

TFA EU DEEP DIVES

GEOLOCATION & TRACEABILITY SESSION: SOY

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1. SOY PRODUCTION AND SUPPLY CHAIN

Soy, as a vegetable oil, is used in many products ranging from confectionary and bakery, margarine and mayonnaise. Soy is also processed into soymeal, an important source of protein to feed poultry, pigs, dairy cows, farmed fish and beef cattle. Therefore, it is embedded in egg, meat and dairy supply chains. Additionally, soy oil may also be used for biodiesel, increasing even more the spectrum of products where it is present.

Global production

Global soybean production (estimated by FAO at 353 million tonnes in 2020) is dominated by Brazil (34%), USA (32%), and Argentina (14%) followed by China (6%), Nigeria (2%) and Colombia (2%).

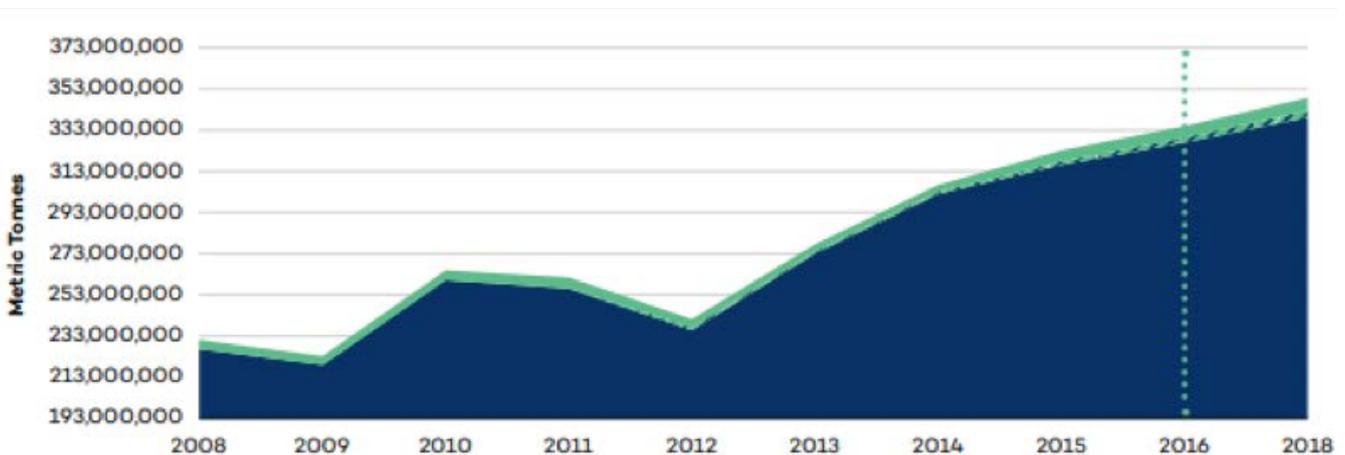


Figure 1. Global soybean production trend 2008-2016 & 2018.
Source: IISD; SSI: Global Market Report: Soybeans



In many places soy is double cropped with maize or wheat.

Looking at the trade value of soy exports in 2021 using UN Comtrade data for the HS codes covered by the proposed regulation¹ exports is again dominated by Brazil (40%), USA (29%), and Argentina (13%), followed by Paraguay (4%). It is important to note that these do not include biofuel exports which may use soy as a feedstock. When looking by types of products, 64% of the trade value of exports is HS1201 soybeans, followed by HS2304 soy cake (22%) and HS1507 soy oil (12%). Argentina has significant soy crushing capacity and is the world’s largest exporter of soy cake (40% trade value of global exports in 2021) and alongside Brazil the largest exporter of soy oil (with both having 27% of trade value of global exports in 2021).

EU-level imports

The EU-27 is the second largest importer of soybeans, a distant second after China. It is also the largest importer of soy cake globally (FAO). Data from Eurostat shows that in 2020 the EU 27 imported 15.1 million tonnes of soybeans (HS1201), 16.2 million tonnes of soybean cake (HS 2304), 0.46 million tonnes of soybean oil which is used both in foods but also for the production of biofuels. Key import markets include Brazil, Argentina and USA. Soy is also produced in the EU with 2.7 million tonnes produced in 2020.

Soy supply chain and traceability

Soy supply chain traceability means tracing products back to the farm of production. Traders can purchase soy directly from producers (direct sourcing) or from intermediaries, such as at silos, grain elevators or ports, where soy has been mixed from multiple farms (indirect sourcing). Direct sourcing can also include fully vertically integrated supply chains. Indirect sourcing can also include imports from other countries (for example Argentina imports significant volumes of soy from Paraguay that are crushed and then exported²). The dominance of imports of soy cake by the EU also therefore provides traceability challenges as indirect sourcing is more prevalent. In the context of the EU deforestation-free product regulation there is a possibility that under amendments proposed by the EU parliament that the soy fed to exported poultry and pork would also need to be traced back to farm to ensure that it is deforestation free. This provides an additional traceability challenge to indirect suppliers.

Table 1. Percentage of direct sourcing of the top soy traders in Brazil, comparing nationwide values vs. the initial 25 priority municipalities target as part of the Soft Commodities Forum (SCF). Reproduced from Zu Ermgassen et al (2022) Addressing indirect sourcing in zero deforestation commodity supply chains

Company	% direct sourcing across Brazil	% direct sourcing in 25 priority municipalities- June 2019 report	% direct sourcing in 25 priority municipalities- Dec 2020 report	Change in direct sourcing from 2019-2020 reports
Bunge	Not Disclosed	98%	98.4%	Increase
ADM	63	93.4%	88%	Decrease
Cargill	69	96.6%	97	Increase
COFCO	Not Disclosed*	84%	95.9%	Increase
Viterra	Not Disclosed*	57.10%	64.9%	Increase
LDC	47	100%	100%	Increase
Amaggi	79	Does not participate in SCF	Does not participate in SCF	N/A

* Bunge only reports direct sourcing in priority municipalities (responsible for 23.4% of their soy sourcing in Brazil). COFCO reports their direct sourcing percentage only for Mato Grosso and Matopiba (70%), which together make up 39.6% of their soy sourcing in Brazil. Viterra reports their direct sourcing percentage only for the Cerrado (60.4%). The Cerrado makes up 42% of their soy in Brazil.

1 1507, 1201, 120810, 2304

2 <https://insights.trase.earth/insights/argentina-the-overlooked-hub-of-south-american-soy/>

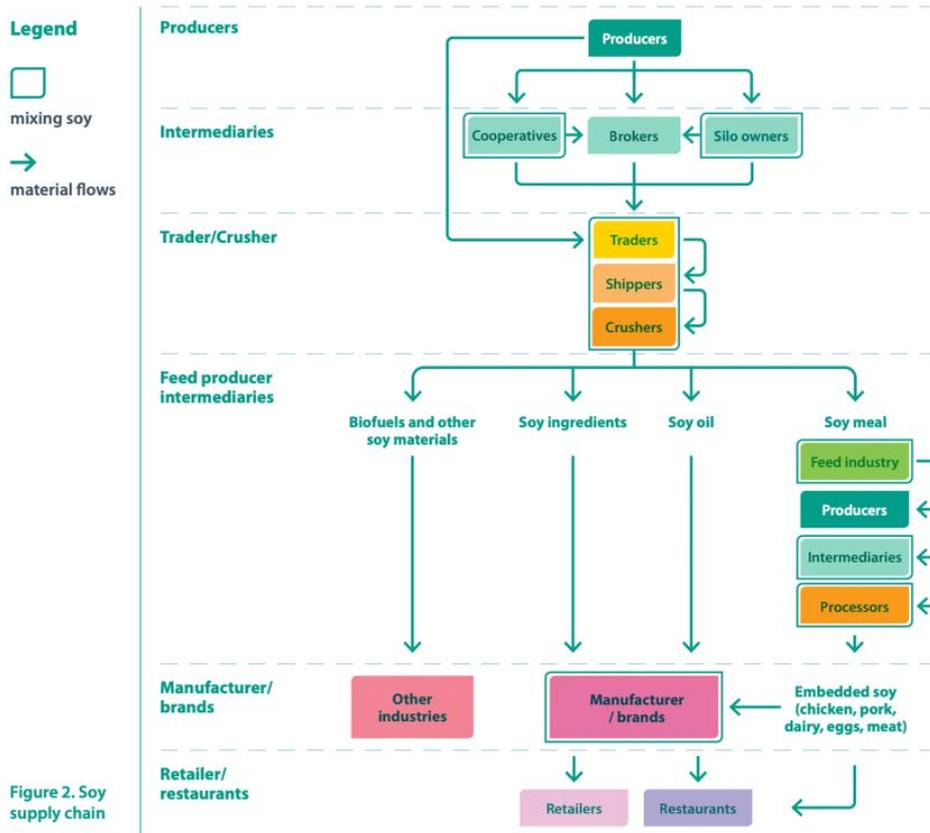


Figure 2. Soy supply chain

Figure 2. Soy supply chain. Source: [The Soy Toolkit](#)

2. SOY TRACEABILITY

Traceability is much more challenging for indirect sourcing. This is reflected by current voluntary traceability efforts, for example under the Soft Commodities Forum, which often divide reporting and targets on traceability into direct and indirect sourcing. For example, Bunge has a target of 35% farm level monitoring of the indirect volumes in the Cerrado by the end of 2021; 50% by end of 2022; and 100% by 2025 which represents 21% of sourcing in Cerrado. In contrast it states that it has already achieved 100% traceability for direct purchases in the Cerrado and monitors 96% of volumes buy directly³. Note that in 2021 sustainability report ADM announced that had reached 100% soy traceability in Argentina, Brazil and Paraguay for direct and indirect suppliers.

Coverage

Upstream companies buying soybeans globally may prioritise traceability efforts in regions and countries with higher risk of no compliance with their policies.

Downstream companies may start mapping their soy origins back to the country of harvest and then prioritise countries where more action is needed. Brands and Restaurant chains sourcing soy embedded in animal products 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 and then select products for supply chain mapping.

³ https://www.bunge.com/sites/default/files/2021_global_sustainability_report.pdf

Traceability to farm

It can be reached by upstream buyers when sourcing directly from producers or used in certification schemes in which soy comes from certified farms, even if not clear which ones. E.g. [RTRS](#) and [Proterra](#). They normally require evidence of compliance at farm-level and a complete chain of custody (segregated or mass-balance) for specific volumes.

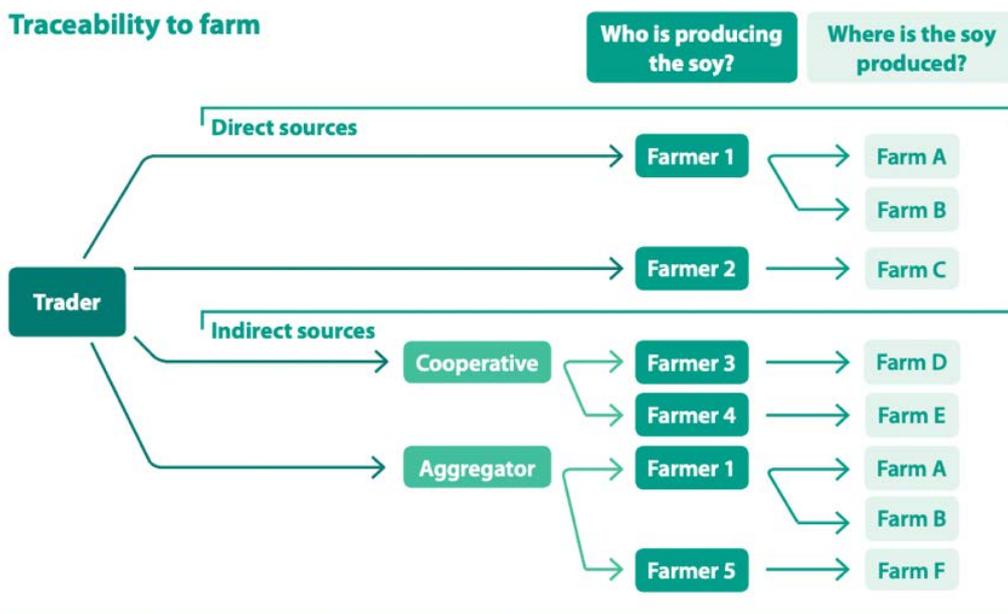


Diagram based on Fig.1 from the WBCSD SCF Progress Report: https://docs.wbcsd.org/2019/12/WBCSD_Soft_Commodities_Forum_progress_report.pdf

Figure 3. Soy traceability to farm. Source: [The Soy Toolkit](#)

Traceable to a landscape/jurisdiction

It may be difficult to reach the farm-level. However, if a company can identify the regions of sourcing they can refer to that as traceable to landscape/jurisdictional-level. In some cases, it can be possible to claim soy is deforestation-free if soy from a landscape/region is covered by credible programmes at-scale.

E.g. [The Amazon Soy Moratorium](#). 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. [Produce, Conserve and Include \(PCI\)](#): a state-level initiative to achieve zero deforestation across Mato Grosso state, in Brazil. In this case, it is not possible to claim that soy volumes are not linked to deforestation, but the soy buying company can demonstrate its commitment and contribution to programmes that promote the agenda in the sourcing region.

Traceable to aggregation point and supply base

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. With this level of information, it is possible to analyse the sourcing region and establish if it is a consolidated region – where deforestation and conversion happened a long time ago – or if it is a region with high deforestation and conversion rates. This might help companies decide if the risk of breaching their deforestation-free policies is low or high.

3. TOOLS AVAILABLE FOR GEOLOCATION AND TRACEABILITY

Certification

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 such 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.

Under the EU regulatory proposal on deforestation-free products only certified soy under segregated chain of custody models rather than mass balance or book and claim would be compliant with the requirements. Currently only Proterra, RTRS, CSQA and Donau Soja/Europe Soy use such segregated chain of custody models.

In 2020, volumes under these standards coming into the EU were estimated to total around 8 million tonnes (around 20% of total imports of soy into the EU); Proterra (3,000,000 t), RTRS (3,900,000 t), CSQA (508,000 t) and Donau Soja/Europe Soy (610,000 t)⁴.

There are a number of other private and public certification standards but these currently only offer mass balance or book and claim and would therefore not be compliant with the EU or volumes have not been independently verified.

	Available solutions	Details	Gaps
Certification	RTRS	<ul style="list-style-type: none"> » 4 CoC models (SG, MB, country material balance, credits) » CoC standard under review » For physical, traceability to farm » Most common is MB and credits » Uses a platform to register purchases, all sites need to be CoC certified and register volumes for full traceability 	<ul style="list-style-type: none"> » MB allows mixing with non-cert material, at site-level, no transparency of % cert, product in the mix and no control of non-cert. part » Downstream sites are not certified and not registering volumes in platform, creating a traceability gap. » Today, RTRS CoC models do not cover embedded soy.
	Proterra	<ul style="list-style-type: none"> » 2 CoC models (SG and MB) » Focus on non-GM soy. In South America most common is SG » Developing an MRV tool to allow DCF claims based on remote verification of non-certified volumes in a mix 	<ul style="list-style-type: none"> » Recognises 2 assurance systems (certification and verification) - unclear how this affects credibility of traceability » No platform to register sales, so unsure how double claiming can be avoided. » Today, Proterra CoC models do not cover embedded soy

⁴ <https://www.idhsustainabletrade.com/uploaded/2022/05/IDH-Soy-Monitor-2020-DEF-002.pdf>

Traceability to Production region

	Available solutions	Details	Gaps
Traceability to Production Region	TRASE	<ul style="list-style-type: none"> » Not a traceability, but rather a supply chain mapping tool. » Uses customs data and tax declarations, combined in a framework that identifies the most probable origin of a commodity » Includes data for Brazil, Argentina and Paraguay at subnational level and links to importing countries and companies. » It is helpful for soy companies using embedded soy to estimate their exposure to traders, countries and subnational origins 	<ul style="list-style-type: none"> » Data is not recent (2018 for BRA) » It receives quite a lot of criticism from traders, but no data has been shared to show how large discrepancy is » It does not allow to understand consuming country's soy footprint, as it focus, strictly on sources from BR, AR and PY » It does not include domestic consumption in producing countries and internal trade after importing destination

Producer country systems and datasets

	Available solutions	Details	Gaps
National Efforts	Brazil	<ul style="list-style-type: none"> » Brazil has a public policy to register rural properties and promote their environmental regularization – CAR (rural env. registry). » Starts as self-declaration of property boundaries, riparian buffers and other protected areas as well as areas set aside as Forest reserve. » CAR should be validated by state env. agencies, but from self-registration, information can be consulted by any individual 	<ul style="list-style-type: none"> » CAR validation process has been slow, which means low reliability of data today, with many overlaps of properties and other areas (like IPLC) » CAR is not a rural regularization system, and there is little clarity on property boundaries and ownership in Brazil. » Reported cases of CAR being used to facilitate land grabbing for production and to comply with forest regulations. » CAR does not have information on production. This would allow huge progress for traceability, if farmers were requested to report in CAR annually the area and volume of each production crop. » Due to controversies on data protection, it is not possible to query rural properties using person/company ID and this is critical for companies as the ID (and not the CAR number) is the information they have from producers.

	Available solutions	Details	Gaps
	Argentina	<ul style="list-style-type: none"> » Argentina has a National Producer Registry for sanitary purposes that contains name of producer, farm location and code and indication of crops produced. » All soybean transport is accompanied by electronic documentation that has a code of the establishment of origin. 	<ul style="list-style-type: none"> » Information from Registry is not easily consulted.
	UK & French manifestos	<ul style="list-style-type: none"> » At the same time, initiatives like UK manifesto and French manifesto are developing their own approaches to deliver DCF soy, based on traceability to low risk origins or to DCF verified farms. These initiatives also have the challenge to trace what enters signatories' supply chain via French/UK markets versus other markets. 	<ul style="list-style-type: none"> » Probably good to map challenges in traceability for the manifestos in France and UK.

Private Sector efforts

	Available solutions	Details	Gaps
Private sector efforts	SCF	<ul style="list-style-type: none"> » SCF is focusing traceability efforts in Cerrado municipalities with high recent conversion to soy, large area of remaining native vegetation and high overlap of members' presence. » Members have 2 approaches: <ul style="list-style-type: none"> » Direct source – soy purchased directly from producers: reach traceability to farm polygon » Indirect source – soy purchased from intermediaries: mapping to first aggregation point and engage suppliers to raise awareness, assess capacity and develop action plan to increase their traceability. » SCF is developing a verification protocol on traceability and DCF data. 	<ul style="list-style-type: none"> » The approach is well aligned with AFi recommendations. » Individually, SCF members are already going beyond the priority areas so SCF could increase their scope to other Brazilian regions and other countries. » Approach for indirect soy does not include yet reporting on traceable volumes – might be a good next step. » It seems companies can use 1st party verification on their data, which is not the best approach for credibility. » For companies sourcing directly from SCF members, the information is valuable, however if traders are their T2 suppliers, SCF approach does not deliver traceability information on its own
	Unilever, Nestle Supply Chain Disclosure	<ul style="list-style-type: none"> » Downstream companies that are members of CGF Forest Positive Coalition are developing a Soy Roadmap guidance that includes traceability definitions. » Guidance is under consultation and includes 2 approaches: <ul style="list-style-type: none"> » Users of soybeans/soy products: reach traceability to country of origin and, if country is not negligible risk, reach further traceability until DCF status can be ascertain via negligible risk area approach, farm-level verification, or certification. » Users of embedded soy: map raw materials (meat, dairy and eggs) to country of origin, estimate potential soy origins using trade data or supply chain mapping tools and aim to get better traceability of soybeans when potential soy origin does not have negligible risk. 	<ul style="list-style-type: none"> » The approach is well aligned with AFi recommendations. » Individually, SCF members are already going beyond the priority areas so SCF could increase their scope to other Brazilian regions and other countries. » Approach for indirect soy does not include yet reporting on traceable volumes – might be a good next step. » It seems companies can use 1st party verification on their data, which is not the best approach for credibility. » For companies sourcing directly from SCF members, the information is valuable, however if traders are their T2 suppliers, SCF approach does not deliver traceability information on its own

	Available solutions	Details	Gaps
	CDP's KPIs on traceability	<ul style="list-style-type: none"> » Question F6.1a (Provide details of your timebound and quantifiable target(s) for increasing sustainable production and/or consumption of the disclosed commodity(ies), and progress made) includes traceability targets with KPI (% traceable), point of traceability and progress to date. » Question 6.2 (Do you have traceability system(s) in place to track and monitor the origin of your disclosed commodity(ies)?) asks for description of traceability systems and % traceable. 	<ul style="list-style-type: none"> » Although the KPI is quite simple, addresses the main interest of stakeholders (% traceable) and allows flexibility, companies have different levels of traceability for parts of their sources and depending on the level of risk, lower traceability could be enough.

Other innovative approaches

	Available solutions	Details	Gaps
Other innovative approaches	Blockchain	<ul style="list-style-type: none"> » Blockchain: for many times companies (traders) developed blockchain projects, without reaching scale. » Glencore is now with an app in Argentina and high ambition. 	<ul style="list-style-type: none"> » Data is not recent (2018 for BRA) » It receives quite a lot of criticism from traders, but no data has been shared to show how large discrepancy is » It does not allow to understand consuming country's soy footprint, as it focus, strictly on sources from BR, AR and PY » It does not include domestic consumption in producing countries and internal trade after importing destination
	Alterations with traceable crops	<ul style="list-style-type: none"> » Cotton: many farms in Brazil produce soy in alternance with cotton and have robust systems of traceability to farm. Exploring how these systems can be used to trace soy from same farms, that is also traded by same traders, is worth doing. 	<ul style="list-style-type: none"> » Main challenge with blockchain is on engaging the whole supply chain to submit accurate information given the nature of soy trade as having so much mix in so many points. » Another challenge is the verification of that information

4. CHALLENGES/GAP

Traceability to farm for indirect sources

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, hindering the 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.

Understanding the requirements for segregated supplies

[A joint response](#) to the EU proposal on deforestation-free products by FEFAC, COCERAL and FEDIOL highlights that currently a small proportion of soy imported by the EU is under segregated or identify preserved supply chain models and that implementing such segregation will bring significant costs (also see this recent [study](#) on likely trader responses to such regulation). However, this assumes segregation either to individual plots of a small subset of plots, which may not be the requirement.

They recommend having a system of mass balance from first aggregation point that allows a small known % of non-verified soy to be mixed with verified compliant soy until 2030.

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 SMEs 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 to gather traceability information.

Data privacy and connecting polygons to delivery notes

The same [joint response](#) by FEFAC, COCERAL and FEDIOL highlights data privacy laws are a barrier to requesting this information from farmers.

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.

Public data availability

Many of datasets that are used to verify traceability including land registries, transport invoices and records and per shipment data are not publicly available to enable verification by competent authorities or downstream companies.

5. OPPORTUNITIES

For issues related to traceability to farm for indirect sources

- » Include contract clauses indicating that traceability is required, training programmes for suppliers to understand what they need to monitor and report, and simple communication materials with this information.
- » Adopt a sector or region wide approach, which involves intermediaries as well as crushers/traders. E.g.: The Green Protocol of Grains of Pará State (Protocolo Verde de Grãos do Pará), which states 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.

For issues related to embedded soy

- » The Consumer Goods Forum and KPMG developed a framework – the Soy Ladder – to measure soy usage in retailers’ own brand food products.
- » Soy companies can use conversion factors to estimate the soy volume embedded in animal products they source, such as:
 - » [Roundtable on Responsible Sourcing – Soy Calculator](#)
 - » [UK Roundtable on Sustainable Soya – Annual Progress Report \(2019\)](#)
 - » [KPMG and IDH Sustainable Trade Initiative – Soy reporting initiative](#)
 - » [WWF – Risky Business](#)

Promising technologies under development

Emerging traceability technologies are under development, such as cloud-based programmes (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. Regardless of the technology chosen, getting suppliers’ buy-in and cooperation to provide a common set of information remains critical for success.

6. REFERENCES / ADDITIONAL RESOURCES

- » [The Soy Toolkit](#)
- » [UK Roundtable on Sustainable Soya – Annual Progress Report \(2019\)](#)
- » [KPMG and IDH Sustainable Trade Initiative – Soy reporting initiative](#)
- » [Joint Position on the Commission Proposal for a Regulation for Deforestation-free Supply Chains](#)
- » [The Amazon Soy Moratorium](#)
- » [Roundtable on Sustainable Soy \(RTRS\)](#)
- » [ProTerra Foundation](#)