
Soy traceability and supply chain transparency

Soy Toolkit
Briefing Note 02.A



Version 1.1



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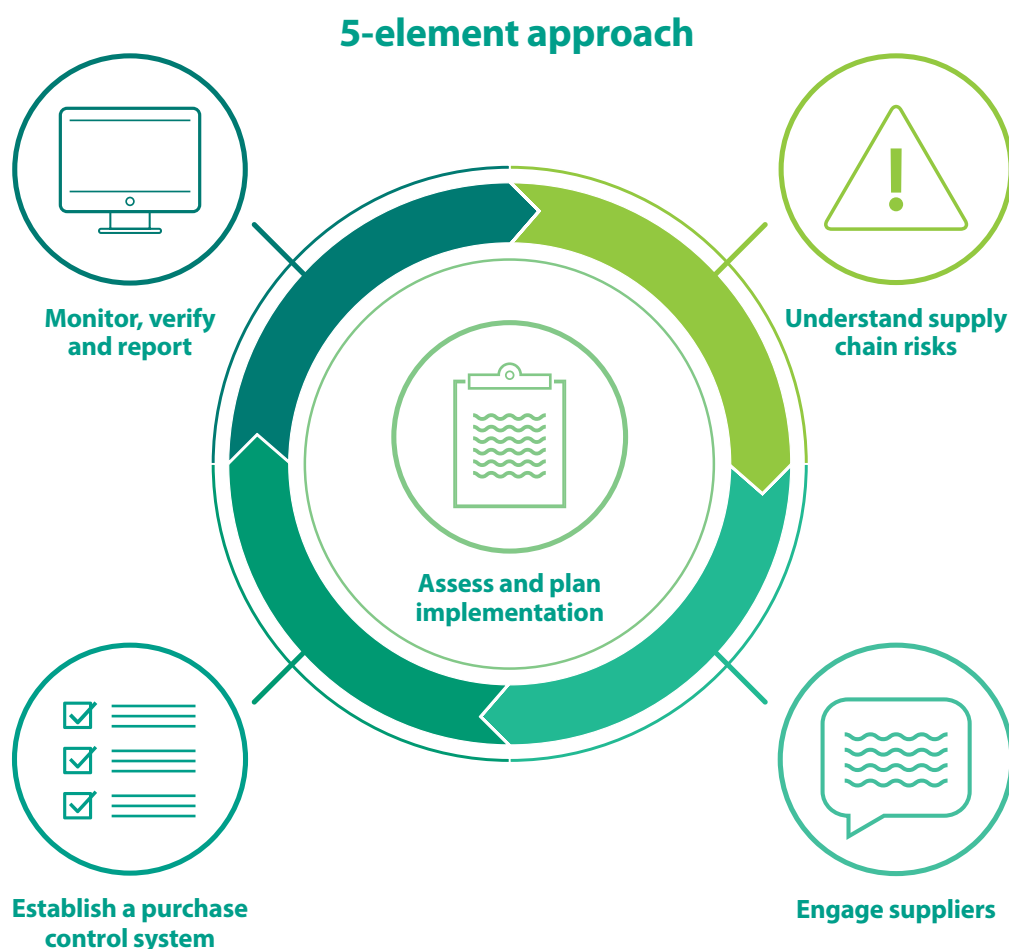


Figure 1: A 5-element approach for sourcing environmentally and socially sustainable soy

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 guide¹. 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.

Traceability² is commonplace for perishable food and beverages and has been in place for some time driven by contamination and food safety concerns³. 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

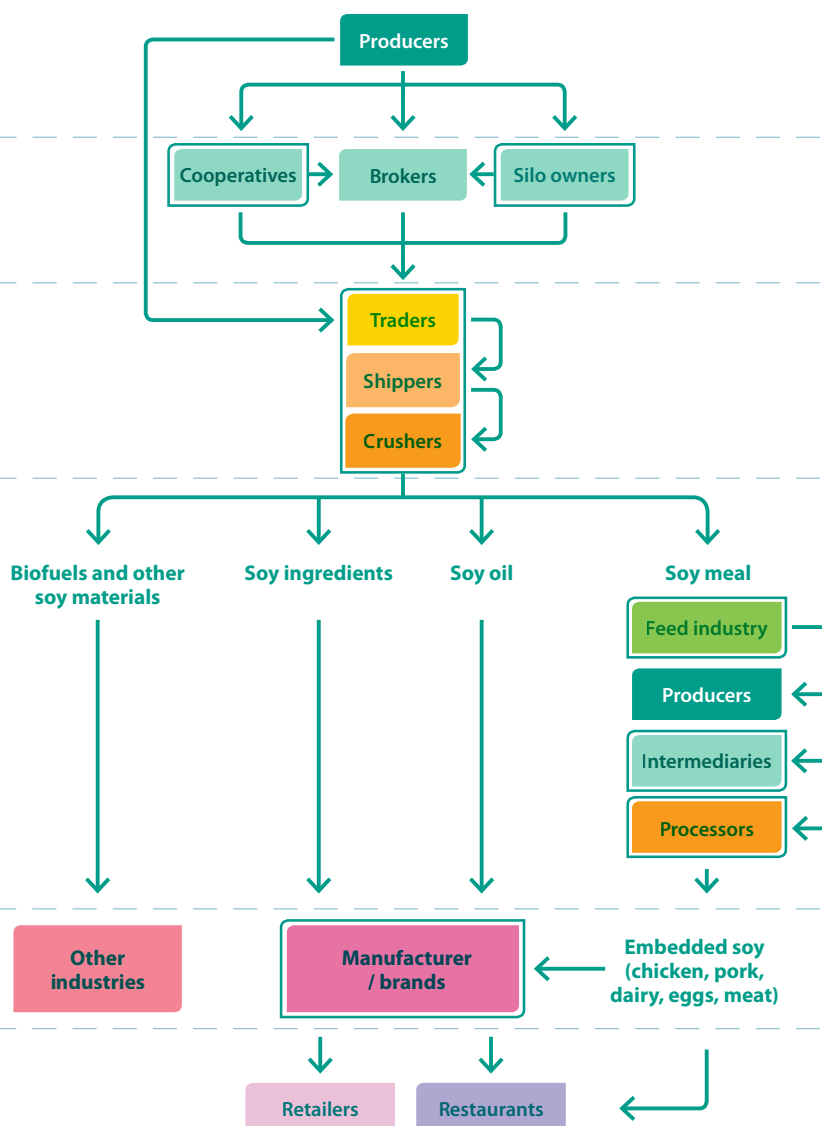


Figure 2. Soy supply chain

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





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

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Traceability requirements	Upstream companies	Downstream companies
		
Coverage Which purchases will be traceable?	Upstream companies buying soybeans globally may prioritize traceability efforts in regions and countries with higher risk of no compliance with their policies.	Downstream companies buying soy products may start mapping their soy origins back to the country of harvest and then prioritize countries where more action is needed. For Brands and Restaurant chains sourcing soy embedded in animal products, they may need first to calculate their soy footprint to select an initial scope. Retailers would start from own brands as a scope to estimate the soy footprint ⁵ and then select products for supply chain mapping.
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 can adopt a risk-based approach for traceability reach, starting from traceability to country, reaching traceability to state or biome in high risk countries and reaching traceability to municipality or even to farm in high risk states or biomes.
Traceability System What system will be used to register material flow?	Certification schemes such as the Roundtable for Responsible Soy (RTRS), Proterra and others have their own traceability systems and segregation and mass balance as main chain of custody types. When used by companies, those systems ensure control of material flows in the supply chain. Voluntary commitments as the Soy Moratorium and sustainability standards have traceability systems for upstream flows. However, downstream companies may need to use or develop additional systems to cover traceability of downstream flows.	

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^{6,7}.

Traceable to a landscape/region

Once the regions of sourcing are identified, a company can refer to that as traceable to landscape/region-level. It may be difficult to reach the farm-level. However, in some cases it can be possible to claim soy is deforestation-free if soy from a landscape/region is covered by credible programs at-scale. The Amazon Soy Moratorium is an example of that. If a company buys from a trader who is a signatory of the moratorium and whose third party audits assure compliance with it, there is a good level of assurance the volumes coming from the Amazon from that supplier are deforestation-free. In other cases, it will not be possible to claim that soy volumes are not linked to deforestation, but the soy buying company can demonstrate its commitment and contribution to programs that promote the agenda in the sourcing region. One example of that is the Produce, Conserve and Include (PCI) program in the Mato Grosso State, in Brazil, a State-level initiative to achieve zero deforestation across the State.

Traceable to specific links in the chains (crushing plants or silos)

Companies engage directly with suppliers to map the next tier of suppliers upstream until they eventually have volumes traceable to the crusher or to silos, which can be considered as first points of soybean aggregation of soybean. With this level of information, it is possible to analyze the sourcing region and establish if it is a consolidated region – where deforestation and conversion happened a long time ago – which might help companies come to a conclusion that risk of breaching their deforestation-free policies is low, or if it is a region with high deforestation and conversion rates, thus posing more risks to breaching companies' policies.



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 suppliers⁸ 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.

Upstream companies can get the farm location which allows further analysis of intersection with protected areas, deforestation, embargoed areas and other environmental and social aspects (**Box 3A**). Farm location information can be geographic coordinates of a point; a polygon of the farm; or the CAR (Rural Environmental Registry⁹) number in the case of Brazil 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).

There are two possible approaches for downstream companies on traceability: ask suppliers to share all supply chain information or ask suppliers to provide evidence that they have reliable traceability system. In the first approach, companies need to understand how many tiers may separate them from production (**Box 3B**). In the second approach, companies need to define criteria to consider a system reliable and define a process to verify suppliers' systems (**Box 3C**). 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).

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

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

Supplier	Farm name	Volume sourced in [previous year]	Rural environmental registry (CAR)	Certification (if any)
Farmer 1	Farm 1	200,000.00 t	GO-8768290-5BNHY6TGKS87652GHNSTU3	RTRS (certificate number)
Farmer 1	Farm 2	100,000.00 t	GO-8768290-5BNHY6TGKS87652G765TU3	No
Farmer 2	Farm 3	350,000 t	Unknown	No
Cooperative	Unknown ¹⁰	5,000,000 t	None	No

B. Supply chain information to be requested by downstream companies:

Supplier name	Type of supplier	Volume Nestlé sourced from supplier	Tier 2 supplier	% Volume sourced from Tier 2	Tier 3 Supplier
Supplier 1	Trader	50,000 t	Soy producers	60%	NA
Supplier 1	Trader	50,000 t	Cooperatives	40%	Soy producers
Supplier 2	Manufacturer	100,000 t	Trader 1	80%	Unknown
Supplier 2	Manufacturer	100,000 t	Trader 2	20%	Unknown

C. System 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.

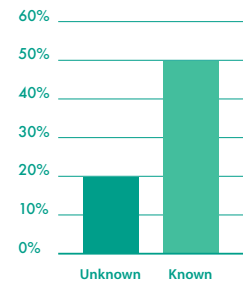


Figure 3. Reporting traceable volumes.

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 model¹³. 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 how companies report on traceability

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ADM, Bunge, Cargill, LDC, Glencore, Cofco

Example 1. Soft Commodities Forum

Six global traders are reporting traceability of soy in Cerrado using a common framework. Focusing in priority municipalities, they report annually the % of soy sourced directly from farmers and the % that is traceable to farm.

Unilever, Nestlé

Example 2. Supply Chain Disclosure

Unilever, Nestlé and other downstream companies are disclosing their Tier 1 and Tier 2 suppliers’ list annually.

CDP

Example 3. 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.

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 products¹⁵. It is presented as a ladder based on the general level of effort a company needs to apply to gather and report traceability data.
- Soy companies can use conversion factors to estimate the soy volume embedded in animal products they source. The main sources of conversion factors available and the links for more information are in the box below.

Conversion factors to estimate the Soy Footprint are available on:

Roundtable on Responsible Sourcing – Soy Calculator

UK Roundtable on Sustainable Soya – Annual Progress Report (2019)

Consumer Goods Forum – Calculation guidelines for the measurement of embedded soy usage in consumer goods businesses (2016)

Profundo – Mapping the soy supply chain in Europe (2015)

KPMG and IDH Sustainable Trade Initiative – Soy reporting initiative

WWF – Risky Business

Dutch Soy Coalition – Soy Barometer 2014

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^{16,17}) and forensic science (e.g. biochemical¹⁸ 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 regions¹⁹. 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.soytoolkit.net

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

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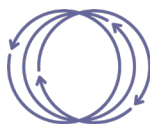
Rodrigo Spuri (**The Nature Conservancy**)

References

- 1** For an overview of the Soy Toolkit and other briefing notes, visit: www.soytoolkit.net
- 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 CGF Soy Measurement Guidance available on: <https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/201605-CGF-and-KPMG-Soy-Measurement-Guidance-Final-1.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.soytoolkit.net
- 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-codi-go-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, Agrottools, Chain Point, Sourcemap, IBM blockchain.
- 13** For more insights on how to report on traceability progress, see the Soy Toolkit Discussion Paper 05
- 14** <http://www.mpf.mp.br/pa/sala-de-imprensa/documentos/2017/protocolo-verde-dos-graos-diretrizes-para-a-safra-2017-2018/>
- 15** <https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/201605-CGF-and-KPMG-Soy-Measurement-Guidance-Final-1.pdf>
- 16** [https://www2.deloitte.com/content/dam/Deloitte/pt/Documents/blockchainsupplychain/lu-blockchain-internet-things-supply-chain-traceability%20\(1\).pdf](https://www2.deloitte.com/content/dam/Deloitte/pt/Documents/blockchainsupplychain/lu-blockchain-internet-things-supply-chain-traceability%20(1).pdf)
- 17** For more information on how blockchain technology can be used in traceability systems, see: <http://lup.lub.lu.se/luur/download?func=downloadFile&recordId=8918347&fileId=8919918> and <https://www.skikommentus.se/globalassets/kommentus/bilder/publication-eng-blockchain-for-food-traceability-and-control-2017.pdf>
- 18** For examples on biochemical technology for traceability see: <https://orbitain.com/how-it-works/for-businesses/>
- 19** For examples of blockchain technology usage to traceability in food supply chains, see: <https://www.ibm.com/blockchain/supply-chain/>

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