Request for Proposals

Soil Health Sampling

Issued under a subaward 23-SMART-A-A-2385 under prime award NR233A750004G016, CFDA 10.937

Purpose

This request for proposals (RFP) is to solicit vendors to perform sampling and shipping soil health samples from agricultural fields. The full project anticipates approximately 6,000 soil samples distributed across the Midwest, Great Plains, and Southeast United States with sampling occurring between February and April of 2025, 2026, and 2027.

Key Dates

- Proposal Release: July 3, 2024
- Q&A Period: July 3, 2024 to July 24, 2024
- Posting of Q&A responses: July 29, 2024
- Final Proposal Submission Deadline: August 14, 2024, 5 pm CST

Background

The Soil Health Institute (SHI) is a sub-awardee (Prime Grant Agreement NR233A750004G016) in a USDA-NRCS Partnerships for Climate-Smart Commodities grant led by Truterra, LLC. Under the award, SHI is participating in a unique farm-level study of the long-term adoption of soil health-advancing practices on working farmlands spanning from the Great Plains across the Midwestern prairies and including the Southeastern United States, which includes federal fire ant quarantine zones. SHI is seeking external soil sampling vendors which can operate in the regions of interest.

The total project area is divided into three regions, as shown on the below map. A shapefile of all counties within each sampling region can be provided upon request. Soil sampling in each region will be organized around the USDA-defined boundaries for Major Land Resource Areas (MLRAs). Each region will include between three and five MLRAs, with each MLRA requiring the collection of 400 to 600 soil samples distributed across 10 to 20 groups of farms. These groups of farms are expected to be within 80-mile diameter circle. In total, we expect 2,000 (+/- 400) soil sampling points will be sampled within each region, totaling 6,000 soil sampling points for the entire project.

Region 1 will be sampled Spring 2025, region 2 will be sampled Spring 2026, and region 3 will be sampled Spring 2027. Because this RFP is part of a field-level study of working farmlands that is dependent upon producers' enrollment and eligibility verification into a USDA-supported program, the exact locations of sampling sites are not yet known. For each region, SHI will provide final sample locations to chosen vendors via ESRI shapefiles or equivalent file types 4 to 6 weeks prior to anticipated sample start dates.

Vendors may elect to submit proposals for all regions, individual regions, or combinations of counties within regions and do not need to submit a proposal for a complete region or all regions to be considered. For example, a proposal for sampling region 1 and parts of region 3 will be considered even if the proposal does not include region 2. However, preference will be given to vendors that provide sample coverage for complete or mostly complete regions.

Specific Requirements

The Soil Health Institute requests proposals for sampling and shipping soil to SHI-selected laboratories. The aim of this sampling is to quantify SHI's minimum suite of recommended soil health measurements on the soil samples. The sampling points will be determined by SHI and will include row crop fields and perennial locations (e.g., fencerows) for reference.

At each sampling point, samples will need to be collected following SHI's soil sampling SOP (SOP_SoilSampling-v1.2.pdf (soilhealthinstitute.org)). Specifically, each sample point will require the following set of soil samples:

1. Two bulk density samples (0 to 15 and 15 to 30 cm depths) collected using a 7.5 cm (3 inch) diameter core (AMS-samplers, SKU: 4004.45)
2. Two composite samples (0 to 15 and 15 to 30 depths) collected using a 2.54 cm (1 inch) diameter push probe (AMS-samplers, SKU: 425.52)
3. One composite sample of intact aggregates collected via a small trowel slice (0 to 7-cm depth). Shipping the sampled aggregates in a 50 ml (about 1.69 oz) falcon tube. Refer to the above-mentioned sampling SOP for sampling, shipping, and handling intact aggregate samples.

In addition to soil sample collection, SHI also requests that vendors collect the following sample-site metadata for each sampling location.

1. Required farmer notification at minimum 24 hours prior to sampling. Farmer email and phone number will be provided.
2. GPS coordinates of sample location.
3. A photo of the sample location including a shovel slice of the soil up to 30 cm depth.
4. A brief written note describing the condition of the field (e.g. "no-till corn field, soil is dry and hard").

After soil sampling, and within two days of collection the chosen vendor will be responsible for shipping the samples to an SHI-selected laboratory. Shipping costs will not be covered by SHI.

Proposal Requirements

Submitted proposals should consist of two components: 1) a written proposal narrative (maximum of three pages) and 2) a budget.

The proposal narrative must specifically address the following:

1. Identify which regions or parts of a region are covered by the proposal by providing a list of counties with its FIPS code.
2. Provide evidence of recent successful large-scale soil sampling work including examples of recent projects/clients. Examples should include descriptions of types of soil sampling, sample collection timeline, total number of samples.
3. Address how data transfer will occur between the vendor and SHI for communication sample site meta data and sample progress. Vendors should briefly describe their sample handling and tracking procedures. Preference will be given to vendors that utilize an electronic labeling system for sample labeling and be willing to work with SHI-selected lab for smooth data transfer. SHI has an existing QR-code system, preference will be given to vendors that can utilize QR-codes for labeling.

4. Provide contact information for three references from former/current clients.
5. Vendors will be required to cover the costs of shipping and should describe their shipping protocol in the proposal.
6. Demonstrate vendor's ability to finish sampling in the months of March and April for region 1 and region 3. For region 2, the sampling must be completed in the months of February and March. For all soil sampling, requirement to complete sampling prior to each region's summer crop planting. No entry allowed in fields that have been planted without explicit prior written approval from farmer.
7. Describe plans and capabilities to record high-quality sample notes and site metadata following SHI specifications (see above).
8. Describe the sample handling protocol to maintain biological integrity in the proposal. At a minimum this means keeping samples away from sun and heat and shipping promptly. For example, SHI samplers place soil samples in a simple cooler with a few ice packs.
9. Include a description of provisions for shipping/handling intact aggregate samples to avoid sample disturbance and maintain natural soil aggregates during shipping. SHI has instructions and supplies that can be used in the SOP.
10. Must describe provisions to follow the selected lab APHIS requirements for sample locations subject to fire ant quarantine.

The proposal budget can be included in the same document as the proposal narrative or be submitted as a separate document. Proposal budgets do not count against the proposal narrative page limit. Submitted budgets must include:

1. A total rate to conduct the work including the number of samples covered in that rate.
2. An estimated rate per sample. Vendors may submit a range of per sample rates if rates are expected to vary based on sample intensity or location. When ranges of per sample rates are submitted, vendors should include descriptions of the circumstances leading to ranges on per sample rates and provide guidance to understand how rate may change with changing sample locations.

Pilot testing

In addition to the above-mentioned proposal requirements, the selected vendor must also conduct pilot sampling, shipping and data transfer on a single field in November 2024. Due to the unique nature of our sampling SOP and high data quality standards, SHI will be requesting that the selected vendor undergo pilot sample evaluation prior to final contracting. The goal of this evaluation is to ensure reliable sample collection, handling, and data transfer with candidate vendors. Pilot testing will consist of sampling 3-5 sample sites in a single field within the vendors chosen sampling region and will occur October/November of 2024. SHI will not contract with any vendors that do not successfully complete the pilot test. As part of the pilot testing, the chosen sampling vendors must obtain a video of their in-field sampling, sample packing and shipping process. SHI has funds to reimburse pilot testing costs.

Submission, Q&A Period, Review,

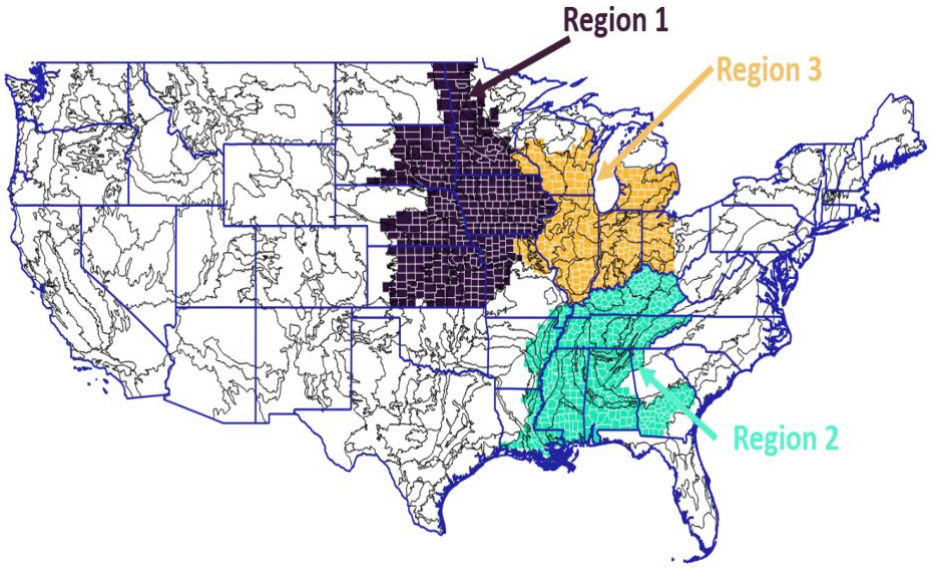
Proposals are to be submitted to Dr. Ayush Gyawali, Research Soil Scientist, at the following address: agyawali@soilhealthinstitute.org. Please include "Sampling vendor" in the subject. The deadline to submit the proposal is August 14, 2024, 5 pm CST.

Prior to proposal submission, interested parties can submit written questions to Dr. Gyawali. Questions received prior to the close of the Q&A period on July 24, 2024 will be answered in writing and posted on the RFP webpage on July 29, 2024. Answers to all submitted questions will only be provided via the posted Q&A document.

Written proposals will be evaluated by SHI's selection committee based on the following criteria (listed in descending order of importance): budget, ability to complete the project in the required timeline and following SHI's specifications, capacity to deliver high quality soil sampling, metadata collection, and efficient data delivery, and positive evaluation of vendors from prior clients. Preference will be given to vendors that can deliver sampling for the complete project area and can utilize QR-codes for sample labeling that are compatible with the SHI-selected lab.

The Soil Health Institute retains the right to accept any or none of the proposals submitted.

Regions to be sampled



List of counties selected per region:

Region 1

Region 2

Region 3

Request for Proposals Questions and Answers

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Q. Our proposal will cover all three regions and all counties therein. Do we need to submit a list of all counties and their FIPS codes for all three regions? Would stating that our proposal covers all regions and their counties suffice?

A. Yes, stating that the proposal covers all regions and counties should suffice.

Q. Please can you share the list of laboratories SHI is integrated with?

A. We are in the process of lab vetting for this project. After the labs are finalized, SHI will share the laboratory that the sampling vendor will have to work with.

Q. To ensure consistency in laboratory analytics, procedures, and shipping protocols, will the vendors be allowed to select one laboratory from the SHI laboratory list with which to coordinate?

A. SHI will be sharing the laboratory that the vendor will have to work with. We plan to have a single laboratory handling all samples for this project.

Q. For field data collection protocol and procedural consistency, will collecting all soil samples with a bucket auger be acceptable?

A. To maintain consistency between existing SHI dataset and this project data, we require sampling vendors to follow our sampling protocol using the equipment mentioned in the protocol.

Q. For field data collection protocol and procedural consistency, will collecting all bulk density samples with the specific AMS bulk density stainless steel 404.28 2x2 linear with a volume of 90.59 cubic centimeters, be acceptable?

A. We require bulk density sample to be taken through the entire 0-15 cm as well as 15-30 cm soil depth. The 2*2 core will not cover the entire depth. Please refer to our sampling protocol shared in the RFP.

Q. What is the required minimum GPS accuracy for all data collection points?

A. The minimum GPS accuracy for all data collection points should be 5 meters.

Q. What is the final composite soil sample volume?

A. 1 liter is the approximate soil volume required. This information is also available in the sampling SOP linked in the RFP.

Q. Will the specific laboratory analytical parameters be provided for the field handling, lab submission, chain of custody, and for the QR-Code labeling?
A. Yes, any relevant lab details will be provided that will impact field handling, lab submission, chain of custody as well as QR code labeling.

Q. For field sampling protocols, will the samplers be allowed to drive pickup trucks in the participants' agriculture fields?
A. Although not preferred, pickup truck is allowed for sampling. However, vendors will be required to ensure that fields are not damaged due to vehicle traffic. Vendors must contact coordinating farmers prior to sampling to ensure fields are undamaged by vehicle traffic. We require that trucks are not driven in wet fields and planted fields.

Q. For sampling protocols, will the samplers be allowed to drive UTVs in the participants' agriculture fields?
A. Yes. Although the samplers must not drive UTVs in wet and in fields with emerged crops.

Q. For field sampling protocols, what is the estimated number of samples per field?
A. We anticipate approximately 2-5 samples per field. Exact sample numbers/locations are not available at this time. Final sample number and location will be available 4-6 weeks prior to sampling.

Q. How will adjustments for weather delays within the project's time constraints be handled?
A. We will expect weekly communication with the sampling contractor regarding delays associated with weather and alternative plans.

Q. Can you share any more details on the QR code system that you use? If the vendor has an existing barcode system (that can link to a sample location ID that SHI has specified), and the vendor's barcodes are integrated with the proposed lab's operational process, is that an acceptable alternative approach?
A. Yes, an existing barcode system that can link to each sample and can integrate with the proposed lab and SHI's database will be acceptable.

Q. Will all of the proposed sampling locations be already checked with 811 for locates?
A. Sample vendors will be responsible for contacting 811 prior to sampling where applicable. The Soil Health Institute and Truterra are not responsible for coordinating with 811.

Q. Would subcontracting any of the project sampling to qualified regional partners be permitted by the contract?
A. If sub-contracting is happening, SHI needs to be informed. Any vendor using a sub-contractor must ensure the sub-contractor complies with quality standards. The vendor will be completely responsible for the sub-contractor and SHI will only be communicating with the vendor.

Q. Can you confirm land use (cropland, grazing, other)?

A. The land use will be mostly cropland which involves crops like corn, soybean, wheat, and cotton. But we will also be sampling some perennial sites such as grazing lands and woodlands which we use as references.

Q. Can you suggest any guidance for sampling in federal fire ant zones? Are there sampling implications or is that mentioned as a potential hazard?
A. Sampling vendors will be responsible for ensuring samples are handled in compliance with USDA APHIS regulations (See APHIS for more details). The selected lab either be within the fire ant quarantine zone or able to receive samples from the zone. The potential vendor must follow instructions from the lab (like double bagging and proper labeling) for all fire ant zone soil samples.

Q. Are any deviations from the specified equipment allowed? For example, the specified bulk density core in the RFP is 3 inches in diameter and our standard bulk density sampling kits are 2 inches in diameter (AMS SKU: 58596); the composite sample probes specified by the RFP are 1 inch in diameter and most of our step probes are ⅞" diameter (AMS, SKU: 401.40). Would smaller probes suffice as long as the target mass of soil is collected?
A. We prefer 3 inches diameter BD cores. The important thing to note is that bulk density samples cover 0-15cm and 15-30-cm soil depth while sampling for BD. The push probe mentioned is a 5/8" probe. This will work as well, as long as the target mass (~1L) of the soil is collected.

Q. How many subsamples comprise each composite sample and within what radius of the sampling point should they be taken? Will this information be specified along with the sample points?
A. At least 10-15 cores comprise each composite sample. A 5-meter radius of the sampling point is considered as a composite sampling zone. Only the sampling point will be provided. The 5m radius is to be estimated by the vendor and allocate 10-15 samples randomly.

Q. Can you confirm that bulk density and composite are required at each point?
A. Yes, at each sampling point, bulk density as well as composite sample is required.

Q. Have you already identified a preferred lab or are you interested in quotes for lab analysis, as well?
A. We have a separate RFP to call for lab vendors, this should be out towards the end of the year. This RFP will not only contain samples from this project but other projects at SHI as well.

Q. Can we use our own application for geolocating sample points or does the SHI have its own preferred application or method?
A. The locations of sampling points will be provided by SHI and vendors can use their preferred software application for locating points in the field provided the application can log the as-sampled coordinates.

Q. Can you provide an estimated sampling density (acres/sample)?

A. At this point, this information is not available. This will be influenced by the number of enrolled farmers. Enrollment is set to begin August 1, 2024. We expect each field to contain between 2 and 5 samples. Field size is variable however, most fields will be between 40 and 80 acres.

Q. Can you provide examples of the photo requirements?
A. Sure, here is the link.
https://drive.google.com/file/d/17jNAisHnVQ-NIdB1xKFFHsLr1KM6Wr3w/view?usp=sharing

Q. The listed bulk density probe (4004.45 SKU) is not listed on the AMS probe on the website, but there is a 404.45 SKU 3" x 6" bulk density probe, is this the intended AMS product for sampling?
A. Sorry, our RFP had a typo. The SKU we use is 404.45. This is the intended AMS product for sampling.

Q. Are the Dutch augers a substitution for the composite samples only?
A. Yes, the Dutch augers are just the substitute for composite samples. And the Dutch augers are only recommended to be used in sandy or clayey or wet sampling conditions if the probe does not seem to work well.

Q. For composite samples, in conditions where the soil is too rocky or compacted to use the push probe, can we use the bulk density probe as a substitute to the suggested Dutch augers?If an alternative probe/auger is used as a substitute for the 1" composite probe in certain conditions, is there a minimum quantity of composite locations (cores) to collect for a composite sample, or just enough to reach the targeted volume of 1L/~1000g of fresh soil?
A. We would like to keep the push probe as first choice and Dutch augers only as second choice to be consistent with all our projects in SHI. Regardless of the probe, we want 10-15 collections which are mixed and sub-divided to obtain a 1 L composite soil sample.

Q. For composite sampling, can we use a slightly different AMS push probe (AMS part # 401.37) capable of collecting a 1 in. diameter by 12 in. depth soil core instead of the suggested AMS push probe (part # 425.52)?
A. Sure. That is acceptable, SHI will want depths and pushes recorded in metric units (cm).

Q. What differentiates the "plastic garden sifter" from the 8 mm sieve? Could the 8 mm sieve be substituted for the plastic garden sifter? Can you provide the specific part numbers and sources for the sieves?
A. We are looking for sifting out the unconsolidated soil so that aggregates are more visible for collection. An 8 mm steel sieve might cause more breakage. Any soil sifter that has openings about 3mm could be used. Here is a link to one suggestion but the vendor does not have to use this exact sifter.
Amazon.com : Round Garden Soil Sieve Pan Sand Sifter Soil Sifter 3mm PP Tetragonum Hole Soil Sifter Portable Soil Sifter Screen Filtering Earth and Stone Tools (Pink) : Patio, Lawn & Garden

Q. “A brief written note describing the condition of the field (e.g. “no-till corn field, soil is dry and hard”)” can this metadata be per field applied to per sample, or is this a requirement for a note on the conditions at each sample site?
A. A note for each sampling point/site is required. Very simple notes describing the soil sample condition will suffice. This note is required for each sampling point in a field because each sampling point can have different soil condition due to micro topography.

Q. Will the grower contact be provided at the same time as sample locations?
A. Yes, the grower contact will be provided. The sampling vendor is required to contact the grower 24 hour in advance of visiting the grower field.

Q. Will SHI provide field boundaries with the sample locations?
A. Yes, field boundaries will be provided along with the coordinates for sample location.

Q. What date does SHI expect to notify vendors of the RFP award?
A. The selected vendor/s will be notified between September 9 and September 13, 2024.

Q. *For the RFP item “Include a description of provisions for shipping/handling intact aggregate samples to avoid sample disturbance and maintain natural soil aggregates during shipping. SHI has instructions and supplies that can be used in the SOP.”* Is there an SOP for shipping requirements of the soil aggregates, or is the sampling SOP’s requirement to use a 50 ml tube sufficient for shipping compliance?
A. Using 50 ml tube is a requirement for aggregate stability samples. On top of this, any additional steps taken to ensure that the aggregates do not break while shipping will be appreciated. If you plan to take those additional steps, please specify.

Q. Does the proposal’s 3 page limit apply to all documents or just the narrative (for example, an SOP attachment)?
A. The 3-page limit is for the narrative only.

Q. Can you provide a video illustrating the composite, bulk density, and soil aggregate sample collection protocols, outlined in the SOP
A. At this point, we do not have a video illustration. The selected vendor/vendors can be given a video illustration prior to the pilot sampling.

Q. What is the correct depth for an aggregate sample trowel slice? The RFP document references a “0 to 7-cm depth” while the Soil Health Sampling SOP suggests “pulling soil aggregates from 0 to 6 cm of the soil surface.”
A. Sorry for the typo. Please go with the SOP, “0 to 6 cm of the soil surface".

Q. What location will the samples be shipped to?
A. The laboratory has not been finalized yet. We will have a separate RFP for lab vendors. So, this information is not available as of now.

Q. Would SHI be interested in a discounted pricing structure if the chosen vendor can have data usage rights to use the sample results in an anonymized manner for SOC modeling?

A. Vendors are welcome to provide the discounted structure in addition to the regular structure. We cannot commit to the data usage rights at this time. This needs to be approved from Truterra.