Soy traceability and supply chain transparency

SOY TOOLKIT

GOOD GROWTH PARTNERSHIP

WWF

proforest

gef

5-element approach

Monitor, verify and report

Understand supply chain risks

Assess and plan implementation

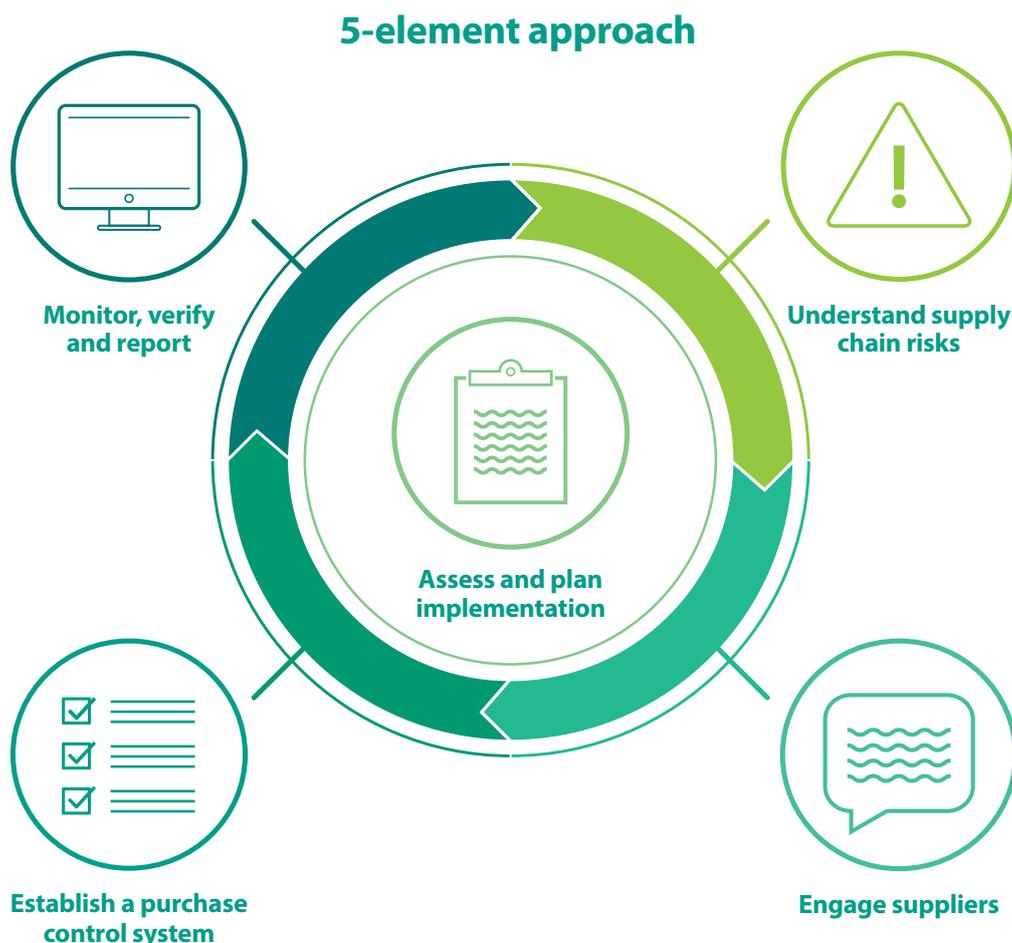Establish a purchase control system

Engage suppliers

Figure 1: A 5-element approach for sourcing environmentally and socially sustainable soy

Key Points

- Traceability of soy is important to enable companies to assess whether their procurement policies on deforestation and other environmental and social issues are being met at the production level.

- This is a long-term process as part of supplier engagement, and it may take years to achieve full traceability to production level.

- The further downstream a company is, the more it needs to rely on upstream suppliers' actions to achieve traceability.

- Traceability is not an end in itself: Improving supply chain transparency on how and where soy is produced is only a tool to enable companies to take positive action towards compliance with their commitments.

Purpose of this briefing note

This briefing note is part of the Responsible Sourcing: A Soy Toolkit guide[1]. It relates to element 2 (Understand Supply Chain Risks) of the 5-element approach for sourcing environmentally and socially sustainable soy **(Figure 1)**.

Most risks associated with soy refer to the place of origin and practices at farm-level. To better understand their own exposure to the main risks, manage them and assess the level of progress towards implementing responsible sourcing policies, companies need to ensure products are traceable in the supply chain back to production. This can be challenging for commodities with a complex supply chain, such as soy.

This briefing note outlines a process to map the supply chain and implement traceability systems, considering the main challenges, tools, and practical examples for companies at different positions in the supply chain.

Soy Supply Chain

The soy supply chain is made up of a complex set of actors and diverse links between them **(Figure 2)**. Understanding its complexity is essential for devising a strategy to trace soy back to origin. As vegetable oil, soy is used in many products going from confectionary and bakery, aquaculture, margarine and mayonnaise among others. Soy is also processed into soymeal used as an important source of protein to feed poultry, hogs, dairy cows, farmed fish and beef cattle. Therefore, it is embedded in eggs, meats and dairy supply chains. On top of these, soy oil is used for biodiesel, increasing the spectrum of products where it is present.

Traceability[2] is commonplace for perishable food and beverages and has been in place for some time driven by contamination and food safety concerns[3]. Systems are mandated by a range of legislation, initiatives and they can also be useful for defining traceability in responsible sourcing.

When legal frameworks are not sufficient to achieve traceability, companies often adopt voluntary programs such as the Global Food Safety Initiative (GFSI)[4], which provide guidance for recognition of certification programs based on position in the supply chain. For soy, systems have mostly been developed to ensure segregated non-Genetically Modified (GM) supplies.
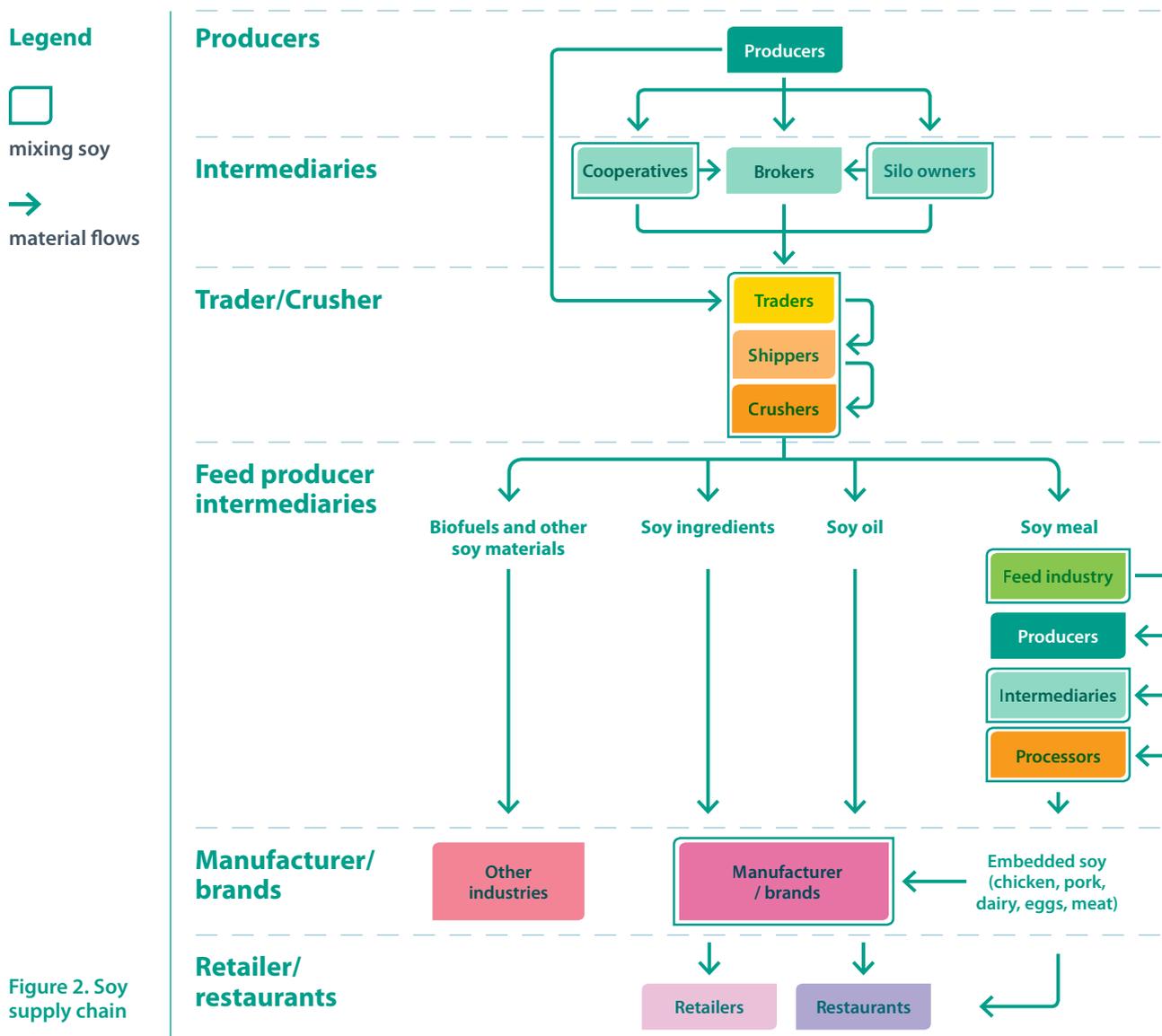
Legend

☐ mixing soy

→ material flows

Producers

Intermediaries

Trader/Crusher

Feed producer intermediaries

Manufacturer/ brands

Retailer/ restaurants

Figure 2. Soy supply chain

Key steps, tools and approaches for traceability and supply chain transparency

Define what 'traceable' means	→	Engage direct suppliers	→	Map your supply chain	→	Categorise volumes and validate information	→	Monitor traceable volumes

01 Define what traceable means

Companies may have different objectives and strategies to implement traceability. These differences will depend on their position in the supply chain, their diversity of products, their regulatory and business environment, and their different strategies to implement their commitments. The first step is then to define basic traceability requirements: what will be traced, the scope of traceability, which systems will be used **(Box 1)**.

Box 1. Traceability requirements and what they mean at different stages of the supply chain **1**

Traceability requirements	Upstream companies	Downstream companies
Coverage **Which purchases will be traceable?**	Upstream companies buying soybeans globally may prioritize traceability efforts in countries with higher risk of no compliance with their policies.	Downstream companies buying numerous products globally may start by focusing traceability efforts on products with greater soy footprint[5] and shorter chains or with less transformation stages.
Supply chain reach **What stages of the supply chain will be included?**	Upstream companies can reach the production level when buying soy directly from producers. When the direct supplier is an intermediary, upstream companies need to engage with this additional stage to identify the farm or production region.	Downstream companies may have traceability to farm as their long-term goal but may need to start by engaging direct suppliers and then to progressively increase supply chain transparency upstream. For embedded soy, other routes may need to be explored; e.g. requesting direct suppliers to identify municipality/district of origin, or even the state or province.
Traceability System **What system will be used to register material flow?**	Certification schemes such as the Roundtable for Responsible Soy (RTRS), Proterra and voluntary commitments as the Soy Moratorium have their own traceability systems. Brazil has no public traceability system for soy. Companies can develop or adopt tailored traceability systems (e.g. blockchain).	
Chain of custody model	Options include segregation, when products may not be traced back to a single source, but compliant volumes are physically separated from others, and mass-balance, when compliant and other volumes are mixed, but an exact account is kept about the volume ratios[6].	In addition to segregation and mass balance, downstream companies can buy credits (book & claim model) in an online market for a specific certification scheme.

Finally, the definition of traceable is also influenced by the approaches a company uses to implement their commitments. Different approaches imply different definitions of what is traceable (see **Box 2**).

Box 2: Defining 'traceable' based on policy implementation approach

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Product Specification

Soy certifications (e.g. RTRS and Proterra) normally require evidence of compliance at farm-level and a complete chain of custody (segregated or mass-balance) for specific volumes. 'Traceable' here often means the assurance that the soy comes from certified farms (partially or totally), even if not clear which ones[7].

Supplier engagement

Companies engage directly with suppliers to map the next tier of suppliers upstream until they eventually have volumes traceable to the crusher, other first point of aggregation or producers. Volumes are traced through suppliers' information.

Landscape or jurisdictional initiatives

In initiatives like the Produce, Conserve and Include program in Mato Grosso state of Brazil, companies, government and NGOs collaborate to achieve zero deforestation at municipality scale. Although it is not a traceability system, linking the supply to specific municipalities in this context is enough to support action.

Sector approaches

Sectoral initiatives work at various levels and therefore define 'traceable' differently. The Soy Moratorium, for instance, has implicitly defined where the soy does not come from, instead of where it does come from. It does not come from recently deforested areas in the Amazon.

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02 Gather information from your direct suppliers

Regardless of the approach used to map the supply chain, suppliers' collaboration is key to the success of a traceability program. Companies should engage with direct suppliers[8] to explain why traceability is needed and what information suppliers are expected to share. The type of information requested will differ between upstream and downstream companies.

Traceability is about supply chain collaboration and transparency

Upstream companies can get the farm location (or the CAR - Rural Environmental Registry[9] in Brazil), which allows further analysis of intersection with protected areas, deforestation, embargoed areas and other environmental and social aspects **(Box 3A)**. CAR number gives access to spatial information on farms' boundaries and level of compliance with the Forest Code, which is useful for purchase control and monitoring systems. Other information to be required may include: production area (ha), soy productivity (t/ha), land tenure (owner or lessee).

Downstream companies will need to understand how many tiers may separate them from producers **(Box 3B)**. For companies with long and complex supply chains, it may be necessary to prioritise suppliers to start engaging. This can be based on volumes sourced, higher-risk origins, and commercial importance of specific suppliers, exclusive brands or less complex supply chains (e.g. with less soy transformation stages). Basic information that can be obtained with procurement teams included supplier register and transaction documents.

Box 3: Example of good practices in gathering direct suppliers' information in Brazil

3

A. Farm-level information to be requested by upstream companies

Farm name	Volume sourced in [previous year]	Rural environmental registry (CAR)	Certification (if any)
Farm 1	200,000.00 t	GO-8768290-5BNHY6TGKS87652GHNSTU3	RTRS (certificate number)
Farm 2	100,000.00 t	GO-8768290-5BNHY6TGKS87652G765TU3	No
Unknown[10]	5,000,000 t	None	No

B. Information to be requested by downstream companies

Supplier name	Type of supplier	Volume sourced in [previous year]	Does the supplier have a traceability system?	Traceability to farm-level (%)[11]
Supplier 1	Trader	50,000 t	Yes	90
Supplier 2	Food processor	20,000 t	Yes	10
Supplier 3	Food processor	30,000 t	No	0

03 Map your supply chain

After gathering information from direct suppliers, companies can then map their supply chain.

A set of approaches and tools can be used:

For whom?	Supply chain mapping approaches	How to use it	When to use it
Global Downstream companies	**Open platform:** TRASE Provides links between soy buying countries via trading companies to municipalities of production in Brazil.	By tracing flows through a list of direct and indirect suppliers, downstream companies can link soy purchases to production region. The platform is free and provides risk profiles of deforestation and other environmental and social impacts (e.g. land conflict) potentially related to soy expansion. Access it on **www.trase.earth**	Particularly useful for companies that use soy exported from Brazil and can identify the importer or country of import. Soy processed in Brazil is not traced in the platform yet. Supply chain mapping reaches the municipality level.
Downstream companies	**Build on supplier's programs** Companies can assess the robustness of suppliers' traceability systems against their requirements and build on their existing efforts.	Gather information on how suppliers map their supply chains, verify data and check if output information meets companies' needs. Harmonizing traceability information can be challenging and often requires external support. Where suppliers do not have a program, companies may need to support them to develop one.	Useful for downstream companies, whose suppliers may have supply chain mapping systems in place (certification, third party program, their own efforts).
Upstream and downstream companies	**Develop your own traceability system or contract a ready-to-use system** Gather initial information from direct suppliers on their suppliers' names and/or locations and volumes supplied using questionnaires. This can be done by the company's own staff or through a third party[12].	Traders and downstream companies can engage direct and indirect soy suppliers to trace soy purchases with tailored tools and questionnaires. To trace soy in processed products, more complex questionnaires may be required. Third parties can be useful when suppliers are unwilling to share commercial information directly with buyers. They can engage with different layers of suppliers to gather information and provide aggregated data or KPIs of traceability to buyers, protecting sensitive information.	This solution requires collaboration within the supply chain and can be time-intensive, so it is most effective when the volumes involved are high and the supply chains relatively short.

04 Categorise volumes purchased and validate the information

Soy that can be traced back to the production/municipality/region level (defined as 'traceable' by the company's policy) can be categorised as 'known'. Soy that cannot be traced back is categorised as 'unknown' **(Figure 3)**. It is important to decide what traceable means and to use the same approach consistently over time in order to monitor trends and report on them clearly.

Companies may want to validate information provided by suppliers using a due-diligence process. It is important to understand how they get the information, how accurate it is, how often it will change and if the criteria to categorise 'traceable' volumes are constant and compatible. If the information cannot be validated, a supplier may need the company's support to improve their system. Not all suppliers need to undergo due-diligence. Depending on supply chain complexity, systems in place and the existing verification process, additional due-diligence requirements may be needed only where there is higher likelihood of inaccurate information.
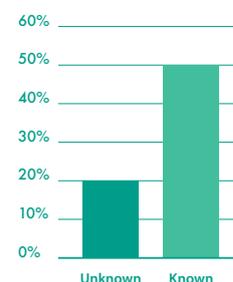

Figure 3. Reporting traceable volumes.

When is traceability enough?

Traceability usually takes time, sometimes several years. Define a plan to gradually increase the supply chain visibility and stay the course. At the same time, remember that full traceability is not the ultimate goal. Improving supply chain transparency on how and where soy is produced is only a tool to enable companies to take positive action.

05 Monitor traceable volumes

The soy market is dynamic, which means frequent changes in the supply base and volumes sourced. To deal with that, companies can set up a system to update and review the volumes reported as 'known' at regular intervals, according to prevailing purchase model[13]. Regular communication with direct suppliers is also important to monitor progress in traceability.

It is normal for 'known' volumes to go down with shifts in the supply base in the short term.In these cases, it is critical to understand the reasons and devise a strategy to reverse the trend and gradually increase known volumes. For reporting, companies can provide more information on their known origins using different metrics, based on their policy and delivery strategy and the platforms they use to report **(Box 4)**.

Box 4: Examples of traceability indicators reported by companies	**4**
ADM	**ADM's KPIs on traceability** % traced to farm for direct suppliers in prioritised municipalities % volume sourced by supplier type % volume traced to municipality
BUNGE	**Bunge's KPIs on traceability** % volume traced to farm in risky areas % volume traced to elevator for indirect sourcing
CDP	**Carbon Disclosure Project's KPIs on traceability** % volume that is traceable Point to which commodity is traceable

Key challenges and alternative approaches

Despite the progress already made in soy traceability, some challenges remain at the upstream and downstream ends of the supply chain. Key challenges and alternative approaches to address them are presented below.

Traceability from farm to trader/crusher

For traders, traceability can reach the farm level only when they buy directly from producers. As individual producers and cooperatives invest more in independent storage to help them negotiate better with buyers, there is a growing number of tiers between traders and the farm. When buying from intermediaries, there may be one or several tiers of supplier between traders and producers (*indirect suppliers*), hindering their visibility of the production level. In these cases, understanding the distribution of volumes purchased between direct and indirect suppliers' is an important first step in defining the approach to map the supply chain.

Avenues to increase indirect supplier visibility may include:

• Contract clauses indicating that traceability is required, set up training programs for suppliers to understand what they need to monitor and report, and put together simple communication materials with this information.

• Adopt a sector or region wide approach, which involves intermediaries as well as crushers/traders. The Green Protocol of Grains of Pará State (Protocolo Verde de Grãos do Pará)[14] includes indirect soy suppliers by stating that when companies do not purchase soy directly from a producer, they may only buy from warehouses of companies that are signatories to the Protocol.

Visibility of embedded soy

Most of soy traceability work in companies currently covers only direct soy purchases. However, soy is mostly used as feed for rearing cows, pigs, chickens, fish and other animals. Downstream companies are starting to address their embedded soy as well as direct purchases, but they lack clarity on how to quantify soy embedded in their products[15].

Avenues to increase the visibility of origin of embedded soy include:

• The Consumer Goods Forum and KPMG developed a framework to measure soy usage in retailers' own brand food products[16]. It is presented as a ladder based on the general level of effort a company needs to apply to gather and report traceability data.

• A new collaborative project, promoted by CGF and coordinated by Proforest, the Soy Buyers Coalition, *aims to bridge aims to bridge the gap between soy buyers and on-the-ground producers, with a view to finding new ways to tackle deforestation linked to soy production. (…) the coalition is working to map key sourcing areas with support from TRASE, identify areas of collective risks, and identify initiatives which could be helpful for companies to collaborate with*[17].

Support for SME suppliers

Some companies may be familiar with traceability processes, but it can be new and prohibitively expensive for small and medium-sized suppliers, with less capacity and resources. Downstream companies may need to actively support SME to help them understand what is needed and to develop their own supply chain mapping exercise. Alternatively, with their cooperation and when it is not commercially sensitive, SMEs can put their clients in direct contact with their suppliers for gathering traceability information.

Promising technologies under development

Emerging traceability technologies are under development, such as cloud-based programs (e.g. blockchain technology[18,19]) and forensic science (e.g. biochemical[20] and DNA analysis). Once fully operational, they may be able to identify production sites, and have the advantage that no central party needs to be trusted to gather data, although some approaches include independent audits.

These technologies are under development. They depend on partnerships with suppliers to utilize cloud-based programs, and with consultancies to form databases of growing regions[21]. Regardless of the technology chosen, getting suppliers' buy-in and cooperation to provide a common set of information remains critical for success.

Learn more and help us improve

More information is provided in the references below and at **www.proforest.net/soytoolkit**

Please also share with us information that will improve this Briefing Note (via **soytoolkit@proforest.net**).

References

1 For an overview of the Soy Toolkit and other briefing notes, visit: **https://www.proforest.net/soytoolkit**

2 Traceability can be defined as "the ability to track forward the movement through specified stage(s) of the extended supply chain and trace backward the history, application or location of that which is under consideration" (Global Traceability Standard) **https://www.gs1.org/sites/default/files/docs/traceability/Global_Traceability_Standard.pdf**

3 For more information on Traceability in global supply chains, see: **https://www.bsr.org/reports/BSR_UNGC_Guide_to_Traceability.pdf**

4 **http://www.mygfsi.com/about-us/about-gfsi/what-is-gfsi.html**

5 For more information on how to determine the soy footprint of different products, see the Soy Toolkit BN 1: Planning the implementation available on: **www.proforest.net/soytoolkit** and the *CGF Soy Ladder framework to measure soy usage* available on: **https://www.theconsumergoodsforum.com/wp-content/uploads/2017/09/201509-CGF_Soy_Ladder_Framework_to_Measure_Soy_Usage.pdf**

6 For more information on Chain of Custody Models and Definitions, check the ISEAL report available on: **https://www.isealalliance.org/sites/default/files/resource/2017-11/ISEAL_Chain_of_Custody_Models_Guidance_September_2016.pdf**

7 For more information on chain of custody systems, see this ISEAL video at: **https://vimeo.com/54659735**

8 For more information on how to engage your suppliers, see the Soy Toolkit BN 3: Supplier Engagement available on: **www.proforest.net/soytoolkit**

9 Cadastro Ambiental Rural, in Portuguese, is an online registration every rural property in Brazil is required to have by December 2018 and is the basis to assess and plan for full compliance with the Brazilian Forest Code. For more information on the use of the Rural Environmental Registry, please see: **https://www.proforest.net/en/files/guia-codigo-florestal_english_final_web.pdf**

10 When upstream companies are purchasing from intermediaries, engagement with them to get farm-level information will be needed.

11 This figure is to be based on information provided by upstream companies on their traceability to farm percentages.

12 Examples of traceability system developers: Safetrace, Agrosmart, Agrosatélite, Agrotools, Chain Point, IBM blockchain. For more information, see: **http://supply-chain.unglobalcompact.org/site/article/213** and **http://www.sourcemap.com/products**

13 For more insights on how to report on traceability progress, see the Soy Toolkit BN 5: Monitoring, Verifying and Reporting available on: **www.proforest.net/soytoolkit**

14 **http://www.mpf.mp.br/pa/sala-de-imprensa/documentos/2017/protocolo-verde-dos-graos-diretrizes-para-a-safra-2017-2018/**

15 More information on soy footprint is available at the Soy Toolkit BN 01– Planning the implementation available on: **www.proforest.net/soytoolkit**

16 **https://assets.kpmg.com/content/dam/kpmg/pdf/2015/10/framework-for-the-measurement-of-soy-usage.pdf**

17 **https://www.theconsumergoodsforum.com/news_updates/the-cgf-and-its-members-launch-soy-buyers-coalition/**

18 **https://www2.deloitte.com/content/dam/Deloitte/pt/Documents/blockchainsupplychain/lu-blockchain-internet-things-supply-chain-traceability%20(1).pdf**

19 For more information on how blockchain technology can be used in traceability systems, see: **http://lup.lub.lu.se/luur/download?func=downloadFile&recordOId=8918347&fileOId=8919918** and **https://www.sklkommentus.se/globalassets/kommentus/bilder/publication-eng-blockchain-for-food-traceability-and-control-2017.pdf**

20 For examples on biochemical technology for traceability see: **https://oritain.com/how-it-works/for-businesses/**

21 For examples of blockchain technology usage to traceability in food supply chains, see: **https://www.ibm.com/blockchain/supply-chain/**

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