



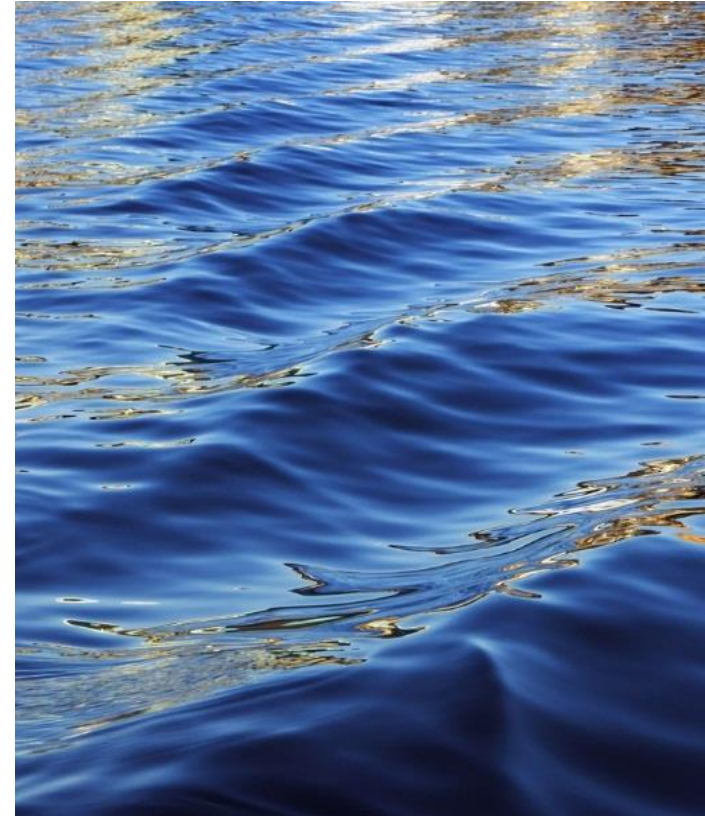
Market Approaches to Greenhouse Gas Mitigation in the Agriculture Sector

William Hohenstein

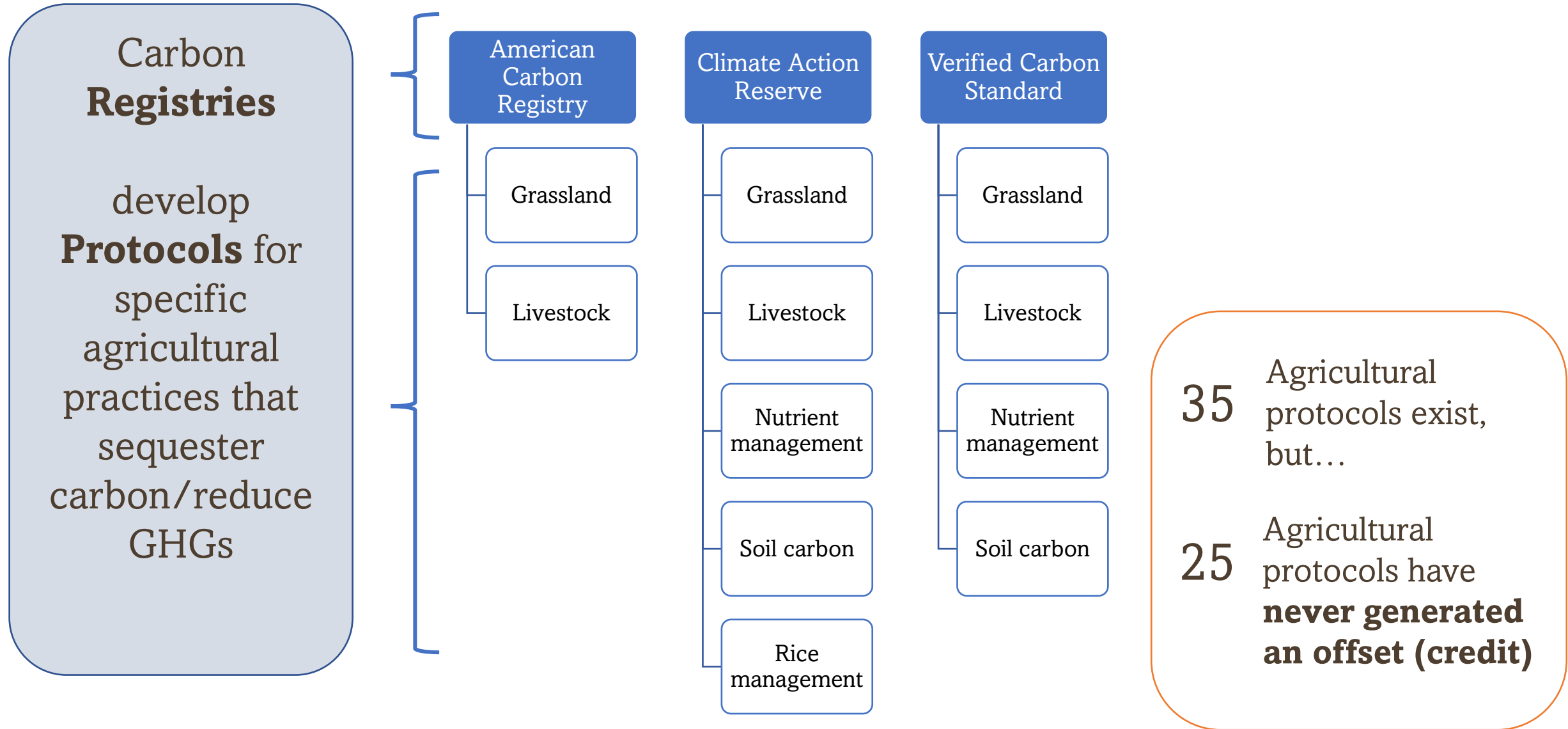
USDA Office of the Chief Economist

Office of Energy and Environmental Policy

June 6th, 2022



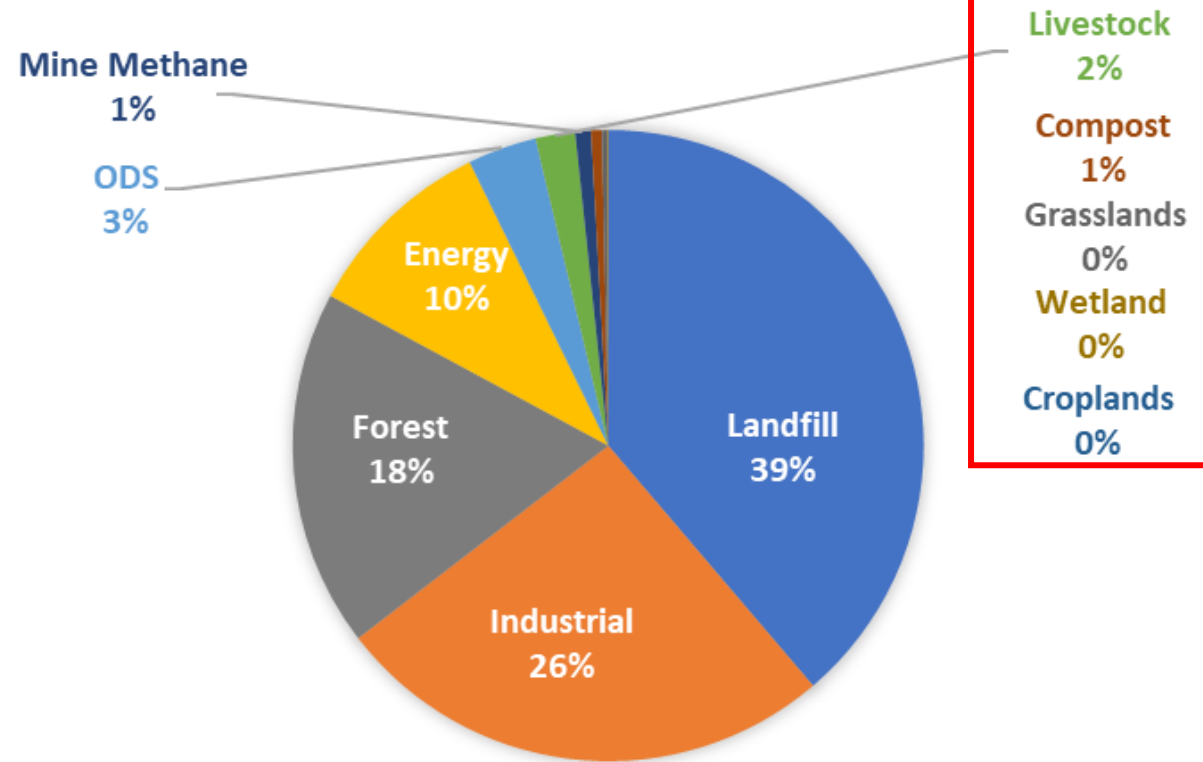
Agricultural Carbon Market Protocols



Barriers to Market Growth

- Scale
 - Agricultural offset projects are small and generate few credits per farm relative to other types of projects
- Transaction costs
 - Project development, monitoring, reporting, and verification costs are high relative to the value of the credits
 - Voluntary registries compete on “quality”, raising reporting and verification burdens on producers
- Confusion in the marketplace
 - Lack of consistency among approaches to protocols
 - Multiple protocols for the same practice (e.g. grassland preservation)
 - No entity currently has authority to set rules/standards for protocols
- Limited demand
 - Limited financial benefit for farmers
- Farmers are not seeing benefits of the market

**Percent of Voluntary
Market Credits generated
by source**

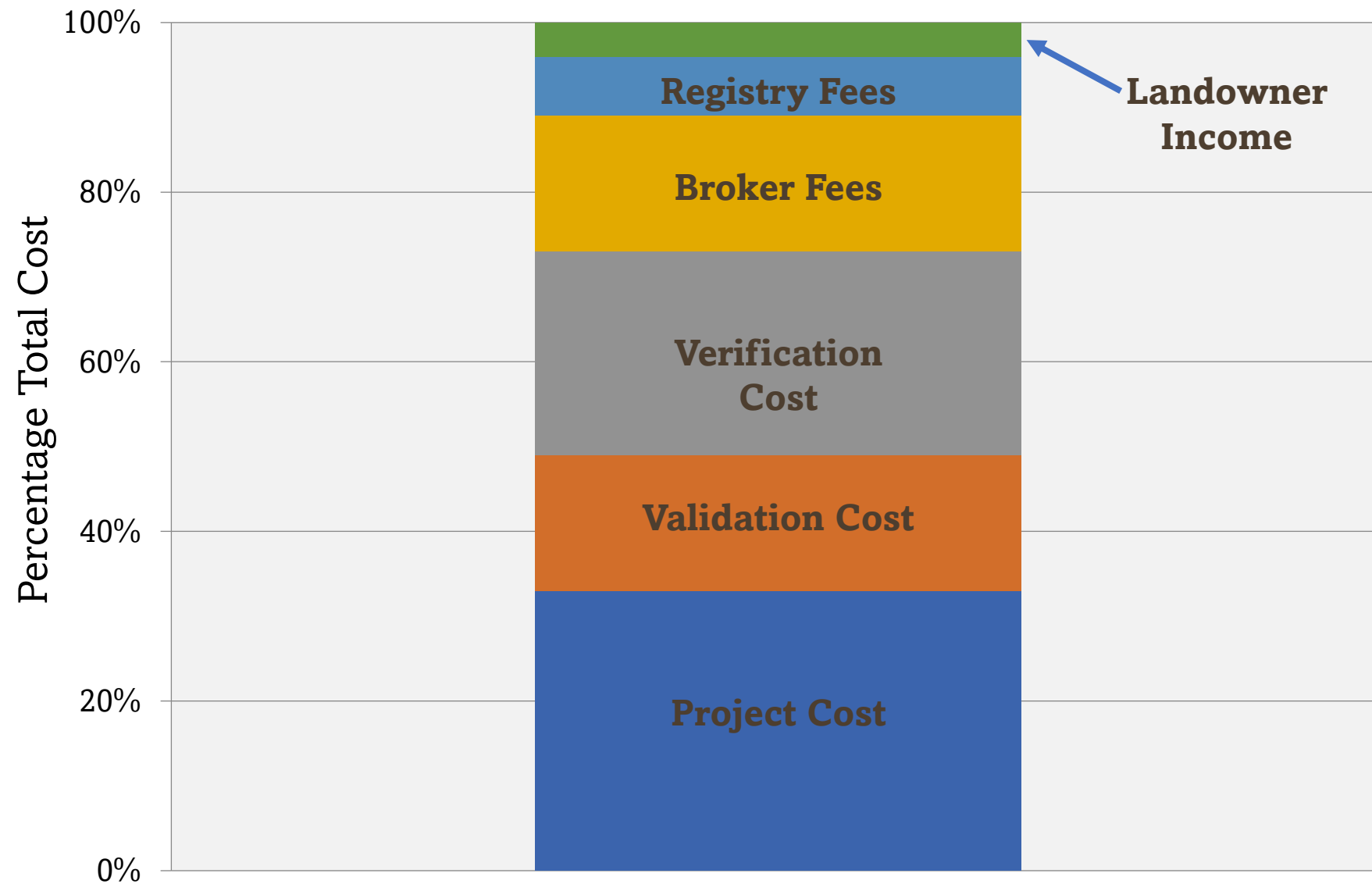


Total number of credits: 119,814,962

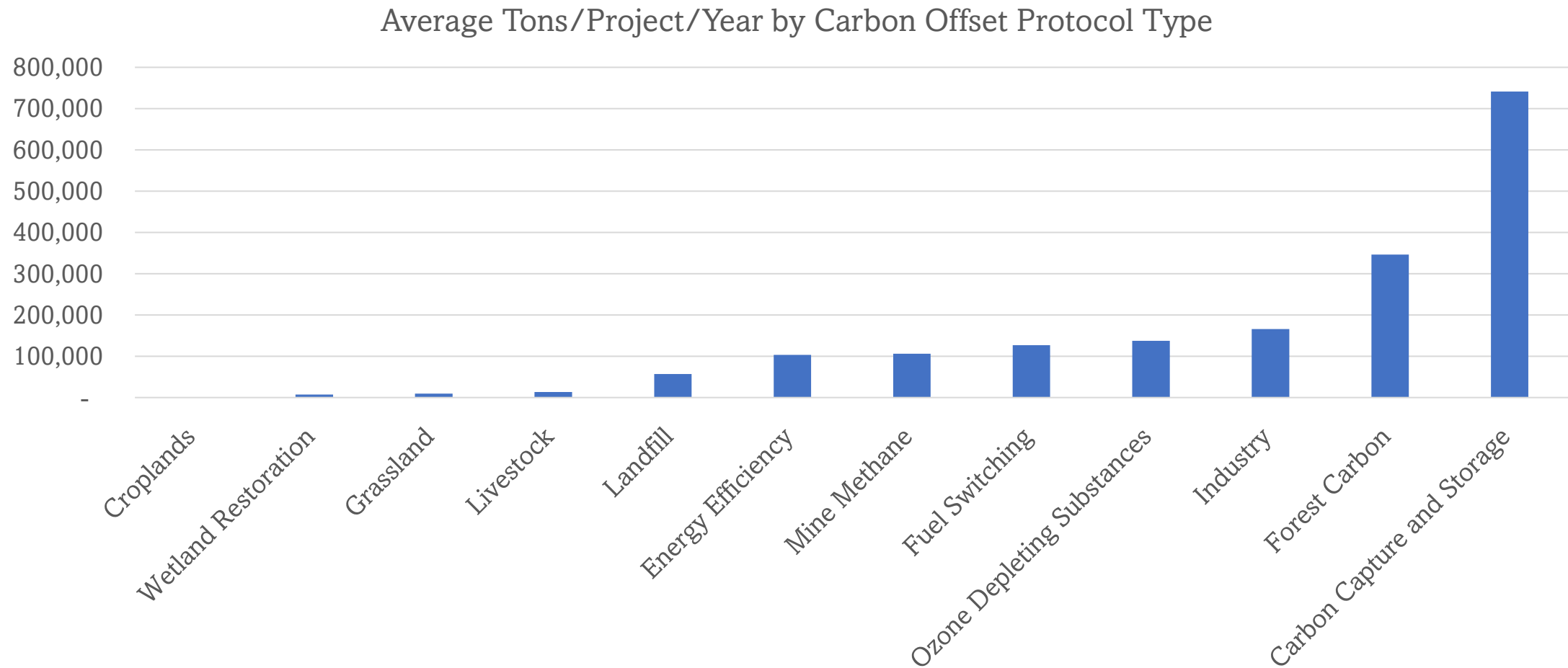
Number of agricultural credits: 2,752,875

Source: American Carbon Registry, Verified Carbon Standard, Climate Action Reserve. Credits 2013-2021.

Agricultural Carbon Offsets Suffer from High Transaction Costs



Average size of Carbon Offset Projects



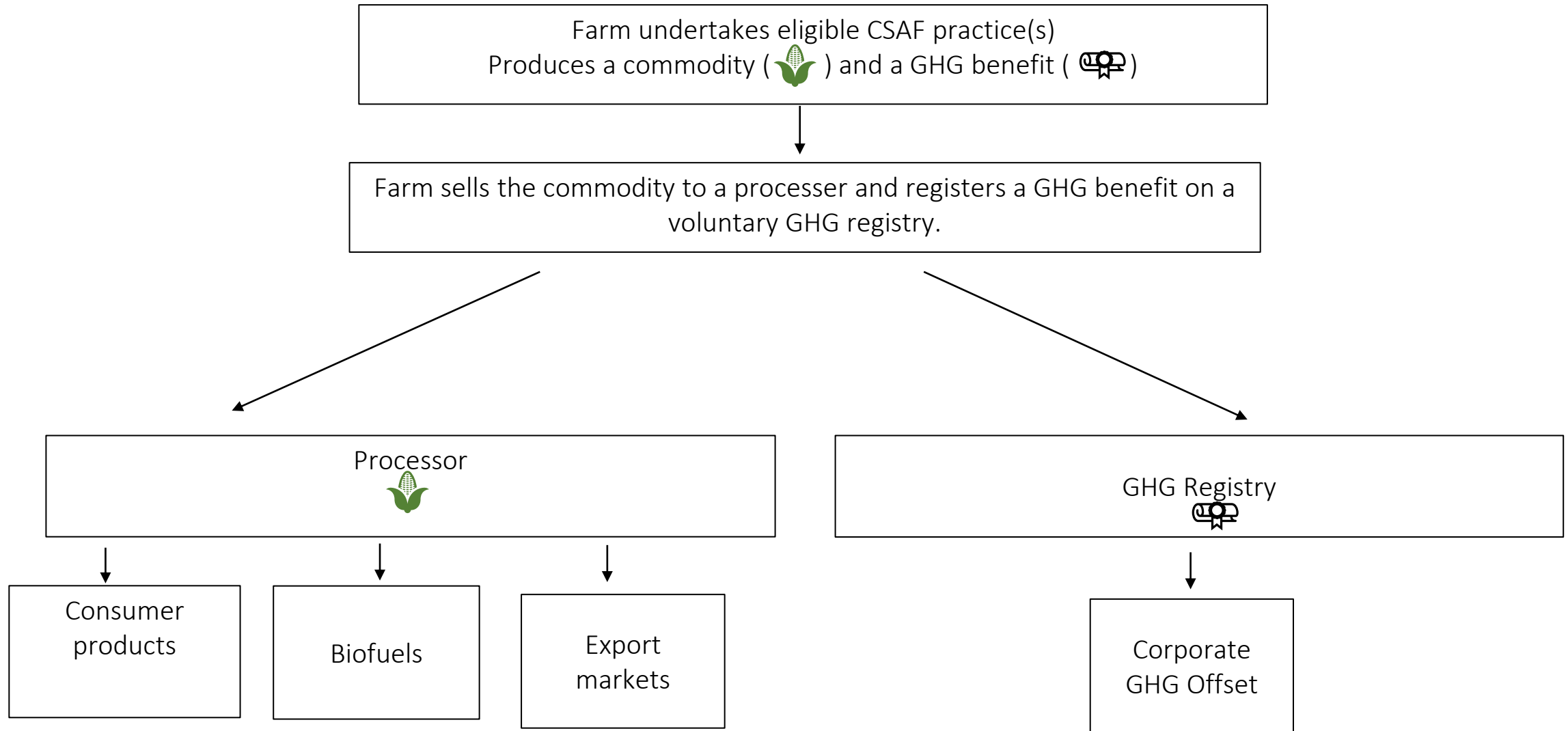
Data from CAR, ACR and VCS. Includes voluntary and compliance offsets. Data 2013 through 2021.

Elements of a National Soil Carbon Monitoring Network

- Geospatial and temporal referencing, including NRI points
- Consistent sampling and analysis protocols
- Robust, coordinated, site selection criteria for modeling and extrapolation
- Current activities:
 - Phase 1: Current CRP soil carbon evaluation/verification effort includes over 1,000 sites (\$10m in 2021)
 - NRCS Rapid Carbon Assessment (RaCA) included over 6,000 sites (initiated in 2010)



Voluntary Carbon Offset Valuation Pathway



Climate-Smart Market Valuation Pathways

