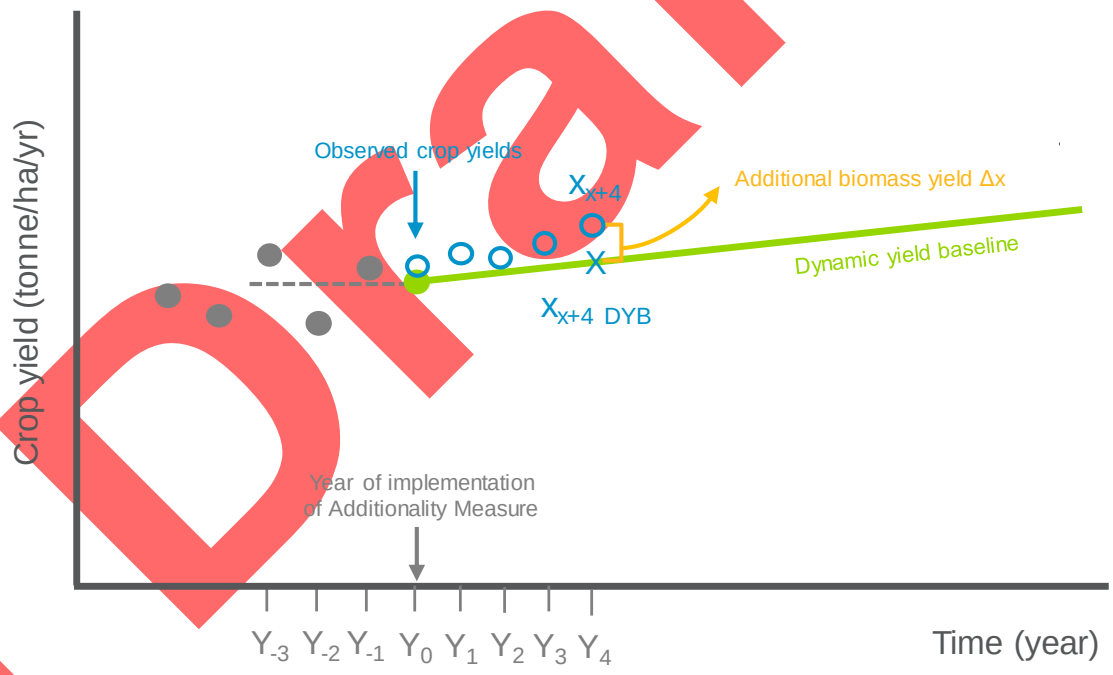

Figure 3-8: Calculation of the additional yield Δx.

3.6 Requirements for Traceability

According to the Directive (EU) 2018/2001, economic operators along the physical supply chain have to demonstrate that the sustainability criteria of the RED II have been fulfilled. The sustainability criteria relevant under the RED II include the description of the raw materials and the country of origin of the raw materials, material related greenhouse gas (GHG) emissions, and evidence that the land related sustainability

criteria of the RED II for the production of the raw materials have been fulfilled. For the scope of the low ILUC-risk certification, the requirements still remain valid. The same holds true for the information that need to be transferred throughout the entire supply chain, i.e. in the form of sustainability declarations. All relevant information must be traceable through a mass balance system in accordance with the provisions laid out in Article 30(1) of Directive (EU) 2018/2001.

In addition to the criteria for traceability set out in the RED II, the following information must be included by the first gathering point for low ILUC-risk certified material on the respective delivery documents (e.g. sustainability declarations)

- The type of crop relevant for low ILUC-risk certification
- The type of additionality measure applied
- The amount of low ILUC-risk certified material supplied

4 Verification Tools

Satellite imagery can demonstrate the absence of agricultural management on grid squares of 30m. A smooth bell curve on the annual vegetation difference index for five consecutive years is strong evidence that no management has taken place, and if provided by the EO should be taken as sufficient proof. Unfortunately, however, land on which there is no agricultural management does not always produce such a smooth curve. This means that the absence of such a curve cannot be taken as evidence that land is not unused, although there are some curves which clearly do show agricultural management.

(Further input needed. Clarification on GIS tools to be applied)

5 Audit Preparation and Conduct

The following chapter aims to provide an overview of the relevant aspects to conduct a low ILUC-risk certification audit. This includes requirements for CBs and their auditors, as well as how to conduct the audit itself (e.g. on audit checklists, gathering of information on the audit site prior to onsite visits, preparation for interviews, etc.), as well as guidance for audit planning (time, duration, location, etc.), audit execution and audit documentation (template for the audit report).

5.1 Requirements for Auditors

CBs are responsible for establishing the framework for the audits performed by the auditors working for the CB.

For the purpose of certifying low ILUC-risk feedstocks and the respective biofuels, certification bodies and auditors must be able to verify economic operators in a way to confirm that reliable information are submitted substantiating the claims of low ILUC-risk compliant material by the economic operator. Further, the audit process must be conducted in a way that is independent and transparent, reflecting the need for public scrutiny of the auditing approach.

Proof must be available, that the audits have been conducted, and the information submitted by economic operators must be verified to be accurate, reliable and protected against fraud.

Auditors must be independent of the activity being audited, free of conflict of interest, and competent. To ensure independence and to avoid conflicts of interest, third party audits are required for the certification of low ILUC-risk feedstocks. Auditors must have the appropriate skills necessary to conduct the audit, and CBs must have the appropriate general skills necessary to perform audits. This includes knowledge and professional experience in the following fields:

- Land use characteristics and land categories
- Investments in agriculture, concerned with yield productivity, sustainability, and biodiversity
- Agricultural and trade policies on national, regional, and global levels
- Biofuel production and biofuel refining value chains

In general, knowledge regarding land use criteria and no-go areas, experience in agriculture, ecology or similar, chain of custody systems, traceability, mass balance systems, data handling or similar, and greenhouse gas calculation and verification are also crucial elements for qualification.

More specifically, the auditor must have expertise in the assessment of additionality measures and the verification of the land categories relevant for low ILUC-risk certification, i.e. unused land, and therefore, abandoned land or severely degraded land respectively. Further, he/she must be capable of assessing applied additionality measures in the context of yield increases on the farm/ plantation. During the audit of

the first gathering point, the auditor must have the respective competencies to verify the compliance with financial attractiveness or non-financial barrier analysis in accordance with the Delegated Regulation (EU) 2019/807.

Audits to verify compliance with the low ILUC-risk requirements must be conducted at least every 12 months.

Auditors are not permitted to carry out any activities which may affect their independence or impartiality, and specifically must not carry out consultancy activities for the economic operator whom they audit for compliance with low ILUC-risk requirements.

5.2 Risk Assessment and Management

During the certification audit, the auditor must carry out risk evaluation or risk assessment at the farm/ plantation or the first gathering point to be audited. The result of the risk evaluation drives the intensity of the audit and influences the size of the sample. At least a "limited assurance level" should be established during the audit, in context with the nature and complexity of the auditee's activities. A "limited assurance level" implies a reduction in risk to an acceptable level as the basis for a negative form of expression by the auditor.[17]

(1) Risk identification

The first step during the risk assessment is to identify potential risks by analysing the risk indicators listed in the figure below. A risk assessment may be conducted partially via a desk assessment, e.g. by verifying land status (abandoned land, severely degraded land, unused land), implementation of additionality measure, 'effectiveness' of the measure). However, a desk assessment requires a verification of the results at the specific location (so-called "ground-truthing"). The risk indicators identified for low ILUC-risk feedstocks form the basis for the risk assessment in the framework of a low ILUC-risk certification. They shall be considered during all pilot audits in order to identify potential risks of non-conformity with the low ILUC-risk requirements or for the integrity of the voluntary scheme.

For the verification of farms, a risk assessment must be conducted to determine the risk of non-conformity with the RED sustainability requirements (see chapter 3.2) This means, it must be assessed if a farm is located within the proximity of areas where the cultivation of biomass is prohibited according to Directive (EU) 2018/2001, Article 29.

Additionally, the risk of non-conformity with the requirements specifically important for low ILUC-risk materials in accordance with Delegated Regulation (EU) 2019/807 must be assessed.

The risk of non-conformity of farms should be assessed with appropriate and reliable databases or remote sensing tools allowing for a meaningful and well-balanced result for the respective region. If available, such a risk assessment should be performed with tools or systems which may be recognized by the European Commission in the framework of the RED and FQD (so-called non-typical voluntary schemes).

[17] *According to ISAE 3000.*

A non-exhaustive overview on significant risk indicators for low ILUC-risk certification is provided in Table .

Table 4: Non-exhaustive list of risk indicators for low ILUC-risk certification

General Risk Indicators	Risk Indicators for Farms and Plantations	Risk Indicators for First Gathering Points
• Determination, structuring, organisation and documentation of the number of workflows and their complexity (in-house processes) • In-house quality management system, internal audits (structure and documentation) • Risk of corruption and fraud (e.g. according to OECD list, Transparency International Corruption Perceptions Index, etc.) – i.e. how serious is the external risk of corruption and how does this influence the implementation • Certification history, including previous or current low ILUC-risk certification as well as certification under other sustainability certification systems, especially those recognized by the European Commission within the framework of the RED and FQD • Frequency of changes in certification system (so-called "scheme hopping") • Accuracy of records and documents • Degree of topicality, updating frequency of records and documents • Accessibility of records and documents	• Proximity to and/or overlap with no-go areas (forest land, peatland, wetlands, highly biodiverse grassland, etc.) • Land conversion shortly before or after January 1st 2008 • Factors influencing significantly the output per acreage and the output per ha. • Factors influencing the application of additionality measures • Factors related to the definition of unused, abandoned and/or severely degraded land	• Factors influencing the calculation of financial attractiveness of the applied additionality measures

General Risk Indicators	Risk Indicators for Farms and Plantations	Risk Indicators for First Gathering Points
• Completeness of records and documents • Risk of single consignments (batches) being claimed more than once (so-called "double-accounting")		

(2) Risk evaluation

The second step of the risk assessment is to evaluate and classify the identified risk. For the evaluation of the identified risk, the following elements must be taken into consideration:

- Sources and reasons of the risk
- Identification of potential consequences from the risk if it would occur, the impact (e.g. negligible, moderate, critical) and the probability of its occurrence (e.g. unlikely, occasional, likely)
- Factors influencing the consequences and the probability of the risk to occur
- Differing importance or emphasis of the risk by different stakeholders

Based on the risk evaluation, the risk is classified according to one of the three risk levels:

- Regular (risk factor 1,0)
- Medium (risk factor 1,5)
- High (risk factor 2,0)

With respect to the evaluation of the risk on farm level, the principles and requirements specified in 3.2 and 3.3 must be considered. Relevant risks on farm level include:

- Biomass production on land with high biodiversity value, high carbon stock or with a high conservation value
- Application of additionality measures and their respective impact on yield increase

With respect to the risk of a flawed or deficient documentation the following guidance can be given for the risk evaluation and classification:

- If the necessary records and documents are kept accurately, up to date, complete, easily accessible and there is no indication of non-conformity with low ILUC-risk requirements and the risk can be classified as regular. The risk for non-conformity with traceability requirements can e.g. be considered to be regular, if appropriate track-and-trace databases are used and can be accessed by the CB during the audit.

- If the necessary records and documents are not kept accurately and are not easily accessible, the risk should be classified as medium.
- If the records and documents are not continuously up to date and not kept to full extent, i.e. files are missing, files are not accessible, files are not disclosed, or if there is indication for non-conformity or fraud the risk should be classified as high.

Specific indication of non-conformity with low ILUC-risk requirements must be taken into account appropriately during the risk evaluation and classification.

It is up to the CB's judgement to discontinue the audit if the risk is ranked high and if either the documentation is not easily accessible, or the amount of unavailable documentation does not allow for a professional audit. Depending on the actual findings during the audit, the CB is entitled to increase or reduce the risk level applied during the audit.

(3) Identification and implementation of risk control measures

After the risk is identified and evaluated it must be managed properly to ensure that the probability of non-conformity with low ILUC-risk requirements is continuously minimized. This is done by applying the following elements:

- Adjusting the intensity of audits to adequately take into account the risk. In case of group certification this means that the size of the sample may be adjusted. With regards to traceability, this means adjusting the number of documents to be verified by the CB.
- Carrying out announced or unannounced surveillance audits if necessary
- Adjusting the tasks of the management of an auditee, in particular with regards to
    - Specification of responsibilities
    - Training of employees
- Documentation
- Internal auditing and management system
- Extending the definition of risk factors for certain areas

For sample audits of farms, the minimum sample size must be multiplied with the determined risk factor (1,0, 1,5 or 2,0). The risk factor therefore determines the number of locations which must be audited (see also chapter 6 on group certification). In case of non-conformity of individual group members, the determined sample size (s) of the current audit must be doubled.

For annual additionality audits of first gathering points, the risk factor drives the intensity of the audit with respect to documentation to be verified. The entire documentation relevant for low ILUC-risk certification for a complete year must be available during a low ILUC-risk audit in order to evaluate the mass balance calculation and allow for plausibility checks between company reporting and mass balance results. The CB is

entitled and must be able to take random document samples to check whether records and documents meet the requirements for traceability (e.g. weighbridge tickets, delivery notes, low ILUC-risk declarations or proofs of low ILUC-risk quality). It is the CB's responsibility to define the size of the sample that will permit the CB to reach the level of confidence necessary to issue a certificate. Following guidelines can be applied:

- If the risk is classified as "regular" random document samples from three successive months are sufficient to assess whether the applicable low ILUC-risk requirements are met.
- If the risk is classified as "medium", random document samples from three successive months as well as all documents from one complete month should be checked.
- If the risk is classified as "high", the documents of three successive months should be checked completely

5.3 Documentation

Economic operators must have a documentation and quality management system which can be audited by the CB.

System Users are responsible and obliged for preparing any information related to the auditing of such evidence and documentation. Such a system should normally include e.g. the following aspects[18]:

- a description of the relevant products,
- quality objectives and the organisational structure, responsibilities and powers of the management,
- corresponding manufacturing, quality control and quality assurance techniques, processes and systematic actions that will be used,
- quality records, such as inspection reports and test data, calibration data, qualification reports on the personnel concerned, etc.
- a management plan including all relevant information for low ILUC-risk certification in line with the requirements outlined in chapter 3.1.2

5.4 On-site Audits

An audit to verify compliance of a System User is required at least every twelve months. Audits have to be conducted on-site at the location of the economic operator registered for low ILUC-risk certification. This includes the audit at the first gathering point or central office of farms, as well as sample-based on-site audits of farms (unless a farm is individually certified). However, for some requirements it is possible to prepare their verification already prior to the on-site audit with a desk-based approach. This is

[18] Also see: Points 2 and 5.2 of Module D1 (Quality assurance of the production process) of Annex II of the Decision on a common framework for the marketing of products (Decision No 768/2008/EC).

true for the identification of land use change in accordance with RED II requirements as well as for the identification of unused (abandoned or severely degraded) land that is used for the additionality measures. For the (partly) desk-based verification of these requirements, the tools as described in chapter 4 of this guidance document shall be used. Any desk-based verified requirements must still be confirmed during the on-site audit.

The time and duration of the audit depends on the number of samples to be audited as well as on the planning of both CB and economic operator. Time and duration must be documented properly in the audit checklists.

Audits must always follow a risk-based approach and take into account the risk according to the principles specified in 5.2.

Each economic operator registered for low ILUC-risk certification must conduct an internal assessment (self-assessment) of compliance with the requirements prior to certification, including the calculation of the additional biomass and the additionality measure implemented prior to annual audit. The results of the internal assessment must be documented, reviewed and signed by the management of the economic operator to be certified. In the case an economic operator currently participates in or has recently participated in more than one voluntary certification system, the CB must always verify that multiple claiming (so called "double-accounting") of low ILUC-risk characteristics cannot and did not occur. For this verification, the CB is entitled and obliged to assess the relevant documentation (e.g. mass balance, auditing reports) of all relevant certification systems.

Audits should be conducted taking into account the principles specified in ISO 19011 (plan, do, check, act – see Figure 5-1), or a justified equivalent. The CB must establish at least a "limited assurance level" when conducting audits.

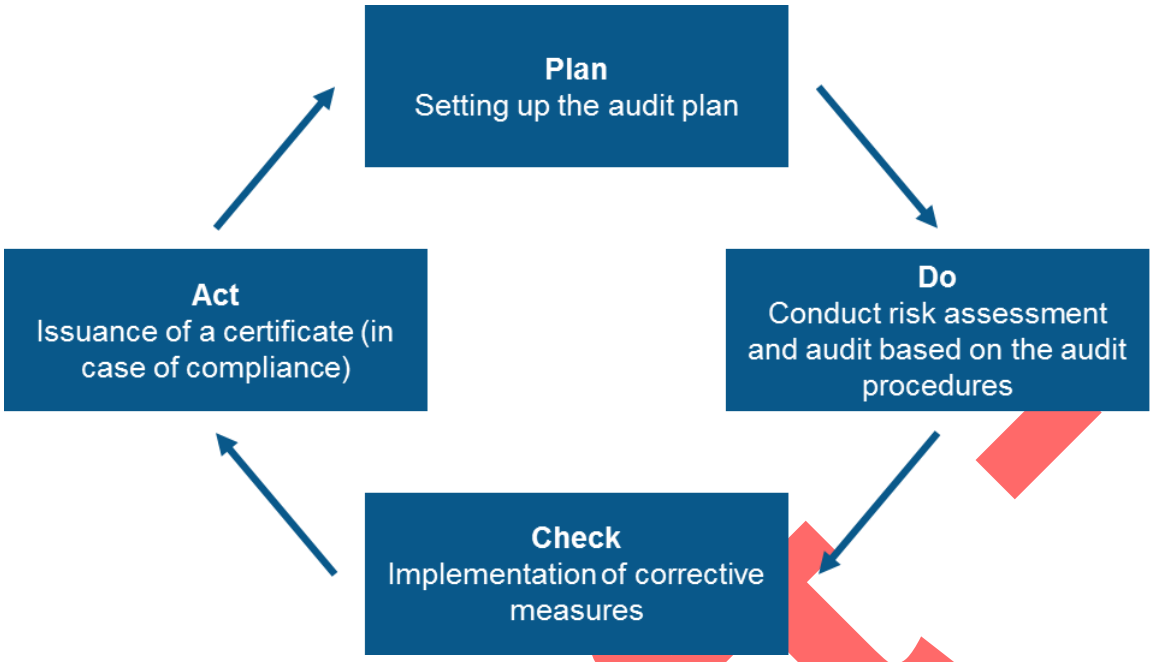

Figure 5-1: Certification process based on the principles of ISO 19011

During the audit, the CB must identify the activities undertaken by the economic operator which are relevant for a low ILUC-risk certification. This includes the identification of relevant systems and the overall organisation especially with respect to the applicable low ILUC-risk requirements and the effective implementation of relevant control systems. During the audit the CB should draw up a verification plan which corresponds to the risk analysis and the scope and complexity of the economic operator's activities and which defines the sampling methods to be used with respect to the economic operator's activities. The CB should carry out the verification plan by gathering evidence in accordance with the defined sampling methods, plus all relevant additional evidence, upon which the CB's verification decision will be based. It is the economic operator's obligation to provide any missing elements of audit trails, to explain variations, or revise claims or calculations, before the CB can reach a final verification decision (i.e. the decision to issue a certificate).

If compliance with the low ILUC-risk requirements has been verified during the audit, the CB can issue a low ILUC-risk certificate.

Interviews are a critical part of the audit. Interviews should be conducted with both, management and workers at the farm/ plantation and/or the first gathering point. Interview questions regarding low ILUC-risk certification should focus on the chosen additionality measure(s) and its effectiveness. The main challenge for auditor is to try to find out, if the implemented additionality measure is the main driver for biomass increase.

The number of worker interviews of each farm/ plantation and first gathering point should be proportional to the number of workers hired. The accompanying person must not answer the questions that auditors ask to workers. In order to receive objective and uninfluenced information from interviewees, auditors may request

representatives of the management or employers of workers to not participate in the respective interview.

Auditors may judge that it is necessary to obtain information from other sources through interviews with other local stakeholders, e.g. community leaders or local NGOs to confirm or refute certain information.

5.5 Non -conformities

Voluntary schemes usually define critical, major and minor non-conformities and define the consequences for economic operators if such non-conformities are identified during an audit. The consequences should be in line with those in the main voluntary scheme standards.

In principle, anything set out in the recast Renewable Energy Directive 2018/2001/EU, the Delegated Regulation 2019/807 or in the forthcoming Implementing Act on verifying compliance with the sustainability criteria[19] would be mandatory requirements. Non-compliance with any mandatory requirement would trigger a critical or major non-conformity.

For the **baseline audit**, the economic operator will need to prepare and make available all the information and documentary evidence required in the management plan. This is fundamental for the auditor to check to be available to determine the dynamic yield baseline, against which the volume of additional biomass can be calculated.

For the **annual additionality audits**, the auditor will need to check that the additionality measure is being implemented and that it is being implemented sustainably, to verify the calculation of the additional volume of biomass, and to check that appropriate low ILUC-risk claims have been made for the preceding year.

- The auditor must check that the **management plan** is being followed and the **additionality measure is being implemented sustainably**. Significant deviations to the management plan or changes to the additionality measure must be notified by the economic operator to the certification body prior to the audit and may result in the need for a new management plan and baseline audit. In principle minor adjustments to the additionality measure could be possible, e.g. small adjustments to the fertiliser regime applied, but the auditor needs to be able to verify that the additional biomass is the **direct result** of applying the additionality measure (Delegated Regulation, Article 2(6) definition of 'additional feedstock'). A small incremental change to the fertiliser regime made each year shouldn't therefore be allowed if this results overall in a significant change to the additionality measure.
- The **sustainability of the additionality measure** is primarily assured by the auditor through the continued certification to the main voluntary scheme. In addition, we ask the auditor to flag any potential sustainability risks from the implementation of the additionality measure that they come across during

[19] Recast Renewable Energy Directive 2018/2001/EU, Article 30(8): https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN

the baseline audit and these risks should be checked as part of the additionality audit.

- The auditor must check the **calculation of the additional biomass** and the **claims made**. If observed yields do not exceed the dynamic yield baseline in a certain year and there is therefore no additional biomass, that is not automatically a non-conformity, but the economic operator would not be able to claim any low ILUC-risk biomass that year.

The consequences of a **critical or major non-conformity** should be that the low ILUC-risk certificate is suspended, following the rules set out by the main voluntary scheme. Any consequences for the main certificate would depend on the nature of the non-conformity and would be determined by the voluntary scheme. A major non-conformity in the context of the low ILUC-risk certification could include not implementing the management plan and/or the additionality measure(s), or significant and structural (i.e. not correctable) errors in the volume of low ILUC-risk claims made.

If the main voluntary scheme certificate is suspended or withdrawn due to reasons unrelated to the low ILUC-risk criteria, then the low ILUC-risk certificate is also suspended or withdrawn, given that his is an add-on to the main scheme.

A **minor non-conformity** is usually defined as something that can be corrected. This might be something like a mistake in the calculation of additional biomass, or in the volume of low ILUC-risk biomass claims made.[20] If such a non-conformity is identified the procedure set out in the main voluntary scheme should be followed. This would normally give the economic operator a defined number of days (e.g. 30-90 days) to correct the error, after which the auditor would check the correction and sign off on the audit.

5.6 Audit documents

On the basis of this system document, technical (working-) documents on the certification of low ILUC-risk feedstocks will be provided to CBs and economic operators. These "checklists" ensure that all low ILUC-risk audits are conducted based on the requirements specified in this system document. The checklist supports the work of the CBs and facilitates a consistent and comparable verification of the low ILUC-risk requirements during low ILUC-risk certification audits. CBs must use the checklist provided when conducting low ILUC-risk audits. Economic operators can use the checklist to conduct internal assessments, for internal training or to prepare for an audit. The checklist includes relevant details of the audit including e.g. the length of the audit, the address where the audit was conducted, the audit participants, audited documents as well as information relevant for the certificate (e.g. type of low ILUC-risk material, applied additionality measures, etc.).

Economic operators are obliged to provide correct and complete data about the amounts handled as low ILUC-risk to the CB.

[20] Unless the mistakes in claims are identified as being fraudulent, in which case if is unlikely that a correction would be permitted and the certificate would be suspended or withdrawn.

After the audit has been conducted, the CB submits the checklist used during the audit to the respective voluntary scheme. In the case of a positive certification decision, the CB is obliged to prepare a report, containing the relevant audit results.

The low ILUC-risk certificate will be published on the voluntary scheme's website. For transparency purposes it will need to include the following information:

- Contact details of main certified entity (company name and address, details of the designated point of contact);
- Scope of certification (type of additionality measure and additionality test applied as well as type of economic operator (if they are small holders));
- Longitude and latitude coordinates (for farms and plantations certified as single entities);
- List of sites under the scope of certification (name and address);
- Total volume of biomass certified as low ILUC-risk;
- Contact details of the certification body (name and address) and logo;
- Unique certificate number or code;
- Place and date of issuance;
- Certificate valid from/to dates (and date certified, if applicable);
- Stamp and/or signature of issuing party.

The low ILUC-risk procedures and the audit report must be submitted together with the certificate issued by the CB to the voluntary scheme and will be published on its website together with the certificate. In the event that the external audit showed that the audited economic operator did not meet the requirements of the low ILUC-risk certification, the audit procedures must be submitted to the voluntary scheme immediately after termination of the audit.

6 Group certification

Group certification is based on the concept that an extensive part of the inspections required is carried out by internal auditors. Independent external auditors assess and evaluate the effectiveness of the internal audit system, conduct audits of a sample of the group members (sampling) and certify the entire group. In several cases, an individual audit of each single producer of low ILUC-risk feedstock would impose disproportionate financial costs and effort on the entity and the general certification process. By joining a group, biomass producers can reduce the certification effort and costs considerably. This approach is of specific importance for the certification of smallholder farmers, producer organisations and cooperatives.

With respect to low ILUC-risk group certification of farms/ plantations the following requirements apply:

6.1 General requirements

Group auditing for low ILUC-risk certification should be permitted for a group of farms on which the same target crop (or same combination of crops in the case of sequential cropping) is cultivated in the same geographical region using similar agricultural management practices. Therefore, the following conditions shall be met:

- The members are located in the same region (geographic proximity)
- The climate conditions for agricultural production are similar
- The farms are similar in size; large farms can be included in a group but should be treated differently with respect to external auditing
- Similar production systems are applied
- The risk assessment has shown a similar risk exposure for the group member

Group members which do not fulfil these conditions will be treated as autonomous enterprises. Nevertheless, each producer is allowed to apply the additionality measure of choice.

Group certification for farms and plantations is only acceptable when the areas concerned are near each other and have similar characteristics. Farms and plantations can become certified under the framework of a first gathering point. The reference scenario (dynamic yield baseline) is established at the individual farm (plot) level and actions (additionality measures) leading to low ILUC-risk biomass should be taken at the individual farm level, but both can be coordinated at group level. This means that the group leader coordinates the activities, collects data for all management plans and annually calculates the additional (low ILUC-risk) biomass that can be claimed. The group leader (FGP) would also have responsibility for internal checking. Independent external auditing within the group then takes place on annually a sample basis.

6.2 Management requirements

A group of farms should always be represented by a head office, that is responsible for the group management. There should be qualified personnel responsible for managing the group, with a designated person in charge. The group must also have adequate finances to implement the internal management system to ensure compliance of individual group members. For the purpose of low ILUC-risk certification for farms and plantations (not small holders) this is a first gathering point. The head office is responsible for the implementation of the internal management system and for the compliance of each group member with the low ILUC-risk certification requirements. These responsibilities include:

- To set up a procedure to take in and register new group members
- To inform the group members about their responsibilities and about the relevant low ILUC-risk requirements applicable to the group
- To make sure that all group members have an adequate understanding of the requirements and processes
- To run an up-to-date register of members
- To plan and organise internal audits
- To issue annual internal audits
- To inform the members about relevant changes or adjustments to requirements
- To compile the necessary documentation
- To exclude members in the case of non-compliance (relevant for both internal and external audits)
- To initiate preventive and corrective measures in member operations
- To undertake a risk assessment for new members

The rights and duties concerning the group members shall be documented and defined in a regulating contract or agreement between the group members and the head office of the group.

Group members have the following responsibilities if they supply low ILUC-risk material:

- Commitment to the group's head office to meet the standard requirements and to report intentional or unintentional non-conformities
- Conducting a self-assessment (including calculating the dynamic yield baseline and (anticipated) actions taken for yield increase) and signing of a self-declaration including also the management plan for ILUC-risk reduction.
- Providing necessary information to internal and external auditors, especially regarding the (major) production activities, applied low ILUC-risk additionality measures and sales or deliveries of low ILUC-risk material
- Granting access to the group members' premises to conduct internal and external audits
- Commitment to the implementation of amendments and corrective actions

6.3 Documentation Requirements

The following information must be documented for a low ILUC-risk certification of groups:

- List of all group members including name and address/ location, type of crop, the size of the production area and the volume of production
- Records of member training undertaken
- A register of the delineated areas belonging to registered farms (group members) where low ILUC-risk measures (additionality measures) are applied (see also self-declaration and ILUC mitigation plan)
- Process instructions
- Contracts and/or agreements between the group's head office and the group members, containing at least:
    - a commitment by the group member to fulfil internal standards and certification requirements;
    - a commitment by the group member to provide the group management with required information;
    - acceptance by the group member of internal and external inspection;
    - an obligation for the group member to report intentional or unintentional non-conformities; and
    - the right of members to terminate membership.
- Records for (major) production activities and sales, deliveries and transportation of low ILUC-risk material

- Audit results of internal and external audits including non-conformities and corrective measures
- Review of the audit results by the group's head office

An appropriate instrument for the documentation of processes and contents is a (quality) management handbook. The group should have a uniform method for mapping. Maps may be replaced by GPS-based information to allow for a more detailed overview and to improve the risk assessment, e.g. by using satellite data, databases or remote sensing tools.

6.4 Internal Audits

The group must introduce an internal audit system which monitors the performance of the group management and controls compliance with sustainability and low ILUC-risk requirements before each annual audit. The internal audits should ensure the individual group members' compliance with the requirements for low ILUC-risk certification. The internal audit should cover the low ILUC-risk requirements that are relevant for the group as a whole and for the scope of the individual group member in particular. A plan must be developed containing at least:

- The auditors in charge
- The participants
- The timeframe
- Audit emphasis
- The procedure

Prior to a first certification, all individual group members and the group as a whole must be subject to an internal audit to verify compliance with sustainability and low ILUC requirements and the functionality of the internal audit system. Before a new member can be registered, they must first be internally audited.

The internal auditors in charge must be qualified to professionally judge the relevant questions. Before they start auditing, they should be trained regarding the requirements of the respective voluntary scheme and with regard to the low ILUC-risk add-on. Training of the internal auditors should continue on a regular basis, especially with a focus on relevant risk factors identified for the group.

The internal auditor must document his/her activities and the results of the internal audits. The documentation must be made accessible to the external auditor.

The group must carry out an annual review. As a minimum requirement, this review must contain the evaluation of the audit results and of possible inputs from a third party.

6.5 External audits

External audits of the group must take place on a yearly basis (i.e. at least every 12 months). The group's head office is always audited. The sample size of group members to be audited must be calculated by the external auditor and is driven by the risk factor determined by the external auditor during the risk assessment. The external auditor is responsible for selecting and auditing individual group members within the scope of the sample

The correct definition of the sample size (s) to be audited for compliance is the basis for a consistent and reliable group certification process. In order to determine the sample size, the total number of individual group members (n) relevant for sampling and the risk factor (r) determined during the risk assessment must be taken into account. The sample size is determined by the following formula:

$s = r \times \sqrt{n}$

s: sample size

r: risk factor

n: total number of group members.

The minimum sample size is the square root of the total number of group members ($\sqrt{n}$). The minimum sample size must be multiplied with the risk factor (r) determined by the external auditor during the risk assessment. For a regular risk, the minimum sample must be multiplied by 1.0. For medium risk the minimum sample must be multiplied by 1.5. For high risk the minimum sample must be multiplied by 2.0. The auditor is entitled to increase the sample size according to the individual situation and based on the auditor's risk assessment in order to reach the necessary level of confidence to make reliable statement regarding the conformity of the group. The lowest possible sample size is one.

If the result of calculating the sample size (s) is a decimal number, the sample size (s) is to be rounded up to the next whole number (integer). The decisive factor for rounding up is the first position after the decimal point. This means, calculated sample sizes (s) up to 1.04 will result in a sample size of 1. A calculated sample size of 1.05 or higher would lead to a sample size of 2 (1.05 must be rounded up to 1.1 which must be rounded up to 2). This formula ensures a control density of the group, following in principle the control requirements set by the European Commission in the framework of the EU Cross Compliance system.

Farms and plantations which are participating in group certification must conduct a self-assessment and sign the respective self-declaration including the ILUC-risk management plan for compliance with the low ILUC-risk requirements and provide it to the group's head office (e.g. central office or first gathering point). Thus, the total number of group members (n) is composed of all farms and plantations which have conducted the self-assessment and signed the self-declaration and ILUC-risk management plan at any time during the 12-month period prior to the date of the certification audit. However, no claims can be made before the certification audit.

The external auditor conducting the group audit must select individual group members to be included in the sample for verification of compliance with the scheme requirements. The group members to be audited should be selected in a way that represents the whole group in a well-balanced manner. The selection should be based on a combination of risk-based selection and random selection. The auditor must consider at least the following factors when determining the sample:

- Type of supplied raw material (if applicable, these should be represented appropriately in the random sample)
- Types of additionality measures (if applicable, these should be represented appropriately in the random sample)
- Different sizes of suppliers
- Geographical location, e.g. by clustering the relevant area into different risk areas
- Indication of non-conformity or fraud.

At least 25% of the selected group members should be determined per random process. For the risk-based selection, an auditor should preferentially select group members for the sample where there is indication of non-conformity, or fraud, or group members that are located in high-risk areas (this is especially relevant with regard to additionality measures applied on unused land, i.e. severely degraded or abandoned). If different risk areas have been identified by remote sensing analysis, e.g. via satellite data or databases, the selection of the sample should also take into account results and findings from previous audits conducted in the area (if available).

Where appropriate and in accordance with the criteria for risk-based and random selection, the auditor may select group members in a way that facilitates a cost-efficient auditing process, e.g. by selecting group members that are located near each other. As long as there is no indication of non-conformity from specific group members, none of the successfully audited entities from the previous year shall be part of the sample in consecutive audits, as long as there remain some entities that have not yet been subject to an external audit.

The following factors bear specific relevance for group certification and must be considered by the auditor:

Factors related to the type and size:

- Size of the group member
- Type of operation
- Value and amount of the products
- Factors related to specific characteristics:
- Degree of similarity of the production systems and the crops or raw materials and applied additionality measures within the group
- Risks of intermingling and/or contamination

Experience gained:

- Number of years the group has functioned
- Number of new members registered yearly
- Nature of the problems encountered during audits in the previous years and results of previous evaluations of the internal audit system's effectiveness
- Management of the internal auditors' potential conflicts of interests
- Staff turnover

Additional specific regulations for certain regions / areas can be added if this becomes necessary, e.g. due to concrete risk with regards to additionality measures applied and/ or amount of additional yield indicated by group members.

Baseline group certification audits are always conducted on-site In the case that the external auditor detects one or more group members from the sample to be non-compliant with the low ILUC-risk requirements, or one or more group members refuse to participate in the audit, the sample size (s) of the current audit must be doubled. If in the increased sample, further group members are detected not fulfilling the low ILUC-risk requirements, the increased sample must be doubled again, and so forth. This process may continue until 100% of the group members have been audited. Group members that are audited non-compliant must be excluded from the group and from the certification under low ILUC-risk.

7 Small holders

In line with Delegated Regulation (EU) 2019/807 small holders who take an additionality measure are exempt from the financial attractiveness or non-financial barrier analysis requirement (see 3.4.2).

This chapter includes requirements for the certification of small holders under the low ILUC-risk approach. It further includes guidance on small holder training, with the purpose to provide small holders with knowledge on the potential yield increase measures, which can be applied, as well as on the necessary steps for the implementation of measures and the requirements to be fulfilled to successfully achieve certification.

7.1 Basics

In general, the requirements for low ILUC-risk certification described in this handbook also apply to small holders (e.g. including requirements for sustainability, low ILUC measures and traceability). However, to reduce certain risks of the small holders and to ease compliance of small holders with low ILUC-risk requirements, certain responsibilities can be shared between small holders and their central offices. Therefore, the compliance with the land-based sustainability requirements from Directive 2018/2001 (section 3.3) should be verified through the application of remote sensing tools, while the soil related requirements are part of the regular on-site audit.

Small holders are in most cases certified as part of a group. Under the low ILUC-risk add-on, small holder group certification is not principally different from normal group certification. Each member must comply with the criteria, including the above-mentioned limitation of two hectares and the ownership requirement.

Those small holders for which the remote sensing assessment did not detect land use change, can participate in the small holder group certification. For greenhouse gas emission, the disaggregated default value will be used for small holders. For all other sustainability criteria, a special training program can be set up (Train-the-trainer).

Subject to small holder group certification are the central office (CO), which is managed by the CO manager, and the small holders.

The following elements are relevant for the low ILUC-risk certification of small holders.

7.1.1 The small holders

A small holder is defined by Delegated Regulation (EU) 2019/807 Article 2(9) as a farmer "who conduct independently an agricultural activity on a holding with an agricultural area of less than 2 hectares for which they hold ownership, tenure rights or any equivalent title granting them control over land, and who are not employed by a company, except for a cooperative of which they are members with other small holders, provided that such a cooperative is not controlled by a third party".

7.1.2 The central office

A CO is the representative body of at least one group of small holders that are certified as a group, and that are independent from a first gathering point or an oil mill. To get certified as a group, the small holder must be located in the same area and must be homogenous in terms of size, types of crop and production processes.
A CO does not receive ownership of the low ILUC-risk materials. The CO is responsible for the following tasks:

- Small holder Management, i.e. training, internal audit of group members, inclusion of new small holders and exclusion of small holders, planning and documentation
- Responsibility for subcontractors, if relevant
- Administration, i.e. registration at the respective certification scheme, bookkeeping, supply chain documentation
- Management of funds (e.g. certification, external funds)
- A CO is audited with respect to the management system, traceability and chain of custody, as well as GHG emissions. A sample of all small holders that are members of the group is subject to an audit.

The elements of the supply chain are allowed to receive and supply low ILUC-risk material only after the receipt of a certificate. Relevant low ILUC-risk self-declarations have to be in place, chain of custody requirements have to be fulfilled and the

dispatch of material as low ILUC-risk is only possible after the start of the certificate's validity.

7.2 Certification requirements

As mentioned in section 3.1.2, small holders should be exempt from the additionality requirement in section 3.4.2 (financial attractiveness or non-financial barrier analysis). Therefore, measures taken by independent small holders should be exempted from proving compliance with the financial or non-financial barrier additionality criteria. Nevertheless, they do have to complete a management plan and comply with the sustainability criteria.

7.3 Traceability and Chain of Custody

Traceability and chain of custody cover two basic requirements:

1. The possibility of tracing low ILUC-risk products back and forth throughout the supply chain from origin to final delivery
2. The possibility of assigning product specific information to consignments (batches) of low ILUC-risk materials and products

Traceability describes the information and documentation requirements of the relevant amounts and properties of low ILUC-risk materials. For small holders the same traceability requirements as described under 3.6 are to be applied.

7.4 Group certification approach for small holder

For small holders a specific group certification process can be set up, if they are already certified under a voluntary scheme. This includes the steps "Preparation, Scoping & Risk assessment", "Management & Implementation", "Self-assessment, internal audit and certification", taken by the Central Office. The aim of the process is to support small holders to be eligible for low ILUC-risk certification.

7.4.1 Preparation, scoping & risk assessment

Preparation and Scoping includes certain actions for the company interested, that are the responsibility of the CO:

1. Pre-registering at the voluntary certification scheme
2. Provision of information on considered region
3. Initial risk assessment to identify risk areas and full remote sensing analysis for 'no risk' areas
4. Based on outcome, compliant regions can be considered for small holder group certification

For small holder certification, a landscape approach should be followed to ensure compliance with the land-related sustainability requirements. Therefore, the voluntary scheme conducts a land use change analysis with a remote sensing tool.

After pre-registering, the Central Office has to provide information on the considered region. This includes information such as geo-coordinates of the region and coordinates of the small holder land subject to low ILUC-risk certification. A risk assessment will be conducted by the respective certification scheme to identify risk areas (overlap of the considered region with protected areas, such as primary forests, peatlands or biodiverse grassland; verification of land-based sustainability criteria from the RED II) and a full remote sensing analysis in order to identify so-called Go- and No Go-areas. Based on the outcome, compliant small holders and COs can be determined. These compliant small holders can participate in the small holder training, held by the respective certification scheme.

7.4.2 Management & implementation

After preparation and scoping, where a remote sensing analysis is performed to identify compliant small holders and set up of a CO, the formal group certification, as described in chapter 6 starts. The CO that would like to receive a low ILUC-risk certificate, must apply a group certification procedure that is split into four steps:

1. Training of CO

Training is an important feature for the successful integration of small holders in low ILUC-risk certification. The targets of the training for the CO is to make them aware of the low ILUC-risk certification and benefits of a certification and to explain the key framework of a certification, requirements and organizational adaptations for small holders and CO. As the access of small holders to low ILUC-risk training is a challenge, a "Train-the-trainer" concept is set-up. The "Train-the-trainer" concept is a three-level approach, whereby the voluntary scheme trains eligible parties or master-trainers (1st level), who then train the CO (2nd level). The CO trains all eligible small holders (3rd level).

1st and 2nd level trainings consist of four training modules including the introduction into sustainability and low ILUC-risk certification, small holder organisation and relevant documents. The 3rd level training consists of three modules. Where possible, low ILUC-risk trainings for small holders can be embedded into other existing training schemes such as trainings on Good Agricultural Practices. Any feedback from small holders, COs or the master trainer provided during the trainings shall be transferred to the respective certification scheme for inclusion into the training concept.

2. Registration of all potential group members in a management system (optional)

The CO and all small holders that shall be subject to certification, can be registered in a small holder IT system. Here, data for the CO and on small holders are added to compare if results from the remote sensing risk assessment on land-related sustainability requirements match with the small holders in question.[21] Different IT solutions for small holder management including Apps for smartphones are available.

[21] As an example, please see the following link: https://www.gras-system.org/service-competence/our-services/smallholder-monitoring/

3. Identification of small holders compliant with the land-related sustainability requirements, small holder training & data acquisition

With the help of the IT system, the CO can check whether the coordinates of the small holders are within a critical area according to the remote sensing analysis. Therefore, the CO can include relevant small holder data or the small holders can use apps to access and modify its data within the Data Management System. If the coordinates of a small holder are within the critical area, the small holder cannot take part in the low ILUC-risk certification and has to be excluded from the small holder group certification program. If the small holder does not lie within a No Go area and thus, is compliant with the land-related sustainability requirements, then they can take part in the low ILUC-risk certification program. Small holders, who, according to the remote sensing analysis, converted land after January 2008, cannot provide self-declarations or data. Next steps for compliant small holders are further data acquisition and training.

To ensure a gradual improvement of small holders, a training program on low ILUC-risk certification is set up ("Train-the-trainer"). All small holders participating in the low ILUC-risk certification, need to participate in such a training.

After or during the training, further small holder information needs to be gathered. These data include information such as provided under 3.1 and 3.3. including information on yields, applied additionality measures and the information provided in the low ILUC-risk self-declaration or also the participation attestation for the training. They are listed in an excel sheet and further integrated in the IT System being used.

Training and data acquisition can be conducted partly in parallel. During the low ILUC-risk training for small holders, the data requirements have to be provided to the small holders. The small holders can then also provide further data in the training, via the apps or even together with the signed self-declaration to the CO. At latest, these documents shall be provided to the CO during the internal audit

4. Organizational adaptation

After identifying the small holder, which are subject to low ILUC-risk certification, the respective organizational adaptations need to be applied. As the CO is the holder of the low ILUC-risk certificate, it is also responsible for the management and compliance of the small holder (including training, self-declarations, internal and external audits, administration such as bookkeeping and supply chain documentation or also the management of funds and transportation).

7.4.3 Self-assessment, internal audit and certification

The final step of a successful small holder low ILUC-risk certification are self-assessment and audits.

Not all small holders within the considered region need to be certified. Only small holders that are willing to get low ILUC-risk certified are subject to that certification add-on. If a small holder wants to get low ILUC-risk certified, then they must sign a self-declaration and provide it to the CO (step 1).

Based on the self-declarations, the CO will undertake internal audits (step 2). The internal audit covers the low ILUC-risk requirements for small holders and must be repeated annually. Within the 1st internal audit, all small holders who have provided a self-declaration need to be checked. From the 2nd internal audit on, at least the square root of all small holders must be checked annually (if no new small holders were added within the last year).

If new small holders are added and provide self-declarations during the year, raw materials from those small holders cannot be sold as low ILUC-risk certified as long as they have not been subject to an internal audit. In order to verify compliance with the land-related sustainability requirements, the internal auditor has to compare the small holder field coordinates with the remote sensing analysis results. For verifying compliance with the sustainability requirements for soil quality and soil organic carbon, the internal auditor has to follow the audit procedures on-field.

If non-conformities are detected, corrective measures must be identified. The internal audit cannot be closed as long as those corrective measures have not been implemented. If corrective actions have not been implemented within 40 days or if the small holders refuse to implement corrective actions, they must be excluded from group certification.

If the internal audit was successful, the auditor signs the audit report and hands it to the CO. The CO will mark the small holder as new low ILUC-risk-compliant group member. Materials delivered by this small holder can now be considered as low ILUC-risk compliant. A sample of all small holders that are members of the group is subject to an external audit.

As soon as the internal audit has been conducted, the CO and the small holder group can be subject to an external audit conducted by a CB (step 3). This includes four steps:

1 CO selects a CB

2 CO registers for certification with one of the recognized low ILUC-risk certification schemes

3 CB conducts the audit

4 CB issues the certificate and the respective certification scheme publishes certificate on website after internal review

A certification audit can only be conducted after a system usage agreement has been concluded with the certification scheme.

Among other information, the CO has to name at least one member of staff who can be contacted by the respective certification scheme for all matters regarding the registration or certification. These contact persons are responsible for internally distributing any communication on low ILUC-risk certification to all relevant members of staff.

The CO receives a certificate upon the successful completion of a certification audit by an eligible auditor as appointed by the CB with regard to compliance with the respective VS. Auditors can only conduct small holder audits after the successful participation in a small holder training for CBs. These audits are referred to as certification audits. Since certificates are valid for 12 months, a certification audit is conducted once a year. For the low ILUC-risk certification a baseline audit has to be conducted just as described in section 3.1.2., which is then valid for 10 years. The calculation of the volume of additional biomass produced and claimed has then to be checked by an external auditor on an annual basis.

With the certification the compliance of the CO with low ILUC-risk requirements is proven. The low ILUC audit checklist includes requirements also for both, the small holder and the CO. The auditor must complete the audit procedures to prove evidence of compliance of an economic operator with the low ILUC-risk requirements. These procedures should also be used by CO to prepare for the audit as well as for the internal audits.

Within small holder certification, the auditor will check at the CO the compliance with the relevant sustainability and low ILUC-risk requirements, the bookkeeping and supply chain documentation as well as training documentation and participant lists. At the small holder, compliance with the applicable sustainability requirements, i.e. requirements for soil quality and soil organic carbon, correctness of the self-declarations and participation in the low ILUC-risk training is verified. Where subcontractors take certain tasks, the auditor will also check compliance with respective requirements. The procedure of small holder sampling and verification is further described in chapter 6 of this handbook.

Certificates are valid over a period of twelve months. Not all small holders have to be subject to certification directly. They can also be continuously added over time. However, raw materials from small holders can only be accepted as low ILUC-risk compliant if small holder successfully participated in a low ILUC-risk training, provided a self-declaration and were subject to an internal audit.

APPENDIX

Appendix I – Worked examples for how to calculate dynamic yield baseline

[To be completed]

Appendix II – How to determine global crop trendline

[To be completed – with reference to Table 3]

Appendix III – Examples for how to exclude outliers in the determination of a dynamic yield baseline

Example 1: Use of historical data for dynamic yield baseline determination

If data for Y-2 is missing or poor, the next preceding year is used to calculate the three-year average, in this case Y-4. If historical yield data is missing for multiple years, for instance Y-2 and Y-3, then crop yield data for the years Y-4 and Y-5 should be used instead to calculate the starting point of the dynamic yield baseline.

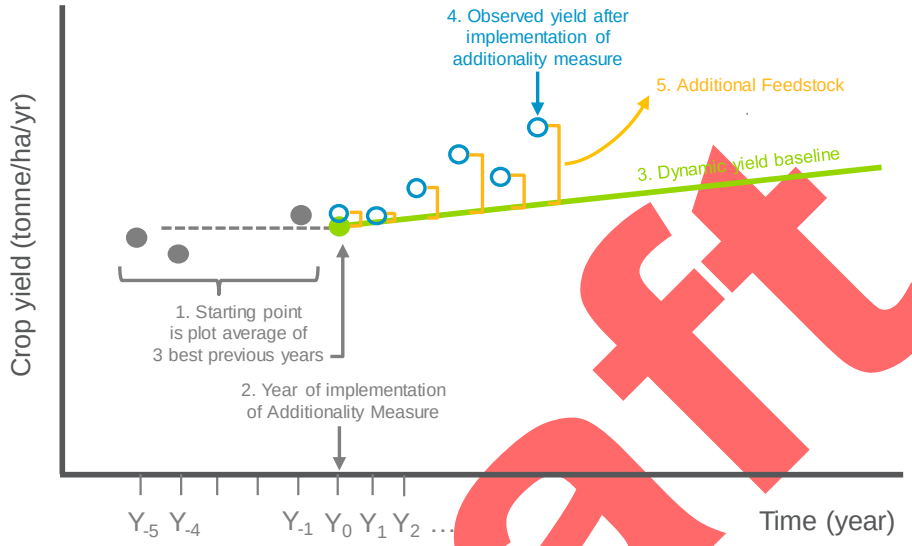

Figure 7: Set-up of a dynamic yield baseline starting point in the case of missing historical crop yields

In case outliers are identified and historical data needs to be used to determine the dynamic yield baseline, the following rules need to be applied:

Of the three crop yield data points that are used to calculate the average, the highest value should not be more than 30% above the median value, and the lowest value should not be less than 30% lower than the median value.

Outliers are replaced with values of previous years. In finding values that fall within ±30% of the median, the years closest to Y0 are prioritised (not going beyond Y-6).

If in the 5 years preceding the implementation of the additionality measure, the variation of the crop yield is so large that this rule cannot be observed, then the data is deemed of insufficient quality.

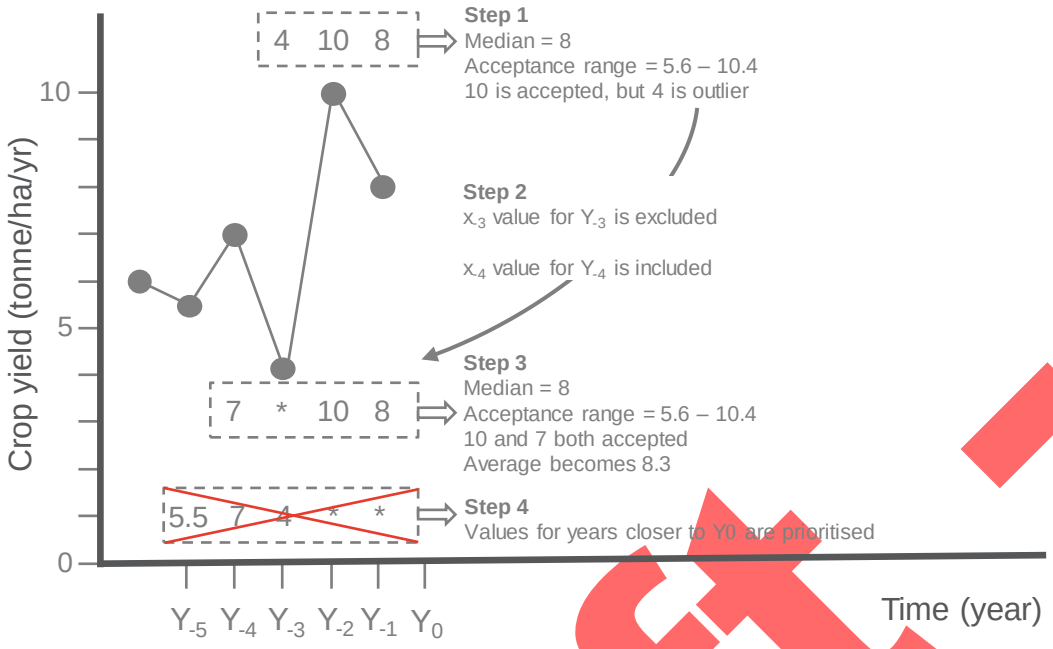

Figure 0-1: Finding the starting point for the dynamic yield baseline in the case of poor data quality.

The data could also be judged to be of insufficient quality if:

The plot size varies too much for the 3 years upon which the average is based. This is the case specifically if the smallest plot size is less than 10% of the largest plot size in the years selected.

Upon the judgement of the auditor.

Should historical crop yield data not be available to calculate the 3-year average at a farm level, if the crop yield variation is too large (no three data points within ±30% of the median) or if data is of insufficient quality, then the economic operator will need to use the crop yield data reported at a national level by FAOSTAT for the 3 years preceding the implementation of the additionality measure for the country in which the delineated plot is located.

In this case, the starting point of the dynamic yield baseline is taken as 125% of the average of the yields of these three previous years to give a conservative dynamic yield baseline.[22] Only for small holders, the starting point of the dynamic yield baseline, is taken as 75% of the average three-year yield.

Example 2: Setting of the dynamic yield baseline

Example: In the case of maize grown by an economic operator on a delineated plot of land, the dynamic yield baseline would be set as follows. An additionality measure is implemented in 2018 and historical crop yields are recorded for maize of 6.9, 7.9 and

[22] This is in analogy to the 'default values' for greenhouse gas emissions in Annex V of the RED II: in the absence of data for a specific case to be certified, a more generically observed value is multiplied by a factor, so that the result is deliberately conservative.

8.5 tonnes/ha for 2015, 2016, and 2017, respectively. The average calculated is 7.8 tonnes/ha. This value represents the starting point of the dynamic yield baseline for Y0 (2018 here). The value of the slope-20 for maize, 0.074, is then added to the average for each year for 10 years.

Figure 9: Setting the dynamic yield baseline for an annual crop

Appendix IV – Advantages and disadvantages of the different options to calculate dynamic yield baseline for perennial crops

This appendix describes the advantages and disadvantages of the different options to determine dynamic yield baseline for oil palm. These are provided for context to understand how the options were developed.

Table 6: Advantages and disadvantages of option 1a.

	Advantages	Disadvantages
Approach specificity	Using a standard growth curve averaged over a number of reference growth curves obtained from literature provides a universally applicable reference for economic operators.	The extent to which the same standard growth curve is representative enough to fit all situations and could be applicable to all plantations still needs to be tested.
Approach robustness	Can be applied consistently and by all economic operators, including small holders and agribusinesses alike. However, the three historical yield data points should be obtained within the same phase of the palm's lifetime (e.g. immature years, peak years or old years) to avoid distorting the average.	The dynamic yield baseline will only be as robust as the quality of the data provided by the economic operator. However, because the starting point of the dynamic is averaged, the effect low quality data can have on the dynamic yield baseline is limited.
Data requirement	The approach relies on information which can be easily audited by the certification body.	The source and number of different growth curves to be used from literature to produce the standard growth curve still needs to be defined.

Table 7: Advantages and disadvantages of option 1b

	Advantages	Disadvantages
Approach specificity	Allows economic operators the opportunity to provide a growth curve more specific to the cultivars of palm used on their delineated plot.	If the growth curve represents "ideal" conditions in a test nursery, it might set a baseline that is too high for the conditions on the operational plantation.

Advantages	Disadvantages
Approach robustness	The robustness of the dynamic yield baseline depends on the quality of the growth curve provided by the economic operator. Criteria could be set to ensure the growth curve provided by economic operator is appropriate.
Data requirement	May be difficult for an auditor to judge the appropriateness of a growth curve provided by an economic operator and opens the door to economic operators "cherry picking" a growth curve that suits their situation.
Data accessibility	The publication of the growth curve yield data as part of an audit report might be difficult if the seedling used has been developed in-house and the growth curve data is proprietary.