



ROUND TABLE ON RESPONSIBLE SOY ASSOCIATION (RTRS)

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METHODOLOGY FOR ESTIMATING AND CALCULATING REAL SOY AMOUNTS FOR RTRS CERTIFICATION

I. Introduction

The RTRS accreditation and certification system requires certification bodies to estimate the soy production volume of the production unit/s when certifying the campaign's foreseen RTRS production standard. This happens when an audit is carried out before the end of the harvest, i.e., before the full harvest. In addition to the estimated production amount, a real production amount is also required when the harvest in the production unit is completed, i.e., when there are no more areas to be harvested.

Both the estimated and real amounts are of vital importance to the RTRS and to producers, as each ton of soy is equivalent to credits that the producer can sell on the Trading Platform.

Due to the aforementioned reasons and to the importance of homogenizing an opinion and a standardized estimation methodology for soy production estimates and real amounts, the RTRS sets forth a methodology to be followed by auditors of RTRS-endorsed Certification Bodies when auditing such estimation.

As described above, this estimation methodology should be used when the audit is conducted prior to the harvest and there is no accurate data of the current harvest yield, differently from using the actual amount when the harvest in the production unit has concluded, and therefore the auditor should seek out information to obtain the most accurate yield amount considering the reality and situation of the certified unit(s).

II. Scope

This document establishes the criteria and guidelines for calculating the estimated and real soy production of those producers applying for the RTRS agricultural standard certification for their campaign.

Both the estimated and the real amounts must be updated annually for each campaign, when initial certification, annual surveillance, or re-certification audits take place, while always considering the harvest stage at the time

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III. Definitions

Average yield: $\frac{\text{Total tons of soy produced}}{\text{Total hectares sowed}}$

- Agricultural hectares: Production hectares sowed with soy over which producers have management and responsibility.
- Production unit: Area over which producers are responsible for their management, develop their productive and conservation activity, and wish to submit to the certification process.
- Similar agronomic conditions: They are determined according to: soil type, fertility levels, similar rainfall patterns, similar management practices (technology, tillage system, agrochemical application) among others.
- Representative production unit: Production unit identified with similar agronomic conditions and management practices equivalent to all the units of the considered stratum. Its selection must be justified.
- Stratum: Group of production units sharing similar or uniform agronomic features.

A. Estimation methodology for determining estimated soy production

Different estimation options will be presented from the most general to particular cases.

Auditors shall choose the estimation option based on conditions shown taking into account various factors, available information, and situations that may occur. Auditors shall justify their chosen estimation options.

It is important to clarify that if the information is available, but not immediately available when audits take place, auditors may: either ask for it before the audit or postpone the estimation until producers can provide this information which they do have, but which is not available at that moment. Each certification body may determine a maximum term for producers to submit the necessary information to carry out estimations.

A.1 General estimation methodology for estimated soy production

Estimated RTRS soy volume = [(average yield of last 5 campaigns x number of production unit's soy agricultural hectares) x 0.85]

The average yield over the last harvests must be considered with all the discounts already applied, involving factors such as weight, humidity, foreign matter and impurities, damaged, scorched, burnt and greenish properties, when calculating the final weight to obtain the net real yield for the producer.

If the result is a decimal number, rounding up should take place.

For example:

Estimated RTRS soy volume = 10,540.5 → rounds up to 10,541 estimated tons of RTRS certified soy.

Let's see one example using the formula:

Supposition: in the 5 years the same soy variety has been planted under similar agronomic conditions.

Necessary information 1:

Year 2016 average yield per hectare	2.90 metric tons
Year 2017 average yield per hectare	3.01 metric tons
Year 2018 average yield per hectare	2.82 metric tons
Year 2019 average yield per hectare	3.12 metric tons
Year 2020 average yield per hectare	2.60 metric tons
5-year average yield per hectare (to calculate 2021 campaign)	= 2.89 metric tons

Necessary information 2:

Number of soy agricultural hectares to be certified: 5,000

I apply the formula:

Estimated RTRS soy volume = $[(2.89 \times 5,000) \times 0.85] = 12,282.5$ tons

I apply rounding up = 12,283 estimated tons of RTRS certified soy.

The estimated 12,283 tons of soy is the figure that the auditor shall consider and include in his/her audit report.

A.2 Estimation methodology for estimated soy production in multi-site and/or group cases

A.2.1 For group or multi-site certifications with different production units having similar agronomic conditions, the estimation formula will be:

Estimated RTRS soy volume = $[(\text{last 5 year average yield of a representative production unit} \times \sum \text{soy agricultural hectares of all multi-site or group sites}) \times 0.85]$

If the result is a decimal number, rounding up should take place.

Example:

Information 1

In this case, a representative unit having an average 2.95 ton yield per hectare in the last 5 years is chosen from the group.

Information 2: The group or multi-site is made up of 4 production units having the following areas:

Name of production unit	Area sowed
Unit I	1,200
Unit II	2,000
Unit III	1,500
Unit IV	1,600

I apply the formula:

Estimated RTRS soy volume = $[(2.95 \times (1,200 + 2,000 + 1,500 + 1,600)) \times 0.85] = 15,797.25$ tons

I apply rounding up = 15,798 estimated tons of RTRS soy.

A.2.2 For group or multi-site certifications with various production units having different agronomic conditions, the set of production units must be stratified in homogeneous groups as to similar agronomic conditions and management practices.

Then, in case the group or multi-site has been stratified into 2 groups, the estimation formula will be as follows:

Estimated RTRS soy volume = [(last 5 year average yield of a stratum 1's representative production unit x (∑ soy agricultural hectares of all stratum 1's sites)+ last 5 year average yield of a stratum 2's representative production unit x (∑soy agricultural hectares of all stratum 2's sites)) x 0.85]

Example:

Information 1

The group or multi-site is made up of 6 production units and they are divided into 2 different strata.

One representative unit having a 3 ton average yield per hectare in the last 5 years is chosen from stratum 1.

One representative unit having a 2.05 ton average yield per hectare in the last 5 years is chosen from stratum 2.

Information 2

Stratum 1

Production Units	Soy agricultural hectares
Production unit I	1,200
Production unit II	2,000
Production unit III	1,500

Stratum 2

Production Units	Soy agricultural hectares
Production unit IV	2,000
Production unit V	2,000
Production unit VI	1,800

We apply the formula:

Estimated RTRS soy volume = [(3 x 4,700) + (2.05 x 5,800) x 0.85] = 21,891.75 tons

I apply rounding up = 21,892 estimated tons of RTRS soy.

The group stratification methodology may be applied considering the amount of available information for the different production units and their agronomic conditions and management systems. Those production units having a similar amount of available data can be grouped and, according to the applicable methodology, (see items B.1, B.2 and B.3), estimated by strata. Once estimations have been made for each case, the stratification formula is applied (A.2.2) to obtain the estimated RTRS soy volume.

B. Cases where information on production units' average yields in the last 5 years is not available

B.1 Information on the last 5 years is not available, but there is information on the last 4 or 3 years¹.

In this case, estimation is made as usual (applying formulas in item A.1, A.2.1 or A.2.2 as applicable), but considering 4- or 3-year terms as applicable.

B.2 Information on previous yields is not available or there is only partial information on some years, but this does not reach the minimum of the last 3 years.

In this case, external public reliable and verifiable sources must be consulted, such as data from organizations like INTA (Argentina), Embrapa, Conab (Brazil), provincial, state, or national Secretariats or Ministries of Agriculture, etc.

Data of yields obtained from these sources will be used to make estimations with formulas in item A.1, A.2.1 or A.2.2 as applicable.

B.3 If it is not possible to have information as in case B.1 or if it is not possible to estimate as in case B.2.²

In this case, an estimate of the current plantation yield must be made through recognized agronomic calculations carried out by a qualified technical responsible person and, using this estimation, the formula A.1, A.2.1 or A.2.2 must be applied as applicable.

C. Calculation estimation for the following year

During the following year, or before, when possible, the estimated total soy production must be contrasted with the real one, while considering realized discounts and including factors such as weight, humidity, foreign matter and impurities, damaged, scorched, burned and greenish properties in the calculation of the final weight, thus obtaining the net real yield for the producer.

¹ Note: Cases like B1 or B2 may be justified when producers are new in the area or when they rent or buy fields without enough information about previous managements.

² Note: In these cases, the way estimated, and real amounts are calculated must be justified.

If the actual total is higher than the estimated one, then credits must be added to the estimated number obtained from that year.

If the actual total is lower than the estimated one, it will be checked that no overselling occurred either through physical flow and/or credits system.

If credits are sold, through either physical or Credit System, exceeding the total amount estimated by the auditor, the excess amount will be discounted in the next audit.

D. Calculation methodology to determine real soy production

This document contains guidelines on how to use techniques to calculate the net real soy production.

Given the natural variations of a productive environment, as well as the different existing production systems, a generic calculation model cannot be used, so the considerations analysed and the examples given in this document are not exclusive, considering different factors and thus preventing under- or over-estimated data.

Incorrect data compromises the integrity of the RTRS certification standard. Hence the importance of following the parameters and entering them in the audit report, to demonstrate the traceability of the information and how the auditor obtained that amount.

D.1 After the soy has been harvested and is stored in the productive unit(s), but without the real net production amount with discounts applied

Soy storage is another important point to consider, since not all factors needed to calculate net real soy production are available at this point. As such, a discount factor of 4%³ must be applied to arrive at an estimated real amount.

Over the following year, this amount must be corrected and updated while considering real discounts and involving factors such as weight, humidity, foreign matter and impurities,

³ This percentage was obtained from an average of discounts applied to certified producers and was discussed with other producers from the main countries where RTRS is certified. These discounts include moisture, damaged grain, foreign matter, greenish grains, burnt grains and moldy grains, which are the most common discounts applied to any producer.

damaged, scorched, burned and greenish properties in the calculation of the final weight, thus obtaining the net real yield for the producer.

If the net real amount is higher than the estimated amount, the credits must be added to the estimated amount for that year.

If the net real amount is lower than estimated, it will be checked that there was no over-sale of physical flow and / or credits on the Trading Platform. If any volume were sold, through either physical or Credit System, exceeding the real amount estimated by the auditor, the excess amount will be discounted in the next audit.

D.2 When the producer already has the real net production with discounts applied, the soy has already been sold and is no longer stored in the productive unit(s)

When the soy has already been sold, the net real value must be calculated by discounting factors such as weight, humidity, foreign matter and impurities, damaged, scorched, burnt and greenish properties in the final weight calculation.

Auditors must always check the area where the soy has been sown, as well as production blocks or plots and the method used when tallying the harvested soy. Sources such as the final tally of the electronic system used by the productive unit(s), in the case of large areas, or manual tallies in the case of small areas (e.g., family farming).

When the amount reported by a producer differs from the average of a given region, or in the advent of another factor that raises doubts about a producer's real net production, auditors should check and report to RTRS the following information:

- sampling controls and proofs of cargo loading during soy transportation and storage;
- the soy cultivar used, so as to check productivity with the manufacturer);
- the soy cycle (early, medium or late);
- edaphoclimatic factors (climate, soil, temperature, precipitation, light, hail, winds, altitude and climatic zoning) and weed presence and control;
- pests and diseases, as well as control measures in place to enable an environment suitable for soy production (use of pesticides, IPM, etc....);
- soil fertility and fertilization (use of lime, gypsum and fertilizers, as required for crop and soil analysis) and whether they have influenced productivity;

The Certification Body must include evidence of realized discounts in the report, considering factors such as weight, humidity, foreign matter and impurities, damaged, scorched, burned and greenish properties in the calculation of the final weight, thus obtaining the producer's net real

yield. This can only be done if the producer has already sold his soy to the next link in the supply chain or if the producer keeps it stored in his production unit.

For group or multisite certification, the auditor must analyze the sampling, weighing and cargo loading controls during soy transportation and storage in all production units included in the scope of certification, not just a single sample, in order to obtain a more representative net real production amount, considering discounts.