

The following information is a thought experiment, not an actual program proposal endorsed or supported by VAAFM

Draft Approach 1: Soil Health Testing via Cornell Comprehensive Assessment of Soil Health (CASH)

Farmers are paid for every field that a CASH test demonstrates is above one of a tiered set of thresholds of soil health (“Optimal” or “Excellent”). CASH sampling could additionally be reimbursed/provided under such a program.

Pros:

- Straightforward sampling and payment approach
- Somewhat comprehensive of soil health on farm

Cons:

- No explicit link to ecosystem services – only implied
- Since not specifically tied to an ecosystem service, difficult to assign value
- No additionality – does not pay for improvements

Possible Program Details/Considerations:

Ecosystem Service Valued: Soil Health

Output: Performance – Soil Health Score as indirect proxy for the multiple benefits of good soil

Quantification: Measurement

1. CASH Soil Sampling [unmodified]
 - a. 1 CASH sample per field (assume 20 acres)
 - b. Unanswered considerations:
 - i. *Lab capacity*
 - ii. *Timing of sampling needs to be consistent across farms for comparison(?)*
 - iii. *Other tests needed for soil carbon measurement – yes*
 - iv. *Need to document field management? [crop type / soil type]*
 1. *Shapefiles for field boundary and gps point for sample locations*

‘Whole Farm’ Consideration:

- a. Farmer- chooses fields to be submitted for sampling and/or field-by-field payment
- b. Unanswered considerations:
 2. *Land use limitations for enrollment?*
 3. *All fields – cost prohibitive*
 4. *Could look at whole farm if collect samples from “representative fields” – would require further TA to review farmer land base and select representative fields based on soil type, crop management, etc.*
 5. *Land tenure requirements (rented vs. owned)*

CASH Sample Costs:

- a. Total cost (labor, shipping, lab costs): \$264 / field tested
 - v. See attached spreadsheet for complete cost itemization

Who Pays?

- a. PES Program Pays for:
 - vi. CASH sampling costs – labor & lab costs [Farmer or TA Provider]
 1. *‘Verification’*
 - vii. Payment for ecosystem services – 4 scenarios

Who Samples?

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- a. TA Provider or Farmer
- b. Unanswered considerations:
 - 1. QA/QC
 - 2. Verification

How often Sample?

- a. CASH Sampling Program: every 5 years
- b. CASH Payment Program: every 5 years
- c. Unanswered considerations:
 - viii. Rotate / stagger fields?

Payment

- a. CASH Score [Optimal & Excellent]
- b. Payment per acre
- c. Payment rate: Tiered
 - ix. Optimal [81-100] = higher payment rate
 - x. Excellent [61-80] = lower payment rate
 - xi. Suboptimal (41-60) = no payment rate
 - xii. Low-Level (21-40) = no payment rate
 - xiii. Constraint (0-20) = no payment rate
- d. Individual fields submitted for sampling and payment
- e. Payment once every 5 years per field
- f. Payment will direct financial remuneration
- g. Funding source: \$1,000,000 PES GF appropriation

Baseline

- a. No baseline – is a threshold program proposal.
- b. Eligible for payment in 5 years, even if score goes from optimal to excellent.

Threshold

- a. Optimal and excellent scores based on CASH result for crop and soil type

Farm Eligibility

- a. All Vermont farm & crop types for which the CASH can be calculated
- b. All RAP farm sizes
- c. Farm must be in good standing with VAAFM

Farm Ranking

- a. First come first served based on application deadlines set by program

Pilot Specifics

- a. 1 year of sampling and payment for SFY23

Payment Scenarios:

Four payment scenarios are considered for this pilot thought experiment. These payment rates are informed Task 3: Farmer PES Survey Results and include considerations provided in Task 5: Valuation of Ecosystem Services report. A fixed cost of 15% is considered for administration costs between program payment rates– this will need to be revisited as complexity is introduced into a program and cost to administer is truly considered. Payment rate of \$100 / acre is selected as the median response from the Task 3 survey as there were significant outliers on the ‘high’ end of the payment estimation. This \$100/acre rate is assigned to achieving the ‘optimal’ result on a field’s farm score. A 50% discount is applied to those farms that score in the ‘Excellent’ range. While ecosystem services valued in the Task 7

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report are attached to discreet soil health conditions and improvements, and the CASH test results are not directly correlated to these outcomes, for the purposes of setting a performance payment rate for achieving either excellent or optimal soil health ratings on a soil unit, the 'Good' and 'Best' valuations from the Task 7 are selected as payment rates for achieving the respective soil health ratings - \$29.89 and \$20.68 / acres respectively. Further evaluation would be needed to correlate a CASH rating of optimal or excellent to a payment representative of ecosystem services assumed to be induced through the achievement of said rating. TA costs are not reflected in these program scenarios.

Scenario Results less admin costs or TA costs:

\$100 / acre payment rate cost per acre @ 20-acre CASH Sample @ 100% success per sample: \$113.20

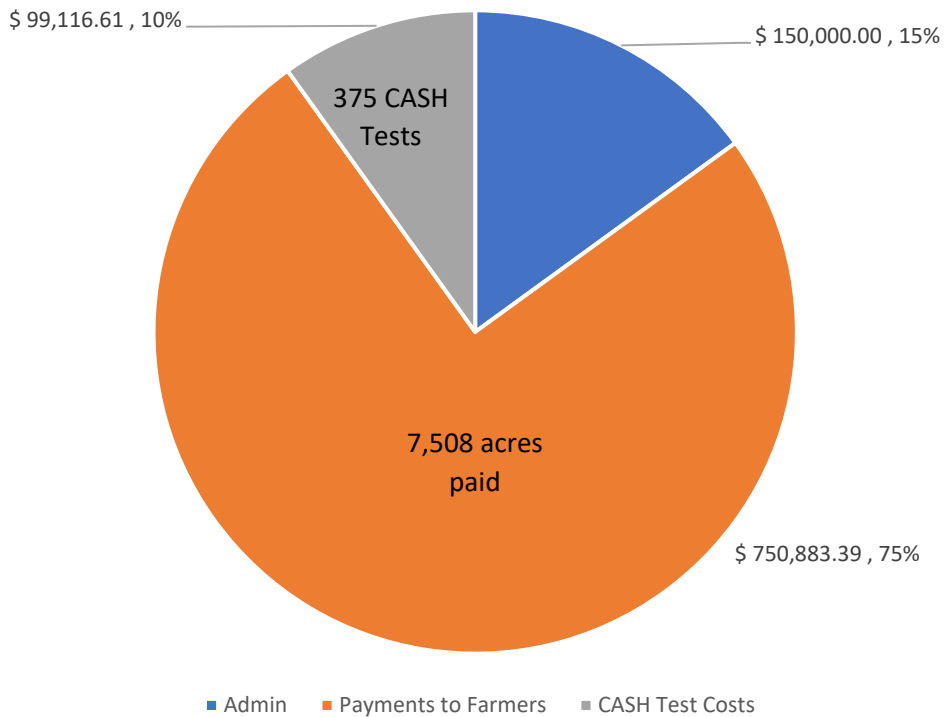
\$50 / acre payment rate cost per acre @ 20-acre CASH Sample @ 100% success per sample: \$63.20

\$29.89 / acre payment rate cost per acre @ 20-acre CASH Sample @ 100% success per sample: \$43.09

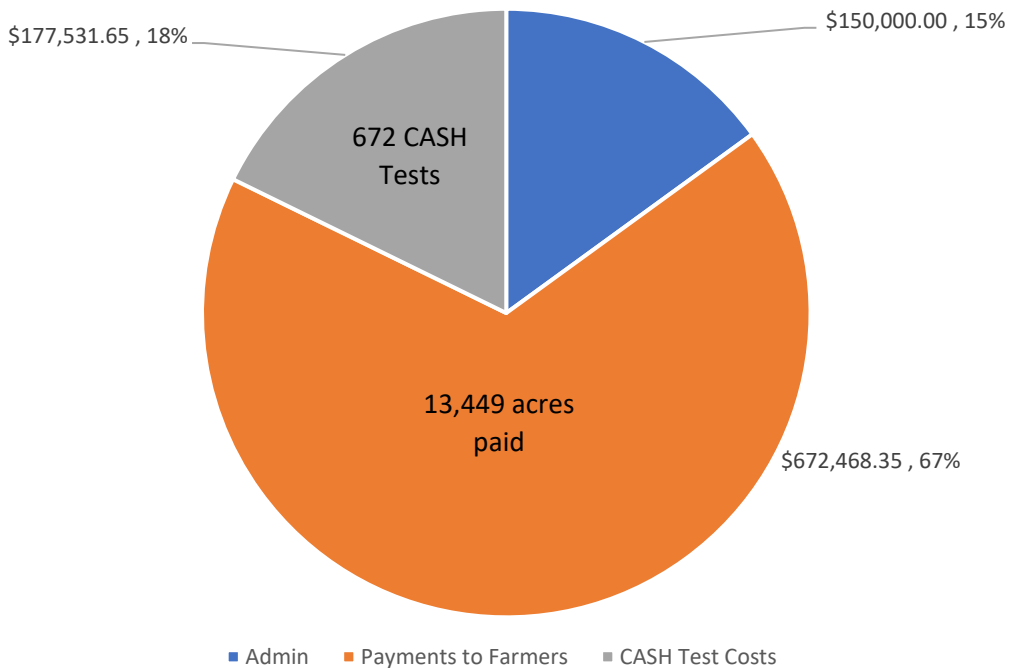
\$20.68 / acre payment rate cost per acre @ 20-acre CASH Sample @ 100% success per sample: \$33.88

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CASH Threshold PES Scenario 1: \$100/acre

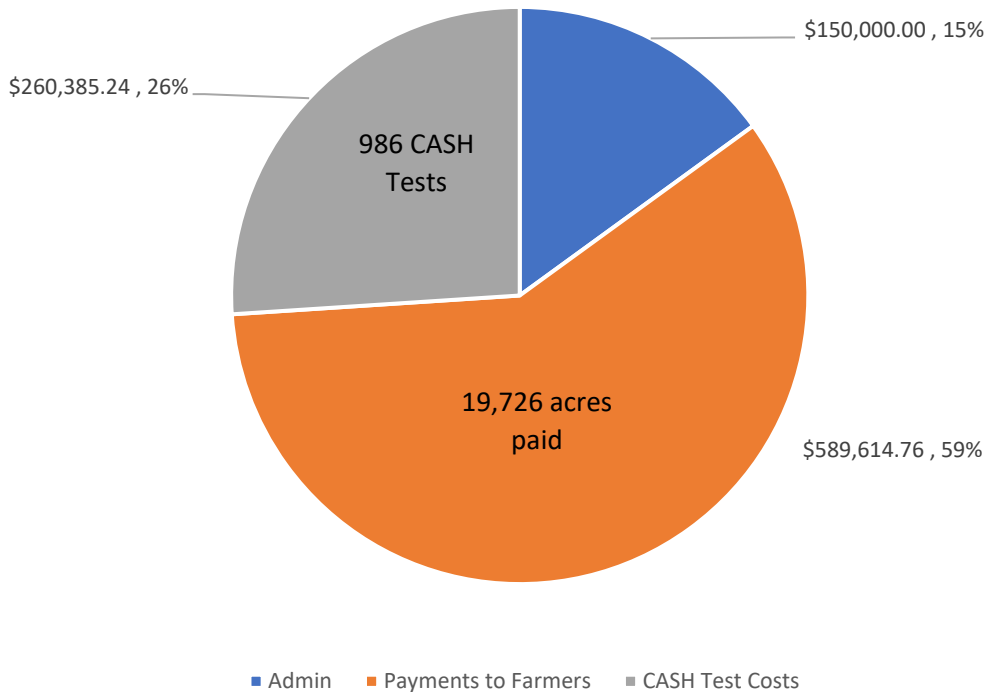


CASH Treshold PES Scenario 2: \$50/acre



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CASH Threshold PES Scenario 3: \$29.89/acre



CASH Threshold PES Scenario 3: \$20.68/acre

