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Farmer Perspectives on Administrative Burdens & Potential Compensation Structures:

A Short Summary Report of Farmer Interviews from Spring 2022

Vermont Payment for Ecosystem Services Technical Research Report #3c

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Key Messages

Interviews with 35 Vermont farmers explored their perspectives on compensation associated with a soil health payment for ecosystem services (PES) program. Farmers' willingness to participate in a soil health PES is linked to both the burden of enrollment paperwork and the payment level, among other factors.

If deciding whether to participate in a soil health PES program, nearly all farmers said they would weigh the time and energy put into the administrative workload against the perceived benefits and value of the program, i.e., the payment level or technical assistance provided. Farmers appreciate straightforward program applications and paperwork that are aligned with their interests and schedules. Understandable language and access to technical assistance is also important to farmers when applying to programs and/or handling paperwork. A PES program should be as straightforward as possible to ease administrative burdens. At a minimum, compensation should reflect the paperwork and engagement burden for farmers.

100% of the farmers we interviewed highly valued soil health on their farms. Most farmers liked the idea of a PES program which compensates them for soils with good health. They appreciated how a program could enable and/or incentive them to maintain or improve soil health on their farms. Farmers identified the importance for a soil health program to consider differences between farms and soils when setting reasonable performance expectations and payment rates.

Farmers expressed a wide variety of different perspectives and preferences about what payment rates would be meaningful to them in a PES program. There did not seem to be a 'one-size-fits-all' level of payment, and associating payment levels with soil health metrics proved challenging for some farmers. While many farmers were able to provide estimates of the level of payment they would be willing to accept, some were either unwilling or unable to determine appropriate levels of payment based on soil health metrics. Most farmers thought about the investment of time and resources needed when thinking about payment rates. Overall, the average level of payment that would be meaningful at the whole farm level described by interviewees was \$9,322.00 per farm. However, significant differences in payment levels were detected by farm acreage. Farmers with fewer acres tended to require higher per acre payment rates than farmers with more acres. Conversely, farmers with larger acreage tended to require higher total payment. Approximately 90% of farmers interviewed were supportive of per acre payments in a soil health PES program. Nearly 50% of interviewees expressed concerns about how undifferentiated per acre payment rates across different farm types would favor the participation of farms with more acres and those which were less intensively managed.

The potential value of a soil health PES program was widely recognized to be more than just monetary. Farmers expressed interest in both the monetary and non-monetary benefits that a potential program might offer them. Most were interested in the program providing some combination of financial payments, access to farm-specific data, connection to a farmer network/learning community, and technical assistance.

Introduction & Methods

To support the Vermont Soil Health and Payment for Ecosystem Services Working Group in determining appropriate payment rates for farmers, our team conducted 35 in-depth interviews with Vermont farmers in March and April of 2022. The interviews were designed to complement a survey that was administered in early 2022 to 179 farmers (the 2022 [Vermont Farmer Conservation & Payment for Ecosystem Services Survey](#)). After completing the survey, respondents were invited to participate in a follow-up interview. Compensation was offered to ensure participation in the interviews from a greater diversity of farmers.

The interviews were intended to solicit farmers’ perspectives on compensation for a PES program that may base payments on measured soil health metrics. A semi-structured interview format with questions about administrative burden, compensation structures, and acceptable and meaningful payment rates was approved by UVM IRB (#STUDY00001466). Interviews were conducted over the phone or video-conference call. Conversations lasted approximately 50 minutes and were recorded and then transcribed verbatim. We used an open coding approach to identify themes emerging across the transcripts using NVivo software. Interviews were thematically coded by two researchers who met and compared their coding after reading the first few transcripts. Inter-coder reliability was evaluated within NVivo and found to be at acceptable levels (kappa of 0.45). All of the transcripts were then double-coded, and the thematic analysis was summarized. This report highlights key messages from the results of this process.

Table 1. Participant age expected years of farming, and years of farming experience.

	Minimum	Average	Maximum
Age of Farmer	24	49	76
Years of Farming Experience	3	24	50
Expected Years of Farming Left	3	27	50

Table 2. Participant education and farm income.

	Number of Respondents	Percent of Respondents
Highest Level of Education		
Less than a Bachelor’s degree	9	26%
Bachelor's degree	17	49%
More than a Bachelor’s degree	11	31%
Gross Annual Farm Income		
Less than \$1,000	1	3%
\$1,001 to \$49,000	15	43%
\$50,000 to \$149,000	4	11%
\$150,000 to \$349,000	5	14%
\$350,000- \$999,999	9	26%
\$1,000,000 or more	1	3%

Farmer & Farm Characteristics

Of the 35 farmers interviewed, 63% were male, 31% were female and 5% declined to identify a gender. The average age of participants was 49. Eight of the interviewees are dairy farmers, ten sell hay, 15 have animals, and approximately half are smaller and more diversified operations. 17 of the interviewees manage farms with less than 50 acres, 18 manage more than 50 acres. Basic descriptive statistics of participants’ education, income, farming experience, and intended future farming are displayed in Tables 1 & 2.

Administrative Burden

Interviews started with a discussion about farmers' experience with conservation incentive programs. Farmers were asked about how administrative work influenced their participation in programs, and if they had ever decided not to enroll in a program because of paperwork. Farmers were then asked about how these concerns about paperwork and administrative burden would influence their decisions to enroll in a new PES program. Nearly all farmers said that they weigh the administrative burden—the time and energy put into the administrative workload—against the benefits offered by the program, when deciding whether to participate in a conservation incentive program. Farmer perspectives on the acceptable amount of program administrative paperwork were linked to the perceived program benefit, their own workloads/schedules, and the time they had to spend on administrative paperwork. While none of the farmers seemed to relish paperwork, there was a range to how much they were bothered or deterred by it. Approximately 30% of farmers interviewed cited administrative burdens as a major deterrent to participation in conservation incentive programs.

I guess the administrative burden [needs to be] in proportion to the perceived benefit. So things that are asking for farmer feedback or farmer participation that don't have a benefit—not necessarily directly to me but to the farm and to the land base—are far less appealing. I think that in this situation... because the program is trying to do something or helps me do something that is already in alignment with the goals of the farm that the administrative burden would be easier to stomach.

[First] I try to determine if I'm going to even apply or look at it. I look at: What's the potential I'll be awarded [from] the contract? How much is the contract? How much time I'll have to invest in the contract? Is it worthwhile financially to invest?

It [how burdensome paperwork is] kind of depends on the time in the year. If... I'm not busy doing a lot of field work or something like that, then I guess my time in the office maybe isn't worth quite so much as it is in the middle of the growing season.

My time's not free. Every hour I spend in the office working on that, I could either be doing book work for the farm or doing actual physical work on the farm.

Language and Technical Assistance: The language used by the program, and administrative technical assistance provided, helps determine how easy and inviting a program is for farmers to engage with, understand, and, ultimately, participate. Farmers appreciate the use of clear, understandable language and readily available assistance from experienced/knowledgeable program staff.

Applications can be intimidating and confusing because they're often written in languages that... The wording is such that it's... you wonder who wrote it. If there's somebody that's familiar with it on the other end, such as yourself or whatever, that's what makes it easier.

When I see a USDA grant that's got tons of paperwork and very little help, I definitely am not going to apply for that because it's very complicated. I don't have time to have really complicated applications that I don't know that I'm going to get. I don't mind putting time in if I know that I'm going to receive a service, like my NCRS greenhouse, it's very simple. My NCRS representative, he made it very easy for me. So it was very easy to go through the process with him.

Compensation for Administrative Work: Farmers' opinions on whether monetary compensation was needed for administrative work varied. Many thought that compensation for administrative burdens was not necessarily needed, as long as the program participation benefits were enough, and the process wasn't overly onerous or unaligned with their own goals and schedules. However, some farmers felt that they should be compensated for their time on paperwork, and noted that compensation would encourage and enable program participation.

[In response to whether compensation for paperwork was needed] If it's this one-time application, no. If it is routine reports, it should be baked into the cost that we get back.

Compensation certainly helps, because in my case and a lot of farmer family cases, if it's like, oh, I have to do this during a time where I need to have childcare, but then I'm being compensated in a way that I can do this thing. I can't do it if it's not being compensated.

Shared Paperwork & Information Between Programs: Nearly 50% of farmers suggested that administrative work and farm records for a new PES program could be shared between and coordinated with existing PES and farm programs to ease the administrative burden and reporting redundancies for farmers participating in multiple programs.

[It would be helpful] if there could be a way to tie it into your NCRS paperwork or make it the same form you need for your organic certification, or just some way to integrate with the common programs that these farmers are already interfacing with and keeping records for.

[It would be helpful] if it's consistent deadlines and we soil test every year and if it's like, our soil test is going to our organics and the ecosystem services inspector. And I just know off-season that that's going to be due, instead of having all of these programs that have similar requirements but are all happening at different times of the year— that's burdensome.

I would think that would make the most sense if you make ease of entry as low as possible for farmers who are in existing programs to then branch into whatever program we were creating.

Data Privacy: The topic of data privacy was not explicitly prompted in the interviews, but several farmers acknowledged it as a consideration which might influence their participation in a program.

Where this data goes might affect my willingness to do administrative paperwork. "Who's going to own this data and how might it be used in the future or not?"

Exploring Payment Rates and Compensation Structures

Compensation Scenarios: Two different compensation scenario topics were discussed with farmers during the interview; compensation for maintaining high levels of soil health and compensation for enhancing levels of soil health. For each topic, farmers were asked for their preferred payment rate, as well as the minimum level of payment which they would be willing to accept.

- 1) *Payments for Maintaining High Soil Health:* In the first compensation scenario discussion, farmers were asked to think about a PES program where farmers were paid for maintaining high soil health on their farms. Farmers were asked to imagine that the program had a set threshold for specific soil health metrics, and if a farmer's soil health was at, or over, that threshold, the farmer could qualify for a payment. A specific organic matter percentage level based on their soil type, i.e., 4%, was used as an example. Farmers were told to imagine that their soil was already at or over that percentage and were then asked what they thought fair compensation would be for already being at that high level.
- 2) *Payments for Enhancing Soil Health:* In the second compensation scenario discussion, farmers were asked to think about a PES program where farmers were paid for enhancing soil health on their farms. Farmers were asked to imagine that the program had multiple payment tiers based on different pre-determined tiers/levels of soil health, each with a different payment rate. Those with soils in higher soil health tiers would receive higher payment rates. Farmers were told to imagine that their soil qualified for the lowest tier of soil health and would, therefore, receive the comparatively lowest compensation rate. To have higher payment rates, they would need to bring their soil health metrics up to the next threshold benchmark. Farmers were asked what payment rates would incentivize them to invest in improving their soil health enough to receive the next higher threshold payment rate.

Payment Rates: Farmers were asked to provide the preferred payment rates for both scenarios, as well as the minimum rate which they would be willing to accept. These questions were framed for consideration as if there was no associated administrative burden, to focus the conversation on compensation for performance. Many farmers had difficulty deciding on specific dollar values, and a few were unable or unwilling to give specific dollar values. Fifty percent of farmers with less than 50 acres had difficulty assigning dollar values to soil health compensation scenarios, and 36% of farmers with more than 50 acres struggled with this. Farmers frequently linked desired payment rates with what they would need to do to sustain or achieve soil health gains and the amount of investment it required. Average dollar amounts for each conversation topic provided by farmers are included in Table 3.

Suggested payment rates varied greatly across all farmer interviewees. Some trends between suggested payment rates and farm size (based on number of acres) were statistically significant. In both compensation scenarios, farmers with fewer acres tended to have higher preferred and minimum payment rates for per acre payment rate than those with more acres. When asked what level of payment would be meaningful to them at the whole farm scale (as opposed to a per acre

scale), farmers with more acreage tended to cite higher amounts than farmers with fewer acres. The average whole farm payment rate that would be meaningful to farms under 50 acres was \$3,523 /farm, whereas the average whole farm payment rate that would be meaningful to larger farms managing more than 50 acres was \$15,604 /farm. Conversely, farmers with more acres cited lower per acre rates compared to smaller farms. The average preferred payment rate for maintaining soil health was \$323 /acre among smaller acreage farms and \$77 /acre among larger acreage farms (Table 3).

Table 3. Summary of compensation preferences reported by interviewees

	Average among farms < 50 acres in size	Average among farms > 50 acres in size	Average among all interviewees	p-value †	n
Preferred per acre payment for maintaining soil health	\$323	\$77	\$186	0.14	18
Minimum per acre payment for maintaining soil health	\$80	\$18	\$40	0.05*	23
Preferred per acre payment for enhancing soil health	\$1,907	\$134	\$843	0.13	20
Minimum per acre payment for enhancing soil health	\$803	\$56	\$269	0.16	14
Meaningful whole farm payment level	\$3,523	\$15,604	\$9,322	0.07*	25

† T-tests evaluated significant differences between responses by farm size.

* denotes significant difference to p-value of 0.10

n is the number of interviewees who provided a dollar value number in response to each topic

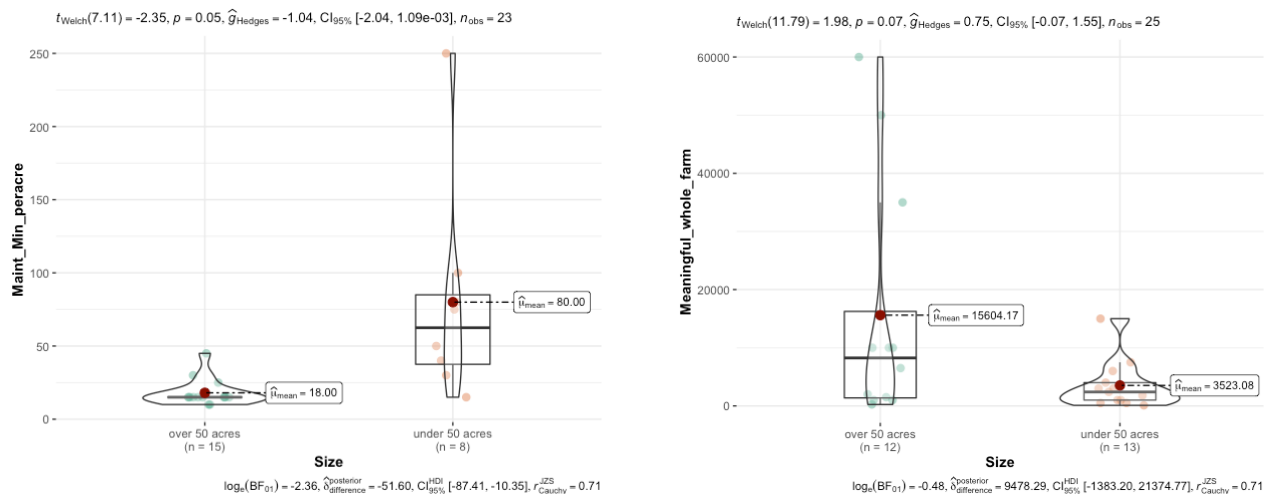


Figure 1. Boxplots and T-test results illustrate significant differences in compensation preferences that were observed between farms of different sizes.

Factors considered around payment rate for maintaining soil health: Many farmers had difficulty in providing specific dollar values, however most considered their current opportunity and direct costs in maintaining their soil health, (i.e., inputs, cover crops, rotations, equipment, and land taken out of production) when thinking about payment rates. Other farmers factored payment amounts by estimating what would be a meaningful additional source of revenue to their operation. Some

farmers said they would be willing to take any monetary amount if there was no administrative burden on their end and program requirements aligned with current farm management, especially since most felt that soil health offered production value. Other farmers set minimum rates that they would be willing to accept, stating that their participation would be contingent on receiving a payment which meaningfully impacted the viability and financial wellbeing of their farm.

Any extra source of income, as long as you can handle the work required, is welcome, I would think, to the average farmer these days.

I guess I would say that like 10% [of the] cost of input would be a meaningful compensation.

I think if the goal of the program is really to incentivize high levels of soil health, and farmer effort to maintain it, then it ought to be a meaningful amount in the grand scheme of the farm operation. Enough that it might make a difference in the farm's ability to be profitable.

I think that on the one hand, if there's costs to maintaining high, good soil health, but there's also benefits in that for our farm-- that is why we do it. We do it because we think that we're getting a better product.

Factors considered around payment rate for enhancing soil health: Many farmers thought about the costs of equipment, practices, and other changes that may help them improve their soil health when thinking about payment rates in this performance-based compensation scenario. Interviewees found it difficult to pinpoint a dollar sign as they did not necessarily know what they would need to do to make those improvements. Farmers stated that payment rates would need to be high enough to motivate change, offer meaningful value, and make business sense. They often highlighted the potential difficulty and risk of making operational changes, and the uncertainty of outcomes. Farmers valued the idea of motivating positive changes and investments on farms.

It [appropriate payment rates] depends entirely on what sort of effort would be needed to reach that higher level. Is it a matter of timing, grazing, and harvesting a little differently, or manure applications, or are we talking about bringing in different amendments, or needing special machinery to somehow change management practices?

To enhance, it's got to be enough to make someone want to do it.

It [a payment rate] has to be based on something. So you [have] got to find the average cost, and then you give them some kind of extra over that to cover their cost, plus give them a reasonable extra incentive money.

The disadvantage [of tier-based payments] is you could be investing a lot [to reach the higher tier] and maybe never get to that [higher tier] next year. But I think the advantages are you're really pushing people to actually do what's going to make a difference in soil.

If you asked me right now how fast could I add a percentage point of carbon to all of our soil. A percent is a lot to gain. It [would] probably take five to 10 years...to gain a whole percentage point....unless we could do some really groovy cover cropping, no till stuff... Annual vegetables are hard because there's a lot of tillage.

Payment Structures

Farmers were asked to consider the strengths and weaknesses of payments on a per acre basis, and payments based on tiers, or thresholds.

Per Acre Payments: 90% of farmers interviewed were in support of payments on a per acre basis. Most farmers easily related to and understood a per acre compensation structure— many already used a per/acre mentality to calculate potential revenue and the financial cost of their decisions. Some farmers also noted that per acre payments may be alluring to the large farms with potential for large environmental impact.

[Regarding per acre payments] I think that's the most straightforward way to do it. Most of the efforts are going to be on a per acre basis.

I think that a per acre payment has a lot more transparency for me as a producer of, like, it's easy for me to conceive of I know what my per acre costs are and it's easy for me to conceive of what the payment, how it compensates for those costs. And my per acre production metrics and everything, just, we already think by the acre.

Nearly half of the farmers noted that undifferentiated per acre payment rates across different farm types would favor farms with more acres and those which were less intensively managed. Some thought favoring farms with more acres was justified because they had greater potential environmental impact. However, there was general disquiet with how per acre payments might leave out smaller and more intensively managed farms. Numerous individuals suggested a minimum baseline payment for a farm plus per/acre payments to better and more meaningfully include smaller farmers in per acre compensation structure.

I can see a disadvantage of it being that if you're going to be compensating different types of farms across different production methods with the same for acre payment that that might be hard. Because dairy farmers have way more acreage, but are putting far less into each acre. Their cost of production or cost of input per acre is way lower.

I think it [per acre payments] disenfranchises the smaller acreage farmer, but that said they're on less acres. So if the point is ecosystem services, the more acres you manage, the more impact on that ecosystem you potentially have.

I'm a small, diversified vegetable farmer. I'm not managing several 100 acres, so my payment's going to be substantially lower than someone who's managing a large tract of agricultural land. That's [per acre payments are] a disadvantage to the smaller grower.

Tier/Threshold Payments: Two thirds of interviewees supported the idea of a tiered-based approach for payments rates, with farmers providing higher levels of ecosystem service receiving accordingly higher payments. Farmers noted that meaningful increases in payments between tiers would encourage or enable them to make positive changes on their land— farmers liked the idea of incentivizing positive changes. It was, however, commonly articulated that payments would need to be high enough to incentive the change, especially if it involved making changes that farmers perceived as risky or extremely costly. Numerous farmers thought that incentivizing

environmental gains and public benefits (or, at least, preventing of loss of public benefits or services) was important if there was public money involved. Some farmers vocalized appreciation for how setting certain tiers would act as some compensation for farmers who have already been doing good work for years.

I think setting thresholds and having a scale that people could move up would really possibly incentivize people to just continue growing healthier and healthier soil and learning about and implementing better farming practices, versus if it's just a set farm payment.

[Tier-based payments] offers more of an incentive, I think, to continue improvement as opposed to a one-time thing of just saying, "Oh, okay. I'm level one. I like that. Thanks for the money," and then you don't do anything.

Need to Consider Differences Between Soils, Farms, & Production Systems:

For a program paying for soil health, all farmers thought it was extremely important to make sure the program accounted for and considered inherent and inherited differences between farms and fields based on different soil types, management histories, and production systems. Many farmers said that the tiers should be nuanced and account for factors like soil types, historical land uses, farm type, and production methods. Some farmers highlighted some challenges around the potential difficulty and uncertainty in achieving and/or maintaining a desired or expected outcome. Farmers indicated that they were most interested in a program which had expectations and goals which were appropriate and achievable for their farm type, soils, economic circumstances, and management practices/goals.

You may have to do them by soil type, because if you have a sandy soil there's no way you're going to get a high organic matter.... that's got to be incorporated in there somehow.

It's not necessarily fair to create a single threshold across all soil profiles, [or even] all similar soil types because historic management is a master factor in that... You'd be much better served—the farmers would be better served, the environment and the communities would be better served— by incentivizing farmers to increase organic matter and other soil metrics based on the exact characteristics of the soil that they've inherited as managers.

Someone in a pasture-based system is probably going to have a lot higher soil health than someone in a tillage-based vegetable system. And what is a realistic expectation for those [respective] systems?

Alternative Forms of Compensation: Without prompting, approximately 25% of farmers brought up alternative, non-monetary forms of compensation which could be valuable ways in which a program could support farmers including through access to equipment (i.e., seed drills or roller crimpers), supplies (i.e., soil amendments) or services (i.e., health care assistance). Over

90% of farmers were also interested in the value of farmer networking and learning communities, technical assistance, and/or the collection and interpretation of on-farm data. Some farmers also described the inherent value of soil health, and the way a PES program could provide information that would inform their efforts to enhance soil health.

I see incredibly high value in being able to understand more specifically in what areas we are improving and how, and then being able to compare some of the yield then benefits that are somewhat linearly connected to those improvements. And just to be familiarized with these newer technologies and these more in-depth analyses.

Provide me technical equipment and access to technical experience to increase my crop yields through soil health— that's what matters.

Technical assistance is not only obviously helpful, but I think in some ways it's motivating. If you're into one of these kind of arrangements and I, the farmer, are making that commitment, then knowing that I have these tasks or that these things are going on with my farm, which are all going to help me, is a motivator in itself to want us to stick with it and do well with it.

I just want to say now maybe there's a different way of looking at payments. I don't know. Maybe it's more a matter of can we help you with something else? Well, healthcare is one, right? What kind of healthcare do many farmers, and how much does it cost them? Can they get Medicaid, Medicare, Green Mountain Care without having to worry about their income levels, you know?

But then being able to really see what other people are doing and what their improvements are like, that's really valuable.

I think the juicy carrots on the stick is the soil. If you have farmers enrolled in this program, you're already paying them to participate. If you are making meaningful, quantifiable improvements to their soil health, that would be payment enough, I think, for me. Because those improvements are going to translate to production improvements.

Conclusion: This report provides a summary of interview responses around farmer perceptions of PES program administrative burdens, and different payment rates & compensation structures for a soil-health based PES program— the primary purpose of the interviews. However, the interviews produced additional rich findings and farmer insights. An extensive supplemental report of themes that emerged from the interviews was created as an appendix to this report, for readers who wish to do a in-depth exploration of farmer perceptions and suggestions for the design of a PES program. Please contact the authors of this report for a copy of the supplement.