Field to Market®

Set and Act on Science Based Targets for Nature with Field to Market Resources, Tools, and Projects

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The emerging Science Based Targets Network (SBTN) Guidance[1] is poised to catalyze a new level of ambition and accountability in corporate action on nature. Its holistic framing empowers companies to understand, document, and improve their operational and upstream impacts on water, biodiversity, and land, in concert with their ongoing science-based work on climate. Like science-based climate targets, SBTN targets[2] for other resource areas require companies to attain science-informed, region-specific performance levels at or below the maximum allowable resource pressure. For companies with predominantly United States-based value chains or a significant value chain presence in regions of the U.S. where agriculture is currently exerting greater than the science-informed maximum allowable pressure on one or more areas of nature, science-based targets (SBTs) are a great way to structure corporate commitments and manage nature-related risks. Field to Market (FTM) resources (like the Fieldprint Calculator®[3]) and projects implemented in accordance with the FTM Project Framework[4] are a great way for companies to both do the scenario analyses necessary to set nature SBTs and then organize collaborative projects to meet SBTN requirements for action: tracking, achieving, and disclosing ambitious, science-informed, regionally appropriate nature impact levels. The FTM Project Framework provides structure for companies in executing specific sustainability or regenerative projects on one of three pathways ("Incubation," "Insight," or "Innovation"). The FTM Project Framework highlights a process-based approach to continuous improvement. FTM projects address global sustainable development priorities through coordinated, value chain action on local natural resource concerns.

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PART 1: THE PROCESS

USING FTM RESOURCES AND PROJECTS TO SUPPORT CORPORATE SCIENCE-BASED TARGETS FOR NATURE

Field to Market's Project Framework empowers cradle-to-farm-gate organizational impact improvement through discrete, spatially targeted Fieldprint Projects implemented with value chain partners. Once companies have conducted SBTN-guided company-level assessment and prioritization for key resources like water or biodiversity, they may identify regions where it is necessary to improve the company's cradle-to-farmgate resource impacts to achieve company-level SBTs. SBTN's scope is broader than cradle-to-farmgate. It encompasses all company-owned or -controlled facilities and then emanates upstream to cover the producer segment of the value chain[5]. SBTN[6] requires companies to conduct holistic, spatially explicit risk assessments (**Steps 1** and **2**) prior to engaging in any piloting or one-off value chain projects. Once completing these two initial steps of the SBTN assessment process, many companies are likely to identify significant priority action regions within the U.S. where the value chains are currently exerting more than the maximum allowable pressure on one or more aspects of nature, like water or biodiversity. Then, they will need to ***Act*** to reduce pressure below the maximum allowable level. FTM Fieldprint Projects can be critical building blocks for companies to execute on the SBTN ***Act*** and ***Track*** steps (Figure 1, Table 1). Ultimately, SBTN is a more general and higher-level holistic accounting for an organization's overall nature impacts. FTM resources and Project Framework provide the critical finer-resolution support necessary for companies to take and document effective action to reduce those impacts.

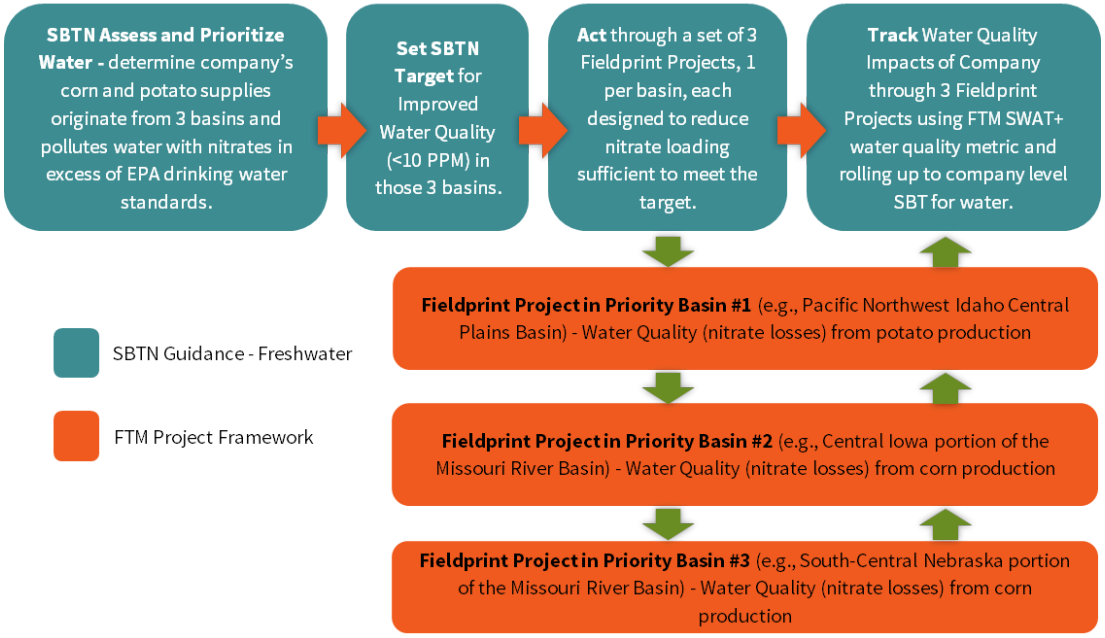

Figure 1. *Potential roadmap of corporate engagement in SBTN supported by FTM resources and Project Framework.*

Mapping where FTM Projects Plug-In to Support Science-Based Target Achievement

Science-Based Targets Network (SBTN) Guidance	Field to Market Resources and Project Framework
Step 1 - Assess • Use the Materiality Screening Tool[7] • Assess the value chain, including direct operations and upstream regions using SBTN assessment tools[8]	**Relevant FTM Resources for the SBTN Assess Step:** • Companies that have Fieldprint Projects with their upstream suppliers may be able to use results from FTM's nature-related metrics to assess the state of nature and their impacts on nature in those regions.
Step 2 - Interpret and Prioritize • Determine target boundaries • Interpret and rank • Prioritize • Evaluate feasibility and strategic interest	**Relevant FTM Resources for the SBTN Interpret and Prioritize Step:** • Companies that do not yet have Fieldprint Projects in commodities or regions identified through the SBTN Materiality Screening Tool or assessment tools could implement Insight or Incubation Projects to evaluate feasibility and strategic interest.
Step 3 - Measure, Set, and Disclose • Select impact model[10] through stakeholder consultation • Measure baseline values • Determine the maximum allowable pressure • Set targets[12]	**Phase 1 - Define Project Intent and Scope** • Define project geography (*Note: SBTN freshwater projects must be implemented at approximately 8 to 10 unit HUC scale or smaller. See here[9] for additional spatial scale of HUCs in the U.S.*) • Identify relevant natural resource concern(s) • Identify project supply chain partners[11] **Phase 2 - Develop a Continuous Improvement Plan** • Register project[13] • Confirm project partner(s) • Describe continuous improvement goals, objectives, and strategies

Table 1. *FTM resources including the FTM Project Framework may be useful to companies considering setting SBTN targets or working toward SBTN target achievement.*

Mapping where FTM Projects Plug-In to Support Science-Based Target Achievement (continued)

Science-Based Targets Network (SBTN) Guidance	Field to Market Project Framework
Step 4 - Act • Avoid • Reduce • Restore and Regenerate • Transform	**Phase 3 - Implement and Evaluate Progress** • Implement continuous improvement strategies • Practice adaptive management
Step 5 - Track • Monitor • Report performance relative to the previously defined maximum allowable pressure • Verify	**Phase 3 (continued) - Implement and Evaluate Progress** • Track and report progress annually • Share annual progress reports on FTM's public project directory **Phase 4 - Document Project-Level Improvements** • Conduct project-level evaluation • Share results on FTM's public project directory **Phase 5 - Demonstrate Project-Level Impact** • Evaluate metric results to demonstrate impact • Utilize Impact Claims Protocol[14] to verify records

Table 1 cont'd. *FTM resources including the FTM Project Framework may be useful to companies considering setting SBTN targets or working toward SBTN target achievement.*

Mapping SBTN Steps 3-5 to FTM Processes

SBTN's mission is to guide companies in setting science-based targets with integrity. To do this, they have established a validation process that organizations must pass before they can make their nature-related goals public. FTM's mission is to advance sustainable agriculture production of 12 key U.S. commodity crops, which overlap with SBTN prioritization of crops including corn, cotton, potatoes, rice, soybeans, wheat, and some pulse crops, including dry beans. Additional crops supported by FTM but not prioritized by SBTN include alfalfa, barley, peanut, sugarbeets, and sorghum. The FTM Project Framework provides organizations with solutions to improve their upstream nature impacts related to the production of those U.S. crops, which will mainly help companies with **Steps 3** to **5**[15] of the SBTN requirements.

Activities that map to **Step 3** of the SBTN Guidance, "Measure, Set & Disclose," can be found mainly in **Phase 2**, "Develop Continuous Improvement Plan," of the FTM Project Framework (Table 1). One key activity in **Step 3** of the SBTN Guidance is to identify and collect baseline data that can be used to evaluate progress towards specific goals and priorities. **Phase 2** of the Project Framework similarly requires that projects "must develop a baseline for each continuous improvement objective" in order to facilitate annual evaluation as part of all three project pathways (Incubation, Insight, and Innovation).

Following this work, **Step 3** of the SBTN Guidance prompts organizations to set and publicly disclose targets (informed by the baseline) that respect the planet's limits and global sustainability priorities. **Phase 2** of the FTM Project Framework also requires organizations to "define at least one SMART (Specific, Measurable, Achievable, Relevant, and Timebound) continuous improvement objective," as well as to "register projects" on the Fieldprint Project Directory, which also facilitates public disclosure. The FTM Project Framework allows for three levels of verification - first-,second-, or third-party - and the desired level of verification of annual progress and results is determined by Project Lead(s). The FTM Project Framework only requires third-party verification when a project seeks an *Impact Claim*. In addition to *Impact Claims*, FTM also supports four additional types of claims including *Participation, Adoption, Measurement,* and *Trends. Participation, Adoption,* and *Measurement Claims* can be made from year one across all three FTM project types. *Trends Claims* can be made starting in year two of Insight and Innovation projects and *Impact Claims* can be made starting from year five.

Step 4 of the SBTN Guidance, "Act," aligns with **Phase 3** of the FTM Project Framework, "Implement and Evaluate Progress." SBTN Guidance for this step revolves around the application of SBTN's Action Framework, which calls on organizations to identify a plan to "Avoid, Reduce, Regenerate & Restore, and Transform" (so called "AR3T") to reduce the negative impacts of their operations. **Phase 3** of the Project Framework similarly requires organizations to implement their Continuous Improvement Plans and, notably, practice adaptive management (or be open to continuous improvement of their plans in order to ensure advancement towards the target). A similar prerogative to adapt the approach is part of STBN Guidance **Step 5**, "Track." SBTN also demands that organizations "go beyond individual action" to be change catalysts within their value chains, not just leading but pushing for "system-level collaboration." The Project Framework includes a similar requirement to include multi-stakeholder participation, as Fieldprint Projects must leverage collaboration among stakeholders within the agricultural value chain, such as growers; farmer cooperatives; agricultural retailers; grain aggregators; and apparel, beverage, or food manufacturers, retailers; to foster the adoption of conservation, sustainable, and regenerative practices and improvements in environmental outcomes. This kind of standard encourages organizations to push for that systems-level collaboration.

The aims of **Step 5**, "Track," of the SBTN Guidance can be found in **Phase 3,** "Implement and Evaluate Progress", **Phase 4**, "Document Project-Level Improvements", and the optional **Phase 5**, "Demonstrate Project-Level Impacts" of the Field to Market Project Framework. The main requirements of this step under SBTN Guidance are to continuously monitor progress, report on it publicly, and provide regular verification to ensure accountability and the integrity of both targets and progress towards them. **Phases 3**, **4**, and **5** of the FTM Project Framework each include requirements to track, evaluate, and publicly disclose information about progress towards identified targets. While tracking and disclosing progress annually is an aspect of FTM's **Phase 3**, project-level evaluation, which is to be carried out at the completion of the project and includes a more complete analysis of progress compared to the baseline, is the core of **Phase 4**. The Fieldprint Project impact data resulting from FTM nature-related metrics could be rolled up across several projects to support SBTN-compliant company level reporting.

FRESHWATER QUANTITY AND QUALITY TARGETS

SBTN Guidance and FTM project guidance and metrics are for freshwater stewardship is geared toward different scales and scopes of corporate engagement. SBTN is focused at the company level, guiding companies to assess the impacts of their facilities and those of their suppliers on water quality and quantity, whereas FTM project guidance and metrics are field-scale measures of water quality and quantity impacts. So, while topically aligned, there are differences in the data and model requirements, scale of measurement and metrics, and units of measurement between SBTN and FTM's Project Framework.

Under SBTN Guidance **Steps 1** and **2**, companies in several agriculture and food-related sectors are identified as impacting water quality and quantity in the basins (sub-basin or watershed, 8-unit to 10-unit HUC scale)[16] where they have facilities or their suppliers operate. SBTN Guidance directs these entities to catalog these basins and their impacts and then prioritize based on their level of impact (the company's pressures) and the state of nature in the basins (water quality and/or quantity). Companies must prioritize their highest* 10% of basins or 10 basins if there are more than 100 in their target boundary for engaging in the target-setting process.[17]

**highest means most impacted or basins where the current state of water quality or quantity is furthest from the target level; alternatively, those with the worst water quality or quantity relative to the regionally appropriate reference level.*

SBTN Defines 4 Phases (Steps) for Freshwater Target-Setting

Step 1: *Stakeholder consultation and basin threshold tool review*
Companies must engage with national and local organizations and institutions and review SBTN's basin threshold tool[18] to determine a) what basin-specific or -appropriate hydrologic models are available and b) what locally-based thresholds exist.

Step 2: *Modeling approach*
Companies must determine the quantity and/or quality modeling approach to be used (either local or global) and the performance thresholds for the desired state of freshwater quantity or quality they will assess against. There is a detailed decision tree illustrating the prioritization of local models, if available.[17] If no local models are available, companies may either fund development of a local model or wait until one becomes available to set SBTs for water.[17]

Step 3: *Define baseline performance*
Companies must quantify their aggregate total impact from activities on basin water quantity and/or quality.[19] These should be constructed based on monthly-level resolution data spanning the last five full years of operations.

Step 4: *Set basin-specific targets*
Companies must set targets for water quantity and/or quality for the basin appropriate to the baseline and desired state determined in **Steps 2** and **3**.

If SBTN identified water quantity and/or quality as material to a company based on sector, and the company subsequently identified value chain sites (either their facilities or their suppliers') of concern in U.S. water basins, then they would be required to set targets and report on their progress. FTM's tools can support SBTN-related tracking of some water impacts, albeit at a project, not target scale. FTM's water quality metric uses the USDA NRCS Stewardship Tool for Environmental Performance (STEP) to calculate each field's specific risk of nutrient loss[20], and then can document expected improvements based on the implementation of various conservation practices. This is a U.S.-based water model and would likely be an acceptable model under the SBTN framework that requires a regionally appropriate model. Like SBTN, FTM offers a water quantity metric, "Irrigation Water Use," which uses water withdrawal data from metered or estimated sources to calculate an efficiency metric expressed as acre-in of water per unit of production increase. Since SBTN requires water withdrawal data to be metered at the pump (i.e., water pumps with flow meters), help text will be added to the Fieldprint Calculator to remind project administrators about this SBTN requirement for growers in their project.

Overall, if companies identify highest priority basins within the U.S., they could design projects oriented to improve water quantity and/or water quality in those basins following the FTM Project Framework and documenting impacts using the FTM metrics. However, SBTN requirements may involve more extensive data and project scope than is typical for historical Fieldprint Projects.

BIODIVERSITY TARGETS

SBTN recognizes that while the biodiversity and nature crisis is a global problem, it is not feasible for all companies to take meaningful action everywhere, all at once. Consequently, SBTN describes a formal process for companies to first identify the countries and regions where acting with their suppliers and stakeholders will have the most impact in the near-term.

SBTN's metrics and targets work to address the primary global drivers of biodiversity loss. Drawing on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)[21] framework for biodiversity loss, the five primary drivers are:

1. Ecosystem use and change
2. Direct resource overexploitation
3. Climate change
4. Pollution
5. Invasive species and other pressures

SBTN helps companies find where their actions can be most impactful by systematically evaluating both the magnitude of pressures for each of these five drivers and the current general status of biodiversity in each of the countries or subregions from where they source agricultural commodities or other raw materials.

Understanding SBTN's Target Boundary Requirements for Biodiversity

For all activities (e.g. sourced commodities) that are identified as material in **Step 1**, companies need to define '*Target Boundaries*'. A Target Boundary can either be *Type A*, where detailed subnational data is available for production sites (i.e., landscapes, basins, or individual farms); or *Type B* where only national or multinational data is available, or where commodity origin information cannot be disaggregated (Figure 2). **Companies can only proceed to Step 3 and set targets for Target Boundary A activities**. Companies are recommended to set Type A Target Boundaries for at least 50% of upstream activities. Companies must therefore show progress on improving supply chain traceability.

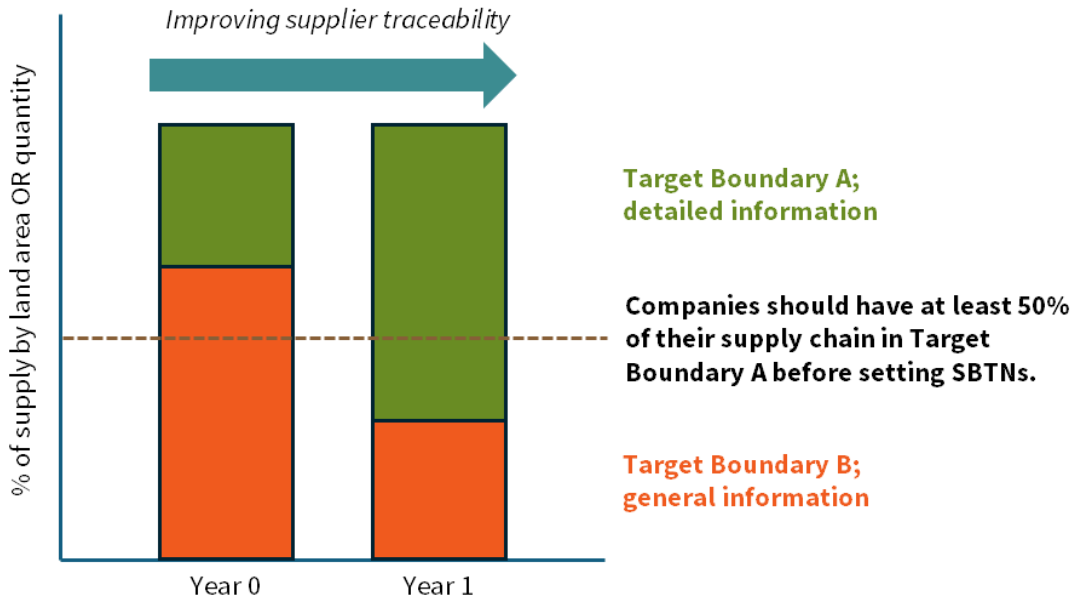

Figure 2. *SBTN Target Boundary Requirements*

The SBTN Process for Corporate Biodiversity Action

Biodiversity targets are not specifically set or measured in SBTN at this point, but biodiversity data is used to prioritize countries and regions for specific targets around land footprint, water use, and air, soil, and water pollution (Table 2).

Action Steps

1. Companies develop lists of all the activities in their upstream supply chain that will have material effects on nature. For agricultural inputs to the supply chain, activities are defined to the level of specific commodities (e.g. soybean farming).

2. For each activity, companies develop a Target Boundary where the activity occurs (Figure 2). Target Boundaries can either be *Type A* where detailed subnational data is available for basins, municipalities, or individual farms, or *Type B* where only national or multinational data is available, or where commodity origin information cannot be disaggregated.

Science-Based Targets' State of Nature, Pressure (SoNP)	
Pressure Category	***State Variables or Metrics***
Terrestrial ecosystem conversion	Area (km^2 or ha) of remaining intact ecosystem and land use by ecosystem and land use type
Terrestrial ecosystem use	Natural ecosystem structure, function, and composition
Water use	Surface water flows and groundwater levels
Greenhouse gas emissions	Assessed within the SBTi framework, but can be captured through state indicators such as temperature, precipitation, and extreme events
Soil pollution	Soil nitrogen (N) and phosphorous (P) concentrations
Water pollution	Instream N and P concentrations

Table 2. *SBTN metrics related to pressure categories identified by the International Union for Conservation of Nature (IUCN)*

3. Companies estimate the current level of pressure for the primary biodiversity- loss drivers in each country or region. These estimates are called “State of Nature, Pressure” metrics, or SoNPs, in SBTN’s terminology (Table 2). SoNP metrics include assessments of the remaining area of intact natural ecosystems, water use and groundwater depletion, and changes in temperature, precipitation, and extreme weather. SBTN provides a list of suggested data products and models to evaluate the SoNP.

4. Companies estimate the current general status of biodiversity in each country or region. These estimates are called “State of Nature, Biodiversity” metrics, or SoNBs, in SBTN’s terminology. SoNB metrics include assessments of species endemism, species extinction risk, and delineated areas of biodiversity importance. SBTN also provides a list of suggested data products and models to evaluate the SoNB.

5. SoNP and SoNB are evaluated together to help prioritize the countries or regions where a company will set its first quantitative targets for biodiversity.

LAND TARGETS

SBTN has three target types for Land: No Land Conversion, Land Footprint Reduction, and Landscape Engagement. With Landscape Engagement, companies are expected to create projects and processes for stakeholder and producer engagement in landscapes covering 10% of the company’s total land footprint. This target aligns well with FTM’s approach to stakeholder engagement, and FTM projects would likely be strong candidates for projects toward a company’s Landscape Engagement target. However, as noted above, many U.S. landscapes may be deprioritized in the SBTN assessment step, relative to regions with more urgent land conversion pressures.

For landscapes within their Landscape Engagement target, companies will be expected to assess the success of their engagement using a variety of metrics. While SBTN has not yet published a final set of metrics or detailed protocol, they point toward tools/frameworks including Land Scale, Source Up, and Forest Positive Coalition. See the following table of potential Landscape Engagement metrics, many of which may align well with information already collected through FTM metrics or ancillary Fieldprint Project data.

Part 2: The Metrics

MAPPING FTM METRICS TO SBTN **LAND** TARGETS

Resource of Concern (IPBES Pressure Category)	SBTN Target	SBTN Metric	FTM Metric	Alignment Opportunity
Ecosystem Use and Change	Supply chain will be 80% deforestation and conversion free (DCF) by 2025 and 100% by 2027.	Land Conversion (km^2 per year)	Biodiversity	Land use conversion over the past 20 years will be recorded within the Fieldprint Platform as part of the GHG Emissions metric or the Biodiversity metric.
Ecosystem Use and Change	Reduce absolute land footprint 0.35% per year *or* reduce land intensity 1% per year, relative to a base year no earlier than 2015 for 2030 and/or 2050 target dates.	Absolute Land Footprint (km^2 of ag land) or Intensity Land Use (km^2 /t product)	Land Use (ac-in/unit of production increase)	FTM Land Use metric could readily be inverted into a yield metric and used to estimate the total land footprint or average land use intensity in a sourcing region for Fieldprint Project participants.
Ecosystem Use and Change	Engage 10% of supplies, by land area, in stakeholder engagement activities.	# stakeholder groups engaged; the diversity, equity, and inclusion of stakeholder engagement; and process and outcome for conflict resolution among stakeholders.	Project governance and meta-data	Fieldprint Projects typically include multiple local stakeholder groups, including farmers, conversation districts, cooperatives, and other NGOs. The FTM Project Standard also includes a decision process for disputes that arise from Fieldprint Projects.

MAPPING FTM METRICS TO SBTN **CLIMATE** TARGETS

Resource of Concern (IPBES Pressure Category)	SBTN Target	SBTN Metric	FTM Metric	Alignment Opportunity
Climate Change	Reduce company-wide greenhouse gas emissions in line with Science Based Targets Initiative FLAG sector guidance (~% per year for FTM commodities).	GHG Emissions (t CO2e for scopes 1,2 and 3)	GHG Emissions (t CO2e pe unit of production increase)	GHG emissions calculated through FTM methodology already cover most of the categories and activities required by the GHG Protocol land sector draft guidance. Companies could use FTM data to develop more accurate emission factors for commodities sourced from FTM collaborating farms.

MAPPING FTM METRICS TO SBTN **WATER** TARGETS

Resource of Concern (IPBES Pressure Category)	SBTN Target	SBTN Metric	FTM Metric	Alignment Opportunity
Resource Use (Water Quantity)	Freshwater Quantity* Meets Minimum Flow Set by Local Policy/ Regulation necessary to protect freshwater species and ecosystems*at the HUC-8 scale	Primary/direct measurements from water meter or water diversion (Volume per month, e.g. ML/month)	Irrigation Water Use (ac-in/unit of production increase)	For regions relying on surface water to irrigate, the existing FTM metric could be converted from its current relative form (per unit of production increase) to an absolute format (ac-in withdrawn). Must be reported at least at the HUC-8 scale.
Resource Use (Water Quantity)	Freshwater Quantity* of groundwater is not withdrawn at a rate that exceeds the rate of replenishment*at the HUC-8 scale	Primary/ direct measurements from water meter on groundwater wells (Volume per month, e.g. ML/month)	Irrigation Water Use (ac-in/unit of production increase)	For regions relying on groundwater to irrigate, the existing FTM metric could be converted from its current relative form (per unit of production increase) to an absolute format (ac-in withdrawn)
Pollution (Water Quality)	Freshwater Quality is not over-burdened by nutrient pollution to levels that compromise human/aquatic life	Nutrient Pollution (nitrogen and/or phosphorus)	Ratio of the Risk Mitigation Score (RMS) to the Field Sensitivity Score (FSS) for surface and subsurface phosphorus and nitrogen.	Field to Market plans to implement a process-based model to enhance its current Water Quality metric within the next two years (2025-2026) and provide quantitative N and P nutrient loss estimates.

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16. Note that there are specific spatial scale resolution requirements for assessing impacts, setting targets, and then developing and deploying projects. SBTN Freshwater guidance requires action at the Pfafstetter Level 4 or 5 scale, which is approximately equivalent to the USGS 8- or 10-unit HUC. 8-unit HUCs are typically referred to as subbasins in the US and 10 unit HUCs are called “watersheds.” There are approximately 2,400 8-unit HUC sub-basins in the US and 19,000 10-unit HUCs. See here for a map and further explanation of HUCs (see ref.9 above). HUC-8s are usually around 50x100 mile areas.
17. “Technical Guidance: Step 3 Freshwater: Measure, Set & Disclose,” Science Based Targets Network, Global Commons Alliance, accessed June 20, 2024, https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/Technical-Guidance-2023-Step3-Freshwater-v1.pdf
18. This tool is under development and will be made available to target-setting companies with new technical developments slated for 2024.
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