**PES Program Design & Experience: VT PES WEBINAR 10/23/2019**

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**Background on Presenter:**

Jon is an agricultural economist who has been working with farms on PES systems nationally and internationally with the NGO Winrock since 2001. He is now an independent consultant who is working with NRCS through CIG in the first stages of designing a pay-for-performance system in Vermont. Most PES systems he has worked with have focused on nutrient reductions, hence that focus in his examples.

**Key Takeaways:**

* **Pay-for-performance is more cost-effective** than pay-for practice because it is quantifiable, more motivating to farmers, and can account for more geographic and temporal variation
* Use **efficient, scientifically robust, and easy to use models at the farm-level**
  + Models are more cost-efficient and doable than constant measurement: “a necessary evil”
  + Model-based performance reduces the risk on farmers in the case of variables beyond their control – e.g. will still get rewarded for BMPs despite extreme weather events
  + Although necessarily inaccurate in the short-term, models should provide relatively accurate ballparks in the long term
* **In-stream monitoring at the scale of a small watershed** would capture the “real” reductions
  + Need to find a scale that isn’t overly resource-demanding (edge-of-field is impossible at large scales) but also small enough to see changes from management
  + Most of the acreage in the watershed would need to be in conservation practices to start to see differences – might motivate farmers to recruit neighbors if incentivized
* **Farmer motivation** is a big factor in whether PES is successful
* Incentive payments can be paid only for **modeled results**, only for in-stream **monitored results**, or potentially **both** (first you get paid for modeled results coming from your practices, then enrolled farmers in your watershed get paid for in-stream reductions).
* **Crawl before you walk:** these programs get complicated quickly and building a successful program will likely require some degree of reductionism

**Jon’s piloted system of pay-for-performance:**

1. Recruit farmers based on voluntary interest
2. Take soil samples and slope/soil profiles of individual fields (from GIS mapping) and input this data into a scientific model to determine/graph the nutrient reductions, total costs (including opportunity costs), and total benefits (including before and after PES payment) of implementing different conservation practices
3. Give the farmer the results of these projections so they can choose which conservation practices to implement on each field
4. Pay per pound of P reduced by the farmer, according to the modeled results of the conservation practices they implemented on each field.

\*In they Missisquoi River watershed in VT 10 years ago they ran a pilot program where they offered $25/lb phosphorus reductions. Practices with a cost below that value were cost-effective to implement. Different kinds of practices were most cost-effective on different farms. Depending on the state and the costs you are seeing, you must set the ideal local price point for payment.

**Theory of PES:**

* Conservation practices have a benefit (or cost) to farmers and a benefit to society
  + PES could be the “price” that bridges that difference/passes the value of ES on to farmers
* You need to motivate farmers with near-term goals of appropriate difficulty
  + PES, particularly via performance-based criteria, provides both Intrinsic (personal interest/satisfaction) and Extrinsic motivation (reward, competition, coercion)

**Key Program Design Issues:**

* *What ES to target?*
* *How to quantify?*
  + Measured performance gives real data but a lot of noise (eg volatile weather).
    - Inherently impractical, although you can use proxy variables.
    - Adds a lot of uncertainty/risk for the farmer.
  + Simulation modeling uses science to take in characteristics of each field and come up with best scientific estimate of performance (e.g. how nutrient loss will change with practice).
    - Allows for scenario analysis before actions are taken; probably not accurate year-by-year, but long-term it should be directionally correct and in the ballpark.
    - Should be based on sound current science, user-friendly, cover multiple ES, have wide applicability, and optimize tradeoff between simplicity and accuracy.
* *Where to quantify, and at what scale?*
  + There are tradeoffs between cost and locational relevance
  + Lake-level measurements are too far removed from on-farm improvements
  + On-farm measurements would be ideal but are impractical and costly
  + In-stream might be a compromise
* *What to pay for?*
  + Balance cost-effectiveness vs fairness
    - Reduced losses are quantifiable and more cost-effective
    - Stewardship level rewards past performance
    - Combination is possible but likely to be complicated
* *How much to pay?*
  + Focus on rewarding tweaks (small changes), or financing transformations (large changes)?
  + Set an appropriate incentive level that is both cost-effective and motivating to farmers
  + Leave a pathway for practice implementation to be self-sustaining without PES
* *Where will the funding come from?*
  + More efficient use of current spending
  + Regulated entities downstream (cap and trade)
    - Agriculture offers low-cost nutrient reductions: opportunity for trade
  + Private sector investments
  + Combinations of public and private are possible
* *What else do you need to make a program successful?*
  + Lots of trustworthy, skilled boots on the ground
  + Transaction costs that are lower than program benefits.